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A Radio Vision Set for the Home
The Radio DX League of the World
Attaching Head Phones to Modern Sets
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National Radio Institute, Dept. OD52,
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SIXTH YEAR

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Using Headphones on Modern Receivers

By J. B. SMITH

On most modern receivers no provision is made for connecting a headset and it cannot very well be connected to the regular loudspeaker terminals as the phones would soon be ruined by this practice. However, DX fans, who usually are busy fishing for far off stations late at night, prefer the use of headphones as the signals are more readily detected than with a loudspeaker. The use of phones is also preferable at night as the raucous voice of a speaker is highly objectionable to members of the family who have already retired. The absence therefore, of a headset connection, such as a jack on the panel, has given rise to a problem which many of our readers have presented to us for a solution.

Well, the solution is comparatively simple, and there are two methods that can be followed by any radio fan. Get a 500,000-ohm variable resistor, two .005-mfd. fixed condensers and a single-circuit switch of any type. One terminal of one condenser is connected to one output terminal of the set and the other condenser is similarly connected to the second output terminal. One terminal of the variable resistor is run to the unconnected side of the first condenser. The headphone cord is run to the unconnected side of the second condenser and to the unconnected side of the resistor. The switch is cut in one of the lines supplying the speaker, enabling the user to cut it out.

Instead of connecting the headset cord directly to the condenser and resistor, some fans may desire to install a jack on the panel, from which these connections are made, a plug on the cord making contact with the jack (See Figure A). Similarly, the resistor can be mounted on the panel. The jack and resistor must be well insulated from the panel if the latter is metal, which is the case in most modern receivers. Special fiber bushings and washers are obtainable for the purpose. Unless carefully insulated in this way, serious trouble will result, owing to a feedback from the power stage, and a direct short-circuit between the B-negative and B-positive.

Another method of connecting the headphones is to cut them into the circuit directly after the detector tube, or, if desired, after the first audio stage, the advantage of the latter hookup being greater amplification of the signal. Get a three-contact jack of the type that breaks a circuit between two terminals when a plug is inserted. A Carter No. 102A jack is of this type. Connect the lowest lug of the jack to the B-positive terminal of the audio transformer or resistor unit following either the detector or the first audio stage, depending on where it is desired to make the connection. The other lead to this terminal of the transformer supplying the B-positive, should be left in place.

Remove the lead running from the P-terminal of the transformer or resistor to the P-terminal on the tube socket. Run a lead from the P-terminal on the socket to the top lug of the jack, and another lead from the P-terminal of the transformer to the middle lug of the jack. The wiring is then complete. (Continued on page 23)
Radio DX League of the World

ORGANIZATION is the order of the day. In Radio the manufacturers have their associations, the broadcasters are organized, and the amateurs have their American Radio Relay League. Only the radio users, the listeners-in, the DXers are unorganized. We have received many letters from readers suggesting the formation of a DX Club and we have given the suggestion a great deal of thought. In these letters the writers have given suggestions regarding activities for such an organization which they think would be of great interest and help to DX fans.

Among the suggestions received are the following:
Issue a weekly bulletin of new stations and changes in old ones throughout the world.
Issue a complete corrected list of stations monthly.
Issue a list of world stations quarterly.
Provide uniform verification cards for use of members.
Provide club stationery for members’ use. Instead of DXers corresponding with each other, letters to be sent to Club Secretary who will compile them and send a multigraphed copy to each member.

Perhaps verifications could all be cleared through the Secretary instead of each member having to write all the different stations.

Bulletin the time on the air of the principal foreign stations.
Work out with the Broadcasters Association harmonious relations relative to verification of reception.
Cooperate with local clubs which have already been established in many cities.

Work out plans for reducing interference and man-made static through cooperation of public utility companies.
Create a Club department in RADEX for notes regarding the activities of the members.
Secure the friendly sympathy and cooperation of those broadcasting stations which now fail or delay responding to requests for verification.
Establish contests in reception under official rules similar to those established in their fields by the automobile, aeronautic and sports associations.

Many other activities will suggest themselves to others or will appear as the Club goes on. Now the question is, do the DXers want such a League — a

"Well, boys, she was a pretty staunch craft and—"
Down in the mess room of the "Spray," Captain Haft popularly called "Old Forty Fathoms," gathers the members of his crew together and spins his yarns of the sea. Every Wednesday at 8:30 p.m., E.S.T., over the CBS.
Radio League of the World with members in every land under the sun, united in the great field of international converse? To carry out any such program as that which has been outlined by our correspondents, would require an organization equal in scope to that of the American Radio Relay League for instance. This would mean the loyal support of the members and provision of finances necessary to carry on the work in a way its importance justifies. Let us hear from you, DXers of North America. What do you think of the suggestion? What other activities can you see that would be helpful? What would you be willing to pay as dues? Write us promptly in order that the organization plans may go forward during the summer and the League be ready to function at the beginning of the next radio season.

The following quotation from a letter written by Ray E. Everly, Ph.G., Newton, Ills., indicates what DXers are up against in the one matter of securing verifications, “I have followed DXing for over a year now and have a total of 267 stations verified in my RADEX and while that isn’t nearly as many as some of the fans have, nevertheless I know what the real DXer wishes he could get. “What we would like to see is a station check up a verification that is sent to them and to send an Ekko stamp if the necessary dime is enclosed. I have sent as many as three dimes for an Ekko stamp and then did not get it. Even if a person does not send for a stamp he would appreciate a card verifying his reception. I know a station’s mail is enormous but all of them like to have people listen to them and it would take but a minute to return a card as KJR, KVI and KDYL do and that surely would be appreciated by the radio fan. Some stations are fine to deal with and send a nice card of thanks for your letter and some never answer you.

“Let RADEX spread the word to all broadcasting stations asking them just to drop a card to an anxious DX fan who has heard them. If a dime is enclosed send us a stamp but anyway send us a printed card with the station’s letters.”

Radio Sets for
Farm Lighting Plants

From a reader in the North-West comes the following inquiry: “We have a 32-volt d.c. farm-lighting plant and would like to get an all-electric receiver and a B-Eliminator that will operate on the current supplied by this plant. Are any such manufactured?”

We suppose there are easily a million farm-lighting plants in operation in this country and Canada, perhaps more. RADEX has a great many readers who live on the farms and we feel we will be serving them by answering this correspondent through our columns.

This reader faces a special problem for he has a d.c. supply where most electric receivers are a.c. Then he has a 32-volt supply where a.c. is usually 110-volt and battery sets are but six-volt. Upon investigation, however, we find that at least one firm has prepared to meet this situation. We have not tested his product and can only pass on his claims to our readers for their consideration.

This manufacturer is the Kato Engineering Co. of Mankato, Minn. We quote from his statement:

“The Kato Konverter has been perfected to operate an all-electric radio from a 32-volt farm lighting plant. The Kato Konverter is just what the name implies. It ‘converts’ or changes the electricity from 32-volt at the lighting plant to 110-volt for the radio. That means that you can use the same a.c. radio that is used in city homes.

“Kato Konverters use little current. They have no transformers, taking the current direct from the armature. The filter system is simple and positive, allowing smooth a.c. flow to the set at all times. These Konverters are similar in appearance to one-quarter h.p. motors.”

The same company also manufactures both A and B battery 32-volt eliminators, replacing batteries in non-electric sets.

As a rule RADEX does not care to mention products of a particular manufacture as we cannot even tacitly seem to recommend them without the opportunity of a test but in this case we find a single product that seems to fill a very general need.
YOU, too, can be trained for a big-time radio job . . . Clip this coupon now and send for this FREE BOOK . . . Read it page by page . . . See for yourself why thousands of fellows just like you are now making from $50 to $100 a week . . . why many others earn as high as $10,000 to $15,000 a year and even more. This free book gives you 40 fascinating pages of pictures and text, all about RCA Institutes, the only school that is endorsed by the Radio Corporation of America . . . The school that actually sends you radio instruction direct from RCA . . . the very source of radio achievement.

Easy to Learn Radio
At Home in Your Spare Time
Let the RCA Institutes Home Laboratory Training Course give you the real inside facts of radio . . . quickly and easily. Use your spare time to train for success with the remarkable outlay of screen-grid apparatus given to every student of this course. You learn how to solve every radio problem, such as installing, repairing and servicing fine sets. This is the training that will help you to make money in radio!

RCA Graduates in Big Demand
For more than 20 years, there has been a well-paid position in Radio waiting for practically every graduate of RCA Institutes. This is a record unequalled by any other school. Only the vast resources of RCA could give you this practical training . . .

Send for this Free RCA Book "Radio ... the Field of Unlimited Opportunity!"
Start today on the road to Success in Radio . . . Send for this FREE BOOK. Every page is packed with pictures and text telling you all you want to know about RCA Institutes, the oldest and foremost Radio training organization in the world. Radio can easily be YOUR ROAD TO SUCCESS . . . That's why you should
I have a Radiola No. 28 all-electric superheterodyne receiver and have trouble with the stations coming in too broad on the lower end of the dial, which the second harmonic complicates still more. Can I substitute another tuning coil? The loop is a bank-wound affair. Will a S.L.W. condenser help?

Across terminals 6 and 8 you will find a compensating condenser, which is adjustable. While the set is in operation, carefully adjust this condenser until the stations come in more sharply. Do not substitute another oscillator coil as the set is designed to operate on the one already installed. Mechanical difficulties would be encountered if you attempted changing the oscillator condenser to one of the straight-line-wavelength type, as it would be hard to get one of suitable size and shape to fit in your set. It will help to some extent to use a pancake style of loop instead of the bank-wound type.

I have a Radiola No. 64, which I believe to be one of the best sets made, but it does not seem to be entirely perfect. When tuning in certain stations, I often get a little whistle or squeal just before and after the point of tuning the signal in perfectly, and sometimes even at that point, which, of course, slightly interferes with reception. The noise is not a heterodyne whistle caused by other stations, but resembles the whistle caused by a regenerative set. Can I balance the condensers for perfect resonance and what instrument must be used for this purpose? Kindly advise me what to do.

An all-electric superheterodyne receiver such as the Radiola 64 is really too complicated an instrument for a radio layman to adjust, and if he does so he has no claim to the service guarantee which usually accompanies the better grade of receivers. The slight whistle evidenced in tuning, is not entirely a fault but is characteristic of most superheterodyne receivers. However, it may be minimized by careful adjustment of the compensating condenser in the oscillator stage. If the variable condensers are not properly aligned and balanced such trouble may also occur.

In any case, however, it is best to call in the service department of the local concern that handles this make of receiver, as authorized dealers have qualified men especially trained to make such minor adjustments without any guesswork.

I have a seven-tube Fada receiver with an enclosed loop. Station WSPD, Toledo, Ohio, at 1340 kilocycles or 223.7 meters is the lowest station I can get, the dial reading being zero. On the other hand, station KSD St. Louis, Mo., at 550 kilocycles or 545.1 meters, comes in at 87 on the dial, and the space above this seems entirely wasted. I would like to tune in stations lower than 223.7 meters and would like to know what changes are necessary to be able to do this?

First of all examine the dials and condenser on your set as it is possible that the dials have slipped and are now out of step with the condensers, which would account for your trouble. When the condensers are in mesh, that is, when the
whole surface of the rotor plates is fully between the stator plates, the set should tune to approximately 600 meters, and the dial reading should be at its highest point. When the rotor and stator plates of the condensers are entirely separated, the dial reading should be at zero. If you find that the dial reads 87 when the condensers are nearly in mesh which would be the case when tuning in station KSD at 545.1 meters, loosen the setscrew that holds the dial in place on the condenser shaft and then change the dial to read 100 when the condensers are fully in mesh. Of course, this procedure will change the logging of your set, and the stations will come in at higher points than before the change was made. If the fault does not lie in the alignment of the dials and condensers, you can shift the stations up a few points on the dials and thus make it possible to get those of lower wave lengths than 223.7 meters, by taking a few turns of wire off the loop, one at a time, noting the result after each turn has been removed. If this does not bring entirely satisfactory results, remove the same number of turns from the secondary winding of the tuning coils. However, for that I suggest that you call in the help of a reputable radio service man, acquainted with Fada receivers.

On our Philco all-electric receiver which is a 1929 model equipped with CX826 tubes in the r.f. stages, I would like to install screen-grid tubes, as I have heard that better results can be obtained from them. Kindly advise what connections to make.

It is not advisable for the layman to install screen-grid tubes in receivers not especially designed for their use. The advantages of screen-grid tubes are usually exaggerated and the improve-
I have a Spartan Equasonne No. 930 receiver and it is impossible to get any distance with it. Besides, it tunes very broad and local stations overlap each other on the dial so that I cannot get between them in order to obtain distant stations. Will you tell me where the trouble lies?

The band-pass filter of your Spartan Equasonne receiver is out of balance, which accounts for the broadness with which you are receiving signals. Ordinarily, careful adjustment of the trimmer condensers in this section of the receiver will give you the necessary selectivity. However, if such adjustment does not take care of the trouble, the band-pass filter section may be defective and should be tested. This can be done by removing the antenna lead from its usual location and connecting it to the connection between the selector and the amplifier units. With the antenna in this position, signals from the local broadcasting stations should be heard in a jumble provided the amplifier and power converter are in good condition. If you find the band-pass filter section defective, call in the Spartan dealer and have it replaced or repaired. Increasing the selectivity of the set should enable you to tune between local stations in order to get the distant ones.

Recently I purchased a Brunswick A.C. model 14 receiver equipped with a dynamic speaker. It functions perfectly but there is a hum in the loudspeaker. We have tried some of the remedies given in your recent article entitled "Curing Noises in Radio Receivers" but have thus far not succeeded in eliminating the trouble. My set has two potentiometers or hum balancers and we have adjusted them to the very peak of efficiency. My loudspeaker has 45 volts across the field, and we have tried the method of connecting two condensers in series, across the rectifier output, but have not grounded the frame, as mentioned in the article. The condensers used were of 600 volts breakdown test, but as the rectifier delivers only 45 volts for the field of the speaker winding, we thought that the condensers were too large for the purpose, and cannot get 50-volt condensers. The voltage supplied to our

(Continued on page 21)
BIG MONEY QUICK—the chance to more than double your salary—is offered to you now. RADIO has leaped to a gigantic industry, employing many, many thousands and loudly calling for more trained men to fill the Big-Pay jobs.

TALKING PICTURES are sweeping the entire country, opening up many new good jobs everywhere. TELEVISION now comes with even greater promise of a large number of good paying jobs for those who are prepared.

Big Money Now! More to Come

Big-Money Jobs—$2500—$3500—$5000 and up, right now—lots of money easily made in spare time—increasing pay for you and more and more money as this new industry grows bigger and bigger.

Answer the Call—Get Into This Money-Making Industry Now!

The “R.T.I.” famous “3 in 1” Home Training in Radio, Television and Talking Pictures makes it easy for young men and boys to get into this new field quickly. R.T.I. home training is practical and easy to understand. It trains your head and hands at the same time. Your opportunities for money-making are unlimited. Your age, amount of education, or experience, make no difference. If you are interested and ambitious you can succeed. You will be ready for a good job or profitable business of your own, even before you finish the training. Remember—you learn at home in your spare time on actual equipment included in fine, big outfits sent you. R.T.I. with all its connections in the industry, keeps you up-to-date and pushing forward all the time.

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Nothing Like It Ever Published

It will open your eyes to the dawn of the greatest development in the history of the world—the vast number of new money-making jobs—enormous spare-time profits—all within easy reach of ambitious men. Send for your copy before this edition is exhausted.

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Send me Free and prepaid your BIG BOOK “Tune In On Big Pay” and full details of your three-in-one Home Training (without obligating me in any way).
ONE reader commented a month or two ago that "What's on the Air Tonight?" might be omitted in view of the fact that it was subject to frequent change and the daily newspapers carried this material anyway. This letter has stirred up a lot of protests. From Jas. J. Richter, Reading, Pa., comes the following: "It does occupy one-eighth of your standard 64 pages. But how many papers give an accurate, complete program listing all stations? The Graphic, of New York City, doesn't. The Daily News, of Philadelphia, doesn't. And our two local papers, though showing hourly-hour daily programs, give only a few stations."

And N. G. McCreden, of Albuquerque, N. Mex., says: "Please do not discontinue this feature. This is fine for us in towns where the newspapers do not give reliable lists and must be much more appreciated by your many country subscribers who do not get the dailies."

We are convinced that the very large majority of our readers would seriously miss this program feature and it will therefore be continued.

That New Arrangement

But what a hornet's nest we stirred up when we gave the channels in March instead of the call letters. One good friend, Adrian R. Wilson, of Racine, Wis., hails the change thusly: "Say, you may think you are improving your RADEX but I and plenty of others think not. Of course we all make mistakes and I hope you will admit you are not immune. Well, what is the idea of changing the way of listing 'What's on the Air Tonight?' Everybody has become accustomed to using call letters to find what stations they want to tune in so why substitute kilocycles for call letters?

"I am sure this is an experiment on your part and I'm also sure it is not welcomed by your subscribers. In all other respects RADEX has them all beat, so please keep it up to the old standard."

And to add to our cup of sorrow, Joe Onicek, of our own fair city, does this: "The new arrangement is rotten. There is more than one chain station on some channels; how are we going to know which one is carrying the program?"

From Tulsa, Okla., a reader brings up our own previous position: "You have protested against manufacturers marking their dials in kilocycles and I agree with you that this should not be done as very few, if any, radios will tune in correctly using the kilocycle method. Then why list the stations only by kilocycles? I believe you will find that very few radio fans can tell you off hand just what frequency any station has. I know I cannot tell more than six or eight. By listing stations by call letters, one can see at a glance the stations giving a program and can set the dial instantly."

And A. A. Nelson, Laconia, N. H., points out: "With the new plan you never know whether it is a station you can get or not and you tune in a frequency only to find it is some station away off." From Janet E. Cole, Oshkosh, Wis., "I have always liked any changes that you have made in this magazine before, but I do not like this at all."

What To Do

On the above evidence a judge would probably issue an injunction against us immediately, but wait! Here's the other side: "When I first purchased a RADEX in 1928, it was admitted then by all to be the best published, but there has been a 100 per cent improvement since then and the latest, programs in kilocycles, is the peak." So writes an old friend, W. M. Johnson, of Grayville, Ill.

From Battle Creek, Mich., Ray Simmons comments: "I especially desire to congratulate you on the new system of
giving radio programs by kilocycles. I think them very helpful and convenient. Please do not discontinue this wonderful system as it saves a lot of time looking up a station frequency.”

So what is a poor editor to do whose principal purpose in life is trying to please his readers? We ask you. It was an experiment, we admit. We do feel that this program feature ought to be arranged in a more convenient manner but it is a very difficult thing to do particularly in view of the fact that we hold the presses each month till the very last minute for this program information and we must then get it in type quickly.

These instrumentalists and vocalists, all descendants of the original race of Aztecs, have established themselves as favorites of the CBS audience.

Kneeling in the center is Luis Sarnuido, the director of the group, who has forsaken the revolutionary business in Mexico for the healthier and more remunerative work in radio. The two standing are Rafael Almaure and Gilberto De Jesus, while Carlos Carrillo and Juarez H. Garua are shown seated.

Well, we will experiment a little further and see how the arrangement in this number will please our readers.

99.58 Per Cent Perfect

A revised list of stations just issued by the Radio Commission was carefully checked with the March edition. We found a difference in only three stations—WGHP Detroit, WSPD Toledo and KGCU Mandan, N. D. An official of the Commission wrote us that these three stations had been shifted in accordance with their listing in RADEX but after a tryout had been replaced on their former channels and no notice had been sent out. This official added: “Since the Commission is shifting stations almost daily in its efforts to improve radio reception and to eliminate interference, it is impossible to issue a call book free from errors. That fact that so few appear in RADEX is a great compliment to your intelligence and industry.”

As we mentioned in the March issue, many readers called our attention to the fact that we had moved stations KOMO, KJR and KVI and that these stations denied having moved. The commission advises us that after they had changed the frequencies of these stations, KJR appealed to the courts and obtained a stay order restraining the Commission from putting the changes into effect. That order is still pending. This explains the discrepancies.

WCHI Unmasked

“In regard to the station that announces itself as WCHI Chicago, I have logged it several times in the last two weeks. Last evening I heard WORD announce. At nine o’clock they signed off; about twenty minutes later I picked up WCHI a few points higher on the dial. This seems to indicate that the latter is not taking the place of WORD.” Thus writes Byron Donel, Washington, Pa. Several other correspondents verify this and we have at last discovered that

(Continued on page 18)
Can I Use Screen Grid Tubes?
By J. B. SMITH

On circuits especially designed for its use, the screen-grid tube has been found highly successful as its amplification factor is many times greater than the amplification factor of other tubes used for radio-frequency amplifiers. The A.C. screen-grid tube has a standard base with five tips and a fifth connection is provided at the top through a metal cap. Its feature is an extra grid which shields the plate. The usual grid lead is connected to the additional cap on the tube and the screen-grid connection is made to the G-terminal on the tube socket. The use of this tube eliminates howling caused by uncontrollable oscillation of the r.f. stages, and it effectively blocks a feedback of the signal, which causes reradiation common to the regenerative type of receivers.

It has been found absolutely necessary to shield this tube effectively and also advisable to shield the grid leads connected to it in order to obtain the desired efficiency. However, screen-grid tubes have an inherent tendency to broaden the tuning of a receiver and special precautions are taken to offset this effect in successful manufactured sets. It is a matter of considerable dispute whether or not the average radio fan, whose receiver is not equipped with screen-grid tubes, should install them.

From a number of observations, I should emphatically discourage the idea, because of the difficulties involved in making the circuit changes necessary, especially in the case of manufactured receivers, and the consequent trouble encountered in balancing the set after the change has been made. To merely insert the tubes in the present sockets and only make an additional connection, is entirely out of the question; the whole radio-frequency section of the receiver must be rewired, following a special circuit design for use with this type of tube. The r.f. coils must be tapped and blocking condensers must be used. The work of making such changes is all right for the chronic experimenter, who enjoys it, but not for the average radio fan, who desires satisfactory results immediately after making the change. Besides, screen-grid tubes have been hailed to perform miracles which is a highly disappointing illusion, as proved by the fact that there are many receivers not equipped with these tubes which produce better tone quality, are just as selective and have a greater distance range than many of the newer models using screen-grid tubes. This is, of course, not detracting in any way from the value of these tubes, but only goes to show that they will not produce superior results in every circuit.

March Changes

A large number of station changes again this month is evidence that the Radio Commission is still seeking to eliminate interference and better radio conditions. Among the important corrections in RADEX will be found the following:

CJBC Toronto, Ontario, with its four listings is being deleted.

New stations or new call letters include the following: WRDA Buffalo, N. Y.; KGMP Elk City, Okla.; WCSC Charleston, S. C.; WSPA Spartanburg, S. C.; and three as yet unnamed stations in Grant City, Mo., Dodge City, Kansas, and North Platte, Neb.

Changes and corrections in frequencies are CFRC Kingston, Ont., from 1120 to 930; CKPR Midland, Ont., 1120 to 930; KGCU Mandan, N. D., from 1210 to 1200; KFIO Spokane, Wash., from 1230 to 1120; WSPD Toledo, Ohio, from 1240 to 1340; WGHG Detroit, Mich., from 1340 to 1240.

Changes in call letters: WSOA Chicago, to WCHL; KOQ Phoenix, Arix., to KOY; KGRC San Antonio, Tex., to KONO; KFUI Juneau, Alaska, to KFUI; WGTB Columbia, S. C., to WIS; WHDH Gloucester, Mass., to WEPS.

Increases in power are granted to WGBS New York City; WCAE Pittsburgh, KGFW Ravenna, Neb., WGHG Detroit, and KIT Yakima, Wash.

Reductions in power affect WBAP Fort Worth, Tex., KOMO Seattle, Wash., WCS H Portland, Me.

[12]
“Dear Mr. Editor”

(Continued from page 11)

WCHI replaces WSOA and not WORD. The change appears in this issue.

"Have also logged a station on 840 ksys., WGM, Adamsburg, Pa., which is not listed," adds Mr. Donel. His inquiry and others are answered by Lawrence R. Pavlick, Swissvale, Pa. "Yes, there is a station WGM at Adamsburg, Pa., and they operate on the same channel as WOOP, Jeanette, Pa. I have tuned both of these stations on 840, 850 and 870 ksys. They both must have some antique transmitting apparatus to vary that much on their frequency, don't you think? The station WGM was on the air in 1924, 1925 and 1926 and then for some reason discontinued broadcasting. I remember, when I first heard them, the announcer would say 'This is station WGM, The World's Greatest Mistake' and I am inclined to think he was right! This station now has a studio in Jeanette also." Neither WGM nor WOOP appear in the records of the Radio Commission. How come?

Other Station Queries

"We are anxious to know the identity of station WCK coming in around 700 meters. It appears to be a police station. We do not locate it in RADEX." Thus comments J. W. Murphy of Akron, Ohio. Most the large cities now have police broadcasting stations assigned to short waves below the broadcasting band. We do not list them for two reasons, first, they are not broadcasting stations, and second, they do not want the general public to tune them in as they desire privacy. They broadcast only to the automobile cruisers as explained in an article in a recent edition.

Writes Cecil Jones, Wichita, Kans.: "I have logged a station operating at or around 1440 ksys., the announcer of which gives no information as to identity except to say 'The Voice of South Carolina.' Would appreciate information regarding this station." This is WSPA Spartanburg, S. C., a new station on 1420 ksys. It will be found in this month's index.

Some friend whose letter we have lost reports hearing a station with the call letters WKOC, The Knights of Columbus. Can any one identify this station?

C. M. Falconer, of Baltimore, tells us that WEHC at Emory, Va., has recently moved from 1370 to 1200 ksys. No notice from the Commission and we are checking with the station.

"About a month ago I got CJCA Edmonton, Alta., on 930 and you still have it on 580 in the February issue. CKX
from our call letters.” Another mystery. We are canceling the four calls assigned to CJBC until such time as they become something more than a paper station.

The March Shuffle

“You have shuffled the 1470, 1480 and 1490 key. groups all up in the March issue,” writes Fay L. Garton, of Blackwell, Okla. And Mrs. Clara Kibblehouse, of West Philadelphia, Pa., writes us to the same effect. On page 63 of the March edition, we warned our readers the Commission was making some last-minute changes. We got notice of them just as we were ready to go to press and as the notice from the Commission read: “It is therefore ordered that the following changes in frequency assignments of stations operating on 1490, 1480, 1470, 1460, 1410, 1370, 1360 and 1310 kcs. be, and the same are hereby made, said changes to be effective on and after 3 a.m., Sunday, March 2, 1930,” we made the reallocation accordingly. Has some court issued another injunction?

Mr. Garton also says that KFPL Dublin, Tex., advises him that station is only a fifteen-watter and never has been anything else. Now KFPL ought to know, but the Commission in a new list received today, gives them 100 watts. At least they are licensed to use that power, although of course they may not do so. If RADEX gives its readers information 99.58 per cent pure from the Commission records, can man do more?

Hours of Operation

Every month we get letters like the following, also from Mr. Garton: “Personally I would like to have a list of stations telling when each station was on the air. I am missing some stations simply because I don’t know when to go after them. If you have or ever do have such a list, ship it to me c.o.d.” If we thought this information could be worked up satisfactorily, neither labor nor expense would prevent our furnishing it to our readers. But even the Radio Commission does not have this information. Hours of operation are entirely in the control of each station subject to its allotment. When it shares a wave with another stations, the two then apportion the time. These hours are subject to constant change with notice to no one nowhere! Such a list would be out of date before it was printed. Then where could we possibly find room for it? Here is just one sample: A certain station broadcasts during three periods Sunday, five Monday, four Tuesday, four Wednesday, three Thursday, five Friday and six Saturday. This would require a paragraph under each station. Seven hundred paragraphs would take 64 pages and there would be no room for RADEX!

DXtra

Another comment from Mr. Garton: “Information as to when to fish for foreign stations is always worth space in RADEX; don’t omit any of that dope that comes in over your leased wire.” If you receive a program from a foreign station, let us know the day and hour, we’ll publish it.

“I’ve been listening to a station on 1020 kcs., same as KYW. Is it CMBZ Havana? I’ve heard him talk Spanish.” This from Chris Tom Banakas, Memphis, Tenn. Probably, CMBZ is on 1027.

Earl T. Mills, of Brandon, Man., wants to know what DXers think of the programs they receive from CKX? He seems to think they are pretty bad and says the local fans have been protesting vociferously. Anyone having any comments may address him at 451 Third Street.

Joseph Stokes, Swissvale, Pittsburgh, gives a list of his distant reception and adds, “Four of these were verified without hearing the call letters. All I did was trust to the accuracy of RADEX. I have verified a lot of stations in this way.” He adds: “WMAQ and WOR have DX clubs, the former broadcasting every Tuesday, 11:45 to midnight E.S.T. and the latter on Saturdays, at 9:55 p.m. E.S.T.”

Short Wavers

Mr. H. N. Fricke, of North Bergen, N. J., wonders, “if any of your readers have had any experience with the Super-Wasp short wave receivers. I was thinking of buying one but I believe that a rather long aerial is necessary to pick up the lower waves or am I wrong? I will have to be content with an aerial of about 100 feet having a fifty foot lead-in.” This is about equivalent to (Continued on page 23)
Ninety Stations on a Crystal Set
By J. E. SMITH, National Radio Institute

In the early days of radio broadcasting, thousands of people experienced, perhaps for the first time, the joy of creation. Building their own sets gave them their first outlet for the creative instinct which is dormant in most folks. While a large number of experimenters are still at work, trying out new designs and seeking constantly to improve upon existing sets, most people have given up the pleasure of building their own. The modern radio receiver is so beautiful in its appointments, so efficient in operation and so reasonable in price, that only the most inveterate experimenter can hope to equal let alone surpass them. But there are thousands of radio lovers, both young and old, who still feel the urge to build something of their own and yearn to feel again the thrill of hearing distant stations over a device of their own creation.

The success of Alan Leighton in building a crystal set with which he tuned in ninety stations, points the way to a field for experimentation that is not only inexpensive but full of the promise of real thrills. When Mr. Leighton's accomplishment was first given publicity in the Pictorial Mid-Weekly, he was flooded with letters from interested readers in all parts of the continent. Other papers reproduced the story and accompanying pictures and the mail grew and then visitors began to come — people from distant cities who wanted to see the set which, without batteries or tubes, could accomplish such wonders.

Verification of reception reports must usually be accomplished by mail but in Mr. Leighton's case, unknown friends all over the country took it upon themselves to visit broadcasting stations and verify his reception for him. He was overwhelmed with questions as to his aerial and his ground and his crystal and his hook-up. Alan Leighton, closeted in his daily work in the scientific laboratories of the Bureau of Dairy Industry, United States Department of Agriculture, was thus thrown into the spotlight of radiodom.

Modestly, Mr. Leighton denies any special credit for the achievements of this crystal set, contending that it was freakish reception due perhaps to a particularly favorable geographical location, but this did not serve to diminish radio fan interest or lessen the volume of inquiries and applause cards contributed to this modest fan's mail bag. The lowly crystal or piece of galena had been glorified and everywhere other experimenters feel that what Mr Leighton had done they might do.

Just how is it done? Let Mr. Leighton tell the story:

"The original circuit was sent to me by the Carborundum Company. It consists of a .0005 variable condenser in series with the aerial and a slide contact on an 80 turn coil of No. 18 bare copper wire which was wound in such a way that..."
its length was about nine inches, diameter 4 inches. One end of the coil was ground-
ed, the other was connected through the crystal, to the phones to the ground. I added jack switches that permitted me to short out the condenser or use a car-
borundum crystal or cat-whisker crystal at will. I also had two phone outlets with a switch to short the second pair when not in use.

"In addition to the set proper I used two conventional wave traps, housed in the top box of the set with which to trap out the two local stations. These consisted of a forty turn coil of No. 30 wire wound four inches in diameter and connected to the terminals of .0005 variable condensers. On top of these coils were twelve turn No. 24 wire tapped coils which were in series with the aerial and the set.

"I regret very much that I tore the set down to try a later model Carborun-
dum Company set and I never got the results that I did with the first one. I am using a tube set, but have carefully saved the panel etc. of the of the old set and shall rebuild it some day. I never had any condenser in the ground circuit.

"The greatest distance that I ever heard was 1,130 miles from Havana, which reception was confirmed. In one of the very early radio magazines I once read of a man who received 1,147 miles with a crystal set so I can’t claim the record.

"I also heard Hastings, Nebraska, New Orleans, Toronto and Florida stations and closer stations to the total of slightly less than 100. Through some peculiarity of my set at a slide setting corresponding to a wave length slightly less than that of WGY, I frequently heard KDKA short wave transmission. I remember particularly one night when they were arranging a South African broadcast. I wrote them of the occurrence and received a most courteous letter from Mr. Horne who confirmed the fact that it had been a short wave broadcast.

"My aerial is mounted upon the ridge pole of the bungalow type house in which I live. It consisted at that time of a twenty-two foot pole. I made two wooden triangles three feet in length on each side. One was suspended at the top of the pole, the other at the bottom, the pole passing through the center of each triangle. The aerial wire, No. 12 enam-
elleed copper started at one corner of the top triangle, came down to the lower, went across to another corner, up to the top triangle again over and down again, and then to my set. One solid wire was used directly to the set. It was approximately 100 feet in total length.

"Cottage City is located about a mile from the north-eastern edge of the District of Columbia and has an elevation of about 40 feet above sea level. The strata underlying the top soil at a depth of three to four feet is a coarse wet gravel as if a river once coursed through here. This may explain why my water-
pipe ground was so efficient.

"I used a .005 mfd. condenser across the phones. When I shorted out one pair of phones this meant that I had the .005 condenser straight across the Baldwin phones with which I did my listening.

"I omitted to mention a midget con-
denser which was in parallel with the .0005 condenser of the aerial circuit.

"At the extreme right, as you look at the photograph, is the dial of the aerial condenser. Just to the left of this at the

(Continued on page 63)
And Now The Radio Talkies!

Out of the Laboratory into the Home

SYNCHRONIZED sight and sound broadcasting left the laboratory and appeared before the public for the first time recently. A demonstration of equipment now available for home use, was given in the Lauter Auditorium at Newark, N. J., before an interested group composed of the radio trade, the public and the press.

That the demonstration is not so much a technical advance as it is a practical exhibition, is the point emphasized by D. E. Replogle of the Jenkins Television Corporation. It is pointed out that while other demonstrations of radio television or radiovision have been given in the past, the Newark exhibition is the first public demonstration of combined and synchronized sight and sound broadcasting, utilizing equipment now offered to the public for use in the average home within those territories served by an electric power system common with that of the transmitter. Such a demonstration, therefore, is not to be confused with the excellent but costly laboratory demonstrations heretofore staged for the press and engineering groups, without immediate applicability to average home use.

The radio talkie programs for the Newark demonstration were broadcast simultaneously through the Jenkins radio television station, W2XCR at Jersey City, on 139 meters, and the DeForest radio telephone station, W2XCD on 187 meters. The programs originated in the Jenkins studio, in the form of sound films and silent films run through the television pick-up apparatus. The sound signals were flashed over direct wire to the radio telephone transmitter at Passaic. Louis A. Witten, well-known broadcast program announcer, acted as guest announcer for the debut of the radio talkies.

At the receiving end, two separate and distinct radio sets were employed. First a standard home broadcast set at the bottom of the tuning dial. Secondly, a Jenkins short-wave receiver, covering the 100-150 meter band, was tuned to the radiovision signals of W2XCR, amplified, and passed on to a battery of standard Jenkins home radiovisors. The radiovisors were mounted on a stand above the heads of the spectators, and properly tilted, so that successive groups of thirty or more persons could follow the pictures flashed by three cabinet radiovisors. The nearby broadcast receiver supplied the sound accompaniment.

The program was one of considerable interest, even though the means rather than the end might well dominate the situation. Dr. Lee DeForest, inventor of the present-day vacuum tube or foundation of radio and other arts, addressed the audience by picture and voice. The possibilities of applying
Radiovision to popular broadcast features was demonstrated by two comedians, reproduced half-length, who cracked jokes and sang for the "lookers-in." Several half-tone pictures and shadow-graphs followed, with incidental music for some and descriptive announcements of Mr. Witten, for others.

Two Jenkins home radiovisors were shown. Model 200 Radiovisor is in the form of a cabinet with shadowbox and simple control panel, intended for those interested primarily in radiovision entertainment. The pictures in magnified form may be followed by several persons at a time. Model 100 Radiovisor is in the form of a simple, exposed assembly, with provisions for changing scanning disks and rotors, adding another form of synchronizing device if desired, and making whatever changes may suit the experimentally inclined. The pictures are so magnified that one or two persons may follow them at a time. Because of the limited magnification, the pictures are exceptionally bright and clear. The driving mechanism is an unique form of Faraday eddy current motor, which is simple, silent and efficient. Both models depend upon synchronous motors, operating on the same alternating current power system as the transmitter, for automatic synchronization. Due to the extensive Public Service power system and its interconnections with other power systems, a wide and densely populated section of the country can be covered by the Jenkins station in Jersey City, with automatic synchronization.

The Jenkins officials wish to make clear that no technical advance is claimed for the demonstration just given. Better pictures have already been shown to public and press. Better results are being obtained regularly under more favorable conditions. However, the demonstration was made under typical, everyday conditions, with equipment that can be bought for the average home in those areas served by the same electric power system. The Jenkins Television Corporation plans to show technical advances from time to time. The recent demonstration was only an introduction to home radiovision, with sound accompaniment.

**Reallocation Planned**

The greatest shake-up in frequencies since the earthquake of November 11, 1928, is being hatched. The Radio Commission has accepted the recommendation of its engineers to broaden the distance in frequencies between a number of major stations which, it is felt, are altogether too close both geographically and in kilocycles. Finding it impossible to move the cities geographically, the Commission has addressed the stations to be affected, asking them to show cause why they should not be moved in accordance with the engineer's findings.

Says the Commission: "There are 13 channels involved in the rearrangement. On nine of the thirteen frequencies stations are now suffering from and causing cross-talk with stations on adjacent channels. This interference is due mainly to insufficient frequency separation for the geographical separation between the stations. In some cases the interference has been aggravated by one station installing the most modern equipment and thus extending its service area while the stations on adjacent channels have made no change in equipment. The only course which the Commission can pursue in relieving the existing cross-talk is to change the frequency assignment of the necessary number of stations and thus gain greater frequency separation between the interfering stations.

"The Commission feels this plan when inaugurated will remedy the present difficulty and allow the stations involved to render better service to the public thereby."

Following are the changes proposed to which the Commission hopes to gain the approval and support of the stations concerned. These stations in some cases will have to make extensive changes in their equipment and the reallocation will therefore not take effect for some time. Watch your RADEX for further developments.

<table>
<thead>
<tr>
<th>Present</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHAS</td>
<td>820</td>
</tr>
<tr>
<td>KTHS-KRLD</td>
<td>1040</td>
</tr>
<tr>
<td>WBT</td>
<td>1080</td>
</tr>
</tbody>
</table>

(Continued on page 20)
Regulating the Voltage

So many of the inquiries addressed to The Question Mill indicate that the trouble lies in uneven flow of current to the receiver, and we have had so many requests for information as to voltage regulators, that we have decided to inform our readers of certain devices now on the market. We have not had an opportunity to test any of these devices and therefore cannot recommend them, but we believe their makers to be reputable concerns whose advertisements are appearing regularly in the trade papers. Any good dealer can secure these and probably other devices for any readers who desire to experiment with them.

Our technical editor has often pointed out that the 110-volt current may easily mount to 120 particularly at times other than the early evening when the load is heaviest and that this increase is sufficient to cause serious trouble and annoyance in the operation of an a.c. set. The manufacturers of the devices described claim that their use will provide a smooth, even flow of current to the set regardless of the load condition.

The devices differ materially in form and operation but the description of one will suffice to give an idea of the claims of all.

"The new Amperite self-adjusting line control is a recently perfected device constructed in glass bulb form. The Amperite resistance unit is enclosed in a bulb of standard dimensions filled with an inert gas. The operation of this device assures a constant, reliable, instantaneous response to even slight fluctuations in line voltage.

"The Amperite Line Control is provided with the UX type base but with only two prongs. These are the plate and filament prongs which fit into any make of standard UX socket. The two contacts connect directly in series with the primary of the line or power transformer.

"For general radio purposes Amperite Line Controls are designed to handle a fluctuation of about 30 volts (for examples 95 to 125) and to regulate the current (or voltage) to a constancy of within 10 per cent over this range of fluctuation.

"A number of the leading manufacturers of radio sets are now equipping their receivers with Amperite Controls, but any set may be equipped by having the line or power transformer wound or tapped for a primary of 80 volts. Transformers may be secured already tapped in this way in the primary winding."

The Amperite Self-Adjusting Line Voltage Control is manufactured by the Amperite Corporation, 561 Broadway, New York City.

The Vitrohm 507-109A Unit is made by the Ward Leonard Electric Co., Mt. Vernon, N. Y.

There are doubtless other devices descriptions of which have not been received.

Installing Radio in Automobiles in the May RADEX.
The Newark News Club

There are a number of radio clubs in the various cities of the United States and an outstanding example is that of Newark. The Newark News Radio Club, was organized in December, 1927, when 55 enthusiastic readers of the News radio page gathered in the editorial rooms and formed what they believed to be the first club ever banded together solely in the interests of DX reception.

The club has often been referred to as the brain-child of Charlotte Geer, who conducts the Broadcasts Winnowed radio column of the News, and rightfully so, for it was the personal DX experiences which she described that were responsible for its organization.

The officers of the club have spoken on numerous occasions over WOR and also the NBC chain and each talk resulted in many applications for membership being received, many from far distant points.

Since the club was organized many stations at distant points have cooperated by broadcasting "Courtesy Programs" after midnight at various times, especially for the reception of the members.

The Club meets each first Thursday night monthly, except in July and August. After the business of the club is transacted, entertainment is furnished by radio artists from the various metropolitan stations. Manufacturers of receivers, batteries, tubes, etc., supply speakers who not only give interesting and instructive talks but demonstrate their products as well.

Members of the club may obtain DX qualification certificates in four classes, as follows: "Junior DXer" for logging 100 stations; "Master DXer" for logging 200 stations and having one verification from a station located more than 2,000 miles distant. "Past-Master DXer" for logging 300 stations and having at least five distant verifications. "DX Ace" for logging 400 stations and having at least ten distant verifications.

Once a month the club holds a DX contest for the Newark Evening News DX Trophy. Members may select any six consecutive hours during the Saturday night designated and must have their lists in the mail not later than the following Monday. All stations listed must be located at least a hundred miles from point of reception and no station can be logged while broadcasting a chain program.

From an interesting letter by John Macaulay, Jr., of Phillipsburg, N. J., we quote the following:

"We now have a membership of some 600 DXers from all over the North American continent. I attended a club banquet in Newark last Saturday and we had such celebrities of the radio world as Phil Cook, Caroline Gray, Bob Grimsey, Norman Sweetser, and a host of others.

"We run a column every day in the Newark Evening News devoted to the record of members and other DX gossip."

Reallocation Planned

(Continued from page 18)

<table>
<thead>
<tr>
<th>Station</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>WRVA</td>
<td>1110</td>
</tr>
<tr>
<td>WAPI-KVOO</td>
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<td>WOWO-WWVA</td>
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<td>WMBI-WCBD</td>
<td>1080</td>
</tr>
<tr>
<td>WHDI-WDGY</td>
<td>1180</td>
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</tbody>
</table>

Two for One

The weekly Radio World, the best technical magazine, $6.00 a year, and RADEX, $1.75 a year—Both for $6.00.
The Question Mill
(Continued from page 8)
house-lighting circuit is 120. Would this
make a difference?

Receivers designed for use on 110-
volt lighting circuits often develop a
hum if the applied voltage is greater than
this. It is highly probable that this is the
source of your trouble. Get an automatic
voltage regulator, which will reduce the
voltage to the proper value and will also
take care of fluctuations due to varying
loads, at all times keeping the voltage
applied to the set at 110. Operating
your set at 120 volts will also cause the
tubes to burn out prematurely, which
can be prevented by using the voltage
regulator. If, however, the installation
of this device does not entirely eliminate
your trouble the pole piece of the speaker
should be examined for it is probably out
of adjustment. This piece of the speaker
is held in place by means of a bolt run-
ning through it lengthwise, which must
be loosened in order to adjust it. You
can readily determine whether or not
the pole piece is out of adjustment by
pressing the cone of the speaker evenly
on both sides toward the front and rear
just a trifle while the set is in operation.
If this decreases the hum, there is suf-
cient proof of poor adjustment. Then
proceed to correct this fault, taking care
to get the pole piece properly centered
in the voice coil or rattling will result.
This can be done by wrapping a piece of
thin cardboard around the pole piece
several times until the wrapping fits
snugly in the voice-coil frame. Then
tighten the adjusting bolt on the pole
piece and remove the cardboard.

Can you supply me with the address of
some concern that supplies refills for
B-eliminators? I would also like to
know if I could add a power tube to my
5-tube Stewart-Warner receiver, which is
battery-operated?

Manufacturers usually attach to their
products a nameplate bearing their name
and address so that replacement parts
can be obtained from them. In the ab-

ence of a nameplate ask the radio dealer
from whom you purchased the eliminator,
where replacement parts can be obtained,
or tell us what make of eliminator you
have and we will supply you with this
information. Many eliminators are as-
sembled from standard parts but there
are also a number of manufacturers who
employ parts especially designed and
fitted to their products. You can add
a power tube to your receiver, substitut-
ing it for the last audio tube used at
present. However, a C-battery of cor-
rect voltage for the particular power tube
you wish to use must be cut in the grid
circuit of the last audio stage. I suggest
that you do not use a power tube requir-
ing a high C-bias and would therefore
advise the use of a UX112A tube, which
requires 9 volts of C-bias at a plate
voltage of 135, the latter voltage being
obtained by hooking an additional B-
battery to the two used at present, the
negative terminal of the additional bat-
tery being connected to the 90-volt
terminal. The change required in the
wiring of the grid circuit is made as
follows: Disconnect the lead on the
F-negative post of the last audio trans-
former and substitute a lead connected
to the C-battery negative. Then run the
first lead, which was disconnected from
the transformer, to the positive terminal
of the C-battery.

At regular intervals of 2 or 2¾ minutes
there is a loud click in my receiver, an all-
electric 8-tube set called the "Sky Rover.”
The click somewhat resembles the snap
of a guitar or banjo string. When this hap-
pens the reception will almost die out and
then in a minute or so there will be another
snap and the signal will get louder and
louder until it again reaches full strength.
I have had this receiver about a year and
have always had very good reception, and
the trouble has only commenced recently.
When I disconnect the ground lead to the
set, reception comes in very faintly and
the snapping noises are not eliminated,
although they are then weak, correspond-
ing to the strength of the signal. When
I disconnect the aerial no signals come
in at all. Can you advise me where to
look for the trouble?

The regularity with which the snap-
ing noises occur in your receiver indi-
cates that in all probability the trouble
lies in the set itself, instead of in the
aerial and ground circuit, as the noise per-
sists when the aerial is disconnected.
The trouble has all the earmarks of an
open grid circuit in the audio stages which would account for the clicks you have experienced. Carefully trace the wiring from the G-terminal of each audio tube for a loose connection or break. If audio transformers are used in your set test the secondary windings for continuity. If your audio amplifier is of the resistance-coupled type, substitute new resistors in the grid circuits. Then trace the lines connected to the F-negative post of the transformers or the corresponding terminals on resistance units, to determine whether they are connected to the ground line of the receiver, as they should be in all-electric receivers. If the cause of the trouble has not been ascertained up to this point, examine the center-tapped resistors which control the grid bias to the audio tubes and most likely one of them will be open, probably burned out. An overloaded detector tube having too high a grid resistance, may cause the same trouble.

My radio set is a Radiola No. 16, electrified with 110-volts direct current. Local stations come in too loud. To control the volume I have connected a Pilot Resistograd across the aerial and ground but, of course, this arrangement allows the tubes to burn full. Is there any better method of controlling the volume of the signals which would cause the tubes to burn dimmer? I am located in New York City and the furthest I have tuned in are stations KTHS, WCCO, WOS, WFIW and almost all of the Chicago stations. How much distance can I reasonably expect from this set?

There are several methods of reducing the volume of your receiver. One method giving the results you desire, consists of connecting a 3-ohm rheostat in series with the fixed resistor or ballast now found in your A-positive line near the binding post. However, burning tubes too low, or rather below the rated capacity, is injurious to the filaments, according to tube manufacturers and ballast makers. Another method of controlling the volume is to cut a variable resistor such as a Clarostat in the B-positive line supplying plate voltage to the radio-frequency stages. A variable resistor cut in one of the loudspeaker lines will also be capable of cutting down the volume. However, in your case, it might be best to erect a very short aerial and use it in conjunction with the Resistograd arrangement for tuning in local stations, and a long aerial for tuning in distant stations. Your distance record is not particularly alarming, although under good conditions you may, by extremely careful tuning, get farther than 1500 miles.

“Dear Mr. Editor”

(Continued from page 14)

an aerial of 150 feet in length and should be ample for any short wave set.

However, this length may make it difficult to bring in stations in the upper waves of the broadcasting band.

C. S. Wells, 15 Academy Street, Concord, N. H., would like to hear from Leon V. Garland regarding the sort of set on which such excellent results were being secured.

Mrs. C. Kibblehouse, of West Philadelphia, asks for the short wave letters of WHAS at Louisville. Who has received them?

Here we are at the end of our space and we haven’t finished half the letters yet. Nothing to do but carry them over to May. We’ll just have to find more space somewhere for these interesting comments by RADEX friends.

Attaching Head Phones

(Continued from page 2)

Use soldering lugs under the nuts on the transformer and socket terminals, and solder the leads to the lugs to insure good electrical contact. Inserting the phone plug in the jack disconnects the upper two jack contacts, breaking the plate circuit to the following stages and thus automatically keeping the signal from passing beyond the headphones although the tubes will continue to light.

BOYS

A fine leather football free for only two subscriptions to RADEX.

[ 22 ]
## KEY TO CHAIN STATIONS

<table>
<thead>
<tr>
<th>N—National</th>
<th>C—Columbia</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFRB 960 C</td>
<td>WOC 1000 N</td>
</tr>
<tr>
<td>CKAC 730 C</td>
<td>WOW 590 N</td>
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<tr>
<td>CKW 690 N</td>
<td>WOWO 1160 C</td>
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<td>KDKA 980 N</td>
<td>WPTF 680 N</td>
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<td>KDFL 1280 C</td>
<td>WRC 950 N</td>
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<td>KECA 1430 N</td>
<td>WREC 600 C</td>
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<td>KFAB 770 N</td>
<td>WREN 1220 N</td>
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<td>KFJ 1300 C</td>
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<td>KHQ 900 C</td>
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<td>KMBX 1090 C</td>
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<td>WAD 1140 N</td>
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WHAT'S ON THE AIR TONIGHT?  
A WEEKLY CALENDAR  
Leading Features of the Network Programs

Time is given by Eastern Standard. For Central Time, subtract one hour; for Mountain Time, two hours; and for Pacific Time, three hours. After the last Sunday in April subtract an additional hour for Daylight Saving Time.

Lists beginning with WEA and WJZ are the National Broadcasting Co.; those beginning with WABC are the Columbia Broadcasting System.

These programs are correct to April first but are subject to change daily thereafter.

Daily (Except Saturday and Sunday)

**6:45-8:00 Tower Health Exercises**

- WEAJ WEJW WCAE WFI WRC WGY

**8:00-8:15 The Aunt Jenima Man**

- WJZ WBAL WHAM KDKA WJR WBB

**8:00-8:30 Organ Revelli**

- WABC WCAC WCAO WHP WJAS WFBW
- WMKA WHK WKRC WHSP WKBW KOIL
- KMBW WIBW KFHM WBCM WSPD WMT

**8:30-8:45 Morning Devotions**

- WABC WCAO WHP WFBW WMKA WKRC
- WGHPI KOIL KMBW KFHM WBCM WSPD

**8:30-9:00 Cheerio**

- WEAJ WEJW WCIK WCJ WGY WGR
- WJAR WTCH WCAE WJW WJW
- WDAF KSTP WFIT WAPI KFRC WFI

**9:00-9:30 National Home Hour**

- WABC WEAJ WJZ WBAL WHAM KDKA WJR
- WJS WBAL WBFB WHMA WADC WHK
- WHRM WGHPI WWO WBBM WBCM KOIL

**9:30-10:00 Columbia Male Chorus**

- WABC WEAJ WJZ WBAL WHAM KDKA
- WJS WBAL WBFB WHMA WADC WHK

**10:00-10:30 Ida Bailey Allen**

- WABC WEAJ WJZ WBAL WHAM KDKA
- WJS WBAL WBFB WHMA WADC WHK

**10:00-11:00 National Home Hour**

- WEAJ WEJW WJAR WJTG WASH WFI
- WRC WRM WJRM WJRM WJW

**10:00-11:00 Forecast School of Cookery**

- WJZ WBZ WCHA WJAM KDCA WLL

**11:00-11:30 Radio Household Institute**

- WEAJ WEJW WJAR WJTG WASH WFI
- WRC WRM WJRM WJRM WJW
- WSAJ WJF WJF WJF WJF

**12:00-12:30 Columbia Revue**

- WABC WEAJ WJZ WBAL WHAM WJCM
- WJCM WJCM WJCM WJCM WJCM
- WMM WJCM WJCM WJCM WJCM
- WMM WJCM WJCM WJCM WJCM

**12:00-12:30 Columbia Revue**

- WABC WEAJ WJZ WBAL WHAM WJCM
- WJCM WJCM WJCM WJCM WJCM
- WMM WJCM WJCM WJCM WJCM

**12:30-1:30 Yoeng's Restaurant Orchestra**

- WABC WEAJ WJZ WBAL WHAM WJCM
- WJCM WJCM WJCM WJCM WJCM
- WMM WJCM WJCM WJCM WJCM

**12:30-1:30 Radio Household Institute**

- WEAJ WEJW WJAR WJTG WASH WFI
- WRC WRM WJRM WJRM WJW

**1:30-2:00 Ballad Hour**

- WLBZ WCAO WHP WFBW KFHM

**2:00-3:00 Roxy Symphony Concert**

- WJZ WBZ WBB WJAL KDCA WLL

**2:00-3:00 Montreal Symphony Orch., Edmund Trudel, Dir.**

- WABC WEAJ WJZ WBAL WHAM WJCM

**3:00-4:00 Chicago Symphony Orchestra**

- WABC WEAJ WJZ WBAL WHAM WJCM

**3:00-4:00 Columbia Male Chorus**

- WABC WEAJ WJZ WBAL WHAM WJCM

**4:00-5:00 U.S. Band Concert**

- WABC WEAJ WJZ WBAL WHAM WJCM

**5:00-6:00 National Farm and Home Hour**

- WABC WCAC WCAO WHP WJAS WFBW
- WMKA WHK WKRC WHSP WKBW KOIL
- KMBW WIBW KFHM WBCM WSPD WMT

**6:00-6:15 Jemina Man's Restaurant**

- WABC WCAC WCAO WHP WJAS WFBW
- WMKA WHK WKRC WHSP WKBW KOIL
- KMBW WIBW KFHM WBCM WSPD WMT

**6:15-7:00 Organ Reveille**

- WABC WCAC WCAO WHP WJAS WFBW
- WMKA WHK WKRC WHSP WKBW KOIL
- KMBW WIBW KFHM WBCM WSPD WMT

**7:00-7:15 Daily Calendar**

- WABC WCAC WCAO WHP WJAS WFBW
- WMKA WHK WKRC WHSP WKBW KOIL
- KMBW WIBW KFHM WBCM WSPD WMT

**7:15-8:00 Thousand Melodies**

- WABC WCAC WCAO WHP WJAS WFBW
- WMKA WHK WKRC WHSP WKBW KOIL
- KMBW WIBW KFHM WBCM WSPD WMT

**8:00-8:15 Forenoon Features**

- WABC WCAC WCAO WHP WJAS WFBW
- WMKA WHK WKRC WHSP WKBW KOIL
- KMBW WIBW KFHM WBCM WSPD WMT

**8:15-9:00 Armstrong's Restaurant**

- WABC WCAC WCAO WHP WJAS WFBW
- WMKA WHK WKRC WHSP WKBW KOIL
- KMBW WIBW KFHM WBCM WSPD WMT

**9:00-10:00 Columbia Male Chorus**

- WABC WCAC WCAO WHP WJAS WFBW
- WMKA WHK WKRC WHSP WKBW KOIL
- KMBW WIBW KFHM WBCM WSPD WMT

**10:00-11:00 National Home Hour**

- WABC WCAC WCAO WHP WJAS WFBW
- WMKA WHK WKRC WHSP WKBW KOIL
- KMBW WIBW KFHM WBCM WSPD WMT

**11:00-11:30 Forecast School of Cookery**

- WABC WCAC WCAO WHP WJAS WFBW
- WMKA WHK WKRC WHSP WKBW KOIL
- KMBW WIBW KFHM WBCM WSPD WMT

**12:00-12:30 Columbia Revue**

- WABC WCAC WCAO WHP WJAS WFBW
- WMKA WHK WKRC WHSP WKBW KOIL
- KMBW WIBW KFHM WBCM WSPD WMT

**12:30-1:30 Yoeng's Restaurant Orchestra**

- WABC WCAC WCAO WHP WJAS WFBW
- WMKA WHK WKRC WHSP WKBW KOIL
- KMBW WIBW KFHM WBCM WSPD WMT

**1:30-2:00 Ballad Hour**

- WLBZ WCAO WHP WFBW KFHM

**2:00-3:00 Roxy Symphony Concert**

- WJZ WBZ WBB WJAL KDCA WLL

**2:00-3:00 Montreal Symphony Orch., Edmund Trudel, Dir.**

- WABC WEAJ WJZ WBAL WHAM WJCM

**3:00-4:00 Chicago Symphony Orchestra**

- WABC WEAJ WJZ WBAL WHAM WJCM
Monday

10:00-10:30 "The Morning Workshop" (Continued)

WABC W completion of the project

10:30-11:00 "The Morning Workshop" (Continued)

WABC W an overview of the project

11:00-11:30 "The Morning Workshop" (Continued)

WABC W a discussion of the project

11:30-12:00 "The Morning Workshop" (Continued)

WABC W a summary of the project

12:00-1:00 "Lunch Break"

1:00-2:00 "The Afternoon Workshop" (Continued)

WABC W an introduction to the project

2:00-3:00 "The Afternoon Workshop" (Continued)

WABC W a demonstration of the project

3:00-4:00 "The Afternoon Workshop" (Continued)

WABC W a Q&A session about the project

4:00-5:00 "The Afternoon Workshop" (Continued)

WABC W a summary of the project

5:00-6:00 "The Afternoon Workshop" (Continued)

WABC W an overview of the project

6:00-7:00 "The Afternoon Workshop" (Continued)

WABC W a discussion of the project

7:00-8:00 "The Afternoon Workshop" (Continued)

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WABC W an introduction to the project

2:00-3:00 "The Afternoon Workshop" (Continued)

WABC W a demonstration of the project

3:00-4:00 "The Afternoon Workshop" (Continued)

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4:00-5:00 "The Afternoon Workshop" (Continued)

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WABC W a demonstration of the project

10:00-11:00 "The Afternoon Workshop" (Continued)

WABC W a Q&A session about the project

11:00-12:00 "The Afternoon Workshop" (Continued)

WABC W a summary of the project

12:00-1:00 "Lunch Break"

1:00-2:00 "The Afternoon Workshop" (Continued)

WABC W an introduction to the project

2:00-3:00 "The Afternoon Workshop" (Continued)

WABC W a demonstration of the project

3:00-4:00 "The Afternoon Workshop" (Continued)

WABC W a Q&A session about the project

4:00-5:00 "The Afternoon Workshop" (Continued)

WABC W a summary of the project

5:00-6:00 "The Afternoon Workshop" (Continued)

WABC W an overview of the project

6:00-7:00 "The Afternoon Workshop" (Continued)

WABC W a discussion of the project

7:00-8:00 "The Afternoon Workshop" (Continued)

WABC W a summary of the project

8:00-9:00 "The Afternoon Workshop" (Continued)

WABC W an introduction to the project

9:00-10:00 "The Afternoon Workshop" (Continued)

WABC W a demonstration of the project

10:00-11:00 "The Afternoon Workshop" (Continued)

WABC W a Q&A session about the project

11:00-12:00 "The Afternoon Workshop" (Continued)

WABC W a summary of the project
Tuesday

9:00-9:30 U.S. Army Band Concert

9:30-9:45 Spitalny's Music

9:45-10:00 Happy Wonder Bakers

10:00-10:30 Graybar's, "Mr. and Mrs.

10:30-11:00 Columbia Symphony Orchestra

11:00-11:30 The Columbus

11:30-12:00 Roy Ingraham's Paramount Orchestra

12:00-12:30 Liberty Digest Prohibition Poll

12:30-1:00 Charles Dorenberg's Orchestra

1:00-1:30 Bernhard Lilewicz's Commodore Ensemble

1:30-2:00 Manhattan Moods

2:00-2:30 Chinese Orchestra

2:30-3:00 Blackstone Program

3:00-3:30 Pure Oil Orchestra

3:30-4:00 Romanza Patteren
Wednesday

10:00-11:00 Interior Decorating
WABC WEAN WNAC WCAU WCAG WIMAL
WABC WHJL WBLW WFLB WMK WADK
WHK WJRC WGHP WOFW WMFB WMGB
KMMX WJYJ WJQK WSM WISP WIPD
2:30-3:00 Syncopated Silhouettes
WABC WEAN WNAC WCAU WCAG WIMAL
WHJL WJWS WFLB WMDK WHK
WHK WJRC WGHP WOFT WMBM WMGB
KMMX WJYJ WJQK WSM WISP WIPD
WBSD WMT WJNC WDBJ WBJC WODD
WREC WLCR KLRA KLZ KDYL KVI
2:45-3:30 U.S. Navy Band
WJZ WJAL KDKA WKM WRVA KQZ
5:00-5:15 Columbia Grenadiers
WABC WEAN WFN WML WHP WFLB
WMK WJHG WBN WMQ WKMX WQO
WISM WCOO WSPD WMT WNNC WCDQ
WREC KLRA KLZ
5:00-5:15 National Woman's Party
WJZ WJBL WHM WHL WCM WKN KSTP
WEBB WBT WJAX WHAS WMC WSB
KVOO WBAP WSJ KPRC WOA KOA
KGO WRC WJDX KOM OWSM
5:15-5:50 Twilight Troubadours
WPAN WMAL WHP WJAS WFLB WMK
WGHJ WBN WMQ WKMX WQO
WCCO WLG WBCM WMT WNNC WODD
WREC KLRA KLZ
6:15-6:30 "Going to Press"
WABC WEAN WFL WJAS WLBW WADK
WHK WJRC WBM WOFT WMBM WMGB
WJMS WMOO WSG WSG WSG WBIK
WIBC WJNC WDBJ WBJC WODD
WREC KLRA KZL KZK KZL KZL
6:30-7:00 Roy Ingraham's Paramount Orchestra
WABC WJAL WJBS WJBS WMK
WJMS WJOS WJW KMG WLG KHI
WBCH WJNC WDBJ WBJC WODD
KLRA KZL KZK KFRC KVI KFPY
7:00-7:30 Bernard Leitow and His Ensembles
WABC WJPL WJPS WJPS WBN WBN
WBYK WHK WBM KOIL WIC WCCO
WLG WBCM WMT WNNC WDBJ WBJC
WODD KLRA KLZ KJH KPRC KVI
7:30-7:45 Adventures of Colonel Powell
WABC WJAT WJAS WJAS WML WML
WJAS WJAS WBF WBF WADK WHK
WHK WJHG WBN WMQ WKMX WQO
WCCO WLG WBCM WMT WNNC WODD
WREC KLRA KZL KJH KPRC KVI
7:45-8:00 The Show-Five
WABC WEAN WFS WCAU WCAG WFBG
WHEC WJBS WHK WBM WQO WBC
KMOX WSM WCCO WDSU KRLD KZL
KDYL KJH KPRC KONY KIN KFPY
7:45-8:00 Wilbur Conner Players
WABC WJCP WJCP WJCP WJCP WJCP
WBYK WBCB WBCB WBCB WBCB
WODD WDBJ WDBJ WDBJ WDBJ
KEZ WJAP WJAP WJAP WJAP
WJAS KJPS WJPS WJPS WJPS
8:00-8:30 General Mills Fast Freight
WABC WEAN WJAC WCAU WCAG WQML
WJAS WLBW WBF WBF WADK WHK
WJHG WBN WMQ WKMX WQO
KOL KJS KJBC WIC WCCO KFQ
WNNC WATR WDBJ WBCB WODD WREC
WJLC HDW KRLD KJF KZL KJF
KDYL KJH KPRC KONY KFPY
8:00-8:30 The Yeast Foamoers
WJZ WJZ WZB WHAM WHAM KDKA KLY
KLM WLM WREN KSTP WEBB KFAB
8:30-9:00 Party Faddom Trayers
WABC WEAN WNAC WCAU WCAG WIMAL
WABC WHJL WBLW WFLB WJSC WKBW
WADK WHK WJRC WGHP WFBM WMQ
WISM WCOO WSPD WIPD
8:30-9:00 Mishaka Concert
WEAF WEEI WJAR WTAG WCAG WJLI
WRC WGR WCAE WJW WJSAI KSY
WOC WOW WJFL WTMW KAO KOTO
WFAA WKJ WJKN WJIS WJIC
WQY WQY KSTP WEBB WTMJ
8:30-9:00 Sylvia Foresters
WJZ WJZ WZB WHAM WHAM KDKA KWM
WREN KWY KFAB
9:00-9:30 Lives of a Woman
WABC WEAN WNAC WCAU WCAG WIMAL
WJAS WLBW WBF WBF WADK WHK
KMMX WJYJ WJQK WSM WISP WIPD
9:00-9:30 Hartley Sturtevant Program
WEAF WEEE WJAI WTAG WCAG WJLI
WRC WYF WCAE WJW WJSAI KSY
KSD WOC WOW KSTP WTB WJAI
WHAS WMC WSB WSMB KVOO KPRC
WQI WAO WKB WJDI WDAF KJRI
KFI WQV WSM WTMJ KSL KCGW
9:30-10:00 Chucko
WJZ WJDA WCKY WBD WRE WKN KKM
WJZ WZB WHAM
9:30-1:00 La Palma Smothers
WABC WEAN WNAC WCAU WCAG WIMAL
WJAS WLBW WBF WJAC WHK
WHK WJRC WBF WBF WBF WBF
KMMX WJYJ WJQK WSM WISP WIPD
WREC KLRA KLZ
9:30-10:30 Palomire Hour
WEAF WEEE WJAI WTAG WCAG WJLI
WJW WJSAI WQI WSD WCOM KSY
WDAP WSMB WSTP WSAH WSM WMC
WSB WAT WJAI WKO WPRC WOA
KOAL KSL KSO KFI KG WCOM
KHQ WFAA
9:00-10:00 Philco Hour
WEAF WEEE WJAI WTAG WCAG WJLI
WJZ WJBL WHM WLL WCM WKN KSTP
WEBB WBT WJAX WHAS WSB WSM
WEBB WSB WFB WJBC WJBD WJBD
WBRC WJBD WREC WJAC WSDU KRLD
KLRA KJF KJF KDCF KJF KJF
9:00-10:00 Vincent Lopez and His Orch.
WJZ WJAM WREN KDKA WLL WKB
WJZ WZB WB
10:00-11:00 Coca Cola Topnotchers
WEAF WEEE WJAI WTAG WCAG WJLI
WJW WJSAI WQI WSD WCOM KSY
WJZ WJZ WHM WLL WCM WKN KSTP
WEBB WBT WJAX WHAS WSB WSM
WEBB WSB WFB WJBC WJBD WJBD
WBRC WJBD WREC WJAC WSDU KRLD
KLRA KJF KJF KDCF KJF KJF
10:00-11:00 Grand Opera Concert
WABC WEAN WNAC WCAU WCAG WIMAL
WJAS WLBW WBF WBF WADK WHK
WJRC WBF WBF WBF WBF WBF
KMMX WJYJ WJQK WSM WISP WIPD
WJAS WLBW WBF WBF WBF WBF
WJRC WBF WBF WBF WBF WBF
WISM WCOO WSPD WMT WNNC WODD
WREC WJAS WLBW WBF WBF WBF
WJRC WBF WBF WBF WBF WBF
WISM WCOO WSPD WMT WNNC WODD
WREC WJAS WLBW WBF WBF WBF
WJRC WBF WBF WBF WBF WBF
KLRA KJF KJF KDCF KJF KJF
11:00-11:30 Mystery House
WEAF WJAR WCAE WTAG WRC WGR
WJW WQI WSD WDAF WEBB WDJX
11:00-12:00 Hank Simmons' Showboat
WEAF WEEE WJAI WTAG WCAG WJLI
WJZ WJZ WHM WLL WCM WKN KSTP
WEBB WBT WJAX WHAS WSB WSM
WEBB WSB WFB WJBC WJBD WJBD
WBRC WJBD WREC WJAC WSDU KRLD
KLRA KJF KJF KDCF KJF KJF
Thursday

9:00-10:00 U.S. Marine Band
WJZ WJZ WZBA WREN WRC WKN
KSTP
11:00-11:15 Boni and Amy
WEAF WJAR WTAG WCAG WJLI
WJZ WJZ WHM WLL WCM WKN KSTP
WEBB WBT WJAX WHAS WSB WSM
WEBB WSB WFB WJBC WJBD WJBD
WBRC WJBD WREC WJAC WSDU KRLD
KLRA KJF KJF KDCF KJF KJF
KFW KQO
11:30-12:15 Du Barry Beauty Talk
WABC WEAN WNAC WCAU WCAG WIMAL
WJAS WLBW WBF WBF WADK WHK
[28]
9:00-9:30 Seiberling Singers
9:00-9:30 True Detective Mysteries
9:00-9:30 Smith Brothers
8:30-9:00 Champion
6:00-6:30 Hotel Shelton Orchestra
5:15-6:00 WSAI KYW KSD WHO WEAF WEEI WJAR WTAG WCSH WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL WABC WGPB WGBK WKM CMOX KOIL
How To Use Your RADEX

All stations in America are listed in RADEX in three tables:
1st by Frequencies.
2nd by Call Letters.
3rd by States and Cities.

The Index by Frequencies is the one to be used, the other two are merely supplementary.

Let us assume you have just bought your first RADEX.

First we must find the frequency for this station. Look it up under its name in the Index by States and Cities. In either of these indexes we shall see that the frequency of WEAF is 660. Now we turn to 660 kilocycles in the Index by Frequency. There we find that WEAF is one of the two stations which have been set up by the Federal Radio Commission. We also find that it has a power of 80,000 watts, that it is licensed in New York City, and that it is owned by the National Broadcasting Co., Inc.

In the blanks for dial numbers opposite 660 kilocycles (which is the wave length of 468.5 meters) enter the dial readings of your set. It is immaterial whether your set has one, two or three dials. Use as many numbers and spaces provided as you need. The set used in the illustration had two dials. In this case we entered the dial readings for 660 kilocycles as 69-67.

Let us now tune in some other station. We repeat the same procedure in tuning and find that we are hearing, let us say, WOS at Jefferson City. Proceed as before in obtaining the frequency of WOS. This we find to be 630 kilocycles. We turn to 630 in the Index by Frequencies and enter our dial readings for this band which on the set we are using was 72-70.

We now have found that the dial numbers for 630 kilocycles are 72-70. If our set has two dials, we will set our dials for 72-70. If our set has three dials, we will set our dials for 66-67. We will listen carefully and if they are on the air and within range of our set we will hear WOS. If not, we will try another set of numbers within the 630 range. If still we do not hear WOS, we will try WSM in Nashville at this point. We then enter the dial readings for WSM opposite 660 kilocycles. Now it is clear that the 660 dial set will be tuned to 64-60, and at that point KFI of Los Angeles, Calif., will be heard. Always keep in mind that it is on the air and within range of our particular set.

Now we tune in some other station, proceeding...
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00-7:15 P.M.</td>
<td>Floyd Williams</td>
</tr>
<tr>
<td>7:00-7:00</td>
<td>The Fuller Man</td>
</tr>
<tr>
<td>7:00-7:30</td>
<td>The James Men</td>
</tr>
<tr>
<td>7:00-7:30</td>
<td>RCA Theremin Music</td>
</tr>
<tr>
<td>7:00-8:00</td>
<td>Phil Stapp's Symphony</td>
</tr>
<tr>
<td>7:00-8:30</td>
<td>The Rhythm of Your Heart</td>
</tr>
<tr>
<td>7:00-8:00</td>
<td>Cincinnati Educational Features</td>
</tr>
<tr>
<td>7:00-9:00</td>
<td>The Symphony of the Century</td>
</tr>
<tr>
<td>7:00-8:00</td>
<td>The Famous Faces</td>
</tr>
<tr>
<td>8:00-8:30</td>
<td>Statewide Symphony</td>
</tr>
<tr>
<td>8:00-8:30</td>
<td>The National Symphony</td>
</tr>
<tr>
<td>8:00-8:30</td>
<td>The New Symphony</td>
</tr>
</tbody>
</table>

Leatherette cover: $9.50
Next five issues: $1.00
Next ten issues: $1.75
Two yearly subscriptions and cover: $3.50
Begin with No. 38. No. 39.

Write Name Plainly
Street and No.
City and State
6:00-6:30 Hotel Shelton Orchestra
WABC WEAN WNAC WLBJ WCAU WCAO
WMLW WIPF WGBK WADG WHK
WGHF WKBK WBBM KOIL KMBC WCCO
WJUN WMT WWBC WWDO WDBC
WBRC WBDQ WREB WLAB KLRK KLZ
KDYL KJH KFRC KV1 KFFY

4:30-5:00 Club Plaza Orchestra
WABC WEAN WNAC WCAO WMLW WHP
WFBF WKBW WADG WRGB WKGH KMBC
KOIL KMBC WCCO WBBM WBCA WSPD
WMT WNNC WDBJ WWDO WREB
WLAC KLRA KLZ KDYL KFCV KVI

6:00-6:30 Hotel Shelton Orchestra
WABC WEAN WNAC WLBJ WCAU WCAO
WMLW WIPF WGBK WADG WHK
WGHF WKBK WBBM KOIL KMBC WCCO
WJUN WMT WWBC WWDO WDBC
WBRC WBDQ WREB WLAB KLRK KLZ
KDYL KJH KFRC KV1 KFFY

5:30-5:45 Quiet Harmonies
WABC WFBF WCAO WCAW WHP WJAS
WFBL WKBW WRCR WRGB WKBH WBCA
WMAQ KMBC WBBM WBBM WBCA WSPD
WMT WNNC WDBJ WWDO WREB
KLRA KLZ KHJ KFCV KVI

8:15-8:30 The New Business World
WABC WEAN WNAC WCAO WCAO WCAO
WJAS WGBL WBFL WGBK WADG WHK
WBRC WBDQ WREB WLAB KLRK KLZ
KDYL KJH KFRC KV1 KFFY

4:00-4:30 The Aztecs
WABC WEAN WNAC WLBJ WCAU WCAO
WMLW WIPF WGBK WADG WHK
WGHF WKBK WBBM KOIL KMBC WCCO
WJUN WMT WWBC WWDO WDBC
WBRC WBDQ WREB WLAB KLRK KLZ
KDYL KJH KFRC KV1 KFFY

8:00-8:15 Columbia Educational Features
WJAS WBFL WGBK WADG WHK
WGHF WKBK WBBM KOIL KMBC WCCO
WJUN WMT WWBC WWDO WDBC
WBRC WBDQ WREB WLAB KLRK KLZ
KDYL KJH KFRC KV1 KFFY

7:30-7:45 "Ted Husing's Sportscasts"
WABC WHC WNAS WBBM WHP WJAS
WKBN WFBM KOBM KMBC WBCA WSPD
WMT WNNC WDBJ WWDO WREB
KLRA KLZ KHJ KFCV KVI

9:00-9:30 Nit Wit Hour
WABC WEAN WNAC WLBJ WCAU WCAO
WMLW WIPF WGBK WADG WHK
WGHF WKBK WBBM KOIL KMBC WCCO
WJUN WMT WWBC WWDO WDBC
WBRC WBDQ WREB WLAB KLRK KLZ
KDYL KJH KFRC KV1 KFFY

8:30-9:00 The Silver Flute
WJZ WHAM WJR KWU KGCW KOA

7:15-7:30 The Jameses
WFSF WTAG WGY WJW WJW CKGW
WJAR

8:00-8:15 County Educational Features
WABC WEAN WNAC WLBJ WCAU WCAO
WJUN WMT WWBC WWDO WDBC
WBRC WBDQ WREB WLAB KLRK KLZ
KDYL KJH KFRC KV1 KFFY

9:00-9:30 The Aztecs
WABC WEAN WNAC WLBJ WCAU WCAO
WMLW WIPF WGBK WADG WHK
WGHF WKBK WBBM KOIL KMBC WCCO
WJUN WMT WWBC WWDO WDBC
WBRC WBDQ WREB WLAB KLRK KLZ
KDYL KJH KFRC KV1 KFFY

5:30-5:45 Quiet Harmonies
WABC WFBF WCAO WCAW WHP WJAS
WFBL WKBW WRCR WRGB WKBH WBCA
WMAQ KMBC WBBM WBBM WBCA WSPD
WMT WNNC WDBJ WWDO WREB
KLRA KLZ KHJ KFCV KVI

8:00-8:15 Columbia Educational Features
WJAS WBFL WGBK WADG WHK
WGHF WKBK WBBM KOIL KMBC WCCO
WJUN WMT WWBC WWDO WDBC
WBRC WBDQ WREB WLAB KLRK KLZ
KDYL KJH KFRC KV1 KFFY

7:30-8:00 Phil Spitalguy's Music
WFSF WTAG WGY WJW WJW CKGW
WJAR

8:30-9:00 The Fuller Man
WFSF WTAG WGY WJW WJW CKGW
WJAR

9:00-9:30 Nit Wit Hour
WABC WEAN WNAC WLBJ WCAU WCAO
WMLW WIPF WGBK WADG WHK
WGHF WKBK WBBM KOIL KMBC WCCO
WJUN WMT WWBC WWDO WDBC
WBRC WBDQ WREB WLAB KLRK KLZ
KDYL KJH KFRC KV1 KFFY

8:30-9:00 Dairy Echoes
WABC WEAN WLBI WFBN WCAO WMLW
WMLW WIPF WGBK WADG WHK
WGHF WKBK WBBM KOIL KMBC WCCO
WJUN WMT WWBC WWDO WDBC
WBRC WBDQ WREB WLAB KLRK KLZ
KDYL KJH KFRC KV1 KFFY

9:30-10:00 General Electric Hour
WABC WEAN WNAC WLBJ WCAU WCAO
WMLW WIPF WGBK WADG WHK
WGHF WKBK WBBM KOIL KMBC WCCO
WJUN WMT WWBC WWDO WDBC
WBRC WBDQ WREB WLAB KLRK KLZ
KDYL KJH KFRC KV1 KFFY

10:00-11:00 B. A. Rolfe and His Orchestra
WABC WEAN WNAC WLBJ WCAU WCAO
WMLW WIPF WGBK WADG WHK
WGHF WKBK WBBM KOIL KMBC WCCO
WJUN WMT WWBC WWDO WDBC
WBRC WBDQ WREB WLAB KLRK KLZ
KDYL KJH KFRC KV1 KFFY

11:00-12:00 Roy Ingraham's Paramount Orchestra
WABC WEAN WNAC WLBJ WCAU WCAO
WMLW WIPF WGBK WADG WHK
WGHF WKBK WBBM KOIL KMBC WCCO
WJUN WMT WWBC WWDO WDBC
WBRC WBDQ WREB WLAB KLRK KLZ
KDYL KJH KFRC KV1 KFFY

12:00-1:00 Rudy Vallee and His Orchestra
WABC WEAN WNAC WLBJ WCAU WCAO
WMLW WIPF WGBK WADG WHK
WGHF WKBK WBBM KOIL KMBC WCCO
WJUN WMT WWBC WWDO WDBC
WBRC WBDQ WREB WLAB KLRK KLZ
KDYL KJH KFRC KV1 KFFY

10:00-11:00 Paramount Public Hour
WABC WEAN WNAC WLBJ WCAU WCAO
WMLW WIPF WGBK WADG WHK
WGHF WKBK WBBM KOIL KMBC WCCO
WJUN WMT WWBC WWDO WDBC
WBRC WBDQ WREB WLAB KLRK KLZ
KDYL KJH KFRC KV1 KFFY
How To Use Your RADEX

All stations in America are listed in RADEX in three tables:

1st by Frequencies. 2nd by Call Letters. 3rd by States and Cities.

The Index by Frequencies is the one to be used, the other two are merely supplementary.

Let us assume you have just bought your first RADEX. Proceed as follows:

Tune in some—any station that comes in. Tune it sharply, turning down your rheostats (volume control) until we find the marks on its chart at which it comes in most clearly and with greatest volume.

INDEX BY FREQUENCIES AND DIAL NUMBERS

<table>
<thead>
<tr>
<th>FREQUENCIES (in kilocycles)</th>
<th>DIAL NUMBERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>590 kilocycles</td>
<td>506.2 meters</td>
</tr>
<tr>
<td>600 kilocycles</td>
<td>499.7 meters</td>
</tr>
<tr>
<td>610 kilocycles</td>
<td>491.5 meters</td>
</tr>
<tr>
<td>620 kilocycles</td>
<td>483.6 meters</td>
</tr>
<tr>
<td>630 kilocycles</td>
<td>475.9 meters</td>
</tr>
<tr>
<td>640 kilocycles</td>
<td>468.5 meters</td>
</tr>
<tr>
<td>650 kilocycles</td>
<td>461.3 meters</td>
</tr>
<tr>
<td>660 kilocycles</td>
<td>454.3 meters</td>
</tr>
<tr>
<td>670 kilocycles</td>
<td>447.5 meters</td>
</tr>
<tr>
<td>680 kilocycles</td>
<td>440.9 meters</td>
</tr>
</tbody>
</table>

AIR-LINE DISTANCES IN MILES

<table>
<thead>
<tr>
<th>CITY</th>
<th>DISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicago, Ill.</td>
<td>70</td>
</tr>
<tr>
<td>Cincinnati, Ohio</td>
<td>112</td>
</tr>
<tr>
<td>Cleveland, Ohio</td>
<td>108</td>
</tr>
<tr>
<td>Detroit, Mich.</td>
<td>36</td>
</tr>
<tr>
<td>Kansas City, Mo.</td>
<td>170</td>
</tr>
<tr>
<td>St. Louis, Mo.</td>
<td>300</td>
</tr>
<tr>
<td>Washington, D. C.</td>
<td>360</td>
</tr>
<tr>
<td>Atlanta, Ga.</td>
<td>500</td>
</tr>
<tr>
<td>New York, N. Y.</td>
<td>600</td>
</tr>
<tr>
<td>Los Angeles, Calif.</td>
<td>1000</td>
</tr>
<tr>
<td>San Francisco, Cal.</td>
<td>1100</td>
</tr>
</tbody>
</table>

Let us assume that the station we are hearing is WEAF in New York.
First we must ascertain the frequency for this station. Look it up under WEAF in the Index by Call Letters or under New York in the Index by States and Cities. In either of these indexes we find that the frequency of WEAF is 660.

Now we tune to 660 kilocycles in the Index by Frequencies and Dial Numbers. Here we find that WEAF is one of the two stations which have been assigned the 660 kilocycles frequency by the Federal Radio Commission. We also find that it has a power of 50,000 watts, that it is located in New York City, and is owned by the National Broadcasting Co., Inc.

In the blanks for dial numbers opposite 660 kilocycles (which is the wave length of 447.43 meters) enter the readings of your set. It is immaterial whether your set has one, two or three dials. Use as many of these spaces provided as you need. The set used in the illustration had two dials. In this case we entered the dial readings for 660 kilocycles as 69-67.

Let us now tune in some other station. We repeat the same procedure in tuning and find that we are hearing, let us say, WOS at Jefferson City. Proceed as before in ascertaining the frequency of WOS. This we find to be 630 kilocycles.

We turn to 630 in the Index by Frequencies and enter our dial readings for this band which on the set we using was 72-70.

We now have found that the dial numbers for 650 kilocycles are 72-70 and the dial numbers for 660 kilocycles are 69-67. If we now will set our dials for 70-68 it is obvious we will have our set tuned for 650 kilocycles. We listen carefully and if they are on the air and within range of our set we will tune in WSM of Nashville at this point. We then enter the dial readings for WSM opposite 650 kilocycles. Now it is clear that if we reset our dials at 71-69 our set will be tuned to 660 kilocycles, and at that point KFI of Los Angeles will be heard, always assuming of course that it is on the air and within range of our particular set.

Now we tune in some other station, proceeding...
### N STATUTE MILES

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>117 1000</td>
<td>1010 1656</td>
<td>250 1768</td>
<td>430 1498</td>
<td>2055 1320</td>
<td>2300 1285</td>
<td>2024 1446</td>
<td>1733 2451</td>
<td>2300 2030</td>
<td>2265 2045</td>
<td>2100 1997</td>
<td>764 1028</td>
<td>590 1001</td>
<td>1001 1498</td>
<td></td>
</tr>
</tbody>
</table>

The second column in the index by Frequencies, we have seen, gives the power of the station as insured in watts. This power also aids us in identifying stations as we will not ordinarily hear those stations with 500 watts or less unless they are close to our home city.

The Index by Call Letters also has spaces provided for logging dial numbers but these are provided merely for the convenience of those who want to be able to turn instantly to some favorite station. They may or may not be used as you desire. Remember that it is the Index by Frequencies that we must use to get the most value and pleasure out of our radios.

The Index by Frequencies is now printed with marginal tabs. If you will fill in under the word "dial" your reading for this particular frequency, you can then turn instantly to any frequency desired. Take a pair of shears and cut along the dotted line, as shown.

---

[33]
The Radex Press,
1367 East 6th Street,
Cleveland, Ohio

Enclosed find $... Enter my subscription as shown.

Write Name Plainly
Street and No.
City and State

Leatherette cover...........$0.50
Next five issues............$1.00
Next ten issues............$1.75
Next twenty issues and cover free...$3.50
Two yearly subscriptions and cover...$3.50
Begin with No. 38. No. 39.
Radio is in a constant process of change. New developments and changes in stations, are taking place monthly. If you are one of those who like to be intelligent in your interests, you cannot afford to miss a single copy of this magazine.

RADEX is published monthly excepting in July and August. The price is 25c per copy. Subscription prices are shown in coupon on opposite page. Fill it out and mail it at once.

We can provide you with a beautiful leatherette cover stamped in gold to protect your RADEX from wear, give solid backing for making entries and add attractiveness to your set. Price, 50c each or we will give one free as shown on coupon.
INDEX BY FREQUENCIES AND DIAL NUMBERS

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KEY

Frequency in kilocycles. Wave lengths in meters. Second column shows night power in watts. Third column symbols: D, daytime only; S, Sunday only. Stations dividing time have some small figures. X means station has been granted permit to increase power. + permits station has greater power during day. CP indicates station has construction permit only. Some Cuban and Mexican stations have odd frequencies. Correct kilocycles shown in small figures. N means NBC chain. C means Columbia chain.

| 540 kilocycles | 555.6 meters | CKX 500 | Brandon, Manitoba |
| 550 kilocycles | 545.1 meters | XFA 50 | Mexico City |
| KFDY 500 | + | Brookings, S. D. |
| KFUO 500 | 2+ | St. Louis, Mo. |
| KFYR 500 | 1 | Bismarck, N. D. |
| KOAC 1000 | 1 | Cheyenne, Wyo. |
| KSD 500 | 2N | St. Louis, Mo. |
| WGR 1000 | N | Buffalo, N. Y. |
| WKRC 500 | XC | Cincinnati, Ohio |
| KEY 105 | --- | Merida, Yucatan |

| 560 kilocycles | 535.4 meters | KFDM 500 | X+ | Beaumont, Texas |
| KLZ 1000 | C | Denver, Colo. |
| KTAB 1000 | --- | Oakland, Cal. |
| WEBW 500 | 3D | Beloit, Wis. |
| WFI 500 | 1N | Philadelphia, Pa. |
| WIBO 1000 | 3+N | Chicago, Ill. |
| WNOX 1000 | X+ | Knoxville, Tenn. |
| WPCC 500 | 3S | Chicago, Ill. |
| WQAM 1000 | --- | Miami, Fla. |

| 570 kilocycles | 526.0 meters | KGKO 250 | + | Wichita Falls, Texas |
| KMTR 500 | --- | Hollywood, Cal. |
| KXA 500 | --- | Seattle, Wash. |
| WEAO 750 | 1 | Columbus, Ohio |
| WNBC 500 | 1C | Youngstown, Ohio |
| WMAC 250 | 2 | Cazenovia, N. Y. |
| WMCA 500 | 3 | New York City |
| WNAX 1000 | --- | Yankton, S. D. |
| WNYC 500 | 3 | New York City |
| WSYR 250 | 2 | Syracuse, N. Y. |
| WWNC 1000 | C | Asheville, N. C. |

| 580 kilocycles | 516.9 meters | CFCL 500 | 3S | Toronto, Ont. |
| CHMA 250 | 4 | Edmonton, Alta. |
| CJCA 500 | 4 | Edmonton, Alta. |
| CJSC 500 | 4 | Toronto, Ont. |
| CKCL 500 | 3 | Toronto, Ont. |
| CKNC 500 | 3 | Edmonton, Alta. |
| CKUA 500 | 4 | Edmonton, Alta. |
| CNRE 500 | 4 | Pierre, S. D. |
| KGFX 200 | D | Manhattan, N. Y. |
| KSAO 200 | 2+ | Topeka, Kans. |
| WIBW 500 | 2+C | Charleston, W. Va. |
| WOBX 250 | 1 | Huntington, W. Va. |
| WSAZ 250 | 1 | Worcester, Mass. |
| WTAG 250 | N | | |

[ 36 ]
### INDEX BY FREQUENCIES AND DIAL NUMBERS

<table>
<thead>
<tr>
<th>FREQUENCY</th>
<th>METER</th>
<th>CITY/LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>590 kilocycles</td>
<td>508.2 meters</td>
<td></td>
</tr>
<tr>
<td>KHQ 1000</td>
<td>X+N</td>
<td>Spokane, Wash.</td>
</tr>
<tr>
<td>WCAJ 500</td>
<td>1</td>
<td>Lincoln, Nebr.</td>
</tr>
<tr>
<td>WBEI 1000</td>
<td>N</td>
<td>Boston, Mass.</td>
</tr>
<tr>
<td>WEMC 1000</td>
<td>D</td>
<td>Berrien Springs, Mich.</td>
</tr>
<tr>
<td>WOW 1000</td>
<td>N</td>
<td>Omaha, Nebr.</td>
</tr>
<tr>
<td>XFI 1000</td>
<td></td>
<td>Mexico City</td>
</tr>
<tr>
<td>........ 500</td>
<td>CP</td>
<td>Lynchburg, Va.</td>
</tr>
<tr>
<td>600 kilocycles</td>
<td>499.7 meters</td>
<td></td>
</tr>
<tr>
<td>CFCH 250</td>
<td>3</td>
<td>Iroquois Falls, Ont.</td>
</tr>
<tr>
<td>CJRM 500</td>
<td>4</td>
<td>Moose Jaw, Sask.</td>
</tr>
<tr>
<td>CJRW 500</td>
<td>4</td>
<td>Fleming, Sask.</td>
</tr>
<tr>
<td>CMW 1000</td>
<td></td>
<td>Havana, Cuba</td>
</tr>
<tr>
<td>CNRO 500</td>
<td>3</td>
<td>Ottawa, Ont.</td>
</tr>
<tr>
<td>KFSD 500</td>
<td></td>
<td>San Diego, Cal.</td>
</tr>
<tr>
<td>WCAC 250</td>
<td>2+</td>
<td>Storrs, Conn.</td>
</tr>
<tr>
<td>WCAO 250</td>
<td>C</td>
<td>Baltimore, Md.</td>
</tr>
<tr>
<td>WGBS 600</td>
<td>2+</td>
<td>New York City</td>
</tr>
<tr>
<td>WMT 500</td>
<td>X</td>
<td>Waterloo, Iowa</td>
</tr>
<tr>
<td>WOAN 500</td>
<td>I</td>
<td>Lawrenceburg, Tenn.</td>
</tr>
<tr>
<td>WRBC 500</td>
<td>1+C</td>
<td>Memphis, Tenn.</td>
</tr>
<tr>
<td>610 kilocycles</td>
<td>491.5 meters</td>
<td></td>
</tr>
<tr>
<td>CMBY 200</td>
<td>612</td>
<td>Havana, Cuba</td>
</tr>
<tr>
<td>KFRC 1000</td>
<td>C</td>
<td>San Francisco, Cal.</td>
</tr>
<tr>
<td>WDAF 1000</td>
<td>N</td>
<td>Kansas City, Mo.</td>
</tr>
<tr>
<td>WJAY 500</td>
<td>D</td>
<td>Cleveland, Ohio</td>
</tr>
<tr>
<td>620 kilocycles</td>
<td>483.6 meters</td>
<td></td>
</tr>
<tr>
<td>KGW 1000</td>
<td>X+N</td>
<td>Portland, Ore.</td>
</tr>
<tr>
<td>K TAR 500</td>
<td></td>
<td>Phoenix, Arizona</td>
</tr>
<tr>
<td>WFLA 1000</td>
<td></td>
<td>Clearwater, Fla.</td>
</tr>
<tr>
<td>WLBZ 500</td>
<td></td>
<td>Bangor, Maine</td>
</tr>
<tr>
<td>WSN 1000</td>
<td>I+</td>
<td>St. Petersburg, Fla.</td>
</tr>
<tr>
<td>WT MJ 1000</td>
<td>+N</td>
<td>Milwaukee, Wis.</td>
</tr>
<tr>
<td>630 kilocycles</td>
<td>475.9 meters</td>
<td></td>
</tr>
<tr>
<td>CFCT 500</td>
<td></td>
<td>Victoria, B. C.</td>
</tr>
<tr>
<td>CJGJ 500</td>
<td></td>
<td>Yorkton, Sask.</td>
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**890 kilocycles**

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**900 kilocycles**

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**920 kilocycles**

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**950 kilocycles**

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</table>
## INDEX BY FREQUENCIES AND DIAL NUMBERS

### 960 kilocycles

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Distance</th>
<th>City/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFCR 500 3</td>
<td>312.3 meters</td>
<td>Regina, Sask.</td>
</tr>
<tr>
<td>CFCY 250</td>
<td>1</td>
<td>Charlottetown, P. E. I.</td>
</tr>
<tr>
<td>CFRB 4000 2C</td>
<td></td>
<td>Toronto, Ont.</td>
</tr>
<tr>
<td>CHK 30</td>
<td>1</td>
<td>Charlottetown, P. E. I.</td>
</tr>
<tr>
<td>CHWC 500 3</td>
<td></td>
<td>Pilot Butte, Sask.</td>
</tr>
<tr>
<td>CJBR 500 3</td>
<td></td>
<td>Regina, Sask.</td>
</tr>
<tr>
<td>CKCK 500 3</td>
<td></td>
<td>Regina, Sask.</td>
</tr>
<tr>
<td>CNRR 500 3</td>
<td></td>
<td>Regina, Sask.</td>
</tr>
<tr>
<td>XEE 101</td>
<td></td>
<td>Pueblo, Pue.</td>
</tr>
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### 970 kilocycles

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Distance</th>
<th>City/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIR 5000 D</td>
<td>309.1 meters</td>
<td>Seattle, Wash.</td>
</tr>
<tr>
<td>XEH 1500 N</td>
<td></td>
<td>Monterey, N. L.</td>
</tr>
<tr>
<td>WCFL 1500 N</td>
<td></td>
<td>Chicago, Ill.</td>
</tr>
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</table>

### 980 kilocycles

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Distance</th>
<th>City/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>KDKA 50000</td>
<td>305.9 meters</td>
<td>Pittsburgh, Pa.</td>
</tr>
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### 990 kilocycles

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Distance</th>
<th>City/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBZ 15000 IN</td>
<td>302.8 meters</td>
<td>Springfield, Mass.</td>
</tr>
<tr>
<td>WBZA 5000 IN</td>
<td></td>
<td>Boston, Mass.</td>
</tr>
</tbody>
</table>

### 1000 kilocycles

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Distance</th>
<th>City/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>KFVD 250</td>
<td>299.8 meters</td>
<td>Culver City, Cal.</td>
</tr>
<tr>
<td>WHO 5000 IN</td>
<td></td>
<td>Des Moines, Iowa</td>
</tr>
<tr>
<td>WOC 5000 IN</td>
<td></td>
<td>Davenport, Iowa</td>
</tr>
<tr>
<td>XEI 101</td>
<td></td>
<td>Morelia, Mexico</td>
</tr>
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</table>

### 1010 kilocycles

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Distance</th>
<th>City/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFLC 50 3</td>
<td>296.8 meters</td>
<td>Prescott, Ont.</td>
</tr>
<tr>
<td>CCKR 50 3</td>
<td></td>
<td>Waterloo, Ont.</td>
</tr>
<tr>
<td>CKSH 50</td>
<td>2</td>
<td>St. Hyacinthe, Que.</td>
</tr>
<tr>
<td>KGGF 500</td>
<td></td>
<td>Picher, Okla.</td>
</tr>
<tr>
<td>KOW 500</td>
<td></td>
<td>San Jose, Cal.</td>
</tr>
<tr>
<td>WHN 250</td>
<td>1</td>
<td>New York City</td>
</tr>
<tr>
<td>WIS 500 CP+</td>
<td></td>
<td>Columbia, S. C.</td>
</tr>
<tr>
<td>WNAD 500 II</td>
<td></td>
<td>Norman, Okla.</td>
</tr>
<tr>
<td>WQAO 250</td>
<td>1</td>
<td>New York City</td>
</tr>
<tr>
<td>WRNY 250</td>
<td>1</td>
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### 1020 kilocycles

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Distance</th>
<th>City/Location</th>
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<tbody>
<tr>
<td>KFKX 10000 IN</td>
<td>293.9 meters</td>
<td>Chicago, Ill.</td>
</tr>
<tr>
<td>KYW 10000 IN</td>
<td></td>
<td>Chicago, Ill.</td>
</tr>
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</table>

### 1030 kilocycles

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Distance</th>
<th>City/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCFB 1650</td>
<td>291.1 meters</td>
<td>Montreal, Que.</td>
</tr>
<tr>
<td>CJOR 50</td>
<td></td>
<td>Sea Island, B. C.</td>
</tr>
<tr>
<td>CMBW 500</td>
<td>1027</td>
<td>Mariana, Cuba</td>
</tr>
<tr>
<td>CMBZ 100</td>
<td>1027</td>
<td>Havana, Cuba</td>
</tr>
<tr>
<td>CNRR 500</td>
<td></td>
<td>Vancouver, B. C.</td>
</tr>
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</table>

### 1040 kilocycles

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Distance</th>
<th>City/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>KRLD 10000 1C</td>
<td>288.3 meters</td>
<td>Dallas, Texas</td>
</tr>
<tr>
<td>KTHS 10000 IN</td>
<td></td>
<td>Hot Springs, Ark.</td>
</tr>
<tr>
<td>WKAR 1000 D</td>
<td></td>
<td>East Lansing, Mich.</td>
</tr>
<tr>
<td>WKEN 1000</td>
<td></td>
<td>Buffalo, N. Y.</td>
</tr>
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</table>

### 1050 kilocycles

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Distance</th>
<th>City/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>KFKB 5000 X</td>
<td>285.5 meters</td>
<td>Milford, Kansas</td>
</tr>
<tr>
<td>KNX 5000 X</td>
<td></td>
<td>Hollywood, Cal.</td>
</tr>
</tbody>
</table>

### Additional Information

- Sydney I. Robinson: The Island Radio Co.
- Rogers-Majestic Corp., Ltd.: W. E. Burke
- R. H. Williams & Sons, Ltd.: Cooperative Wheat Producers, Ltd.
- Leader Publishing Co., Ltd.: Canadian National Railways
- Ramon Huerta G.: Chicago Federation of Labor
- Northwest Broadcasting System, Inc.: Ing. Constantino de Tarnava
- Westinghouse Elec. & Mfg. Co.: Carlos Gutierrez M.
- Westinghouse Elec. & Mfg. Co.: Radio Association
- Westinghouse Elec. & Mfg. Co.: John Patterson
- Westinghouse Elec. & Mfg. Co.: City of St. Hyacinthe
- Westinghouse Elec. & Mfg. Co.: D. L. Connell, M. D.
- Westinghouse Elec. & Mfg. Co.: Marcus Loew Booking Agency
- Westinghouse Elec. & Mfg. Co.: George T. Barnes, Inc.
- Westinghouse Elec. & Mfg. Co.: University of Oklahoma
- Westinghouse Elec. & Mfg. Co.: Calvary Baptist Church
- Westinghouse Elec. & Mfg. Co.: Calvary Baptist Church
- Westinghouse Elec. & Mfg. Co.: Berachah Church, Inc.
- Westinghouse Elec. & Mfg. Co.: G. C. Chandler
- Westinghouse Elec. & Mfg. Co.: Modesto Alvarez
- Westinghouse Elec. & Mfg. Co.: Manuel y G. Salas
- Westinghouse Elec. & Mfg. Co.: Canadian National Railways
- Westinghouse Elec. & Mfg. Co.: Chamber of Commerce
- Westinghouse Elec. & Mfg. Co.: Michigan Agricultural College
- Westinghouse Elec. & Mfg. Co.: Chamber of Commerce
- Westinghouse Elec. & Mfg. Co.: Michigan Agricultural College
- Westinghouse Elec. & Mfg. Co.: Western Broadcast Co.
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<table>
<thead>
<tr>
<th>1060 kilocycles</th>
<th>282.8 meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>KWJJ 500</td>
<td>Portland, Ore.</td>
</tr>
<tr>
<td>WBAL 10000</td>
<td>Baltimore, Md.</td>
</tr>
<tr>
<td>WJAG 1000</td>
<td>Norfolk, Nebr.</td>
</tr>
<tr>
<td>WTIC 50000</td>
<td>Hartford, Conn.</td>
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<table>
<thead>
<tr>
<th>1070 kilocycles</th>
<th>280.2 meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>KJBS 100</td>
<td>San Francisco, Cal.</td>
</tr>
<tr>
<td>WAAT 300</td>
<td>Jersey City, N. J.</td>
</tr>
<tr>
<td>WCNZ 50</td>
<td>Carthage, Ill.</td>
</tr>
<tr>
<td>WDZ 100</td>
<td>Tuscola, Ill.</td>
</tr>
<tr>
<td>WEAR 10000</td>
<td>Cleveland, Ohio</td>
</tr>
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<td>WTAM 50000</td>
<td>Cleveland, Ohio</td>
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<table>
<thead>
<tr>
<th>1080 kilocycles</th>
<th>277.6 meters</th>
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</thead>
<tbody>
<tr>
<td>WBT 5000</td>
<td>Charlotte, N. C.</td>
</tr>
<tr>
<td>WCBD 5000</td>
<td>Zion, Ill.</td>
</tr>
<tr>
<td>WMBI 5000</td>
<td>Chicago, Ill.</td>
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</table>

<table>
<thead>
<tr>
<th>1090 kilocycles</th>
<th>275.1 meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>KFOA 5000 1SX</td>
<td>St. Louis, Mo.</td>
</tr>
<tr>
<td>KMUX 5000 1CX</td>
<td>St. Louis, Mo.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1100 kilocycles</th>
<th>272.6 meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMCE 100 1098</td>
<td>Havana, Cuba</td>
</tr>
<tr>
<td>KGDM 250 DX</td>
<td>Stockton, Cal.</td>
</tr>
<tr>
<td>WPLW 5000 1</td>
<td>New York City</td>
</tr>
<tr>
<td>WPG 5000 1</td>
<td>Atlantic City, N. J.</td>
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</table>

<table>
<thead>
<tr>
<th>1110 kilocycles</th>
<th>270.1 meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSOO 2000</td>
<td>Sioux Falls, S. D.</td>
</tr>
<tr>
<td>WRVA 5000 N</td>
<td>Richmond, Va.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>1120 kilocycles</th>
<th>267.7 meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFJC 15</td>
<td>Kamloops, B. C.</td>
</tr>
<tr>
<td>CHGS 25</td>
<td>Summerside, P. E. I.</td>
</tr>
<tr>
<td>CJOC 50</td>
<td>Lethbridge, Alta.</td>
</tr>
<tr>
<td>KEIO 100</td>
<td>Spokane, Wash.</td>
</tr>
<tr>
<td>KFSG 500 3</td>
<td>Los Angeles, Cal.</td>
</tr>
<tr>
<td>KMIC 500 3</td>
<td>英格尔伍德, Cal.</td>
</tr>
<tr>
<td>KRSC 50</td>
<td>Seattle, Wash.</td>
</tr>
<tr>
<td>KTRH 500 2CP</td>
<td>Austin, Texas</td>
</tr>
<tr>
<td>WDEO 500 +</td>
<td>Orlando, Fla.</td>
</tr>
<tr>
<td>WDEL 250 +</td>
<td>Wilmington, Del.</td>
</tr>
<tr>
<td>WHAD 250 1</td>
<td>Milwaukee, Wis.</td>
</tr>
<tr>
<td>WISN 250 1C</td>
<td>Milwaukee, Wis.</td>
</tr>
<tr>
<td>WTAW 500 2</td>
<td>College Station, Texas</td>
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<tr>
<td></td>
<td>Rayne, La.</td>
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<table>
<thead>
<tr>
<th>1130 kilocycles</th>
<th>265.3 meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSL 5000 N</td>
<td>Salt Lake City</td>
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<tr>
<td>WJJD 20000</td>
<td>Mooseheart, Ill.</td>
</tr>
<tr>
<td>WOY 1000 D</td>
<td>New York City</td>
</tr>
<tr>
<td>XEF 105</td>
<td>Oaxaca, Oax.</td>
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<table>
<thead>
<tr>
<th>1140 kilocycles</th>
<th>263.0 meters</th>
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<tbody>
<tr>
<td>KVOO 5000 1N</td>
<td>Tulsa, Okla.</td>
</tr>
<tr>
<td>WAPI 5000 1N</td>
<td>Birmingham, Ala.</td>
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<thead>
<tr>
<th>1150 kilocycles</th>
<th>260.7 meters</th>
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<tbody>
<tr>
<td>CMHA 200 1154</td>
<td>Cienfuegos, Cuba</td>
</tr>
<tr>
<td>WHAM 5000 N</td>
<td>Rochester, N. Y.</td>
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</table>

KWJJ Broadcast Co., Inc.
Consolidated Gas Elec. & Pwr. Co.
Norfolk Daily News
Travelers Broadcasting Service Corp.

Julius Brunton & Sons Co.
Bremer Broadcasting Corp.
Superior Broadcasting Service
James L. Bush
WTAM and WEAR, Inc.
WTAM and WEAR, Inc.

Station WBT, Inc.
Wilbur Glenn Voliva
Moody Bible Institute

Voice of St. Louls, Inc.
Voice of St. Louls, Inc.

Julio E. Power
E. F. Peffer
Missionary Society of St. Paul
Municipality of Atlantic City

Julio Ganduxe
R. T. Holman, Ltd.
Harold R. Carson
Spokane Broadcasting Corp.
Echo Park, Evag. Assn.
Dalton's, Inc.
Radio Sales Corp.
Rice Hotel
Orlando Broadcasting Co., Inc.
WDEL, Inc.
Marquette University
Evening Wisconsin Co.
Agricultural & Mech. College
Ber, Killmer & Bailey

N. S. Dalgleish & Sons
Radio Service Corp. of Utah
Loyal Order of Moose
International Broadcasting Corp.
Federico Zorrila

Southwestern Sales Corp.
Alabama Polytechnic Institute

Jose Ganduxe
Stromberg-Carlson Tel. Mfg. Co.
<table>
<thead>
<tr>
<th>Frequency Range</th>
<th>School, City</th>
<th>City, State</th>
<th>Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1160 kilocycles</td>
<td>258.5 meters</td>
<td>Ft. Wayne, Ind.</td>
<td>Main Auto Supply Co.</td>
</tr>
<tr>
<td>WOWO 10000</td>
<td></td>
<td>Wheeling, W. Va.</td>
<td>West Virginia Broadcasting Corp.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency Range</th>
<th>School, City</th>
<th>City, State</th>
<th>Company Name</th>
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</thead>
<tbody>
<tr>
<td>1170 kilocycles</td>
<td>256.3 meters</td>
<td>Muscatine, Iowa</td>
<td>Norman Baker</td>
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</table>

<table>
<thead>
<tr>
<th>Frequency Range</th>
<th>School, City</th>
<th>City, State</th>
<th>Company Name</th>
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</thead>
<tbody>
<tr>
<td>1180 kilocycles</td>
<td>254.1 meters</td>
<td>Portland, Ore.</td>
<td>Western Broadcasting Co.</td>
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<tr>
<td>KEX 5000</td>
<td>State College, N. M.</td>
<td>College of Agriculture &amp; Mech. Arts</td>
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<tr>
<td>WORC 20000</td>
<td>Minneapolis, Minn.</td>
<td>Dr. George W. Young</td>
<td></td>
</tr>
<tr>
<td>WDGY 1000</td>
<td></td>
<td>Wm. Hood Dunwoody, Industry Inst.</td>
<td></td>
</tr>
<tr>
<td>WHDI 500</td>
<td></td>
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<table>
<thead>
<tr>
<th>Frequency Range</th>
<th>School, City</th>
<th>City, State</th>
<th>Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1190 kilocycles</td>
<td>252.0 meters</td>
<td>Bridgeport, Conn.</td>
<td>Bridgeport Broadcasting Station, Inc.</td>
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<tr>
<td>WICC 500</td>
<td>San Antonio, Texas</td>
<td>Southern Equipment Co.</td>
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<tr>
<td>WOAI 5000</td>
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</table>

<table>
<thead>
<tr>
<th>Frequency Range</th>
<th>School, City</th>
<th>City, State</th>
<th>Company Name</th>
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<tbody>
<tr>
<td>1200 kilocycles</td>
<td>249.9 meters</td>
<td>Paragould, Ark.</td>
<td>W. J. Beard’s Temple of Music</td>
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<tr>
<td>KBTM 100</td>
<td>Gunison, Colo.</td>
<td>Western College of Colorado</td>
<td></td>
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<tr>
<td>KFHA 50</td>
<td>Marshalltown, Iowa</td>
<td>Marshall Electric Co., Inc.</td>
<td></td>
</tr>
<tr>
<td>KFIB 100</td>
<td>St. Louis, Mo.</td>
<td>St. Louis Truth Center, Inc.</td>
<td></td>
</tr>
<tr>
<td>KFWF 100</td>
<td>Mandan, N. D.</td>
<td>Mandan Radio Association</td>
<td></td>
</tr>
<tr>
<td>KGCU 100</td>
<td>Fargo, N. Dak.</td>
<td>J. Albert Loesch and George W. Wright</td>
<td></td>
</tr>
<tr>
<td>KGDI 10</td>
<td>Yuma, Colo.</td>
<td>City of Fort Morgan</td>
<td></td>
</tr>
<tr>
<td>KGEX 50</td>
<td>Fort Morgan, Colo.</td>
<td>Ben S. McGlashan</td>
<td></td>
</tr>
<tr>
<td>KGJF 100</td>
<td>Los Angeles, Cal.</td>
<td>Lautzenerheiser &amp; Mitchell</td>
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<tr>
<td>KGFK 50</td>
<td>Hallock, Minn.</td>
<td>Berean Bible Class</td>
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<tr>
<td>KGHF 10</td>
<td>Little Rock, Ark.</td>
<td>St. Martin’s College</td>
<td></td>
</tr>
<tr>
<td>KGHI 10</td>
<td>Lacey, Wash.</td>
<td>Santa Maria Valley R. R. Co.</td>
<td></td>
</tr>
<tr>
<td>KGY 10</td>
<td>Stockton, Cal.</td>
<td>KYOS, Inc.</td>
<td></td>
</tr>
<tr>
<td>KSMR 100</td>
<td>El Centro, Cal.</td>
<td>Portable Wireless Tel. Co., Inc.</td>
<td></td>
</tr>
<tr>
<td>KOS 100</td>
<td>Santa Maria, Cal.</td>
<td>E. R. Irey and F. M. Bowles</td>
<td></td>
</tr>
<tr>
<td>KWG 100</td>
<td>Bellmore, Wash.</td>
<td>First Universalist Church</td>
<td></td>
</tr>
<tr>
<td>KXO 100</td>
<td>Charleston, S. C.</td>
<td>Coliseum Place Baptist Church</td>
<td></td>
</tr>
<tr>
<td>WABI 100</td>
<td>Ponca City, Okla.</td>
<td>Washington Light Infantry</td>
<td></td>
</tr>
<tr>
<td>WABZ 100</td>
<td>Rapid City, S. D.</td>
<td>C. L. Carrell</td>
<td></td>
</tr>
<tr>
<td>WBBY 75</td>
<td>Burlington, Vt.</td>
<td>State School of Mines</td>
<td></td>
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<tr>
<td>WBBZ 100</td>
<td>Kenosha, Wis.</td>
<td>University of Vermont</td>
<td></td>
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<tr>
<td>WBCS 100</td>
<td>Harrisburg, Pa.</td>
<td>C. E. Whitmore</td>
<td></td>
</tr>
<tr>
<td>WEDC 100</td>
<td>Emory, Va.</td>
<td>Norman R. Hoffman</td>
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<tr>
<td>WEFR 50</td>
<td>Knoxville, Tenn.</td>
<td>Emory &amp; Henry College</td>
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<td>WFBQ 10</td>
<td>Cincinnati, Ohio</td>
<td>First Baptist Church</td>
<td></td>
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<tr>
<td>WHBC 10</td>
<td>Canton, Ohio</td>
<td>WBSE, Inc.</td>
<td></td>
</tr>
<tr>
<td>WHBG 10</td>
<td>Green Bay, Wis.</td>
<td>St. John’s Catholic Church</td>
<td></td>
</tr>
<tr>
<td>WHBY 100</td>
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<td>C. Lerdo Dgo.</td>
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<td>WCAE 1000 N</td>
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<td>WDAE 1000</td>
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<td>WFBM 1000 1C</td>
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<td>WNAC 1000 2C</td>
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<td>WPSC 500 D</td>
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<tr>
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<td>Valley Radio-Electric Corp.</td>
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<tr>
<td>WKBB</td>
<td>100</td>
<td>Joliet, III.</td>
</tr>
<tr>
<td>WKBO</td>
<td>100</td>
<td>Birmingham, Ala.</td>
</tr>
<tr>
<td>WKS</td>
<td>100</td>
<td>Galesburg, Ill.</td>
</tr>
<tr>
<td>WLBC</td>
<td>50</td>
<td>Muncie, Ind.</td>
</tr>
<tr>
<td>WMBK</td>
<td>100</td>
<td>Auburn, N. Y.</td>
</tr>
<tr>
<td>WNBK</td>
<td>100</td>
<td>New Bedford, Mass.</td>
</tr>
<tr>
<td>WOB</td>
<td>50</td>
<td>Knoxville, Tenn.</td>
</tr>
<tr>
<td>WOL</td>
<td>100</td>
<td>Washington, D. C.</td>
</tr>
<tr>
<td>WRAW</td>
<td>100</td>
<td>Reading, Pa.</td>
</tr>
<tr>
<td>WRS</td>
<td>100</td>
<td>Tifton, Ga.</td>
</tr>
<tr>
<td>WSA</td>
<td>100</td>
<td>Hamilton, Ohio</td>
</tr>
<tr>
<td>WSJS</td>
<td>100</td>
<td>Grove City, Pa.</td>
</tr>
</tbody>
</table>

**1320 kilocycles**

<table>
<thead>
<tr>
<th>Call Letters</th>
<th>Frequency</th>
<th>City/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>KGHB</td>
<td>500</td>
<td>Honolulu, Hawaii</td>
</tr>
<tr>
<td>KGHF</td>
<td>250</td>
<td>Pueblo, Colo.</td>
</tr>
<tr>
<td>KGIO</td>
<td>250</td>
<td>Twin Falls, Idaho</td>
</tr>
<tr>
<td>KGMB</td>
<td>250</td>
<td>Honolulu, Hawaii</td>
</tr>
<tr>
<td>LED</td>
<td>50</td>
<td>Idaho Falls, Idaho</td>
</tr>
<tr>
<td>WADC</td>
<td>1000</td>
<td>Akron, Ohio</td>
</tr>
<tr>
<td>WSMB</td>
<td>500</td>
<td>New Orleans, La.</td>
</tr>
</tbody>
</table>

**1330 kilocycles**

<table>
<thead>
<tr>
<th>Call Letters</th>
<th>Frequency</th>
<th>City/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>KGB</td>
<td>250</td>
<td>San Diego, Cal.</td>
</tr>
<tr>
<td>KSJ</td>
<td>1000</td>
<td>Sioux City, Iowa</td>
</tr>
<tr>
<td>WDR</td>
<td>500</td>
<td>New Haven, Conn.</td>
</tr>
<tr>
<td>WSAI</td>
<td>500</td>
<td>Cincinnati, Ohio</td>
</tr>
<tr>
<td>WFAQ</td>
<td>1000</td>
<td>Eau Claire, Wis.</td>
</tr>
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</table>

**1340 kilocycles**

<table>
<thead>
<tr>
<th>Call Letters</th>
<th>Frequency</th>
<th>City/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>KFPW</td>
<td>50</td>
<td>Siloam Springs, Ark.</td>
</tr>
<tr>
<td>KFPY</td>
<td>1000</td>
<td>Spokane, Wash.</td>
</tr>
<tr>
<td>WCOA</td>
<td>500</td>
<td>Pensacola, Fla.</td>
</tr>
<tr>
<td>WSPD</td>
<td>500</td>
<td>Toledo, Ohio</td>
</tr>
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</table>

**1350 kilocycles**

<table>
<thead>
<tr>
<th>Call Letters</th>
<th>Frequency</th>
<th>City/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>KWK</td>
<td>1000</td>
<td>St. Louis, Mo.</td>
</tr>
<tr>
<td>WBNY</td>
<td>250</td>
<td>New York City</td>
</tr>
<tr>
<td>WCDA</td>
<td>250</td>
<td>New York City</td>
</tr>
<tr>
<td>WKBQ</td>
<td>250</td>
<td>New York City</td>
</tr>
<tr>
<td>WMSO</td>
<td>250</td>
<td>New York City</td>
</tr>
</tbody>
</table>

**Fitzsimmons General Hospital**

**R. G. Howell**

**Exchange Ave. Baptist Church**

**Foster-Hall Tire Co.**

**First National Bank of Vida**

**Chamber of Commerce**

**Otto F. Soothman and Roy H. McConnell**

**Chas. W. McCollum**

**Charles C. Robinson**

**Carl E. Hamond**

**Mrs. W. J. Virgin**

**Houseman Sheet Metal Works, Inc.**

**W. S. Bledsoe & W. T. Blackwell**

**Harry F. Paar**

**KXRO, Inc.**

**Royal Oak Broadcasting Co.**

**Banks of Wabash, Inc.**

**Louis G. Baltimore**

**WCLS, Inc.**

**Fred Jordan & Lewis Burd**

**Trinity Methodist Church**

**Howell Broadcasting Co., Inc.**

**Wm. F. Gable Co.**

**Frank D. Fallain**

**Poulkrood Radio Engineering Co.**

**WGAL, Inc.**

**Virginia Broadcasting Co., Inc.**

**Albert A. Walker**

**William C. Forrest**

**Johnstown Automobile Co.**

**Markos Broadcasting Co.**

**Laconia Radio Club**

**Sanders Bros.**

**R. B. Broyles Furniture Co.**

**Permil N. Nelson**

**Donald A. Burton**

**Radio Service Laboratories**

**New Bedford Broadcasting Co.**

**Lonsdale Baptist Church**

**Tetworth's Radio & Music Shop**

**American Broadcasting Co.**

**Avenue Radio & Electric Shop**

**Kent's Furniture and Music Store**

**Hamilton Radio Service**

**Grove City College**

**Winston-Salem Journal Co.**
### INDEX BY FREQUENCIES AND DIAL NUMBERS

#### 1360 kilocycles 220.4 meters

<table>
<thead>
<tr>
<th>Station</th>
<th>Frequency</th>
<th>Dial Number</th>
<th>City, State</th>
</tr>
</thead>
<tbody>
<tr>
<td>KGER</td>
<td>1000</td>
<td>4X</td>
<td>Long Beach, Cal.</td>
</tr>
<tr>
<td>KGIR</td>
<td>500</td>
<td></td>
<td>Butte, Mont.</td>
</tr>
<tr>
<td>KPSN</td>
<td>1000</td>
<td>4</td>
<td>Pasadena, Cal.</td>
</tr>
<tr>
<td>WFBL</td>
<td>1000</td>
<td>C</td>
<td>Syracuse, N. Y.</td>
</tr>
<tr>
<td>WGES</td>
<td>500</td>
<td>1+</td>
<td>Chicago, Ill.</td>
</tr>
<tr>
<td>WJKS</td>
<td>500</td>
<td>1+</td>
<td>Gary, Ind.</td>
</tr>
<tr>
<td>WQBC</td>
<td>300</td>
<td></td>
<td>Vicksburg, Miss.</td>
</tr>
</tbody>
</table>

C. Merwin Dobyns  
KGIR, Inc.  
Pasadena Star-News  
The Onondaga Co., Inc.  
Oak Leaves Broadcasting Station, Inc.  
Johnson-Kennedy Radio Corp.  
Delta Broadcasting Co.

#### 1370 kilocycles 218.7 meters

<table>
<thead>
<tr>
<th>Station</th>
<th>Frequency</th>
<th>Dial Number</th>
<th>City, State</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCRC</td>
<td>100</td>
<td>2+</td>
<td>Enid, Okla.</td>
</tr>
<tr>
<td>KFBL</td>
<td>100</td>
<td>3</td>
<td>Everett, Wash.</td>
</tr>
<tr>
<td>KFJ</td>
<td>100</td>
<td></td>
<td>Astoria, Ore.</td>
</tr>
<tr>
<td>KFJM</td>
<td>100</td>
<td></td>
<td>Grand Forks, N. D.</td>
</tr>
<tr>
<td>KPJZ</td>
<td>100</td>
<td></td>
<td>Ft. Worth, Texas</td>
</tr>
<tr>
<td>KFLX</td>
<td>100</td>
<td></td>
<td>Galveston, Texas</td>
</tr>
<tr>
<td>KGAR</td>
<td>100</td>
<td>X+</td>
<td>Tucson, Ariz.</td>
</tr>
<tr>
<td>KGCI</td>
<td>100</td>
<td>5</td>
<td>San Antonio, Texas</td>
</tr>
<tr>
<td>KFDA</td>
<td>50</td>
<td></td>
<td>El Paso, Texas</td>
</tr>
<tr>
<td>KGFG</td>
<td>100</td>
<td>2</td>
<td>Oklahoma City</td>
</tr>
<tr>
<td>KGFL</td>
<td>50</td>
<td></td>
<td>Raton, N. M.</td>
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<tr>
<td>KGKL</td>
<td>100</td>
<td></td>
<td>San Angelo, Texas</td>
</tr>
<tr>
<td>KLO</td>
<td>100</td>
<td>+</td>
<td>Ogden, Utah</td>
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<tr>
<td>KOH</td>
<td>100</td>
<td></td>
<td>Reno, Nevada</td>
</tr>
<tr>
<td>KONO</td>
<td>100</td>
<td>5</td>
<td>San Antonio, Texas</td>
</tr>
<tr>
<td>KOOS</td>
<td>100</td>
<td></td>
<td>Marshfield, Ore.</td>
</tr>
<tr>
<td>KRE</td>
<td>100</td>
<td>6</td>
<td>Berkeley, Cal.</td>
</tr>
<tr>
<td>KVL</td>
<td>100</td>
<td>3</td>
<td>Seattle, Wash.</td>
</tr>
<tr>
<td>KWKC</td>
<td>100</td>
<td></td>
<td>Kansas City, Mo.</td>
</tr>
<tr>
<td>KZM</td>
<td>100</td>
<td>6</td>
<td>Haywood, Cal.</td>
</tr>
<tr>
<td>WBTM</td>
<td>100</td>
<td>CP7</td>
<td>Danville, Va.</td>
</tr>
<tr>
<td>WCBM</td>
<td>100</td>
<td></td>
<td>Baltimore, Md.</td>
</tr>
<tr>
<td>WELK</td>
<td>100</td>
<td></td>
<td>Philadelphia, Pa.</td>
</tr>
<tr>
<td>WFDV</td>
<td>100</td>
<td></td>
<td>Rome, Ga.</td>
</tr>
<tr>
<td>WGL</td>
<td>100</td>
<td></td>
<td>Fort Wayne, Ind.</td>
</tr>
<tr>
<td>WHBD</td>
<td>100</td>
<td></td>
<td>Mount Orab, Ohio</td>
</tr>
<tr>
<td>WHBQ</td>
<td>100</td>
<td></td>
<td>Memphis, Tenn.</td>
</tr>
<tr>
<td>WHDF</td>
<td>100</td>
<td>X</td>
<td>Calumet, Mich.</td>
</tr>
<tr>
<td>WIBM</td>
<td>100</td>
<td>1</td>
<td>Jackson, Mich.</td>
</tr>
<tr>
<td>WJBK</td>
<td>50</td>
<td>1</td>
<td>Ypsilanti, Mich.</td>
</tr>
<tr>
<td>WLEY</td>
<td>100</td>
<td></td>
<td>Lexington, Mass.</td>
</tr>
<tr>
<td>WLVA</td>
<td>100</td>
<td>CP7</td>
<td>Lynchburg, Va.</td>
</tr>
<tr>
<td>WMBR</td>
<td>100</td>
<td></td>
<td>Tampa, Fla.</td>
</tr>
<tr>
<td>WPOE</td>
<td>100</td>
<td></td>
<td>Patchogue, N. Y.</td>
</tr>
<tr>
<td>WQDM</td>
<td>5</td>
<td>CPD</td>
<td>St. Albans, Vt.</td>
</tr>
<tr>
<td>WRAK</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRBJ</td>
<td>10</td>
<td></td>
<td>Hattiesburg, Miss.</td>
</tr>
<tr>
<td>WBFT</td>
<td>100</td>
<td></td>
<td>Wilmington, N. C.</td>
</tr>
<tr>
<td>WRJN</td>
<td>100</td>
<td></td>
<td>Racine, Wis.</td>
</tr>
<tr>
<td>WSVS</td>
<td>50</td>
<td></td>
<td>Buffalo, N. Y.</td>
</tr>
</tbody>
</table>

Champlin Refining Co.  
Leese Bros.  
KFJ1 Broadcasters, Inc.  
University of North Dakota  
H. C. Meacham  
George Roy Clough  
Tucson Motor Service Co.  
Radio Sam Broadcast Co., Inc.  
Home Auto Co.  
Faith Tabernacle Assn.  
W. E. Whitmore  
KGKL, Inc., Opr. by Ragsdale Auto  
Peery Building Co.  
Jay Peters  
Eugene J. Roth  
H. H. Hanseth  
First Congregational Church  
KVL, Inc.  
Wilson Duncan Broadcasting Co.  
Leon P. Tenney  
Clarke Electric Co.  
Baltimore Broadcasting Corp.  
Howard R. Miller  
Dolies Goings  
Fred C. Zieg  
F. P. Moler  
Broadcasting Station WHBQ, Inc.  
Upper Michigan Broadcasting Co.  
C. L. Carrell  
James F. Hopkins  
Lexington Air Stations  
Ed. A. & Philip P. Allen  
F. J. Reynolds  
Nassau Broadcasting Corp.  
A. J. St. Antoine  
J. R. Cummins  
Woodruff Furniture Co., Inc.  
Wilmington Radio Association  
Racine Broadcasting Corp.  
Seneca Vocational School

#### 1380 kilocycles 217.3 meters

<table>
<thead>
<tr>
<th>Station</th>
<th>Frequency</th>
<th>Dial Number</th>
<th>City, State</th>
</tr>
</thead>
<tbody>
<tr>
<td>KOV</td>
<td>500</td>
<td>2</td>
<td>Pittsburgh, Pa.</td>
</tr>
<tr>
<td>KSO</td>
<td>500</td>
<td>1</td>
<td>Clarinda, Iowa</td>
</tr>
<tr>
<td>WKBH</td>
<td>1000</td>
<td>1</td>
<td>La Crosse, Wis.</td>
</tr>
<tr>
<td>WSMK</td>
<td>200</td>
<td>2</td>
<td>Dayton, Ohio</td>
</tr>
</tbody>
</table>

Doubleday-Hill Electric Co.  
Berry Seed Co.  
Callaway Music Co.  
Stanley M. Krohn, Jr.

#### 1390 kilocycles 215.7 meters

<table>
<thead>
<tr>
<th>Station</th>
<th>Frequency</th>
<th>Dial Number</th>
<th>City, State</th>
</tr>
</thead>
<tbody>
<tr>
<td>KLRA</td>
<td>1000</td>
<td>1C</td>
<td>Little Rock, Ark.</td>
</tr>
<tr>
<td>KOF</td>
<td>500</td>
<td></td>
<td>Phoenix, Ariz.</td>
</tr>
<tr>
<td>KUA</td>
<td>1000</td>
<td>1</td>
<td>Fayetteville, Ark.</td>
</tr>
<tr>
<td>WHK</td>
<td>1000</td>
<td>CX</td>
<td>Cleveland, Ohio</td>
</tr>
</tbody>
</table>

Arkansas Broadcasting Co.  
University of Arkansas  
Radio Air Service Corp.
### INDEX BY FREQUENCIES AND DIAL NUMBERS

#### 1400 kilocycles

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Station</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>1400</td>
<td>KOCC</td>
<td>Chickasha, Okla.</td>
</tr>
<tr>
<td>1400.5</td>
<td>WBAA</td>
<td>Lafayette, Ind.</td>
</tr>
<tr>
<td>1402</td>
<td>WBBG</td>
<td>Brooklyn, N. Y.</td>
</tr>
<tr>
<td>1402</td>
<td>WCGU</td>
<td>Brooklyn, N. Y.</td>
</tr>
<tr>
<td>1402.5</td>
<td>WCMA</td>
<td>Culver, Ind.</td>
</tr>
<tr>
<td>1402.5</td>
<td>WKBG</td>
<td>Indianapolis, Ind.</td>
</tr>
<tr>
<td>1403</td>
<td>WLBG</td>
<td>Brooklyn, N. Y.</td>
</tr>
<tr>
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<td>WSGH</td>
<td>Brooklyn, N. Y.</td>
</tr>
</tbody>
</table>

#### 1410 kilocycles

<table>
<thead>
<tr>
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<th>Station</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>1410</td>
<td>KFLY</td>
<td>Rockford, Ill.</td>
</tr>
<tr>
<td>1410.5</td>
<td>KGCR</td>
<td>Amarillo, Texas</td>
</tr>
<tr>
<td>1410.5</td>
<td>WBCM</td>
<td>Bay City, Mich.</td>
</tr>
<tr>
<td>1410.5</td>
<td>WDG</td>
<td>Sheboygan, Wis.</td>
</tr>
<tr>
<td>1410.5</td>
<td>WLEX</td>
<td>Lexington, Mass.</td>
</tr>
<tr>
<td>1410.5</td>
<td>WMAM</td>
<td>S. Dartmouth, Mass.</td>
</tr>
<tr>
<td>1410.5</td>
<td>WODX</td>
<td>Mobile, Ala.</td>
</tr>
<tr>
<td>1410.5</td>
<td>WSFA</td>
<td>Montgomery, Ala.</td>
</tr>
<tr>
<td>1410.5</td>
<td>WSSH</td>
<td>Boston, Mass.</td>
</tr>
</tbody>
</table>

#### 1420 kilocycles

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Station</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>1420</td>
<td>KFIF</td>
<td>Portland, Ore.</td>
</tr>
<tr>
<td>1420</td>
<td>KFIZ</td>
<td>Fond du Lac, Wis.</td>
</tr>
<tr>
<td>1420</td>
<td>KFQI</td>
<td>Holy City, Cal.</td>
</tr>
<tr>
<td>1420</td>
<td>KFQW</td>
<td>Seattle, Wash.</td>
</tr>
<tr>
<td>1420</td>
<td>KFXD</td>
<td>Jerome, Idaho</td>
</tr>
<tr>
<td>1420</td>
<td>KFXY</td>
<td>Flagstaff, Ariz.</td>
</tr>
<tr>
<td>1420</td>
<td>KFYO</td>
<td>Abilene, Texas</td>
</tr>
<tr>
<td>1420</td>
<td>KGFF</td>
<td>Alva, Okla.</td>
</tr>
<tr>
<td>1420</td>
<td>KGGC</td>
<td>San Francisco, Cal.</td>
</tr>
<tr>
<td>1420</td>
<td>KGJW</td>
<td>Trinidad, Colo.</td>
</tr>
<tr>
<td>1420</td>
<td>KGIX</td>
<td>Las Vegas, Nevada</td>
</tr>
<tr>
<td>1420</td>
<td>KGKX</td>
<td>Sand Point, Idaho</td>
</tr>
<tr>
<td>1420</td>
<td>KZK</td>
<td>Red Oak, Iowa</td>
</tr>
<tr>
<td>1420</td>
<td>KLP</td>
<td>Minot, North Dakota</td>
</tr>
<tr>
<td>1420</td>
<td>KORE</td>
<td>Eugene, Ore.</td>
</tr>
<tr>
<td>1420</td>
<td>KTAP</td>
<td>San Antonio, Texas</td>
</tr>
<tr>
<td>1420</td>
<td>KTUE</td>
<td>Houston, Texas</td>
</tr>
<tr>
<td>1420</td>
<td>KXL</td>
<td>Portland, Ore.</td>
</tr>
<tr>
<td>1420</td>
<td>WEDH</td>
<td>Erie, Pa.</td>
</tr>
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<td>1420</td>
<td>WEHS</td>
<td>Evanston, Ill.</td>
</tr>
<tr>
<td>1420</td>
<td>WFDW</td>
<td>Talladega, Ala.</td>
</tr>
<tr>
<td>1420</td>
<td>WDL</td>
<td>Tupper Lake, N. Y.</td>
</tr>
<tr>
<td>1420</td>
<td>WHFC</td>
<td>Cicero, Ill.</td>
</tr>
<tr>
<td>1420</td>
<td>WHIS</td>
<td>Bluefield, W. Va.</td>
</tr>
<tr>
<td>1420</td>
<td>WIAS</td>
<td>Ottumwa, Iowa</td>
</tr>
<tr>
<td>1420</td>
<td>WIR</td>
<td>Steubenville, Ohio</td>
</tr>
<tr>
<td>1420</td>
<td>WILM</td>
<td>Delaware, Del.</td>
</tr>
<tr>
<td>1420</td>
<td>WJBO</td>
<td>New Orleans, La.</td>
</tr>
<tr>
<td>1420</td>
<td>WKBI</td>
<td>Chicago, Ill.</td>
</tr>
<tr>
<td>1420</td>
<td>WKBP</td>
<td>Battle Creek, Mich.</td>
</tr>
<tr>
<td>1420</td>
<td>WLBF</td>
<td>Kansas City, Kas.</td>
</tr>
<tr>
<td>1420</td>
<td>WMBG</td>
<td>Detroit, Mich.</td>
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<tr>
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## INDEX BY LOCATIONS WITH MAP KEY

### ALABAMA
- Birmingham K-19-a
  - 5000 WAPI 1140
  - 500 WBRC 930
  - 100 WKBC 1310
- Gadsden K-20-a
  - 50 WJBY 1210
- Mobile L-19
  - 500 WODX 1410
- Montgomery K-19
  - 500 WSFA 1410
- Talladega K-20
  - 100 WFDW 1420

### ARIZONA
- Flagstaff J-7
  - 100 KFXY 1420
- Jerome J-7
  - 100 KGMC 1310
- Phoenix K-7
  - 500 KOY 1390
- Prescott J-6
  - 100 KPJM 1500
- Tucson L-7
  - 100 KGAR 1370
  - 500 KVOA 1260

### ARKANSAS
- Blytheville L-18
  - 50 KLCN 1290
- Fayetteville J-16
  - 100000 KUOA 1390
- Hot Springs J-16
  - 100000 KTHS 1040
- Little Rock J-17
  - 100 KGHI 1200
  - 250 KGJF 890
  - 1000 KLRA 1390
  - 500 1250
- McGehee K-17
  - 50 KGHG 1310
- Paragould I-17
  - 100 KBTM 1200
- Siloam Springs I-16
  - 50 KFPW 1340

### CALIFORNIA
- Berkeley H-1-a
  - 100 KRE 1370
- Burbank J-4
  - 500 KELW 780
- Culver City K-3
  - 250 KFVD 1000
- El Centro K-5
  - 100 KXO 1200
- Fresno I-3
  - 100 KMJ 1210
- Hayward H-2
  - 100 KZM 1370
- Hollywood K-3
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  - 500 KMTTR 570
  - 5000 KNX 1050
- Holy City I-2
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- Inglewood K-4
  - 500 KMIC 1120
- Long Beach K-4-a
  - 1000 KFOX 1250
- Los Angeles K-3-b
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  - 500 KEJK 710
  - 5000 KF1 640
  - 250 KFQZ 850
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  - 1000 KGEF 1300
  - 100 KGFJ 1200
  - 1000 KHJ 900
  - 500 KTM 760
  - 750 KTB1 1300
- Oakland H-1-b
  - 500 KFWM 930
  - 7500 KGO 790
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- Pasadena J-4
  - 50 KPPC 1210
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- Sacramento H-2-a
  - 100 KFBK 1310
- San Bernardino J-3
  - 100 KFXM 1310
- San Diego K-4-b
  - 500 KFSD 600
- San Francisco H-1-c
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- San Jose I-2
  - 1000 KFRC 610
  - 500 KFWI 610
  - 50 KGGC 1420
  - 100 KJBS 1070
  - 500 KPO 680
  - 1000 KYA 1230
- Stockton H-2-b
  - 250 KGDM 1100
- Westminster
  - 5000 KPWF 1490

### COLORADO
- Colo. Springs H-10
  - 1000 KFUM 1270
- Denver G-10-b
  - 500 KFEL 920
  - 100 KFUP 1310
  - 500 KFXF 920
- Edgewater G-10
  - 100 KGEW 1200
- Fort Morgan G-11
  - 100 KGB 1200
- Greeley F-10
  - 500 KFKA 880
- Gunnison H-9
  - 50 KFLA 1200
- Pueblo E-11
  - 250 KGHF 1320
- Trinidad H-10
  - 100 KGH 1420
- Yuma G-11
  - 50 KGK 1200

### CONNECTICUT
- Bridgeport F-26
  - 500 WICC 1190
- Hartford E-25-d
  - 5000 WTIC 1060
- New Haven F-26-b
  - 500 WDRC 1330
- Storrs
  - 250 WCAC 600

### DELAWARE
- Wilmington G-25
  - 250 WDEL 1120
  - 100 WILM 1420

### DISTRICT OF COLUMBIA
- Washington G-24-c
  - 250 WMAL 630
  - 500 WRC 950
  - 100 WOL 1310

### FLORIDA
- Clearwater N-21
  - 1000 WFLA 620
- Gainesville M-21
  - 5000 WRUF 830
- Jacksonville M-22
  - 1000 WJAX 900
- Miami O-23
  - 1000 WQAM 560
- Miami Beach O-23
  - 1000 WIOD 1300
- Orlando N-22
  - 500 WDBO 1120
- Pensacola L-19
  - 500 WCOA 1340
- St. Petersburg N-21
  - 1000 WSN 620
- Tampa N-22-b
  - 1000 WDAE 620
  - 100 WMBR 1370

### GEORGIA
- Atlanta K-20-a
  - 250 WGST 890
  - 5000 WSB 740
- Columbus K-20
  - 50 WRBL 1200
- Macon K-21
  - 250 WMAZ 890
- Rome J-20
  - 250 WFDV 1370
- Savannah K-22
  - 500 WTOC 1260
- Tifton L-21
  - 250 WRTI 130
- Toccoa J-21
  - 500 WTFI 1450

### HAWAII
- Honolulu
  - 500 KGB 1320
  - 500 KGM 1320
  - 500 KGU 940

### IDAHO
- Boise D-4
  - 1000 KIDO 1250
- Idaho Falls D-7
  - 500 KID 1320
- Jerome E-5
  - 50 KFXD 1420
- Pocatello E-7
  - 250 KSEI 900
- Sand Point A-4
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### INDEX BY LOCATIONS WITH MAP KEY

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| Salt Lake City F-7-c | 1000 KDYL 1290 |

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| Burlington D-26-a | 100 WCBX 1200 |
| St. Albans D-26 | 5 WQDM 1370 |
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| Emory | 100 WEHC 1370 |
| Lynchburg H-23 | 100 WLWA 1370 |
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| Mt. Vernon Hills | 10000 WJSY 1460 |
| Newport News I-24 | 100 WGH 1310 |
| Norfolk I-24 | 500 WPOR 780 |
| Petersburg H-24 | 100 WLBB 1210 |
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| Fond du Lac D-18-d | 1000 KFIZ 1420 |
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| Kenosha E-19 | 100 WPX 1290 |
| La Crosse E-17 | 1000 WKBH 1380 |
| Madison E-18-2 | 750 WHA 940 |
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| Manitowoc D-19 | 100 WMTT 1210 |
| Milwaukee E-19-a | 250 WNA 1120 |
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<td>Coney Island, N.Y.</td>
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<td>WBNY</td>
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<td>W2XCD</td>
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<td>Passaic, N.J.</td>
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<td>WABC</td>
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<td>Richmond, H. N. Y.</td>
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<td>Bellmore, L. I.</td>
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<td>Winter Park, Fla.</td>
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<td>Los Angeles Express</td>
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February Puzzle

Whether our puzzle fans found this cross-call too difficult because of the number of cases in which a letter was not keyed both ways, or whether these teasers have lost their flavor, we do not know. The number contributing solutions to this puzzle dropped sharply and we will therefore use the space heretofore occupied by cross-calls with something that may interest our readers more.

The solution of the puzzle that appeared in February is given below:

W
WHK
KITWW
WOLKMA
WPLWLMCK
KOCWXNNKO
WOAIWOEKWSC
WPIWCKWDWIKY
KWFLWOJWBNY
WHWAWAPWWE
WAWSMO
WPSKHV
HHKBS
WEW
X

Copies of RADEX have been mailed to those who sent in correct solutions. We found a number of instances where two different stations would answer the descriptions and we are considering either solution correct.

P.S.—Answers to the March puzzle are beginning to pour in, which indicates that the trouble lay with the February puzzle rather than lack of interest on the part of readers. Watch for another puzzle therefore, in the May number.

Ninety Stations on a Crystal Set

(Continued from page 16)

top is the knob of the midget condenser, under that the jack switch that shorted the aerial condenser, but I seldom used it, under that are the two jacks that switched either to the cat-whisker crystal or the Carborundum.

"Next to the left, at the top, is the housing of the crystal and under that the Carborundum control. I got the greatest sensitiveness from the cat-whisker crystal. Further to the left is the slide contact of the coil and under that are the binding posts of the phone outlets, between which is the jack switch that shorted out the second pair of phones.

"At the extreme left is the contact switch that enabled me to vary the capacity of the phone condensers and which I seldom used.

"The upper cabinet housed the wave traps."

{ If this issue of RADEX has pleased you, won't you add to your neighbor's pleasure by telling him about it? }
<table>
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<th>Time</th>
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Here's a radio book that is different. A book that passes right over theory and goes directly into the matter of what to do when something goes wrong with a radio set—practical as practical can be. The entire book, from cover to cover, deals with Radio Troubles. It tells you what these troubles are; how to locate them and what to do to correct them. It's a book that should be in the kit of every Radio Service Man and every "fan" who likes to "build his own."

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Combined with 210 Power Amplifier and "B" Supply Unit

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Such opportunity as herein presented is seldom available. And they won't last long at this low price. We suggest quick action — there's quality here — at a price heretofore unknown.

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