May
25 Cents
Canada 30¢

OFFICIAL

Short Wave Listener

HUGO GERNSBACK
EDITOR

MAGAZINE

PUBLISHED BY
THE PUBLISHERS OF
SHORT WAVE CRAFT

"SPOT NEWS"
By Short Waves

See Page 58

Jon L Blummer

LARGEST AND BEST SHORT-WAVE STATION LIST IN PRINT • PHOTOS OF S-W ARTISTS
WHERE TO FIND S-W STATIONS ON YOUR DIAL • WORLD SHORT-WAVE STATION MAP

WORLD GLOBES

FOR SHORT WAVE ENTHUSIASTS

NOW AT LOW PRICES

THESE remnrkable globes, executed in fourteen colors, are absolutely indispensable for short wave fans. Notnble among the numerous features of these world globes, is that a damp cloth quickly removes all dust and water does not harm the surface.

Short Wave fans are enabled to determine correct time in various centers of the world with the aid of these maps; distances from city to city can be accurately established.

There is a graduated "Meridian" scale of black enameled metal with the 9" and 12" globes. An additional feature is the movable hour scale found at the north pole—this facilitates determining the hour in any part of the world.

Only on a globe of this size is it possible to get an accurate picture of countries and their relative positions to each other. You will actually be amazed when you compare distances—from New York to Moscow; from Cape Town to Tokio; from Los Angeles to Rio de Janeiro, etc. A flat map is deceptive for measuring, but take a small string and stretch it across the globe, from city to city, and you have the correct distances.

Here are globes that add dignity to home, office, studio or laboratory—a globe that everyone would be proud to possess.

Each world globe contains a listing of over 7,500 cities in nations the world over—spellings conform to international geographic standards—all globes are of 1934 production. **GET ONE OF THESE FINE WORLD GLOBES TODAY!**

World Globe No. 147

12" Globe. New model—equipped with wooden floor stand finished in walnut. Height overall 35". Globe constructed with half meridian. New **World Globe Handbook Included FREE.** A marvelous buy. Never has a floor model Globe been sold at such a low price. Shipping weight 9 lbs.

PRICE

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F.O.B. Chicago.

No. 147

No. 99

World Globe No. 99

9" Globe, equipped with sturdy, black metal base and full meridian. Same ball as our No. 139 but reduced ¼ in size and scale. Included with globe is newly printed **World Globe Handbook FREE.** Shipping weight 6 lbs.

PRICE

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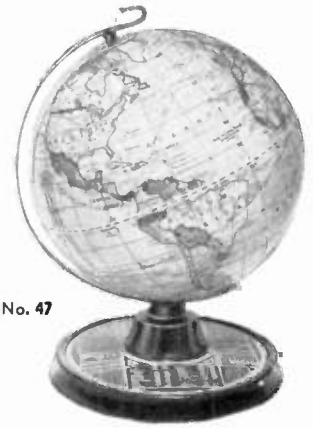
World Globe No. 47

7" Globe, equipped with sturdy metal base and half meridian. Index to countries of the world by latitude and longitude shown on base. Shipping weight 2 lbs.

PRICE

$0.90 F.O.B. Chicago.



No. 47

Gentlemen:

I received the World Globe and am certainly well pleased with its completeness, appearance and its usefulness.

Short wave listening has become a hobby with me, and this World Globe is a necessary accessory to any short wave listener or, for that matter, to any home.

P. C. ELLIS, Supt.
Laboratory—19th and Campbell Streets, Kansas City, Mo.

No. 139

SPECIAL THIS MONTH

World Globe No. 139

12" Globe, equipped with sturdy, black metal base and half meridian. Contains over 7,500 names and cities. Spellings conform to authoritative world standards. **Hundreds sold to many short wave fans during the last year. Copy of World Globe Handbook included FREE.** Shipping weight 8 lbs. **PRICE**

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SHORT WAVE CRAFT S W L-5-35
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Name .....

Address .....

City ..... State.....

Send remittance in check or money order—register letter if it contains cash, stamps or currency. GLOBES ARE SHIPPED FROM OUR WAREHOUSE IN CHICAGO—F. O. B. FROM THAT CITY.

All globes are carefully packed in original cartons assuring safe delivery. ORDER BY NUMBER. Send check or money order, plus sufficient postage for delivery by parcel post. Globes are shipped from our Chicago wareheuse. Register letter if it contains cash, or currency or stamps. If preferred, specify that shipment be sent express collect. ALL ORDERS ARE FILLED PROMPTLY.

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Prepare for jobs as Designer, Inspector and Tester—as Radio Salesman and in Service and Installation Work—or for work in a Broadcasting Station—as Wireless Operator on a Ship or Airplane, or in Talking Picture or Sound Work—HUNDREDS OF OPPORTUNITIES for a real future in Radio!

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We don't teach by book study. We train you on a great outlay of Radio, Television and Sound equipment—on scores of modern Radio Receivers, huge Broadcasting equipment, Television apparatus, Talking Picture and Sound Reproduction equipment, Code Practice equipment, etc. You don't need advanced education or previous experience. We give you—RIGHT HERE IN THE COYNE SHOPS—the actual practice and experience you'll need for your start in this great field. And because we cut out all useless theory and only give that which is necessary you get a practical training in 10 weeks.

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And Television is already here! Soon there'll be a demand for THOUSANDS of TELEVISION EXPERTS! The man who learns Television **now** can have a great future in this great new field. Get in on the **ground-floor** of this amazing new Radio development! Come to COYNE and learn Television as it should be learned on Television equipment. Talking Picture and Public Address Systems offer opportunities to the Trained Radio Man. Here is a great new Radio field just beginning to grow! Prepare NOW for these wonderful opportunities! Learn Radio Sound Work at COYNE on actual **Talking Picture** and **Sound Reproduction** equipment.

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I am making an offer that no other school has dared to do. I mean exactly what I say. You can get a complete training by the world's oldest and largest Practical Radio School and I'll finance your Tuition. You won't have to start paying me back in small, monthly payments until 2 months after your required training period is over. I consider the fellow who is ambitious enough to want to get ahead by taking my Training, worthy of my help. MAIL THE COUPON BELOW, and you can prove to me that you are willing to spend just TEN WEEKS in the Coyne Training Shops Learning RADIO. Then, I'll tell you how I finance your Tuition—give you your complete Training and let you pay me back later.

I've got enough confidence in ambitious fellows and in my methods to give them the training they need and let them pay me back after they have completed their training.

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To assure your thorough preparation for a prosperous future, I include—at no extra cost—a course in Electric Refrigeration and Air Conditioning, taught you by personal instruction and actual work on latest-type equipment.

ALL PRACTICAL WORK At COYNE in Chicago

ALL ACTUAL, PRACTICAL WORK. You build radio sets, install and service them. You actually **operate** great Broadcasting equipment. You construct Television Receiving Sets and **actually transmit your own Television programs over our Television equipment.** You work on **real** Talking Picture machines and Sound equipment. You learn Wireless Operating on Actual Code Practice apparatus. We don't waste time on useless theory. We give you the **practical training** you'll need—**in 10 short, pleasant weeks.**

MANY EARN WHILE LEARNING

You get Free Employment Service for Life. And don't let lack of money stop you—my plan makes it possible to get Coyne training with very little money. Many of our students make all or a good part of their living expenses while going to school and if you should need this help just write to me. **Coyne is 36 years old.** Coyne Training is tested—proved beyond all doubt. You can find out everything **absolutely free. Just mail coupon for my big free book!**

H. C. Lewis, Pres. RADIO DIVISION Founded 1899

Coyne Electrical School

500 S. Paulina St., Dept. 55-3M Chicago, Ill.

Mail Coupon Today for All the Facts

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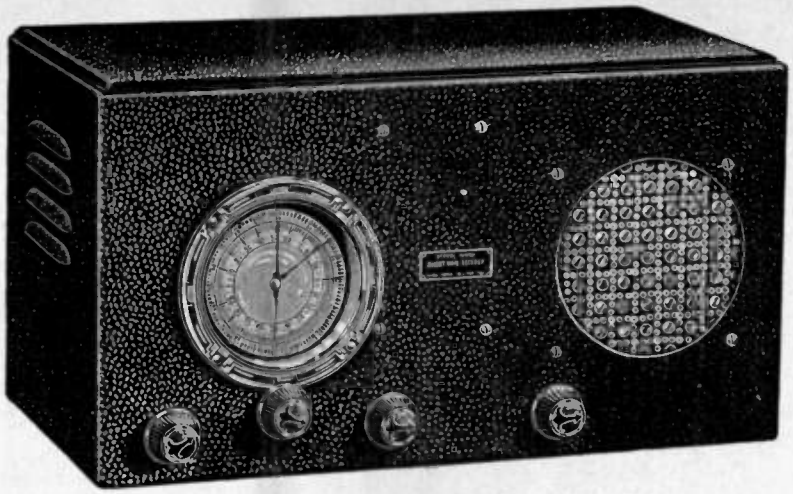
Dear Mr. Lewis:—Send me your Big Free Radio Book, and all details of your Special Offer, **including Electric Refrigeration, Air Conditioning courses and your "Pay After Graduation" offer.**

*Name*_____

*Address*_____

*City*_____ *State*_____



at last! CONTINUOUS BANDSPREAD *on all bands*

THE OFFICIAL

DOERLE BANDSPREAD

5-TUBE DE-LUXE A. C. SHORT-WAVE RECEIVER

Complete Price

$27.52 WITH TUBES

Nothing Else to Buy

- » Doublet Antenna Input or » Standard Antenna Input
- » 8-Low Loss Bakelite Plug-in Coils
- » 15-200 Meters » 12,500 Mile Range
- » Airplane Dial » Dynamic Speaker
- » Headset Jack » Beautiful Cabinet

NATION-WIDE *TESTIMONIALS* PRAISE THIS SET

Gentlemen:
I received your "Official Doerle A. C. 5" today, after being adjusted by your engineers. I have had the receiver turned on less than 10 minutes and at the present time I am listening to the American Hour coming from IRA, Rome, Italy. It is a wonderful relief to listen in without hearing a lot of noise. I would like to at this time thank you ever so much for making this adjustment. You cannot tell how much I appreciate this favor. You can certainly count on me as one of your boosters and I shall spread your name and products to all of my friends.
GEORGE LESLIE ALLEN, Morris Plains, N. J.

Dear Sir:
Just a letter of recommendation concerning the Doerle A. C. 5. What a set, oh boy, for bringing in the DX night after night. I receive about 10 stations a week that are new programs, besides 50 I already received. Besides I logged 700 hams. Stations that aren't even listed in call books give me a thrill. I only use a 20 ft. antenna wrapped around a chimney.
FRANCIS KMEC, Allentown, Pa.

Gentlemen:
This will acknowledge receipt of my Doerle short-wave receiver. This 1935 model is the smoothest and best operating set I have ever operated, both on amateur and foreign reception. I have heard practically all of the South American stations, Russia, Spain, and of course, France, Germany, Japan, and lots of others. This little receiver is just as you say it is—the best for the money—and I have seen sets selling for lots more which do not come within a mile of this Doerle.
If anybody wants to know if you people will treat them white, just let me know and I will tell absolutely yes.
S. L. SMITH, Colorado, Texas.

Gentlemen:
I am very well satisfied with the set and here are some of DX stations which I have received on it:
On 20 meter coil: EAQ—Madrid, Spain; PRF5—Rio Grande, Brazil, S. A.; LSX—Monte Grande, Argentina, S. A.; DIQ—Germany (Koenig Wusterhausen); GSB—England (Daventry); COH—Havana, Cuba.
On 49 Meters: DJD—Berlin, Germany; H2-CRL—Guayaquil, South America; 2RO—Rome, Italy; DKC and DKF—Germany; XEBT—Mexico City, Mexico.
Also many other South American stations and Central American stations. Amateurs in more than 36 different states and including Canadian amateurs.
AUGUSTE THEBERGE, River Edge, N. J.

BEFORE you buy any other Short-Wave Receiver, be sure to take advantage of our **FREE** five day trial offer explained below. Satisfy yourself, in your own home and at your leisure that this IS one of the greatest values in radio, and that it DOES have features which are found only in more expensive receivers.

Will Outperform Many 10-Tube Expensive Sets

A powerful 5-tube "rig" complete with its self-contained hum-free power pack and dynamic speaker; all mounted on a single chassis and contained in a large handsomely finished black crackle cabinet with patterned screen speaker grill.
Two tuned stages—regenerative detector, 3AF stages with powerful 41 pentode output and perfectly matched dynamic speaker; all these features contribute to the enormous power and superlative performance of this Doerle short-wave receiver.
CONTINUOUS BANDSPREAD ON ALL BANDS. A special double-pointer, doule-scale, airplane dial having a tuning ratio of 125 to 1 is employed.
Amateurs may now use this receiver for their daily communications work wth the greatest of confidence. It is a real, reliable performer—A FULL-FLEDGED "HAM" RECEIVER.
All the fine features that you would expect to find in more expensive receivers are incorporated in this "ACE TOP-NOTCHER" of the entire Doerle line.
Either a short-wave doublet or standard antenna may be used. A new antenna-adjusting scheme permits perfect alignment of both tuned circuits without affecting the setting of the tuning dial. This means that all stations can be accurately logged on the single tuning dial and always found in their allotted places. Provisions are made to use headphones if desired, with a switch to cut out the dynamic speaker.

LOOK AT THIS DX-QSL LIST!

During its initial test, in one sitting, this receiver pulled in on its loud speaker, at good room volume, the following enviable log: **WIXAL, WIXAZ, Boston; W3XAL, Boundbrook, N.J.; W8XAL, Cincinnati; W9XAA and W9XF, Chicago; GSC, GSD, GSE, GSF, Daventry, England; DJA, DJB, DJC, DJD, Zeesen, Germany; HBL, HBP, Geneva; VE9GW Ontario; V9DN Quebec; GE9DR Montreal; VE9HX Halifax; XETE Mexico City; YU1BC, YV3BC Caracas CP5 Bolivia; LSN Buenos Aires; COC Havana; EAQ Madrid; WQO and WEF,** testing with the Byrd Expedition and a whole flock of amateurs in practically every radio district of the United States. After that, we could no longer keep our eyes open so we "signed off" to bed.
The testimonials printed on this page testify that, in actual use, our customers are attaining even greater success. Uses a simple regenerative circuit—so simple as to be entirely fool-proof. Tubes: 1—6D6, 1—6F7 (actually two tubes in one), 1—37, 1—41 power output tube and 1—80 full-wave rectifier. Two gang tuning condenser; single dial control; FULL-VISION ILLUMINATED BAND SPREAD AIRPLANE DIAL. Ship. wt. 35 lbs.
No. 5000. **"DOERLE AC-5" Short-Wave Receiver.** Complete with Tubes, Speaker and 8 coils 15 to 200 meters. Completely wired and tested. (NOT SOLD IN KIT FORM) YOUR PRICE..... **$27.52**
List Price $46.75
Set of 2 Broadcast coils $1.75 additional

7 PAGES of Instructions and Diagrams Included with each SET

USE THIS COUPON for —

FREE 5 DAY TRIAL

RADIO TRADING CO., 103A HUDSON ST., NEW YORK

RL-4-5

Gentlemen:
I enclose ..... dollars ..... cents, for your new Doerle 5-Tube De-Luxe Short-Wave receiver on a five day free trial basis. I am to prove to my own satisfaction that it will give me world-wide reception and that your guarantee means exactly what it says. If, at the end of five days after receipt of radio, I am not perfectly satisfied, I will write you accordingly, whereupon, you will send shipping instructions. Upon receipt of the radio, you will refund me the full purchase price. I agree to pay express charges one way, and you the other.
C.O.D. SHIPMENT. I enclose.....dollars.....cents deposit balance of .....dollars.....cents C.O.D.

PRINT Name .....
Address .....
Town ..... State.....

FREE **JUST OFF THE PRESS!**
IMPORTANT BUYING GUIDE FOR RADIO DEALERS, SERVICE MEN, EXPERIMENTERS AND SHORT-WAVE FANS.
32 Pages. Two Colors. Profusely Illustrated.
Up-to-the-minute catalog containing low prices which save you money. Contains radio sets, parts, public address equipment, short-wave receivers, etc., etc.,
Name the item—it's in the catalog
Send post card or letter. Book sent by return mail. See page 95 for more details.

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Paris Agent: BRENTANO'S, 37 Ave. De L'Opera Paris, 2E, France
Australian Agency: McGILL'S AGENCY, 179 Elizabeth St., Melbourne

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Associate Editor
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OFFICIAL
SHORT-WAVE LISTENER
MAGAZINE
Combined with
OFFICIAL SHORT-WAVE LOG AND CALL MAGAZINE

APRIL-MAY, 1935

VOLUME I, No. 5

PRIZES FOR YOUR LETTERS

• *BEGINNING with the next issue, we will give prizes for the best letters published in the department "THE LISTENER SPEAKS." What is wanted from you readers are letters of a constructive nature, such as suggestions how to improve the magazine, and all matters which have to do with the text of the OFFICIAL SHORT WAVE LISTENER MAGAZINE. Whether the letters are complimentary, or whether they contain a healthy brickbat, makes no difference. As a matter of fact, the editors would rather be criticized severely, if it will help them to turn out a better magazine.*

Remember, first, last and always, that this magazine is gotten out for you readers, not for the editors. Our personal likes and dislikes do not mean a hoot when it comes to make-up the magazine. We give you exactly what you want, and more of it, but we can't do it unless we have your full cooperation.

Since the first issue of this magazine came out, we have received hundreds of letters, many of which were laudatory, others highly critical, and still others which give constructive criticisms. The improvement is shown in this issue. Thus, for instance, one reader wrote in and told us that we should put a blank column in the Grand Short Wave Station list for LOGGING purposes. You will see that in this issue we have adopted this suggestion.

Now, it is up to you. Beginning with the next issue, all letters printed will receive a FREE subscription to SHORT WAVE CRAFT magazine. Now let's see YOUR letters, and we hope to see many of them.

HUGO GERNSBACK,
Publisher.

Popular Book Corporation
Editorial and General Offices
99-101 Hudson St., New York, N. Y.

Contents . . .

This magazine is published every other month.
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OFFICIAL SHORT WAVE LISTENER MAGAZINE published every other month by Popular Book Corp., 99-101 Hudson St., New York, N. Y., and entered as second class matter at the Post Office, New York, N. Y., under the act of March 31, 1879. OFFICIAL SHORT WAVE LISTENER MAGAZINE is published every other month, six numbers per year. The subscription price is $1.50 per year in the United States and possessions; Canada and foreign countries, $1.75 per year. Single copies 25c.

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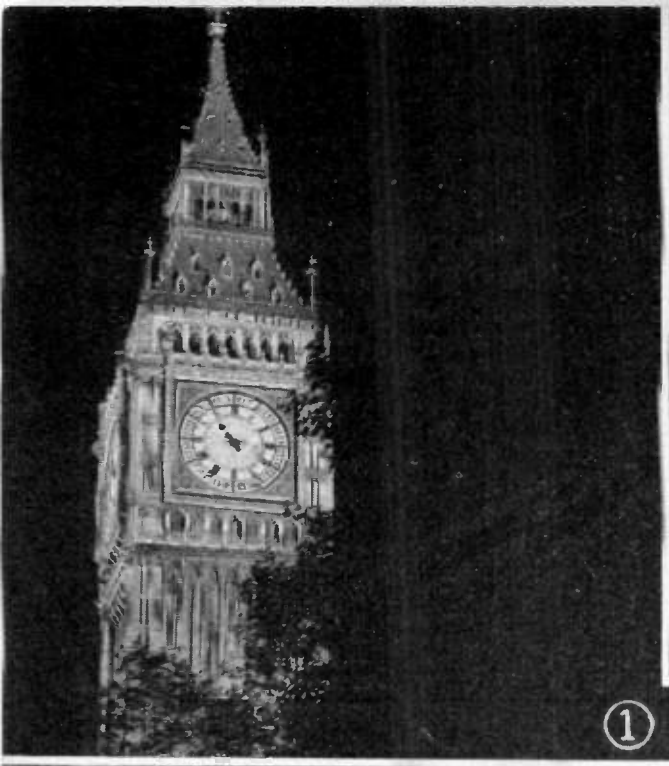
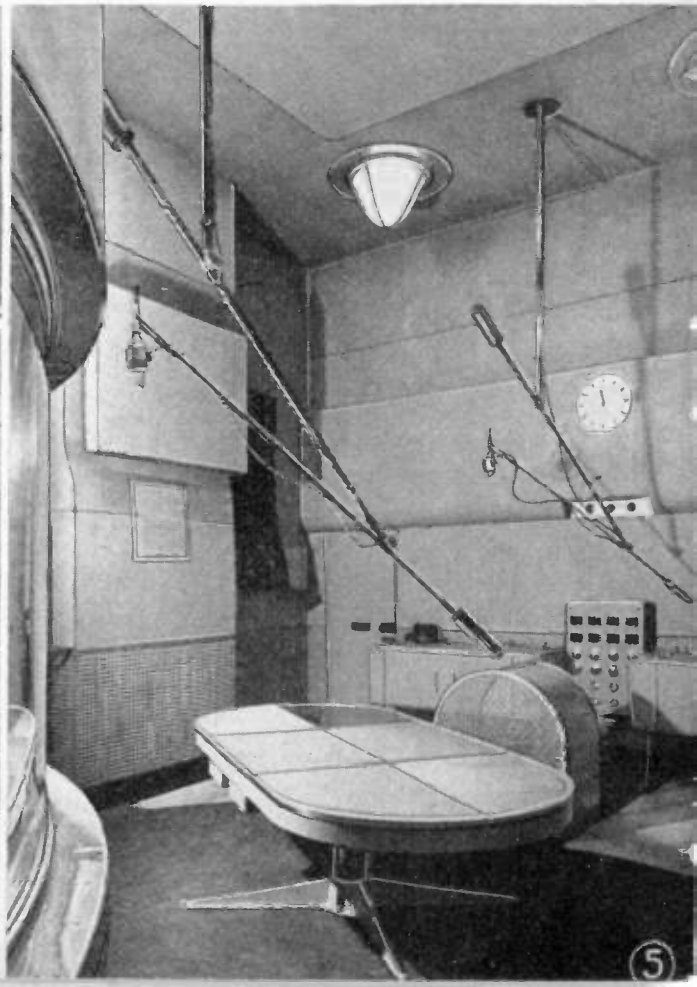
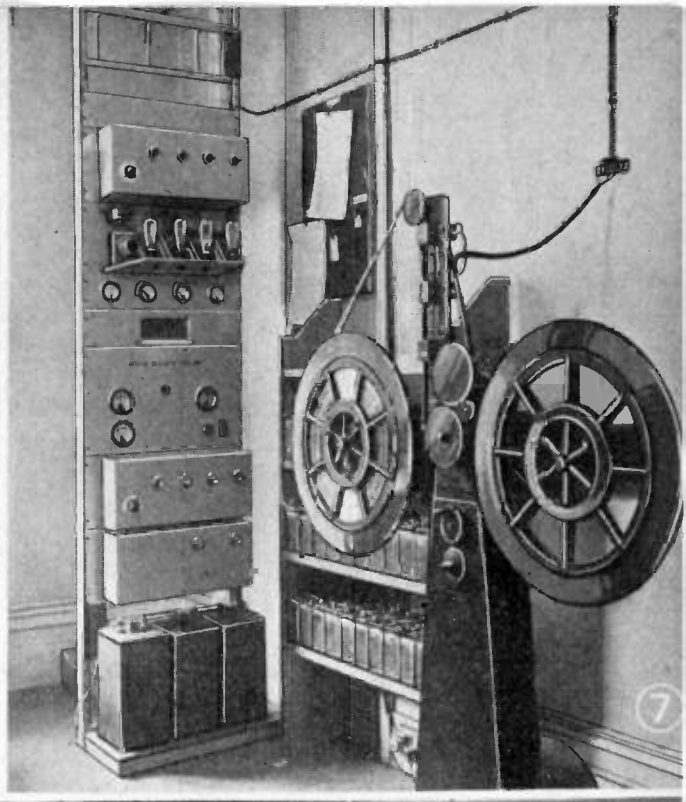
Make all subscription checks payable to Popular Book Corporation.



"LONDON

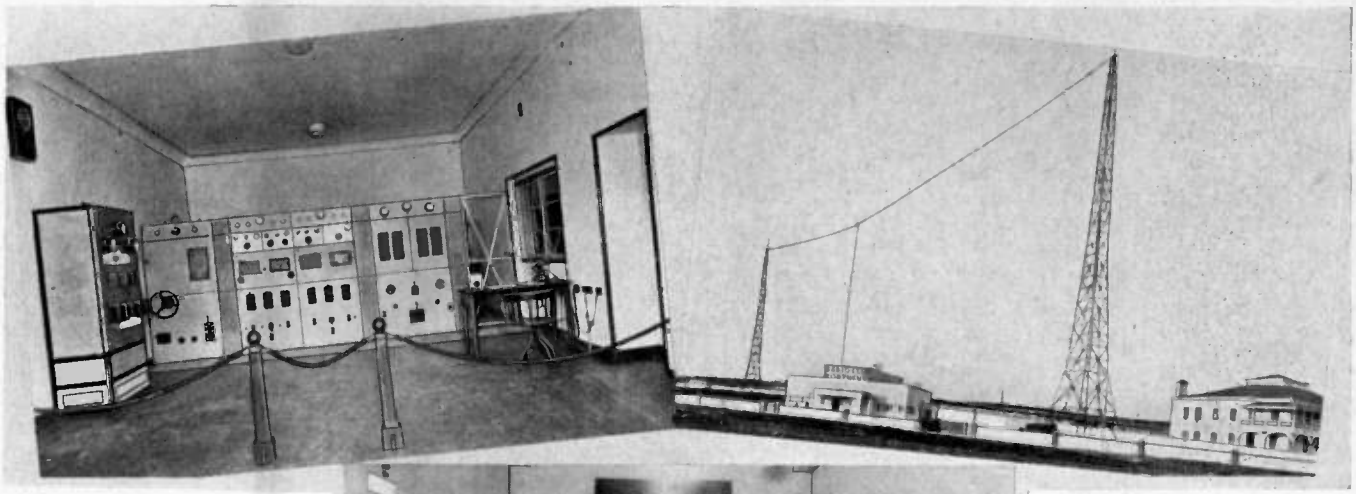
1—"Big Ben"—whose chimes have been heard around the world. 2—The "Wireless Singers," conducted by Leslie Woodgate, whose voices are heard over the B.B.C. short-wave system. 3—Broadcasting House "control room." 4—Famous B.B.C. dance orchestra directed by Henry Hall, whose rhythmic dance numbers have often been heard across the Atlantic. 5—A corner of the "dramatic effects" studio in Broadcasting House, London, where all sorts of noises are manufactured.





Calling "

6—The "Dancing Daughters" who appear in B.B.C. series of radio vaudeville programs. 7—One of the Blattnerphone recording machines on which certain programs are recorded for Empire Broadcasting by magnetizing a steel tape. 8—W. N. Shewen, senior Empire announcer, reading the daily news bulletin. 9 (lower left)—Dramatic Control panel, with a play being produced. 10 (right)—Howard Marshall, famous B.B.C. news commentator. 11 (lower right)—Broadcasting House "control room"—another view.



The handsome appearance of the well-laid-out transmitter of Station CT1GO located at Parede, Portugal, shows what is undoubtedly the most powerful of amateur stations.

Above—view of the lofty steel towers supporting the antenna system of the S-W Broadcasting Station, CT1GO, operated by the Portuguese Radio Club at Parede, Portugal. Photo at left shows main studio of the station.

CT1GO - Portugal

Station of the Portugal Radio Club

● One of the most ambitious short-wave broadcasting stations is that located at Parede, Portugal, 16 miles west of Lisbon, and facing the Atlantic Ocean. This station is the most westerly broadcasting station in Europe. Besides the short-wave transmitters here, the club owns and operates another transmitter operating on 291 meters under the call letters of CT1GL.

All of the transmitters have been designed and built by Portuguese radio amateurs who are members of the Club, and the transmitters are located in a building specially erected for the purpose. This building houses two studios, the larger one measuring 44 ft. long by 24 ft. wide and this studio is shown in the lower picture of the group above. The station building also contains a library, a workshop, rooms for the personnel. In a park adjoining the station, there are two tennis courts, also courts for basket and volley ball, hockey and a skating rink for the members use.

At the present time the station is operating with a non-directional aerial but as soon as the members in charge have determined the best wavelengths to be used, they intend making plans for the erection of directional aerials. The relative direction in which these aerials should face has already been calculated through the fine cooperation of the staff of the University of Lisbon, Portugal.

The transmitter operated by station CT1GO is one of the most prominent amateur broadcasting transmitters operated anywhere in the world. This station asks that all short-wave listeners hearing them send them as full a report as possible, as they are very anxious to determine how well their signals are heard abroad.

The mean height of the present aerial is 140 feet. The first transmitting test from this station was conducted on November 24, 1934, and after a 48-hour experimental test, the transmitter was O.K.'d and ready for broadcasting. The filaments of the tubes used in the transmitter can be excited by either the usual rectifiers or else from storage batteries.

The complete transmitter employs 19 tubes of various sizes and types. A change-over from one wave-length to another is effected in a little less than 60 seconds. The Portuguese Radio Club is always glad to receive reports on reception in various parts of the world of CT1GO, and all communications should be addressed to the Portuguese Radio Club, Parede, Portugal.

Every report that is sent in will be acknowledged by one of their verification cards. The wavelength and time schedule is given below.

EASTERN STANDARD TIME

48.4 Meters

Sundays, Tuesdays, Wednesdays, Thursdays, and Fridays—from 7:20 to 8:30 P.M.

Sundays—from 11:30 A.M. to 1 P.M.

24.2 Meters

Tuesdays, Thursdays, and Fridays — from 1:00 to 2:15 P.M.

Sundays—10:00 to 11:30 A.M.

Police calls have thrilled thousands with reports of holdups and burglaries.

THRILLS on the Short Waves

Many thrilling incidents have been heard by short-wave listeners—the last message received from a giant airship was flashed on short waves—airplanes and balloons have signalled distress messages and police systems have reported everything from "holdups" to "murder."

Short waves have flashed thrilling reports from stratosphere balloons.

● The world's short-wave listeners have been thrilled many times by the most extraordinary messages flashing through the ether lanes. Any one who has listened in on the various short-wave bands to any extent at all during the past year or two can undoubtedly relate many unusual and startling incidents regarding what they have heard at one time or other on these important carriers of intelligence.

Probably the most thrilling of all the short-wave bands are the 120 and 160 meter police channels. Dozens of police systems throughout the country are using short waves and at present there are several new installations, one in the city of Newark, N. J., for example, and another in New Rochelle, N. Y., who are using waves as low as nine meters. Out in California they are also experimenting with waves as low as seven meters.

At practically any time of the day or night you can pick up a broadcast station somewhere on the dial and hear dramatic plays containing thrilling lines, but "fact is ever stranger than fiction" and there is undoubtedly nothing more thrilling than to hear the actual report of a "holdup," a "stolen car," or an attempt at "robbery," etc., as it is laconically reported to wating police cars by an officer at headquarters.

The last message from a giant dirigible was picked up via short waves.

Even with the smallest short-wave set containing but two or three tubes, it is surprising how easily one may pick up "police calls" from cities all over the country and police stations a thousand miles away "flock in" like nobody's business, one after another.

In one evening the writer has listened to reports broadcast to short-wave equipped police cars, instructing them to investigate everything from "holdups" to "murder."

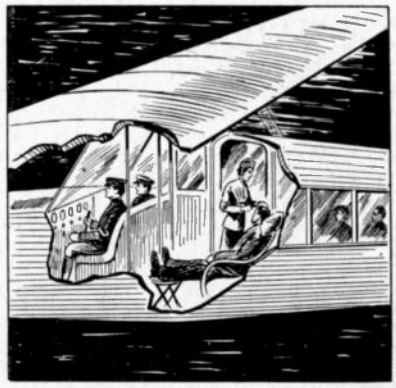
One of the most thrilling experiences the writer ever had was to hear a station in Buffalo calling cars of certain numbers and covering a specific district to rush to blank street, house number 422, where robbers were attempting to break in at a rear window. Just imagine if this was happening in the back of your house and you will at once realize the emotional effect on the average short-wave listener.

One of the most comical cases heard on police calls was the frantic and oft repeated calls to all police cars in three states bordering around Washington, D.C. The call specified that all police cars and motorcycle officers should endeavor to apprehend a colored bootlegger who, according to the report, was last seen proceeding on a highway leading toward Baltimore. The report stated that the bootlegger was driving a blue Ford coupe, fitted with a "smoke screen" apparatus, so that when cars endeavored to follow him a cloud of smoke came out from a special attachment fitted to the exhaust pipe. Further information was given regarding the appearance of the car, that it had a cracked windshield, and some other details which made it apparently so easy to spot this particular car that even a "correspondence school" detective, wearing smoked glasses, could not miss him. The writer did not hear any final reports as to whether the bootlegger was intercepted or not, but if he got away from the police of the three states who received the description of him—write your own opinion.

Many interesting and unusual short-wave messages have frequently been heard as they flashed between airports and passenger or other planes while in flight and also between airports and the planes. The airplane traffic can be heard on the low frequency side of the 49 meter broadcast band (and on other bands as well). Everything from a plane that has suddenly had to make a forced landing in rough country, down to a call to have a doctor waiting at the field to treat a patient who has suddenly been taken dangerously ill aboard the plane, have helped to give short-wave thrills.

One of the most pleasant short-wave thrills the writer experienced a few months ago was that following a broadcast program between Germany and America, when (*Cont. on Page* 94)

"Man trying to break in the rear of house!"—from an actual police call on short waves.



Short waves have called physician to airport ready to attend ill passenger when plane landed.

"Spot News" Reported By Short Waves

By H. W. Secor

How the many sports events such as baseball and other games are reported by means of portable short-wave transmitters and receivers, which relay "play-by-play" news reports to the waiting radio audience.

Above—N.B.C. special announcer carrying short-wave transmitter built in "back-pack." Many special events have been relayed on 5 meters from a portable transmitter of this type.

● Many thrilling sports events have been announced over the national broadcast networks with the most minute detail—thanks to the use of a five meter portable transmitter, one form of which is carried on the back of the announcer as he moves about over the field. Not only have baseball and other games been reported in the most thrilling manner by the use of five meter portable transmitters, but this invaluable short-wave apparatus has served the broadcast listeners to excellent advantage where many important special events have taken place, such as the departure of an airplane pilot on a world-girdling trip, the arrival of noted personages, at the scene of unusual accidents, etc.

As some of the accompanying pictures show, five meter transmitters of greater range are frequently used, these being of course too heavy to carry around on one's back; in this case they are installed in the grand-stand at a baseball game, placed aboard submarines, automobiles, balloons and what not, for the reporting of "spot news."

The readers may wonder how the five meter transmitter ties up with the broadcast station to which he usually listens and this is done in the following manner. In some cases, such as that which occurred sometime ago where an important park dedication ceremony was to be broadcast, the announcer carried the five meter transmitting set on his back and held the microphone in one hand, as he walked about "picking up" the speeches and remarks of the important personages present.

In this instance the five meter voice signals were picked up by a five meter receiver located in the park at a distance of about a thousand feet, and the signals were then caused to simultaneously modulate a short-wave transmitter. This transmitter relayed the conversations of the speakers to the receiving station of one of the important networks located at their headquarters in New York City. Here the

The Columbia Broadcasting System has frequently used portable short-wave transmitters and the photo at the right shows such a transmitter in use on a U.S. Naval vessel carrying the President during a review. The announcer at the mike, Robert Trout, is telling the story of the parade of the fleet.

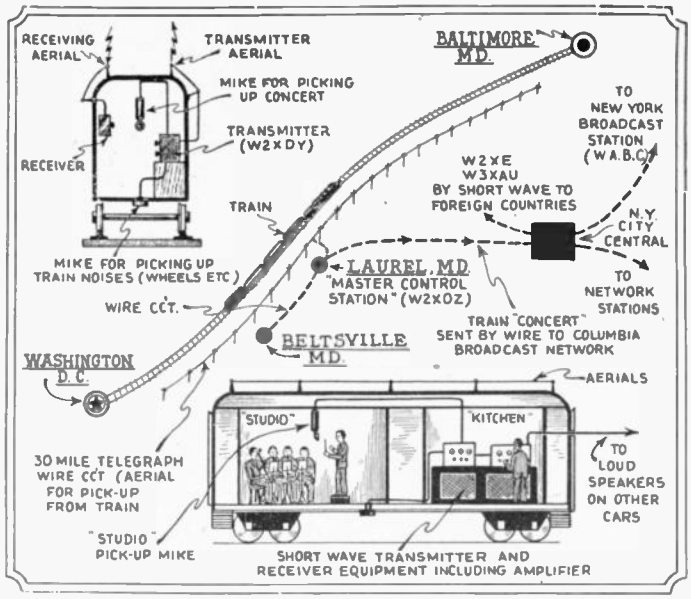
incoming short-wave signals were passed through suitable amplifiers and in turn caused to modulate the regular broadcast transmitters serving the New York area, and at the same time the incoming signals from the short-wave transmitters located at the scene of the park dedication ceremonies, were caused to simultaneously pass into the amplifier and associated circuits connecting with other cities and the broadcast network of stations.

Five Meter Portable Transmitter Brings News From Parachute Jumper

In one case the broadcast audience was treated to something really novel in program features—a five meter portable transmitter was carried on the back of a *parachute jumper* and as he slowly "floated" down to earth he described his sensations by speaking into the microphone strapped to his chest; all of which was picked up by a nearby five meter receiver and relayed in the manner above described to the broadcast station receiver, and thence it automatically went out over the broadcast station network.

Short-wave signals have been used by both the Columbia and National Broadcasting networks many times for picking up all sorts of special events and novelty broadcasts. At one time the Columbia engineers picked up a musical broadcast from a speeding train; the details of this interesting short - wave stunt are illustrated in one of the accompanying drawings by our artist.

Short waves have been used in relaying unusual descriptions such as the scenes envisioned by divers who have descended in to deep water in a diver's suit. Likewise the sensations experienced by those aboard a submarine in making a crash dive have been picked up on short - waves and relayed to a waiting radio audience. In one case the announcer barely got inside the submarine in time for the quick dive which she made, as he was anxious to give the most thrilling "last-minute" description over his microphone just before the submarine dived beneath the waves.



The Columbia Broadcasting System once staged an interesting "short-wave pick-up" from an orchestra aboard a speeding train. The diagram above shows the details of this interesting and unusual pick-up.

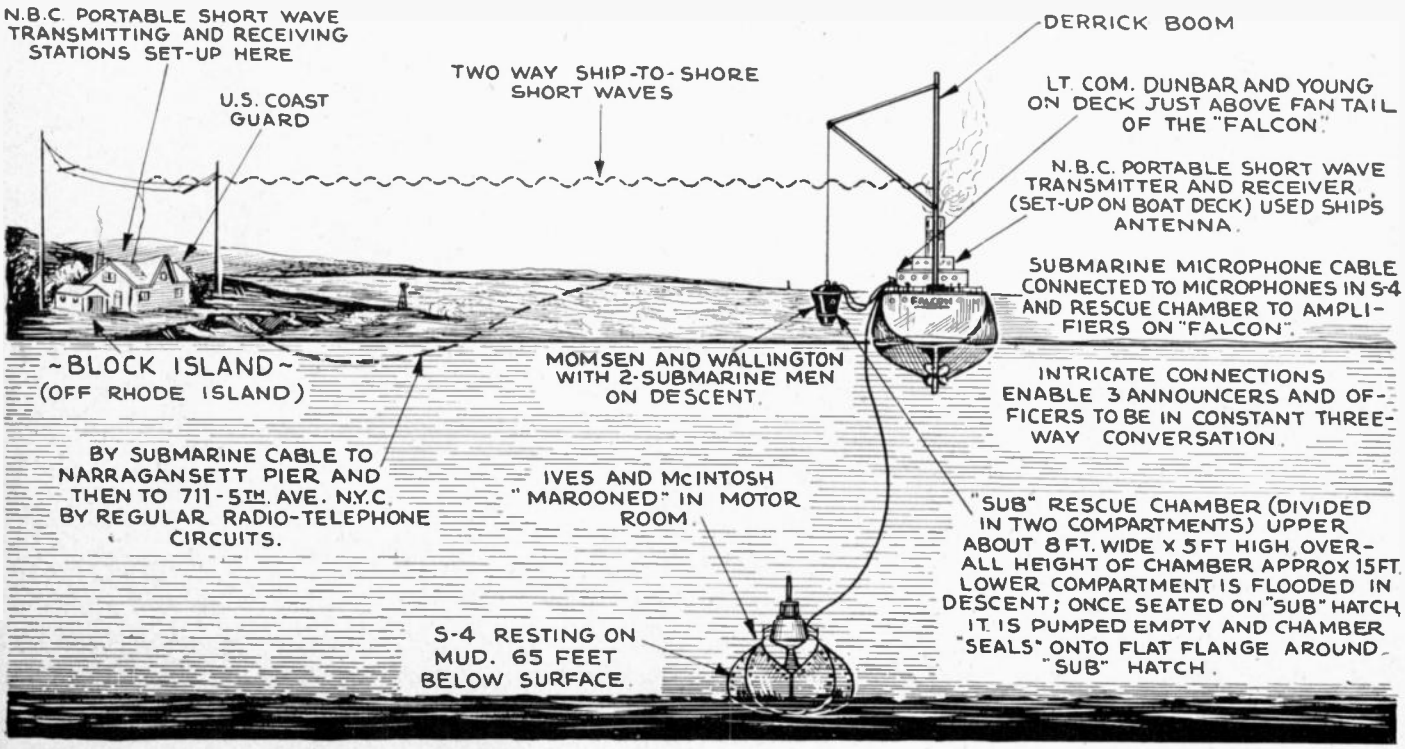
If it were not for the great velocity with which champion swimmers pass through the air as they dive from elevations of 100 feet or more into the water, we presume the broadcast "thrill manufacturers" would be strapping a five meter transmitter to the back of an aquatic performer.

Elaborate Short-Wave Mobile Unit

One of the accompanying pictures shows the inside arrangement as well as the exterior appearance of the

(*Continued on Page* 94)

The diagram below shows a spectacular short-wave pick-up from a vessel off shore during a demonstration of a new submarine life-saving device. The remarks of the men on the vessel were picked up on short waves at the emergency relaying station on shore, and were then sent to the N.B.C. distribution center in New York City over a telephone circuit.



Why I Couldn't Do Without Short Waves

By DOROTHY HAGERTY

The editors count themselves fortunate indeed in prevailing upon Dorothy Hagerty, well-known operator of a short-wave transmitting and receiving station on the west coast to write this article, in which she tells some of the reasons why she has found short waves indispensable.

Dorothy Hagerty, W6JMH, one of Uncle Sam's licensed radio operators, who knows all about radio tubes, coils, and condensers, plus a good working knowledge of the code.

● It may seem unusual for women to be interested in short-wave radio. But, let it be said in the beginning, that the writer is free, white, a little over twenty-one and enjoys swimming, hiking, dancing and flying.

I married a technical man who is deeply interested in radio and after six months of living with him, I decided it might be better to get along with him rather than without him. So I determined to investigate short waves.

Right now, I would like to impress women readers that women, as a whole, should be more indulgent with the men in their homes who are so-called "radio fans". If the feminine sex would spend a little more time with their men in regard to radio broadcast, they would very readily discover the romance and adventure connected with it. If they would become the least bit interested, I know they would understand what this "radio-bug" is—and be a little more tolerant when a meal is kept waiting. There are numerous publications on the subject of radio. Activities in this field are accorded space with many entertaining highlights. It is far more worth while to read and know of these things than to read fiction and the like. Radio is an intelligent and educational pastime for your husband, father, son or brother. It keeps him home, out of mischief, and is a very economical recreation.

Here is the very ambitious amateur short-wave transmitting and receiving station operated by Dorothy Hagerty.

My First Short-Wave Thrill!

I first became acquainted with short-wave radio five years ago during the search for a lost air mail plane and pilot; the search being conducted by short-wave. I was deeply interested as the pilot was a personal friend. I remained constantly at the radio to hear the reports from the planes to the ground station. That continued for several days. The men were becoming fatigued from loss of sleep and food. The suspense was telling on everyone. I shall not describe the tragic end of that search—the heartache is too vivid. But it was a result of that tragedy that short-wave radio as a means of safety for pilot and passengers was installed in air mail planes.

My interest increased with this new phase of radio and I spent many an exciting hour listening to the planes in flight conversing with the ground station. I heard many humorous things as the operator at the ground station would challenge the pilot with some remark and he would reply in no uncertain terms. It is not at all uncommon to hear a ground station directing a passenger plane to a perfect landing in dense fog by means of radio contact with the plane's pilot. If you want a thrill—just try it—I mean, tune in on an airport station.

Oh! Those Police Calls!

Police radio is becoming more and more important and I have tuned my radio to their frequencies often and heard breath-taking experiences. I chewed by fingernails off completely, listening to the discovery and return of a kidnapping victim, and my heart thumped heavily when I heard the description of a daring bank bandit and holdup broadcast. The bandit committed a series of robberies, one right after another. But the police were hot on his trail and after a thrilling chase, captured their man. I experienced that complete drama in my own home through the medium of short-wave—minus the danger.

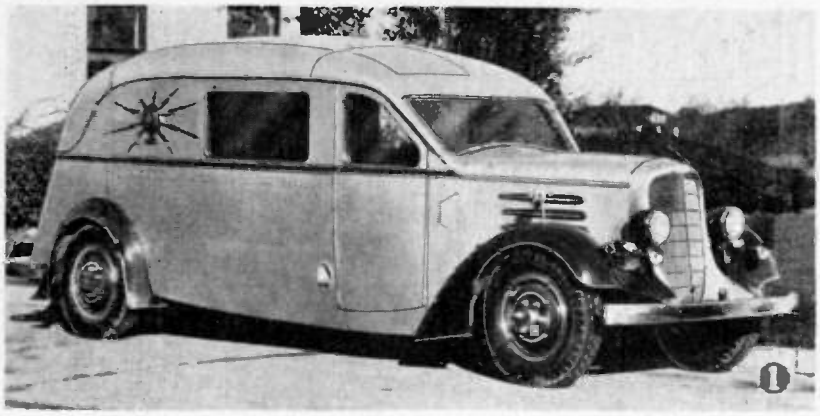
We may have select entertainment in the United States, but how enjoyable to hear artists in foreign lands—to hear direct, countries you have longed to visit—to become better acquainted with those countries, if you have been a visitor. And to me, listening to their short-wave broadcasts is the next best thing to visiting the country in person.

I Listen to Guitars in Hawaii!

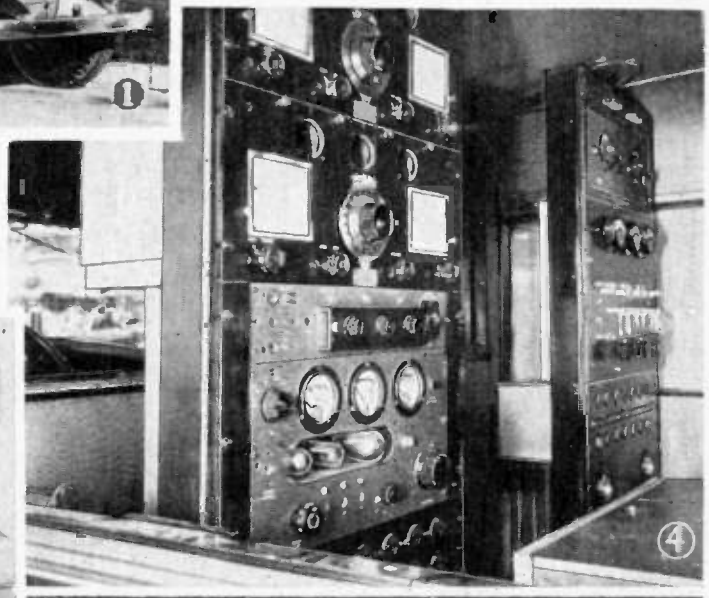
I have become a short-wave adventuress—I have thrilled to the rythmic music from South American stations. I have dreamed to the lilting strains of guitars from Hawaii. I have wondered about the woman announcer from Khabarovsk, Siberia, as well as the geisha girls from Japan. I have stayed awake half the night to listen to the Kookaburra bird from Australia. When the Australian stations open and close their programs with a few measures of "God

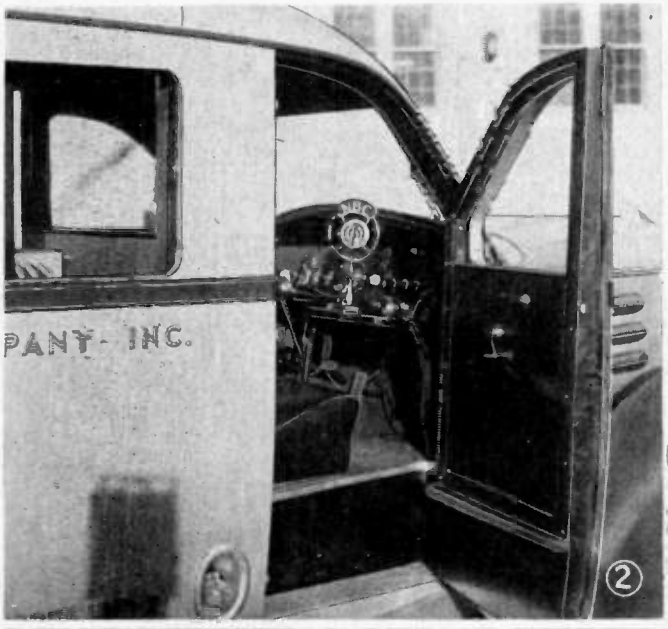
(*Continued on Page* 95)

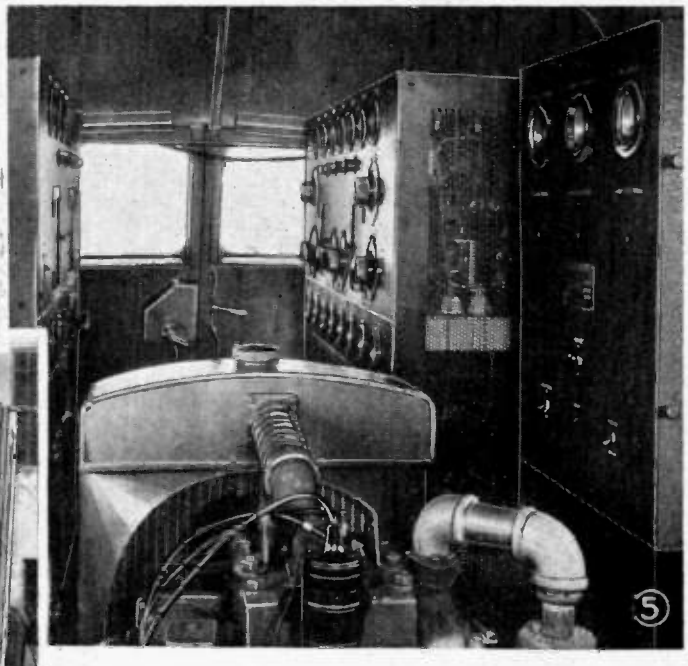
Short-Wave "News Pick-up" Mobile Station

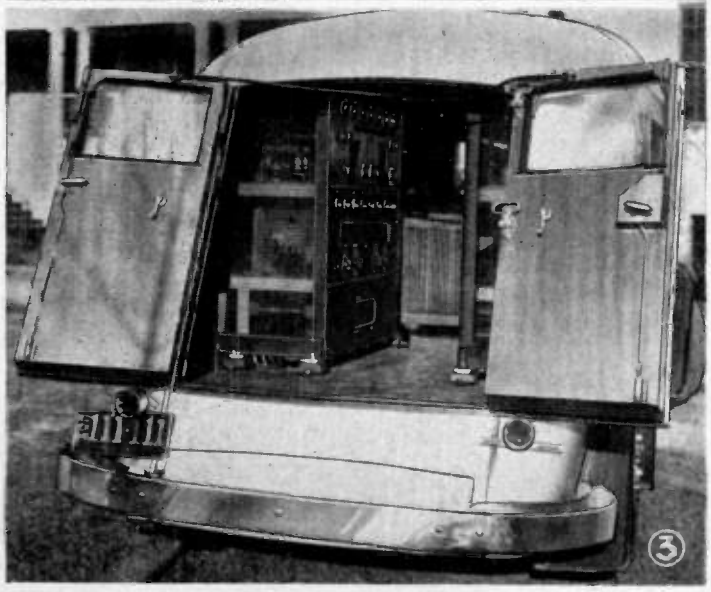


Above—snappy appearing radio "news-gathering" motor car, designated by its owners—the National Broadcasting Company—as their "Mobile unit," which is licensed to transmit on a whole flock of short-wavelengths, which enables the operators to use that wavelength or frequency best suited for the occasion. Fig. 2, below, shows one of the announcers' mikes; Fig. 4, control panels inside the car.









The view above shows separate power plant built into the Mobile transmitting unit, which is used by the N.B.C. to report "spot news" from the scenes of disasters and other happenings. The car is fitted with five short-wave receivers; its most powerful transmitter is rated at 150 watts. This transmitter can project a "news pick-up" a distance of 100 miles when stationary and 50 miles while the car is in motion. Fig. 3 at right, shows rear view of the car with doors opened up. The messages flashed on short-waves from the car are picked up and rebroadcast on the N.B.C. networks. The car can travel 65 to 70 miles an hour and was specially designed for the purpose.

Fitting Up A Short-Wave · Listening Den ·

By H. W. Secor

The accompanying article and the picture on the right hand page show a number of ideas which can be put into practice in fitting up a short-wave listening room or den. Several different locations for doublet aerials are indicated in the drawing. Suggestions are also given for sound-proofing the room, as well as other features, including the equipment to be put into a first-class listening den.

● SHORT-WAVE listening sooner or later becomes such an important hobby for the average man, not forgetting many of the ladies also, that before you know it ideas start forming in your mind as to where you might build a special "listening den" or room in your house—and now it should be built.

The accompanying picture by our artist illustrates several suggestions as to where you might locate special short-wave "listening quarters." In some cases the listener may have convenient space for such a "den" in the attic of the house; in other cases such a space may only be available on the first or second floor, while in still other instances such a room will have to be built in the cellar.

Celotex is a reasonably priced wall covering which will lend itself in excellent fashion to the construction of a short-wave "listening den." Not only is celotex excellent owing to its non-reflecting properties, but it is also a good sound insulator so far as cutting off external sounds from outside the room is concerned. In fact it may be worth while to build a special celotex door to make the room as quiet as possible. If there are any sources of noise in the vicinity and you wish to take special precautions in making the room extra sound-proof, then the walls can be built in double fashion, using two walls of say one-half inch thick celotex, separated about two to three inches so as to leave a "dead" air space between them. This is one of the best insulators against sound transmission.

If the "den" is to be located in the cellar, it is best to guard your health by building a wooden floor or platform on pieces of timber or other available wood, so that the floor is raised at least an inch or so above the cement or dirt bottom. This will prevent dampness from injuring your health.

Aerial Considerations

In view of the fact that so many short-wave enthusiasts are now using the *doublet* type of antennas for reception, and as the best reception is obtained at right angles to the axis of the doublet *flat-top*, several doublets may be arranged either inside or outside the house. Twisted wire or transposition block lead-ins can be brought down to the operating room wherever it may be located. The picture herewith shows several suggestions and doublets can be mounted along the eave of the roof, or stretched inside the attic along the beams, along the floor beams, over unfloored parts of the attic, down the side of the house (but *not* alongside of a rain-spout).

When it comes to the cellar, and in many cases the "listening den" will probably be located there, several doublets can be erected and pointed in different directions, some of the doublets being mounted along the cellar side walls, along the under-side of the floor beams, etc. Be careful, however, to keep the doublets as far away from water, steam, and gas pipes as possible. If they are in close proximity to metal piping systems it will markedly affect the tuning. However, many wonderful reception reports have been sent in where all sorts of "freak" antenna systems have been employed, so if you are rather crowded as to location for your antennas you need not be alarmed, for after all "the proof of the pudding is in the eating thereof."

Multiple Loudspeakers

If I were going to put in a first-class short-wave listening station tomorrow, I would under average circumstances, install one or more loudspeakers in various parts of the house. I would also place these loudspeakers in whatever rooms the family might desire them, and run circuits from these loudspeakers to the short-wave listening room, terminating the loudspeaker circuits on a "jack" board. By using "tie" cords and plugs or any other suitable switching arrangement, short-wave programs when they are coming in can be plugged into any one or all of the loudspeakers in other parts of the house. In many cases the young son in the family may be a short-wave "bug" and by using this arrangement, he can easily plug in a program from London onto the loudspeaker in the library or living-room of the house, when he happens to be tuning in a good station. Another idea at this point, is that many short-wave "fans" will frequently have two or more receivers hooked up, possibly to different antennas, simultaneously. In such a case it is possible to have two or more short-wave programs one, say, from Europe and another from South America on two loudspeakers in different rooms, using the selective plug and jack system described.

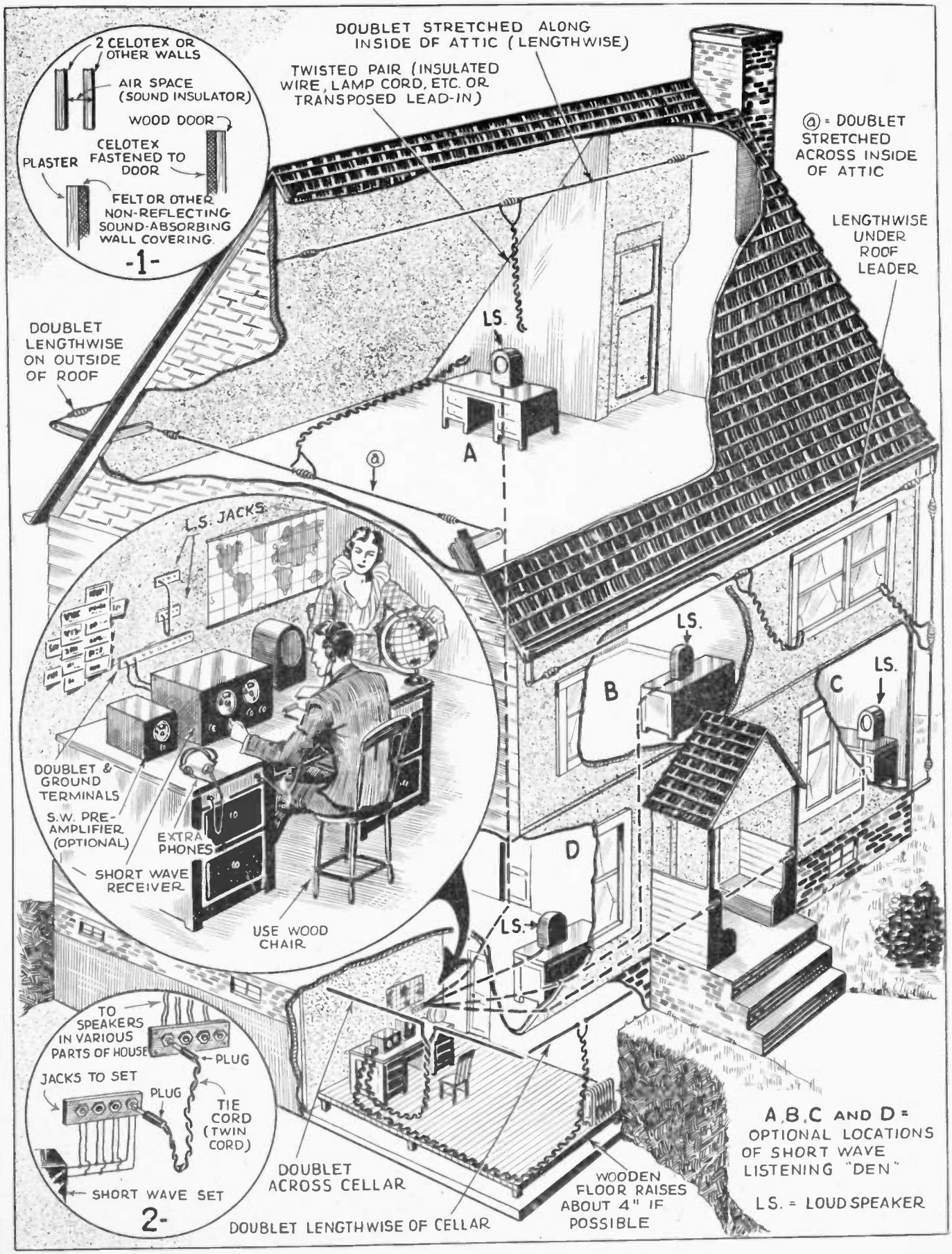
Ground connections, when used, are of course available in the cellar and even as high up as the attic, ground connections can usually be made to a water pipe without much trouble, and a steam or gas pipe may be used in emergency, but they are not recommended as being as reliable as the water pipe. Where the doublet-type antenna is used, no ground connection is necessary.

The equipment of the short-wave "listening den" should of course include a good size "world map," as big as the pocketbook can afford, a time conversion chart such as that supplied by the United States Department of Commerce for ten cents in cash (do not send stamps), also a copy of a Wavelength to Kilocycle conversion chart and don't forget a good-size Globe! Of course, one of the most important items of all is to have an accurate *up-to-date* list of the "short-wave stations of the world" such as that published in this magazine or Short Wave Craft.

With regard to doublet aerials, the new General Electric V-doublet is ideally suited for erection by the lay man. The new V-doublet is claimed to eliminate noise due to any local electrical apparatus, thanks to the twisted (transposed) lead-in which it employs. The aerial comes with the special twisted lead-in joints all soldered.

In hot weather, sound-proof radio dens are pretty stuffy places, but one can arrange a ventilating system whereby fans cause a draft of air to circulate through chambers or boxes containing a number of felt-covered baffles in staggered formation.

The illustration on the opposite page shows a number of practical kinks which may be incorporated in the construction of a short-wave "listening den." Several different locations for such a "den" are indicated in the drawing; of course everyone will have to choose for himself, depending on the space available in their individual homes. Several different locations are indicated for the erection of doublet aerials. It is wise to have several doublets, each pointing in a different direction, as the direction of maximum reception is at right angles to the axis of the doublet.


2 CELOTEX OR OTHER WALLS
AIR SPACE (SOUND INSULATOR)
WOOD DOOR
CELOTEX FASTENED TO DOOR
PLASTER
FELT OR OTHER NON-REFLECTING SOUND-ABSORBING WALL COVERING.
-1-
DOUBLET STRETCHED ALONG INSIDE OF ATTIC (LENGTHWISE)
TWISTED PAIR (INSULATED WIRE, LAMP CORD, ETC. OR TRANSPOSED LEAD-IN)
ⓐ = DOUBLET STRETCHED ACROSS INSIDE OF ATTIC
LENGTHWISE UNDER ROOF LEADER
DOUBLET LENGTHWISE ON OUTSIDE OF ROOF
LS.
A
ⓐ
L.S. JACKS
DOUBLET & GROUND TERMINALS
S.W. PRE-AMPLIFIER (OPTIONAL)
EXTRA PHONES
SHORT WAVE RECEIVER
USE WOOD CHAIR
B
C
D
TO SPEAKERS IN VARIOUS PARTS OF HOUSE
PLUG
JACKS TO SET
PLUG
TIE CORD (TWIN CORD)
SHORT WAVE SET
2-
DOUBLET ACROSS CELLAR
DOUBLET LENGTHWISE OF CELLAR
WOODEN FLOOR RAISES ABOUT 4" IF POSSIBLE
A, B, C AND D = OPTIONAL LOCATIONS OF SHORT WAVE LISTENING "DEN"
L.S. = LOUD SPEAKER

Class-Room Lectures by Short Waves

In a recent demonstration at New York University a class heard lectures given by the professor over an ultra short-wave system.

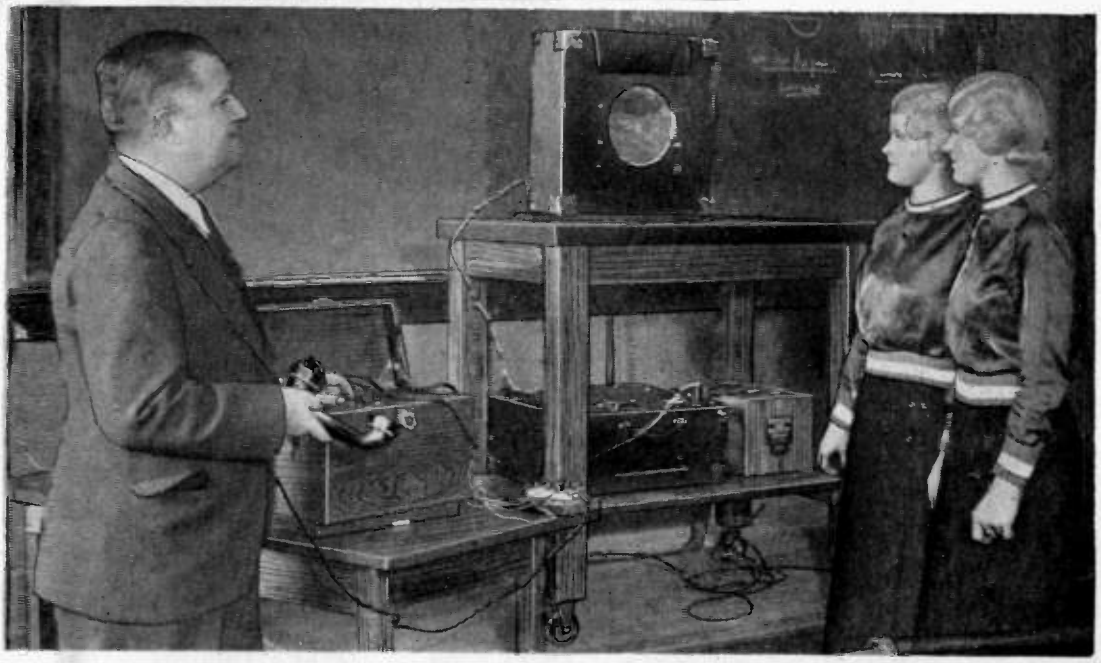
● THE accompanying photos show one of the most interesting demonstrations of the applications of ultra short waves imaginable—Professor C. C. Clark of New York University conducted a class from his home during this test. Not only was a regular class lecture given by Professor Clark, but special talks from members of the faculty were also given and the photo in the upper right-hand corner shows Dr. E. E. Free listening to one of the talks while engaged in research in one of the laboratories.

The lower photo shows Lawrence Cockaday, lecturer, explaining the method of transmitting and receiving the lectures by 5 meter waves to two interested members of the class. This is merely a forerunner of what we may expect tomorrow, especially when *television* becomes an everyday adjunct, for us to enjoy such lectures as these right in our homes.

Above—Dr. E. E. Free, busy in one of the college laboratories and simultaneously listening to the lecture by Professor Clark, via short waves.

Left—Special talks to one or more class rooms can easily be given over the 5 meter short-wave system.

Below—Lawrence M. Cockaday explained the 5 meter short-wave system to two interested members of the class.



The Bottled Flag

By W. H. F.

The exciting tale of how Ned Gage, a short-wave listener, won a $3000 reward for aiding in the capture of a criminal.

● NED GAGE closed the cabin door. He slid wearily into an easy chair, sighed audibly and closed his eyes.

The north wood air and solitude was okay (*were* okay, if you don't consider the combination a singular tonic!) but the fight to regain health after a bout with influenza and pleurisy was no picnic.

"Three weeks I've been here, now," Ned mused half loud. "A week since Uncle went back to town."

For the moment, young Ned wished he had returned to the city with his uncle, the owner of the comfortable log cabin situated some four miles upstream from the village of Fayville. The home city, Lakehead, was a little over ninety miles by rail from Fayville. It seemed much more distant now, to Ned.

"I can partly cure that!" he told Hobo, the big collie lying near his feet. Ned crossed the room to a small writing table, and flipped the switch of his short-wave radio.

Hobo said nothing. He let it be understood that he endured the static inhaler only because his genial master was nearby.

There being no power line near the cabin, Ned had brought his battery model short waver. It was a neat, four-tube set, having a metal shield-cabinet, built-in loudspeaker and all the latest conveniences. Thus, its "band-spread" secondary tuning control abolished that excessively sharp tuning which had long whitened the wigs of the early short wave addicts. And its four new-style tubes gave the receiver the DX and volume ability of the sixtube outfits of a year previous.

There were mighty few countries that Ned had not logged with his trusty high frequency receiver. Nor was a ten or twelve thousand mile "catch" a new experience for him.

His uncle had helped Ned erect two fine aerials. The rural location and altitude—atop a hill in sight of the Milo River—made the cabin an ideal spot for Big DX, as the short-wave fan dubs long distance reception.

It was shortly past noon. Ned had tuned in some excellent organ music from Chicago, and settled again into the big chair, when a stranger stumbled rather awkwardly into the cabin.

Ned had one fleeting thought of a ghost visitor, noting the belated manner in which the usually alert Hobo growled in his sleep, then came bristling to his feet, a series of sharp barks giving fair warning that he was ready for all comers.

"Down, Hobo!" Ned commanded.

There was certainly something troubling the newcomer. He was breathing hard. Eyes restless, he stood in the doorway a moment. Finally he spoke:

"Sorry, pal, if I seemed to bust in. Got a lame knee, and this climin' and trippin' over rocks and through swamps has—sorta got me down!"

"That's tough," Ned admitted. He did not know just what to think of his unknown guest.

"Yeh." The big man kept staring about the room. He looked as if about to demand who or what was in that other room. "I never was good at standin' pain, y'see . . . and I'm no woodsman. To top it all, I was actually lost for a while!"

"A hurt knee, you said, Mr. ——?"

"Jonesy," the stranger supplied.

"Jonesy?"

"Yeah. Like J-o-n-e-s-y . . . kinda funny, is it?"

The big intruder did not smile.

"Unusual, I'd say," Ned replied. He was liking the visitor less and less, quite rapidly. "Could I take you in to the Fayville doctor?"

"No. No thanks. It's nothing serious. It gets me every so often. Just have to let it work itself off. I wondered if you could put me up for the night—if you're alone?"

In his weakened state, Ned suddenly regretted being alone. Was the big bozo a killer on the run, or . . . ? But he saw no point in trying to mislead the other. Not just yet.

"I'm alone," Ned said slowly. "But a bit crowded—I mean, I could give you a lift to the village hotel. I've the old roadster here."

"Oh, I'm sick of hick towns and hotels!" Jonesy exploded. "Fact is, pal—oh, I didn't ask your name . . ."

"Ned Gage."

"Fact is, Ned, I'm on my way up the river. I—I just lost my camping outfit—canoe, tent, eats and whatnot, plus a good rifle, camera and I don't know what all."

"Just today?" Ned asked casually. "An upset?"

"Upset is right, but it was late last night. I passed a farm on my way down, an' left a message for a chum in the city to wire me the coin for a new outfit."

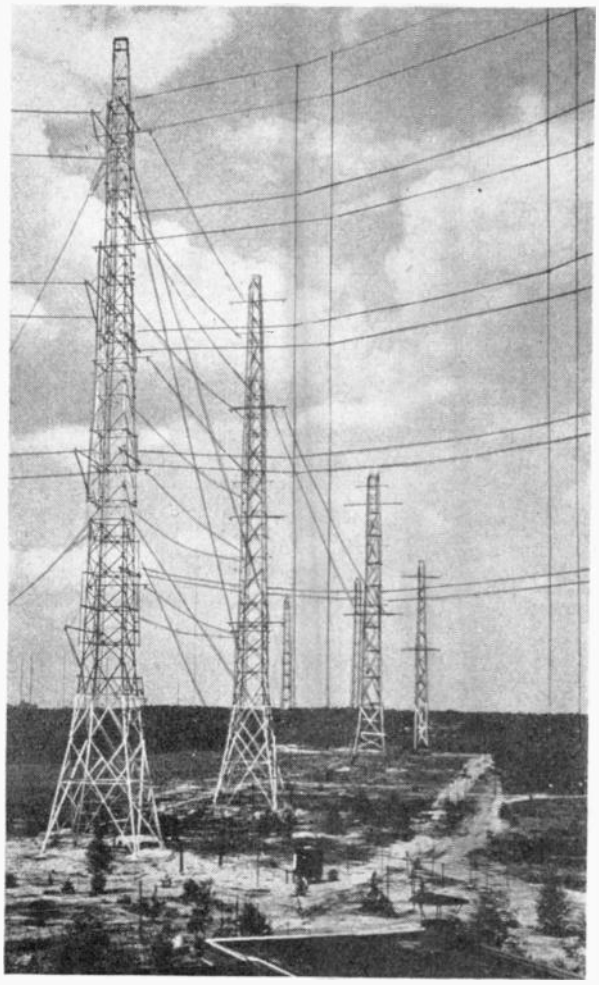
The more Ned heard of it, the less he believed. He was coming to the conclusion that he was host not to a killer or stray chicken thief, but rather the star inmate from some mental hospital.

Suddenly he knew he did not like Jonesy. Nor the Jonesy manner, tone,

(*Continued on Page* 91)

"Sorry Pal, if I seemed to bust in. Got a lame knee . . . and this climbin' and trippin' over rocks and through swamps has sorta got me down!"

The Short-Wave Voice from

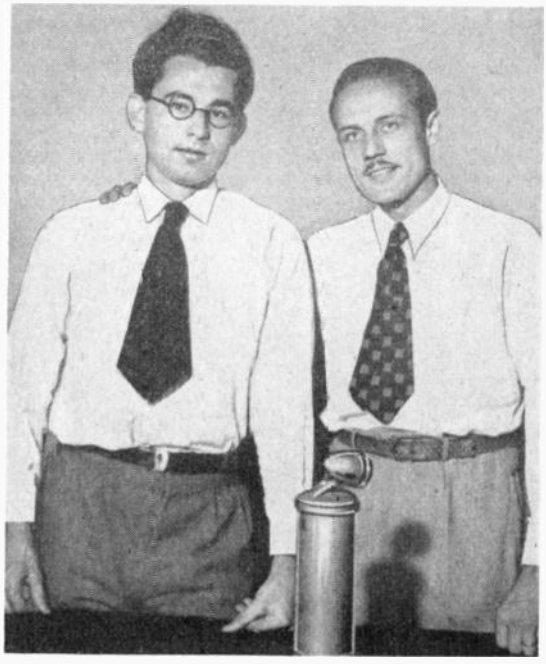


Remarkable array of short-wave antennas at the famous German short-wave broadcasting station located at Zeesen, Germany. Note that the towers are painted in black and white bands so as to be distinctly visible to aviators.

countries served by them. One of the newest novelties which is being mailed out by the German station to short-wave listeners who sent them a good report on their reception is a small phonograph record containing the musical identification signal of the station, a short talk by the announcer, and music from a boys' choir.

The following vivid description of the German short-wave station is given by Franz Ludwig Habbel in an article which appeared in *Germany and You.*

Rising high over the pine trees in the sandy plains around Berlin are the masts of the German wireless system—Nauen, Koenigswusterhausen, Beelitz—all names familiar to radio listeners of Europe. Then south-east in Zeesen are the towers and antennae which connect Germany with a million homes, even though home be a small town in the hills of North America, a camp in the desert or a bungalow in far-away Australia. These are the arms of the short-wave broadcasting station which reach over oceans and days to bind the world into a family circle. It seems fantastic and hard to believe that the journey of two weeks which separates one from the far-away has disappeared, and the "Hello, North America!" one hears in the studio is the



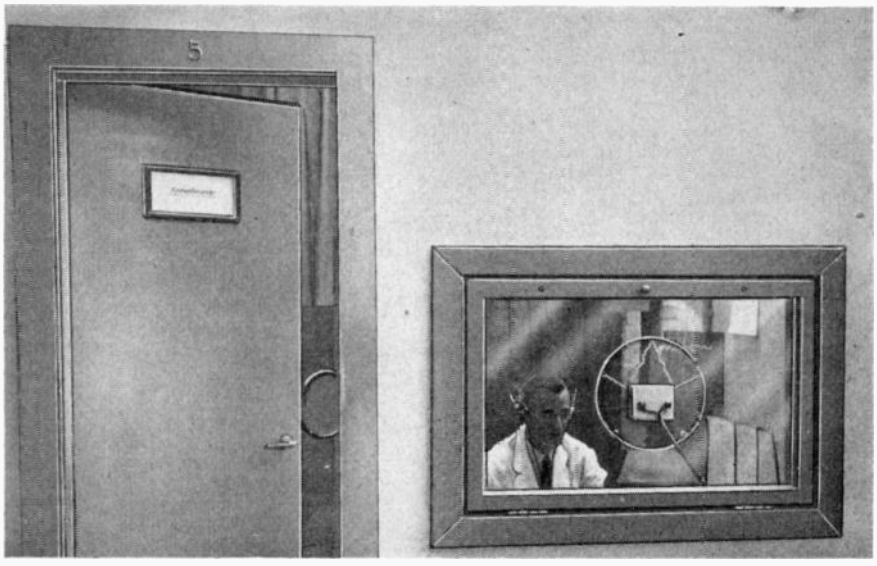
Right—Announcers for North American broadcast transmissions from the German short-wave stations — left to right, Conrad Stadler and Hans-Jurgen Maraun.

●

Below — A view of the chief operator's room and control booth at the famous German short-wave station, DJC.

● One of the best heard *foreign* short-wave stations is that operated by the Reichs-Rundfunk-Gesellschaft, which may be translated into the "German Broadcasting Company." The German station has several different wavelengths on which it broadcasts music, speeches and news bulletins on the regular daily schedule to various parts of the world and each frequency or wavelength has a different call assigned to it, as you will note if you happen to check up the German stations in the list of stations found elsewhere in this magazine.

As many short-wave listeners have probably already learned, the German station sends out a very attractive verification card. Of particular note is the very elaborate program printed in English and German—at least the one sent to North American listeners requesting it, and a different program is gotten up each month for the different sections of the world covered by their various *beam* transmitters and the



Germany

One of the best heard short-wave European stations which has been transmitting delightful music and other features to America, and in fact a world-wide audience, is the famous

"Kurzwellensender" DJC

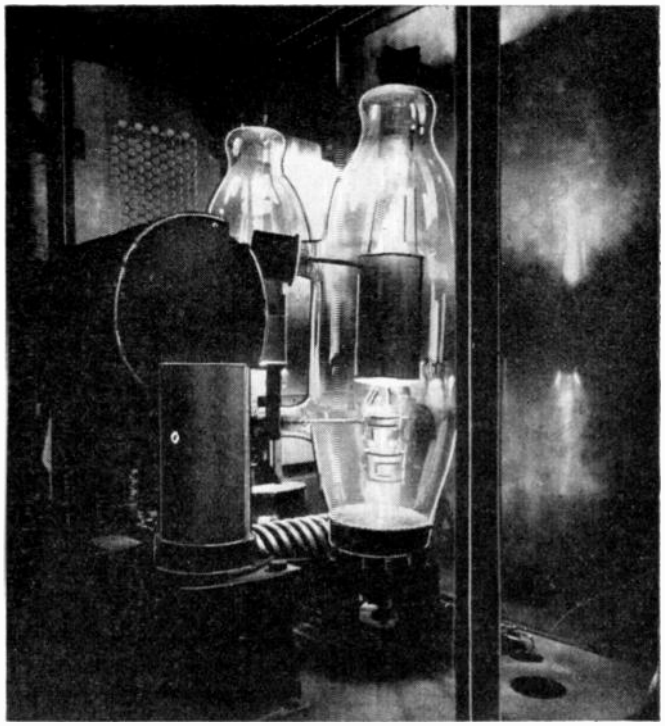
greeting to friends five thousand miles away, but the heaps of letters—they arrive at the rate of about two thousand a month—bear witness that America, China, Africa and Australia have heard and responded.

Altruistic Labor

The German short-wave broadcasting is one of the pioneers in the field and has made progress and achieved success far beyond that of most lands. In fact, if one can judge from reports, it has reached a perfection equal to that of local broadcasting, and short-wave reception to most foreigners means the German station. This is remarkable when one considers that such experiment and labor is purely altruistic and must be in nature, as commerce and business have little interest in the far-away corners of the world and the people at home have no benefit from untimely programs in foreign languages. The language difficulty is coped with, climatic conditions solved, and technicians and artists work in the small hours of the night and morning just to provide entertainment and diversion for friends and listeners in other lands. Their greatest reward is the letters of gratitude and appreciation which assure them that their efforts are received.

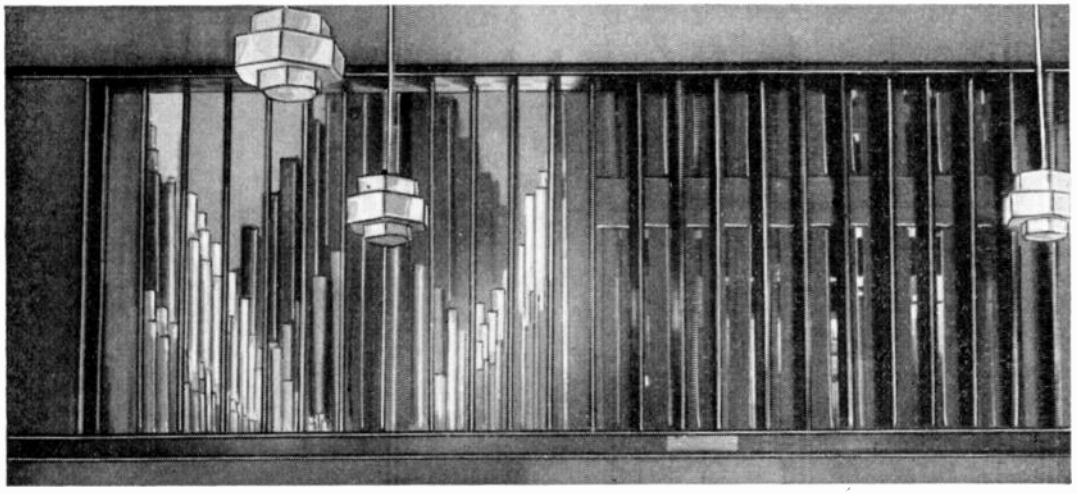
Controlled Waves

Five years of experiment and development lie behind the short wave broadcasting station in Zeesen. In 1929 it was first attempted but in a general way, programs being sent on short waves into the air without any definite direction or control. First in 1933 under the present government active development began through the application of the direct beam antenna which makes possible the directing of the waves to a definite point. In April, 1933, regular broadcasting to North America was begun. In view of its success antennae were constructed for broadcasting to South America, Africa, and East Asia. A fifth antenna is now in operation for South Asia and Australia and one is under construction for Central America. The Reich Postal Service is especially interested in these projects, as it recognizes here the great future for radio.



Above — Interesting view of the powerful amplifier tubes, the heart and soul of the German short-wave broadcasting stations.

Where the excellent German short-wave programs start from — Broadcasting House in Berlin.



A view of the big organ used in various short-wave programs sent out to world-wide listeners from Broadcasting House, Berlin.

W8XAL

The Short Wave Outlet for WLW Programs

One of the most important short-wave stations in this country is W8XAL operated by the Crosley Radio Corporation at Cincinnati, Ohio. This station usually relays programs from WLW.

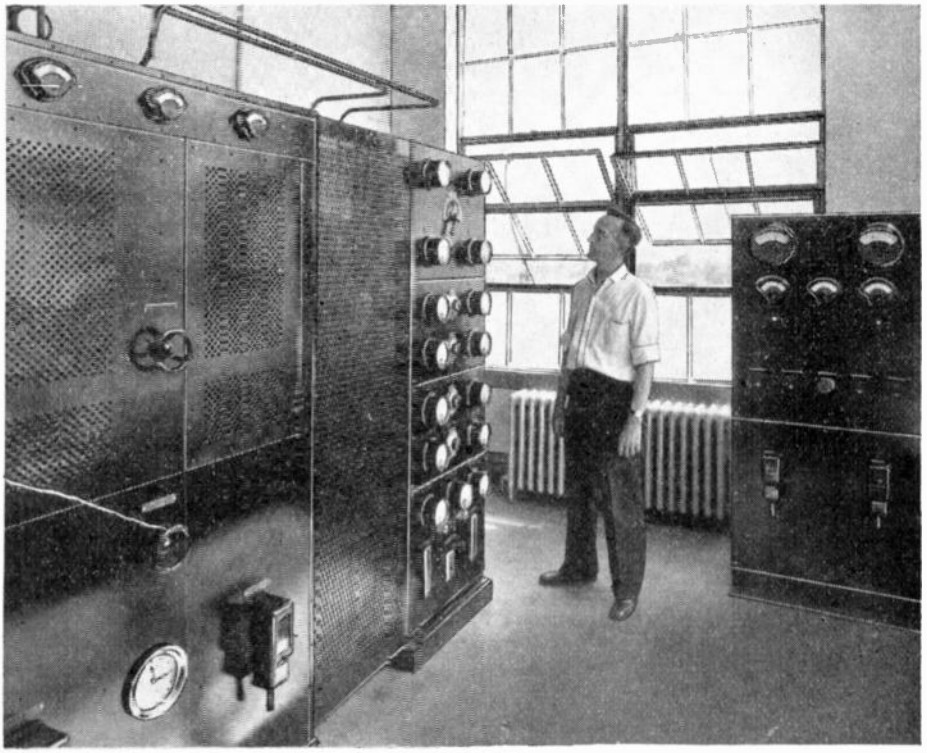


Photo above shows the 10 K. W. short-wave transmitting station operating on the well-known call letters W8XAL. This station has been received in all parts of the world and has entertained listeners as far away at New Zealand and Australia. The photo at the left shows the power equipment of W8XAL.

●

● SHORT-WAVE station W8XAL is operated by The Crosley Radio Corporation at Cincinnati, Ohio, as a short-wave *relay* broadcasting station. This station operates on a daily schedule from 6:30 A.M. to 8:00 P.M., and from 11:00 P.M. to 2:00 A.M. (Eastern Standard Time). The programs are usually those of WLW, excepting an occasional WSAI broadcast of particular short-wave or international interest as well as frequent special programs broadcast exclusively over W8XAL for foreign listeners. This station also broadcasts an adult educational series every week day (7 to 7:30 P.M.) by the Ohio Department of Education.

W8XAL operates with a power of 10 K.W. on a frequency of 6060 KC, 49.5 meters, and at present uses an omni-directional (all-directional) vertical radiator type of antenna. It is well received in all parts of the world and reports indicate that it has a particularly enthusiastic audience in New Zealand and Australia.

The transmitter proper is located in the Crosley transmitter building near Mason, Ohio. In this same building are housed the transmitters of WLW and WSAI, also operated by The Crosley Radio Corporation. The transmitter, according to Jos. A. Chambers, WLW-WSAI-W8XAL, technical supervisor, was entirely designed and constructed by the engineers of the Crosley company under the direction of J. E. Whitehouse, in charge of the Crosley transmitters, and F. N. Lantzer.

Because of space limitations it is necessary that this 10 K.W. short-wave transmitter be unusually compact. The transmitter proper as shown above was built on the main floor of the transmitter building. The panel on the right is the power control panel with controls and relays for all rectifiers, motor generators and auxiliary equipment. In the center is the oscillator amplifier modulator unit containing two temperature controlled crystals, the necessary buffer and doubler stages, the radio frequency amplifiers, audio frequency amplifiers and modulators. This unit will deliver 500 watts with 100% modulation capability.

The modulator consists of two RCA 849 tubes and modulates both screen grids and plates of two RCA 861 tubes. This unit excites the 10 K.W. amplifier on the left, which consists of two Federal 332-A water-cooled tubes. It delivers 10 K.W. to the transmission line feeding the antenna. Photo at left shows the power equipment, consisting of filament motor-generator, bias motor generator, 300 volt rectifier, two 1,000 volt rectifiers, 3,000 volt rectifier, 15,000 volt rectifier, necessary filters and control circuits.

How You Can Identify Foreign Stations by "Signatures"

Nearly all short-wave broadcasting stations in operation today use what is known as the "characteristic" or "interval" signal, which may consist of various oral phrases or musical notes. These are used solely for the benefit of the listener, enabling him to readily identify the station, even though he may not hear the call letters clearly. For instance FYA, Pontoise, France, plays the "Marseillaise" at the beginning and the end of each broadcast; CT1AA, Lisbon, Portugal, uses three calls of the cuckoo. If you hear a constant "ticking" as of a clock, you will know that this is HVJ of the Vatican City, Italy. Many other signals and phrases are used and they are given in the following list.

Call.	Location.	Identification.	Remarks.
GSH	Daventry, England	(See GSB). [Stations appear in order of frequency]	
PMC	Bandoeng, Java	(See PLF).	
LSY	Buenos Aires, Argentina	Begins transmissions by sounding E, E, G sharp, and A, on xylophone.	
PLF	Bandoeng, Java	Begins transmissions with three tone auto horn. Notes are F, D, C.	
GSG	Daventry, England	(See GSB).	
DFB	Nauen, Germany	Sounds three tone whistle at beginning of transmissions. Notes are D, C, G.	
DJB	Zeesen, Germany	(See DJC).	
GSF	Daventry, England	(See GSB).	
GSE	Daventry, England	(See GSB).	
I2RO	Rome, Italy	Woman announcer announces "Radio Roma Napoli."	
DJD	Zeesen, Germany	(See DJC).	
GSD	Daventry, England	(See GSB).	
PHI	Huizen, Holland	Announces "This is Huizen."	
FYA	Pontoise, France	Plays the "Marseillaise" at beginning and end of transmissions.	
ORK	Brussels, Belgium	Plays Belgium national hymn at close of programs.	
EAQ	Madrid, Spain	Announces "Ay-ah-coo, transradio Madrid."	
CT1AA	Lisbon, Portugal	Sounds the cookoo calls between selections.	
VK2ME	Sydney, Australia	Laugh of Kookaburra bird at beginning and end of transmissions.	
HBL	Geneva, Switzerland	(See HBP).	
DJA	Zeesen, Germany	(See DJC).	
GSC	Daventry, England	(See GSB).	
VK3ME	Melbourne, Australia	Opens programs with clock chimes.	
GSB	Daventry, England	Big Ben Chimes on quarter hours. Announces "London calling on—(stations and wavelengths)." Begins and ends transmissions by playing "God Save The King." This song has the same tune as our "America."	
IAC	Piza, Italy	Calls "Pronto, pronto—(name of ship)."	
PSK(PRA3)	Rio de Janeiro, Brazil	Plays chimes like the NBC chimes when signing off.	
CNR	Rabat, Morocco	Announces "Radio Rabat dans Maroc." Uses metronome between selections.	
HBP	Geneva, Switzerland	Announces "Hillo, hillo, radio nations."	
TIEP	San Jose, Costa Rica	Announces "La Voz del Tropico."	
HC2RL	Guayaquil, Ecuador	Plays the Ecuadorian National Anthem at beginning and end of transmissions.	
PRADO	Riobomba, Ecuador	Announces "Estacion el Prado, Riobomba, Ecuador."	
HJ1ABB	Barranquilla, Colombia	Announces "Achay-hota-uno-ah-bay-bay."	
HJ5ABD	Cali, Colombia	Announces "Achay-hota-thinko-ah-bay-bay."	
HI1A	Santo Domingo	Plays "Anchors Aweigh" at start and finish of programs.	
YV3RC	Caracas, Venezuela	Announces "Ee-vay-trays-erray-say." Plays bells on the hour.	
W2XE	Wayne, New Jersey	Announces in English, German, French, Spanish and Italian.	
YV2RC	Caracas, Venezuela	Announces "Ee-vay-dos-erray-say." Sounds four strokes on chimes every fifteen minutes.	
VE9HX	Halifax, Nova Scotia	Sounds four strokes on a gong at beginning of transmissions.	
OXY	Skamleback, Denmark	Midnight chimes at 6 P. M. E. S. T.	
VE9CS	Vancouver, B. C.	Sounds two bells between selections.	
GSA	Daventry, England	(See GSB).	
DJC	Zeesen, Germany	Announces in German, and English. Eight notes of old German song played over and over at beginning of transmissions.	
XEBT	Mexico City, Mexico	Sounds auto horn after each selection.	
RV59	Moscow, U. S. S. R.	"International" is played at beginning and end of transmissions.	
HVJ	Vatican City, Italy	Announces "Pronto, pronto, radio Vaticano." Clock ticking.	
TGX	Guatemala City, S. A.	Two tone high frequency signals.	
YV5RMO	Maracaibo, Venezuela	Strikes gong before announcing.	
HCJB	Quito, Ecuador	Sounds 2-tone chime after announcements.	

• The editors will be glad to have readers of this magazine send us information concerning new musical and other station signatures which they may hear and which do not appear in the above list. We wish to publish every bit of information we can obtain which will aid you short-wave listeners in quickly identifying any *foreign* station which you may happen to tune in. A great many *foreigns* use the Spanish alphabet in pronouncing their call letters and the following phonetic Spanish alphabet will prove valuable to many short-wave listener "Fans."

A is pronounced as ah; B as bay; C, say; D, day; E, ay; F. effray; G, hay; H, ah-cheh; I, ee; J, hota; K, Kah; L, ellay; M, em-may; N. en-nay; O. oh; P, Pay; Q, koo; R, air-ray; S, es-say; T, tay; U, oo; V, vay; W, doh-bleh-vay; X, eckis; Y, ee-griega; Z, theta; Numerals: One, oono; Two, dos; Three, trehs; Four, quatro; Five, thing-ko; Six, sase; Seven, see-ate; Eight, ocho; Nine, noo-ay-ve; Ten, diez.

FYA, the French station, opens and closes its program with the *Marseillaise* played by an orchestra. Their famous slogan is "Ici, Paree (Paris)."

Courtesy N. Y. Sun

Win This Silver Trophy

For the Best "Listening Post Photo"

First Trophy Award to Pierre A. Portmann

Woodside, N. Y.

The handsome Silver Trophy, illustrated above, will be awarded to the person sending in what appears to be to the judges the most interesting photograph of their short-wave listening post. The rules for this contest provide that the Trophy shall be awarded only for the BEST photo of listening post apparatus or set-up, and is not concerned with amateur TRANSMITTING stations. Those owning transmitting stations may enter such photos in the monthly contest sponsored by SHORT WAVE CRAFT magazine. This Trophy is a handsome specimen of the silversmith's art and was designed by a leading New York Trophy Manufacturer. This beautiful silver trophy stands 16 inches high and is symbolic of the art of short-wave listening.

Rules For Short Wave "Listening Post" Trophy Contest

● THE editors of the OFFICIAL SHORT WAVE LISTENER magazine feel sure that our readers will be greatly pleased with this announcement of a brand new "Trophy Cup" Contest, in which the handsome silver trophy here illustrated, will be awarded to that Short Wave Listener who submits the best "Listening Post" photo.

Here are some of the points on which the "Listening Post" photos will be judged by the editorial staff: The photo must be clear and preferably not smaller than 5 x 7 inches, although 4 x 5 inches will do if the photo is particularly clear.

If possible try to have the photo show the owner or operator of the "Listening Post" appear in the same picture with the receiving apparatus, although a separate photo of yourself will do, of course.

Not only will the photo be judged for the quality of the photograph itself, but also for the ingenuity shown by the owner of the station in a neat and orderly arrangement of the receiving apparatus.

Do not write descriptions on the back of the photo, but simply place your name and address on the back of it or on the photo mounting.

All descriptions of Short-Wave "Listening Posts" should be typewritten or else written in ink, well spaced so that the editors can read them quickly. Do not send "pencil-written" descriptions and moreover keep the description of the station and the results you have obtained as brief as possible; usually 300 words is plenty.

Here is a brand new contest which will cost you practically nothing to enter and you have a very fine chance of winning this handsome Silver Trophy. The editors will award one of these Silver Trophies for the best "Listening Post" photo submitted by the readers of the OFFICIAL SHORT WAVE LISTENER magazine. Please remember that the photos must be as large as possible and they absolutely must be "clear"!

Describe your aerial briefly with its dimensions, and particularly tell in what geographic direction it points, north, south, etc. Also mention where it is located such as above any roofs, trees, or other objects, and what form of lead-in you employ.

The announcement of the first Trophy Award for the best Short-Wave "Listening Post" photo appears of the opposite page. Entries for the next contest will be accepted up until May, 20th, 1935.

The editors will not be responsible for any photographs or descriptions of "Listening Posts" which may be lost in the mail or otherwise, and return postage should be included with the photos if they are to be returned.

All members of the OFFICIAL SHORT WAVE LISTENER MAGAZINE'S editorial and business staff are excluded from this contest, as well as any members of their families.

In the event of a "tie" between two or more contestants, the judges will award a similar trophy to each contestant so tying. Please remember that this contest for the best Short-Wave "Listening Post" photo is purely an amateur or experimenter's proposition, and all commercial short-wave receiving stations are excluded.

The best "Listening Post" photo will also be judged not because of the fact that a handsome array of expensive short-wave receiving apparatus has been assembled for the picture, but the "pedigree" or "DX" reception results will also be carefully scrutinized by the judges. The board of judges for this contest will be the Editors of the Official SHORT WAVE LISTENER magazine. Their opinion will be final.

Address all entries to this contest to: LISTENING POST CONTEST, care of OFFICIAL SHORT WAVE LISTENER MAGAZINE, 99-101 Hudson Street, New York

First Trophy Award To P. A. Portmann

for his Listening Post Photo

Editor, SHORT-WAVE LISTENER:

I am sending you a picture of my "Listening Post" for the Best Station photo contest.

My receiver is the three-tube Doerle A.C. job. I have had very good results with it. The first afternoon of listening brought in GSB, EAQ, and GSC.

I have received verifications from all the continents. And about 25 countries. In all I have heard 32 countries and all continents twice (two stations on each continent).

I also have two verifications from KNRA, the Seph Parker, and W1OXDA, the Schooner Morrisey.

PIERRE A. PORTMANN,
47-20 48th St.,
Woodside, N. Y.

Mr. Portmann's "listening post"; here is an excellent station indeed. Congratulations, Mr. Portmann!

Honorable Mention - Station Photos

Robert Schlosser's Station

Above we have photo of Robert Schlosser of Defiance, Ohio, who is the proud owner of this extremely well-built 7-tube superheterodyne receiver. This receiver uses two dials to "log" stations and has all the latest improvements, including automatic volume control, band-spread, quartz crystal filter and visual tuning meter. The crystal filter is of particular value when tuning in C.W. or code signals and is used generally for code reception; it eliminates as high as 75% of electrical disturbances and background noises heard on sets not so equipped. The visual tuning meter is a very handy adjunct, especially for short-wave tuning.

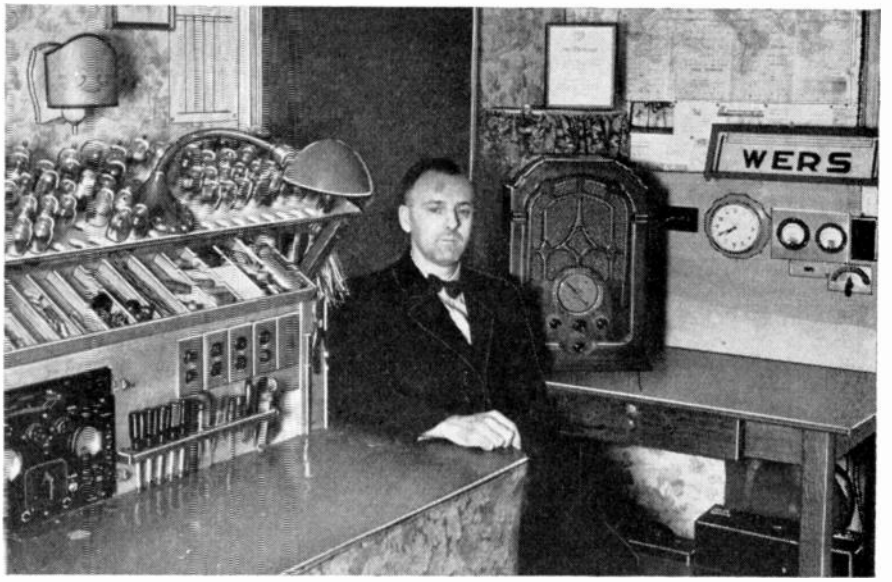
Warren Charles's Listening Post

Editor, SHORT WAVE LISTENER:

I have purchased the initial issue of the SHORT WAVE LISTENER magazine and have derived much enjoyment from its articles on short waves.

I have an S.W.L. (Short Wave Listener) card which I designed and have sent to approximately 300 amateurs. Of course I do not receive an answer from *all* amateurs, but a great many do respond. The electric sign on the panel — W.E.R.S. — stands for *Warren's Emergency Receiving Station.* On the panel I have an electric clock. Two meters—one A.C. voltmeter which gives the line voltage when using the set, one —D.C. milliameter which measures the out-put plate current of the set. Knob and dial below the meter regulate resistance in the out-put meter; alongside the meter is a time-switch which operates automatically from 15 minutes to 5 hours. In the evening before I retire, I set this switch for special programs. It is not necessary to turn the set off, as the automatic switch takes care of that. A world map can be seen above the panel. Veri cards from DJC, YSA, EAQ, FYA, HBP, VK3ME appear also. My *Short Wave League* membership certificate is also hung above the panel. This den is where I spend my leisure time—with my radio and SHORT WAVE LISTENER.

WARREN CHARLES,
7275 Potomac St.,
Hagerstown, Md.



Warren Charles has made quite an elaborate installation of his short-wave listening apparatus and he has an automatic time-switch, which he can pre-set to turn the receiver "on" or "off" for any desired programs. Mr. Charles has recently installed a "double-doublet" aerial with very gratifying results.

How "NBC" Broadcasts On

● The NBC short-wave broadcast transmitters W3XL-W3XAL-W9XF have just received engineering attention and reconstruction which makes them stronger and clearer than they have ever been before. With the advent and general use of *all-wave* receivers the importance of the short wave broadcasting facilities assumed greater significance in providing service for listeners in remote points in the United States and in all *foreign* countries.

These stations distribute the Red and Blue Network features of the National Broadcasting Company, W9XF from Chicago and the W3XL-W3XAL from Bound Brook, New Jersey. These stations have been among the regular stand-bys of short-wave listeners, as attested by 6,000 letters from the remote points of the globe. Many of these letters are absorbing documents portraying life in remote tropical jungles, ice-covered mountain peaks and similar places where human visitors are seldom if ever seen. The only contact with the outside world is often the short-wave receiver.

Two Water-cooled Tubes Replace Twelve Old Ones

W3XL-W3XAL formerly employed a group of twelve 20,000 watt water-cooled power tubes to modulate the radio frequency signal as it sped on its mission. Reconstruction of this system, just completed, makes possible the more efficient function of this unit with the use of two water-cooled tubes instead of twelve. The actual gain in signal which may be enjoyed by the listener is 60 per cent. The change in this unit

Thousands of short-wave listeners are familiar with the old standbys—W3XL and W3XAL, and many listeners have also heard W9XF located near Chicago, another short-wave outlet of "N.B.C." programs. Interesting details of these famous short-wave program broadcasting stations are given in the accompanying article.

permits higher quality broadcasting, with higher modulation and consequently stronger signal, and provides greater reliability.

The new modulating system, will deliver 25,000 watts of audio frequency power, capable of modulating a power amplifier input of 50,000 watts to its fullest extent.

Antenna Is Interesting

Th antenna for transmissions on 6100 and 6425 kilocycles is located about 700 feet from the transmitter building and consists of a rigid copper tube mounted on a self-supporting wooden pole 115 feet high. The antenna system for 17,780 kilocycle transmission is a *dipole* (aerial having two equally balanced arms or a doublet) 200 feet in the air. The transmission line to this dipole aerial is approximately 450 feet long and the antenna is supported from one of the 300 foot field towers supporting the antenna system for WJZ.

The water which circulates around the plates of the water-cooled tubes is cooled by circulation through a heat transfer unit. Distilled water is used through the tube system and interchanger forming one closed circulating system. The other side of the heat interchanger consists of ordinary well water, which is circulated through a spray pond 50 feet square. This spray pond also provides cooling for the two broadcast transmitters installed in the same building.

The transmitter building is approximately 30 miles from New York and programs are transmitted to it over telephone circuits from the NBC headquarters in Radio City. Announcements on the short-wave transmitters are made in the control room used in conjunction with the transmitters.

Normally the 6100 kilocycle frequency is used for routine transmission during the *evening* hours from this station while the 17,780 kilocycle frequency is used for *daylight* transmission. The W3XL frequency of 6425 kilocycles is used largely for experimental and special work.

25 Kilowatts Power

In the case of the 6100 kilocycle transmission the (stabilizing) crystal frequency is stepped up four times. In the case of 17,780 kilocycle transmission the multiplication is twelve times. In conjunction with the stepping up in frequency the power is also built up from approximately 1 watt to the 15 and 25 kilowatt powers fed to the antenna systems.

With the advent of widespread use of *all-wave* receivers the NBC engineering department is giving particular attention to the short-wave transmitting fa-

(*Continued on Page* 94)

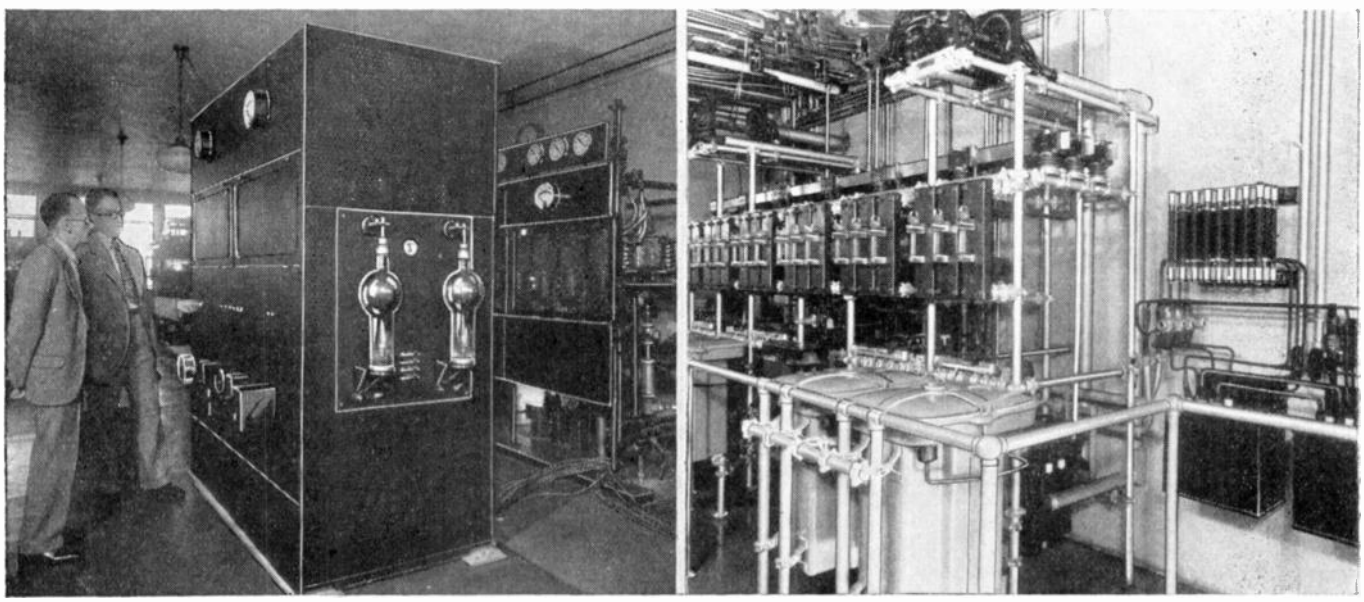
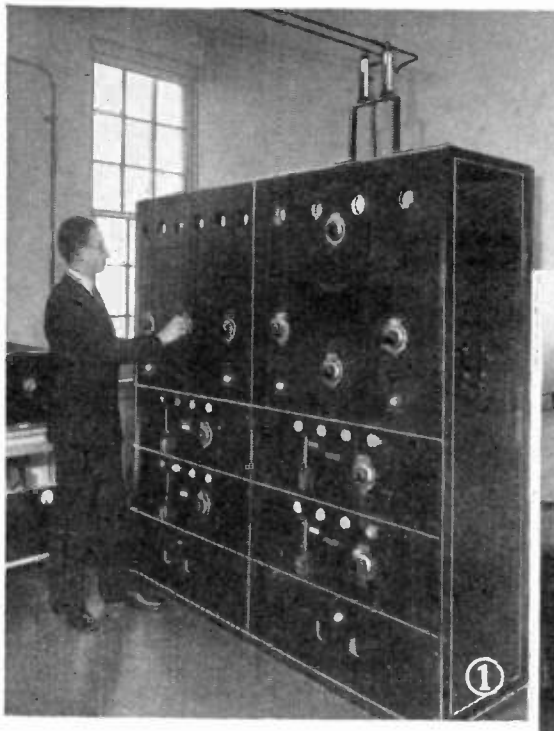
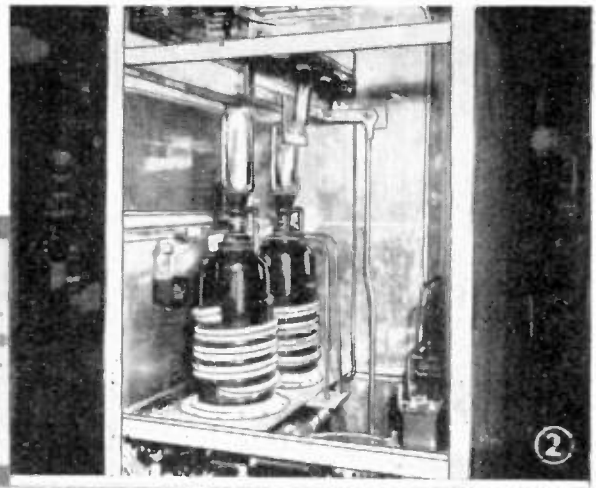


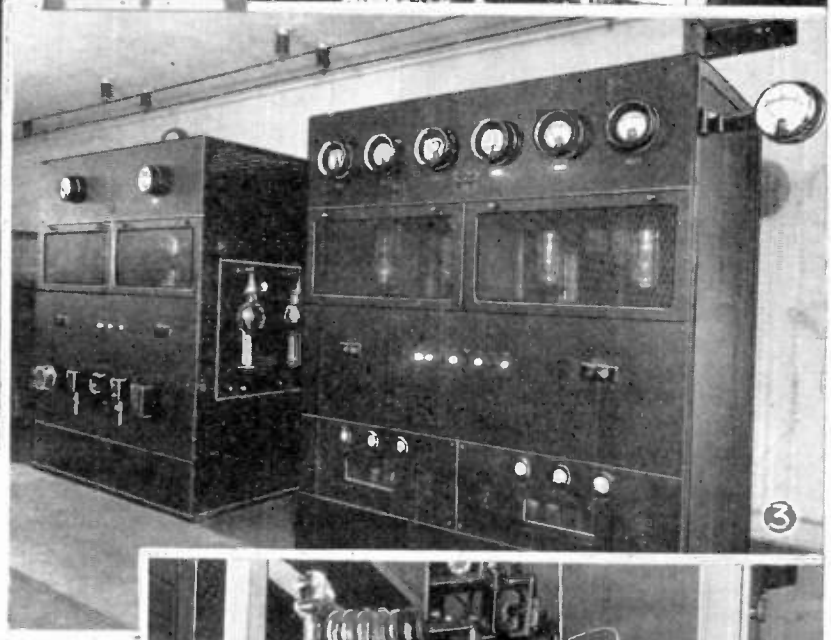
Photo at left shows W3XAL's new and old rectifiers. The front unit, of modern design, has replaced the obsolete open construction shown at the rear. Photo at right shows W3XAL's power control section.

Short Waves

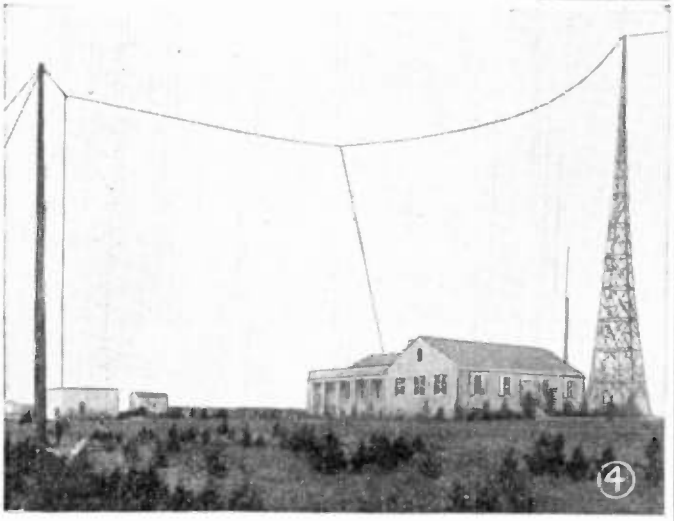
By Raymond F. Guy
NATIONAL BROADCASTING COMPANY



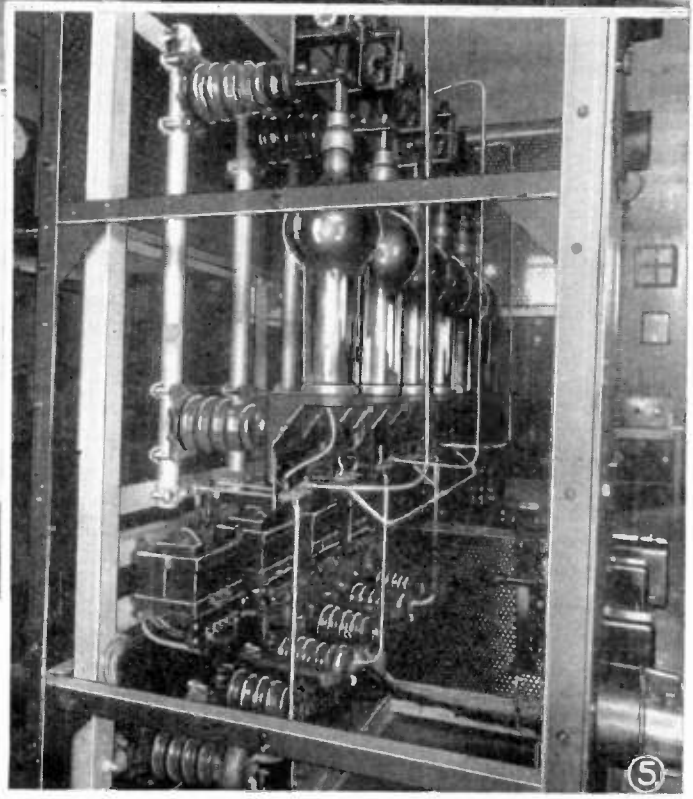


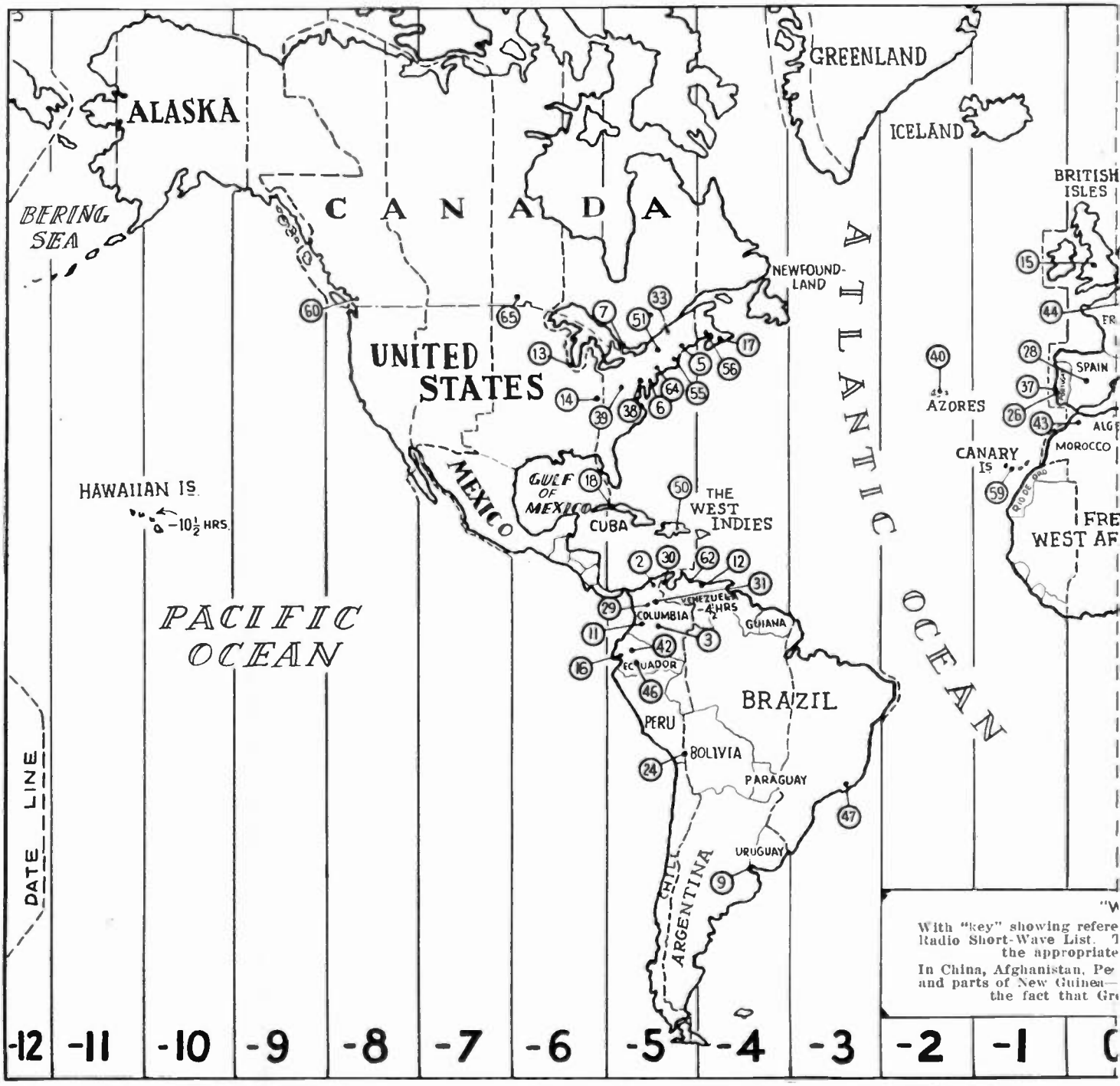


Above—Radio frequency exciter equipment recently rebuilt for W3XAL; Carl Dietsch at the controls. Upper right photo shows new 25,000 watt amplifier stage of W3XAL'S powerful class "B" 20 kilowatt modulator at station W3XAL.



The large colonial type building shown above houses the high-power transmitting equipment of stations WJZ—W3XAL and W3XL, located at Bound Brook, New Jersey. These stations have been regular standbys of short-wave listeners the world over, as attested by thousands of letters received from listeners everywhere. Photo at right shows battery of high-power tubes used in W3XAL'S high voltage rectifier unit.





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Radio Short-Wave List. T
the appropriate
In China, Afghanistan, Pe
and parts of New Guinea—
the fact that Gr

Ref.	Station	Call	m.
1	Bandoeng (Java)	YDA	49.02
2	Barranquilla (Colombia, S. America)	HJ1ABB	46.5
3	Bogotá (Colombia, S. America)	HJ3ABH	49.96
4	Bombay (India)	VUB	31.36
5	Boston (Mass.)	W1XAL	49.67 25.45 19.67
6	Bound Brook (New Jersey, U.S.A.)	W3XAL	49.18 16.87
6	Bound Brook (N.J.)	W3XL	46.69 17.33
7	Bowmanville (Canada)	VE9GW	49.26
8	Budapest (Hungary)	HAS3	19.52
8	Budapest (Hungary)	HAT	55.56
9	Buenos Aires (S. America)	LSX	28.98

Ref.	Station	Call	m.
10	Calcutta (India)	VUC	49.1
11	Cali (Colombia)	HJ5ABD	46.15
12	Caracas (Venezuela)	YV2RC	49.08
12	Caracas (Venezuela)	YV3RC	48.78
12	Caracas (Venezuela)	YV3RC	25.65
12	Caracas (Venezuela)	YV4RC	47.05
13	Chicago (Illinois, U.S.A)	W9XAA	49.34
13	Chicago (Illinois, U.S.A)	W9XF	49.18
14	Cincinnati (U.S.A.)	W8XAL	49.5
15	Daventry	GSA	49.59
15	Daventry	GSB	31.55
15	Daventry	GSC	31.32
15	Daventry	GSD	25.53
15	Daventry	GSE	25.29
15	Daventry	GSF	19.82
15	Daventry	GSG	16.86
15	Daventry	GSH	13.97
15	Daventry	GSI	19.66

Ref.	Station	Call	m.
15	Daventry	GSJ	13.93
15	Daventry	GSL	49.1
19	Eindhoven (Holland) (Experimental)	PCJ	19.71
16	Guayaquil (Ecuador)	HC2RL	45
17	Halifax (Nova Scotia)	VE9HX	49.1
18	Havana (Cuba)	COC	49.92
18	Havana (Cuba)	COH	31.81
19	Huizen (Holland)	PHI	25.57
20	Johannesburg (S.A.)	ZTJ	49.2
21	Jelöy (Norway)	LKJ1	31.45 48.94
22	Kharbarovsk (U.S.S.R)	RV15	70.2
23	Kuala Lumpur (Fed. Malay States)	ZGE	48.92
24	La Paz (Bolivia)	CP5	49.34
25	Lyndhurst (Australia)	VK3LR	31.32
26	Lisbon (Portugal)	CSL	48.78

Ref.	Station
26	Lisbon (Portugal)
26	Lisbon (Portugal)
27	Lobito (Angola)
28	Madrid (Spain)
29	Manizales (Colombi
30	Maracaibo (Venezu S. America)
31	Medellin (Colombia
32	Melbourne (Australi
33	Montreal (Canada)
34	Moscow (U.S.S.R.)
34	Moscow (U.S.S.R.)
34	Moscow (U.S.S.R.)
35	Mozambique (East Africa)
36	Nairobi (Kenya, Afri
37	Parede (Portuguese Radio Club)

"WORLD-RADIO" SHORT-WAVE AND TIME-ZONE MAP OF THE WORLD

nce numbers, names of stations, call-letters, wavelengths in meters (M), in accordance with "World-
'o ascertain the time at any station shown, add to or substract from G.M.T.
zone number, except where "half-hour" times are indicated on the map (e.g. India).
dia, Arabia, Abyssinia, Borneo, Sumatra, Venzuela, Bolivia, Guatemala, Franklin, most of Greenland,
either the legal time is not known, or no legal time is kept. Time zones on this map are based on
enwich mean time is zero.

)	+1	+2	+3	+4	+5	+6	+7	+8	+9	+10	+11	+12

	Call	m.
	CT1AA	31.25
	CT1CT	24.83
		31
	CR6AA	41.8
	EAQ	30.43
a).	HJ4ABB	42
ela,		
	YV5RMO	51.28
).	HJ4ABE	50.59
a).	VK3ME	31.54
	VE9DN	49.96
	RW72	45.38
	RW59	50
	RW59	25
	CR7AA	84.67
ca)	VQ7LO	49.5
	CT1GO	24.2
		48.4

Ref.	Station	Call	m.
38	Philadelphia (Penna., U.S.A.)	W3XAU	49.5
			31.28
			48.86
			25.27
39	Pittsburgh (Pa., U.S.A.)	W8XK	19.72
			13.93
40	Ponta Delgada (Azores)	CT2AJ	75
41	Penang (Fed. Malay States)	ZHJ	49.41
42	Quito (Ecuador, So. America)	HCJB	73
43	Rabat (Morocco)	CNR	37.33
			23.39
44	Radio Colonial (Paris, France)	FYA	25.6
			25.23
			19.68
45	Radio Nations (Prangins, Switzerland)	HBP	38.48

Ref.	Station	Call	m.
45	Radio Nations	HBL	31.27
46	Riobamba (Ecuador, S. America)	PRADO	45.31
47	Rio de Janeiro (Brazil)	PRF5	31.58
			25.4
48	Rome (Italy)	2RO	31.25
			49.3
49	Ruysselede (Belgium)	ORK	29.04
50	Santo Domingo (D.R.)	HIX	50.16
50	Santo Domingo (D.R.)	HIZ	47.5
51	Schenectady (New York, U.S.A.)	W2XAD	19.56
51	Schenectady (U.S.A.)	W2XAF	31.48
52	Singapore (S.S.)	ZHI	49.85
53	Skamleback (Den'k)	OXY	49.5
54	Sourabaya (Java)	YDB	67.11
55	Springfield (U.S.A.)	WIXAZ	31.35
56	St. John (New Bruns.)	VE9BJ	49.26
57	Sydney (Australia)	VK2ME	31.28
58	Tokio (Nazaki, Japan)	JVT	44.44

Ref.	Station	Call	m.
59	Tenerife Radio Club	EA8AB	41.6
60	Vancouver (British Columbia)	VE9CS	49.43
61	Vatican City (Italy)	HVJ	50.26
			19.84
62	Valencia (Venezuela)	YV6RV	47.01
63	Vienna Experimental (Austria)	OER2	49.4
			49.02
64	Wayne (N.J.)	W2XE	25.36
			19.64
65	Winnipeg (Canada)	CJRX	25.6
65	Winnipeg (Canada)	CJRO	48.78
66	Zeesen (Germany)	DJA	31.38
66	Zeesen (Germany)	DJB	19.74
66	Zeesen (Germany)	DJC	49.83
66	Zeesen (Germany)	DJD	25.49
66	Zeesen (Germany)	DJE	16.89
66	Zeesen (Germany)	DJN	31.45
66	Zeesen (Germany)	DJQ	19.63

Odd Aerials I Have Used

By H. Townsend

Many volumes could be written on the subject of radio antennas or aerials and we thought it would be interesting to our readers to explain and illustrate some of the various types of odd antennas which have been used from time to time by many people whom we have come in contact with. Some of those illustrated here are really quite efficient for general purposes, while many of them will provide an excellent temporary antenna where one does not expect to operate a receiver any great length of time and does not wish to go to the trouble of erecting a more or less elaborate aerial.

● DURING our many years of association with short-waves we have come across some very unusual antennas which have been used by short-wave "Fans." While it is not the purpose of this article to point out the ultimate in short-wave antennas, those diagrammed and discussed here are those which some of our short-wave friends told us about and which they say gave remarkable results.

Bed-spring Antenna

Probably the oldest and most commonly known antenna stunt is the use of a bed-spring for picking up radio waves. A good many years ago this was a standing joke. One short-wave "Fan" in particular received stations from all over the world just by merely clipping a wire onto his bed-spring in the fashion shown in Fig. 1.

Another "Fan" out in Omaha, Nebraska, goes into a lengthy description of his antenna system which consisted, believe it or not, of using the leader pipe system of his home. In his particular case, most of the sections of the roof rain-spout system were soldered together making quite an elaborate antenna; one that had many angles and covering a considerable amount of space. He soldered his lead-in directly to the down-spout which ran along side of his window. Our artist has endeavored to illustrate how this was done. He mentioned also that there was no direct connection between the earth and this leader system. However, in some cases these systems are carried directly into the earth or into small wells and of course in this case it would not give such good results.

Aerial Eliminators

Then there is the well-known antenna "aerial eliminator." This is probably one of the worst things that could be used for short-wave reception. In Fig. 3 we find that a condenser is connected in series with one side of the house lighting circuit and the antenna binding post of the set. These "antenna plugs" as they are called, while having many and varied shapes, consist only of this small condenser or a pair of them. Due to the many electric appliances such as the vacuum cleaner, refrigerators, etc., which cause considerable noise to be transmitted over the light line, this type of antenna is the best thing to stay away from, especially when listening on *short waves*. Then, there is always the danger of the condenser becoming "short-circuited" which means that the antenna coil or first part of the receiver may be burned up and the house fuses blown.

The "Ball" Antenna

Many exhorbitant claims have been made for the antennas depicted in Fig. 4. These are the famous "ball" type aerials and also the circular copper band. These instruments do not aid in the least so far as we can see in short-wave reception. Of course some signals are picked up by the ball or copper ring, *but the lead-in does most of the work* and any ordinary piece of wire will give just as good results.

Looking back several years we remember the old stunt of placing a "pie-tin" beneath the telephone. The capacitive effect between the base of the telephone and the pie-tin form a condenser and the telephone wires become the antenna system. However, here again we have considerable noise due to the bell ringing, dialing, and switching systems connected with the telephone service. These instruments cause impulses to be sent along the telephone wire which are recorded in our loudspeaker! Fig. 5 shows this arrangement.

Other people have informed us that they use a "ground" as the aerial. This is done by connecting the ground lead onto the aerial post and eliminating the antenna and leaving the ground post blank! In Fig. 6 we see that a connection is made from the antenna post on the radio receiver to the nearest radiator although any other form of ground would be just as good.

One of our readers from Burlington, Vermont, tells us a story of using a fence as his antenna. The fence consisted of a wire mounted on wooden posts and he by chance one day ran a wire from the fence to his receiver and obtained marvelous results. Of course, if metal posts were used this would connect the wire to the ground and it would not serve so well. In Fig. 7 we show an artist's idea of how this "fence" antenna looks. Incidentally, speaking of "wire fence" antennas, Harvey Gernsback, our short-wave "Station List" editor, tells us a story of a fellow whom he met while at camp some years ago. This chap used a crystal detector and connected it to a barbed wire fence which was the dividing line between the camp and a pasture field and, believe it or not, he picked up the first news of the declaration of war in Europe in 1914!

Those of us who were associated with radio some time back will remember General Squire's famous experiment of using a tree as an antenna. This was accomplished by driving a nail into the tree and connecting a wire between the nail and the receiving set. This is a handy stunt while picnicking, etc., and it is clearly shown in Fig. 8.

"Porch-Screen" Aerial

One of the editors had a radio set located on his front porch which was entirely screened in and while trying to overcome the shielding effect of this screen, he struck upon the idea of connecting it to the receiver which made the screening function as an antenna, where before it was shielding the receiver and reducing the strength of signals And—it works!

Here's a "hot" antenna which we heard of only recently. A group of tourists were stopping at an old farm house and could find nothing handy to use for an antenna so they connected the aerial binding post of the receiver to the metal parlor stove and enjoyed excellent reception throughout their stay at this particular point. The reason that an affair such as this would work out fairly well is because the stove is really insulated from the ground and probably its mass together with the stove pipe (and we presume there was one) collected quite a large amount of radio energy.

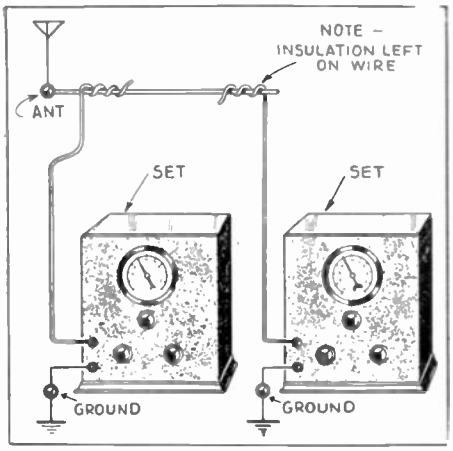
Vacationists who like to operate portable receivers in canoes or small boats can use a metal fish rod as an antenna with very fine results. The ground of course can be very easily obtained by letting the ground wire drag through the water; or small piece of metal foil can be cemented to the side of the canoe and a wire attached to it to form the ground connection.

Here's a simple aerial—simply drop a piece of copper wire out of a three or four story window with a small weight attached to the lower end. Another effective aerial is a piece of fine magnet or other wire supported by a kite or balloon. An emergency aerial can be made by tying a string to a stone and throw the stone over the limb of a tree, the other end of the string being fastened to the antenna wire. Tie an insulator between the cord and the wire. In some cases you may be near a well—simply lower a piece of wire down the well, with a stone or other weight attached to its lower end; don't let the wire touch the water.

Freak Aerials Pick Up Short Waves

The novel aerials illustrated are described on the opposite page.

$3.00 for Best S-W Hint



The above method is quite practical where more than one receiver is operated from a single antenna.

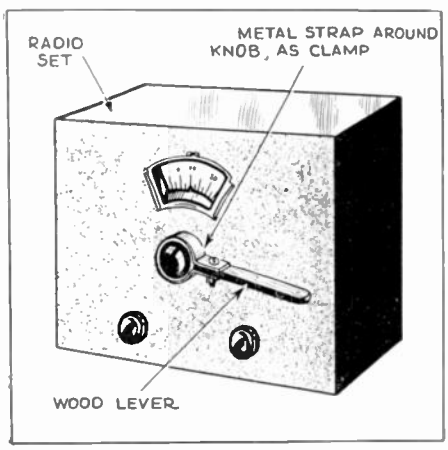
MULTIPLE RECEPTION

For those who wish to operate more than one receiver on a single antenna, this idea offers about the simplest solution. By referring to the drawing it can be clearly seen that a short piece of wire from each receiver is wrapped around the lead of the antenna. The wire should be insulated in order that no direct contact will be made. Of course there is always the chance that when superheterodyne or regenerative receivers are used interference will be encountered if the two receivers are tuned to the same station.

✧ ✧

Tuning Aid

By making an extension from a thin strip of metal and a short wooden handle such as shown in the diagram, one can easily tune in short-wave receivers. The method of use of course is to grasp the wooden handle, the object being to obtain as much leverage as possible, although a handle 4 or 5 inches long seems to be about optimum.



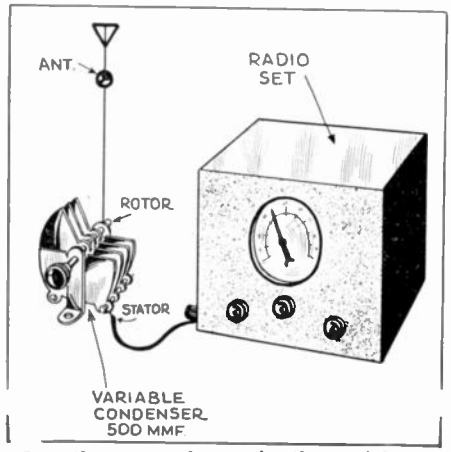
If your set does not have "band-spread," this hint will make tuning a pleasure.

Each month we are awarding $3.00 for the best short-wave hint. Those presented on this page will give the reader an idea of the type of material that we are looking for. All hints printed other than the prize winner will be awarded a six months' subscription to this magazine.

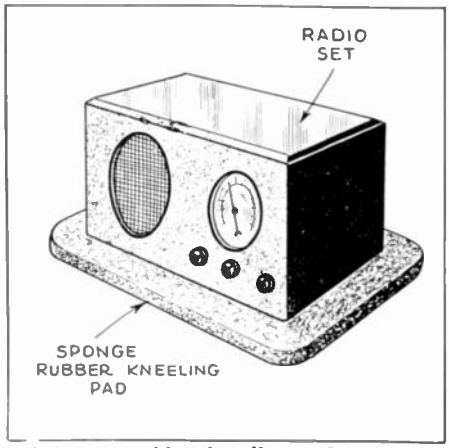
✧ ✧

Reducing Interference

Many short-wave "Fans" have experienced trouble due to their aerial being too long and in many cases an efficient substitute for a shorter antenna is a variable condenser connected in series with the aerial. As the condenser is turned from minimum to maximum plates (unmeshed is minimum) it will have the effect of lengthening or shortening the antenna, depending upon which way the condenser is swung.



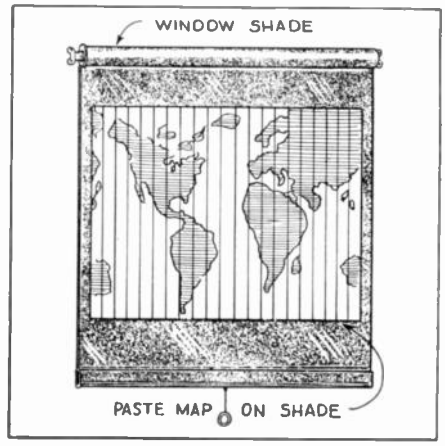
Inserting a condenser in the aerial circuit will in many cases improve reception.



A sponge rubber kneeling pad makes an excellent shock absorber for a short-wave receiver.

Shock Absorber

A sponge rubber kneeling pad such as those sold by any 5 and 10 cent store makes an excellent shock absorber when placed underneath a radio set. This is useful in cases where elevated trains and such heavy traffic runs nearby, as the sponge rubber pad absorbs most of the vibration.



A neat arrangement for mounting your short-wave map.

Short-Wave Map

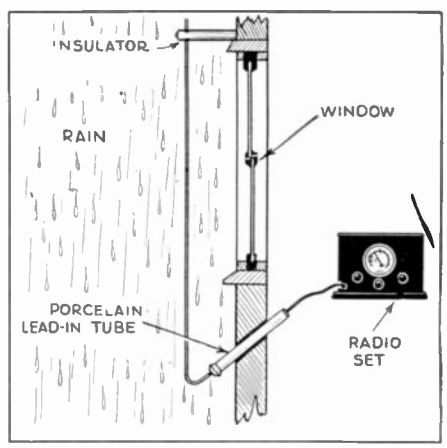
Here is a handy stunt which solves the problem of finding a place to hang a large map. Simply cement it to the side of a window shade and the map can be pulled out at will. Of course, it is not intended that you should use a shade which is hung on a window; a separate shade should be used and located conveniently on the side wall.

✧ ✧

Lead-in Bushing

When installing a lead-in bushing or a porcelain tube in cases where a hole must be drilled through the base of a window or side of a building, make sure that it is tilted upward as shown in the drawing, in order that rain will not enter. If the insulator does not fit tight in the hole of course it will be necessary to fasten a clamp to it or wedge it fast in order that it will not drop out.

Of course wherever an antenna is erected it is absolutely necessary that the best possible insulation be used. Use stand-off insulators to support the lead-in wherever possible.



This drawing clearly shows how your lead-in should be arranged for best results.

9 Meter Police Calls on the Air

The wavelength used by police departments in various cities for calling their radio cars has been going down—at present, we have police systems operating on 9 meter waves and 7 meter waves are being used experimentally.

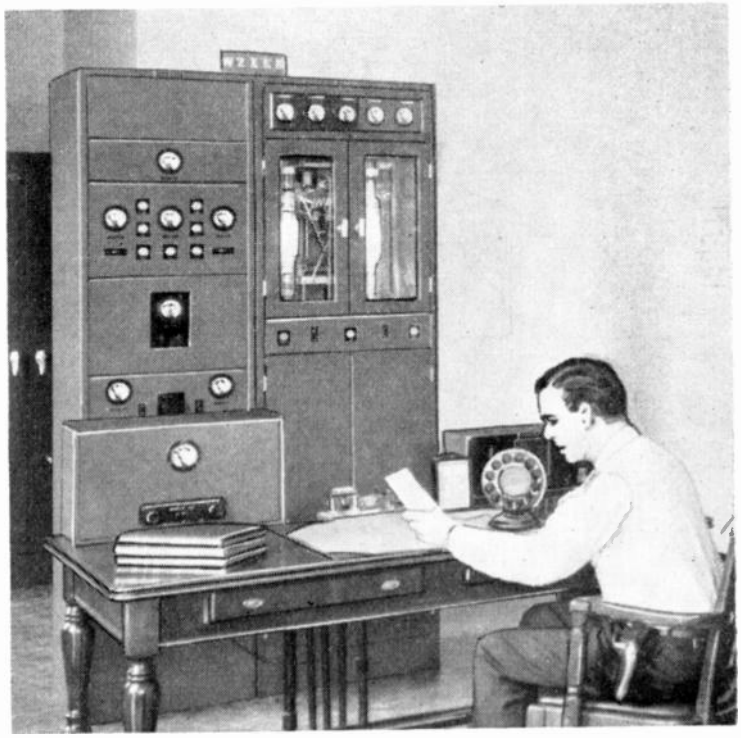
Left—Scene in radio room at Newark, N. J. Police Headquarters, where record of radio cars is kept by means of miniature models on a map.

● The tip of a flag-pole serving as an antenna, hollow wires which, like water pipes, carry electricity without leaking, a quartz crystal scarcely thicker than a hair which acts as a control by vibrating 5,000,000 times a second, and operation in a wave band so remote from atmospheric disturbance that a bolt of lightning would cause only a barely audible click, are among the features of the radio system which has just been placed in operation by the Police Department of the City of Newark.

The system operates on 30,000 kilocycles, an ultra-high frequency being within a new frequency band tentatively assigned for police radio work by the Federal Communications Commission. This frequency is about 20 times higher than the medium frequency band regularly assigned for police work and which is used by most police radio systems now in operation. So popular has radio proved for police service that in certain sections of the country few channels in the medium frequency band remain unassigned. Hence the Commission's decision to open up new frequencies for this service.

Operation on an ultra-high frequency, as embodied in the Newark system, possesses certain advantages for municipal stations. Freedom from atmospheric disturbance is one. Newark motor patrolmen listening to their receivers will not be troubled by static, thunderstorms or other types of interference which are ordinarily picked up by receivers in the medium frequency bands.

As the wave length to be used determines the length of the antenna, the extremely short waves used in the ultra-high frequency system mean proportionately shorter antennas. In the Newark system a short upper section of the 100 foot flag pole on the National Newark & Essex Bank Building serves as a very efficient antenna. To operate in the medium wave a longer antenna is necessary. The shortness of the antenna makes possible construction of transmitters which are mobile. Should Newark authorities at any time decide to establish two-way radio service, transmitters could be installed in police cars thus enabling the motor patrolmen to talk to headquarters as well as receive.



Above—View of the transmission room at Newark Police Headquarters with 50 watt high frequency radio transmitter on left; 500 watt amplifier at right.

Left — Police dispatcher at Newark putting an alarm on the air on 9 meters. At his left is the input amplifier, the "mike" being remote from the transmitter.

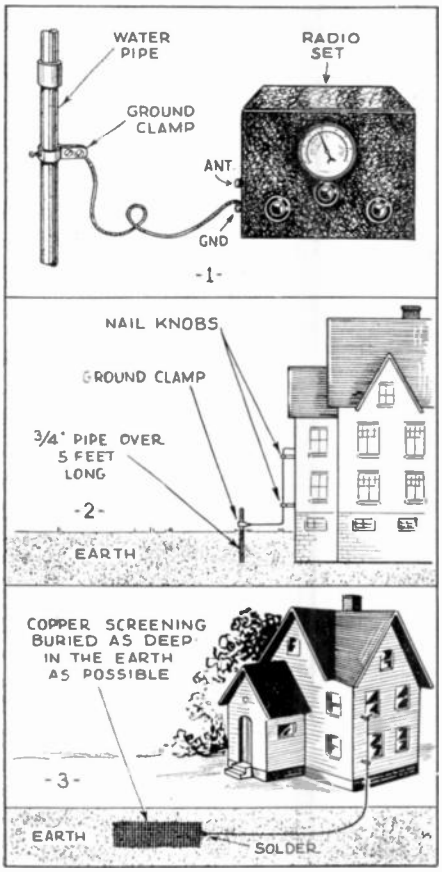
Ultra-high frequency waves have characteristics which prevent their being picked up over as great distances as can longer waves and consequently broadcasts made over ultra-high frequency systems confine themselves to smaller areas. A city as near as Albany, for instance, could probably use the same frequency as Newark without overlapping.

All police communication facilities have been concentrated in three adjacent rooms on the fourth floor of Police Headquarters, at the City Hall on Broad Street, Newark. In one room is

(*Continued on Page* 94)

A Good Ground And How To Obtain One

A great many short-wave listeners are using the newest idea in aerials—the Doublet. Many listeners, however, use an aerial and a ground connection, and for their benefit this article has been prepared. A number of valuable hints are given, explaining how to obtain a first-class ground connection.



Diagrams above show water-pipe ground at 1; independent ground obtained by driving a piece of pipe into the moist earth at 2, and at 3 a ground connection formed of a piece of screen buried in the earth.

● ALTHOUGH few people realize it a good *ground* is one of the most essential parts in short-wave reception. Many people have been using grounds which are really not in the least effective. One of the best and most prominant ground connections, and used by most of the short-wave fans, is the "cold-water pipe." However, even this can be ineffective if not utilized in the proper manner.

A good ground not only improves the signal strength of distant stations but also aids considerably in lowering the background noise level. For instance, a noisy power line can spoil programs if a good ground connection is not used. Proof of this can be experienced by disconnecting the ground wire to the average AC set and noting the increase in crackling and buzzing noises. In Fig. 1, we have a ground connection to the cold water pipe and the use of an ordinary ground clamp. The pipe should be thoroughly cleaned with emery cloth or scraped with a sharp instrument in order to remove all signs of dirt and corrosion. The ground clamp should also be very clean and be preferably of the copper or tinned copper variety. The ground wire should be securely fastened to the clamp in order that there will be no loose connection.

External Grounds

In Fig. 2, we have the external ground obtained by driving a long pipe into the earth. The pipe should not be less than 5 feet long and preferably longer. The ground clamp is attached in the same manner as shown in Fig. 1, and cleanliness plays a very important part also. Do not drive the pipe into the earth too near the foundation of the building as the earth is much drier close to the foundation. At least a 6 or 8 foot space between the pipe and the foundation should be maintained. The ground wire is led up the side of the house on stand-off insulators or "nail-knobs."

The greater the area of contact between the metal object used as the ground and the earth, the more effective the ground connection becomes. Therefor, as we show in Fig. 3, a large copper screen some 3 by 6 feet and buried well below the surface of the earth, provides a much better ground connection. In Fig. 4, we note the construction of this type of electrode. Due to the strands of the copper screening not being soldered corrosion will take place or each strand will become insulated from the other. This can be overcome by soldering along two edges as shown in Fig. 5. The lead-in connection from the ground electrode should also be soldered securely to the wire mesh.

Use Body of Water

If one should be fortunate enough to live near a brook or some other body of water, he can obtain one of the best grounds known. Just lay the copper screening into the water and weight it down with heavy stones, so that it will not shift, as indicated in Fig. 4. Broadcasting stations use many miles of wire in obtaining their excellent grounds. In Fig. 6, we see how a number of long wires can be buried beneath the surface of the earth (preferably 3 to 6 feet) and all run together at one point, where they are twisted and thoroughly soldered. The best type of wire to use is heavy copper wire, preferably tinned. Of course there are a good many other methods by which a good ground can be established. However, we feel that those shown will serve the reader in improving his ground connections, and the general over-all efficiency of his short-wave receiver.

In making any of the ground connections illustrated on this page, it is advisable to have the ground wire as short as possible. By this we mean that the length of wire from the point where the ground connection is made to the set should be very short. This is true in connections made to water pipes, because the point of connection is at the water pipe; but in the case of grounds where wire mesh is buried in the earth such as illustrated, in Figs. 3 and 4, the ground lead-in should be buried the entire length of the run from the ground electrode to the building. In other words, do not have the ground wire running above the earth the distance required to reach the receiving set. And remember it is always best to solder all ground wire joints.

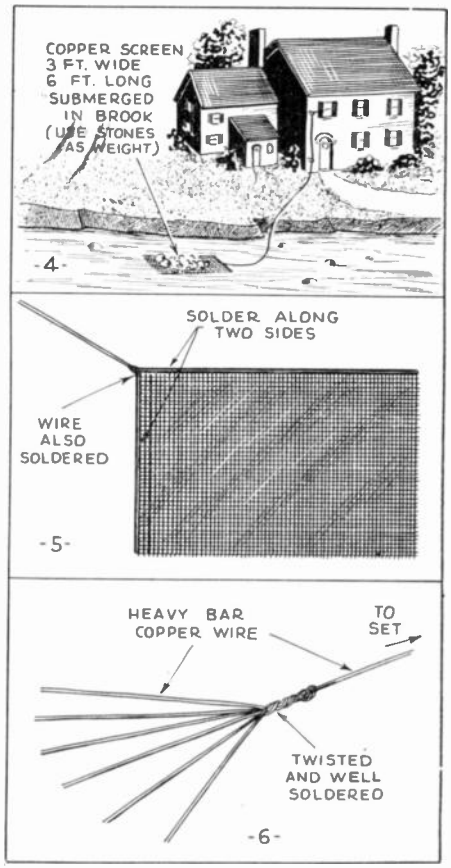


Fig. 4 shows good ground connection formed of a piece of copper screen submerged in a brook. Fig. 5 shows how to solder ground wire to screen and Fig. 6 shows how to spread out gronnd wire for better contact.

The Listener Speaks

Right Up His Alley

Editor, SHORT WAVE LISTENER:

Many, many thanks for this fine new magazine, and if the No. 4 which I picked up to-day is a sample, we certainly have something to look forward to every other month.

I started out with your *Short Wave Craft* when it was a bi-monthly and it soon grew to a monthly. When it first came out it was similar to this new magazine but to my regret it soon became so technical that I had to drop it for something else that had the *listener* more in mind than the technician. I quit buying it about a year ago, but always looked over it at the newsstands, hoping it had more of the listener's side in it. Having been constantly disappointed, I am doubly glad to find the new magazine. I know there are many readers that *Short Wave Craft*" appeals to and wish you success with it, but the new one is "right up my alley" and my only plea is that you *don't* let it become *technical*.

A. M. MITCHELL

Box 713,
Portsmouth, Ohio.

He Is Thankful

Editor, SHORT WAVE LISTENER:

Under the complete list of stations in your magazine you asked if there were any corrections, you would be glad to have listeners write in and tell you about them.

The day that this letter is dated is the date I received these stations. One of these stations, the only one that I am sure is a broadcaster is XEPR in Mexico City, Mexico. This station announced many times in English, and gave a speech on Radio. It comes in very nicely, from about 4:30 to 5:30 P.M., C.S.T. I am not sure of the time for it is the first time that I have ever listened to it. I think it might even be put on the big list that you have in this magazine and also the *Short-Wave Craft*, for it is heard with great volume. I am sending for a *veri* card, and hope that it will arrive soon.

Radio station KEJ on 9010 ks. has been on the air almost every night, broadcasting programs to Honolulu. It is coming in just like a "local."

Thank you for publishing such fine magazines as *Short-Wave Craft* and the OFFICIAL SHORT-WAVE LISTENER. I will send you any new information that I obtain.

ROBERT E. MANGUM,
Chicago, Ill.

Foreign Stations Come in Good and Strong

Editor, SHORT WAVE LISTENER:

My new R. C. A. Victor 10-tube all-wave receiver has everything beat, from what I have seen and heard. This set is one you can depend upon, and one does not have to sit along side of it and follow the stations closely and continuously *retune* them. I also have an R. C. A. double-doublet antenna with coupling transformer and this works in excellent fashion on every band. With this combination, the English and French stations come in clear and strong at my location, Los Angeles, which is some big jump from Europe.

I have also listened to several new stations, especially on the 20-meter amateur band. On the 31-meter bands interference is almost nil, in fact, I have no complaint to make as yet. IRM, 9820 kc. , Rome, Italy, and CT1AA, 9600 kc., Lisbon, Portugal, are my newest *foreign* catches.

• In this department we will print in each issue letters from short-wave listeners of value to all readers. We are particularly interested in those that have constructive criticisms and information that may be of value and help to other short-wave listeners. Only those letters which are deemed of sufficient importance will be printed here. It makes no difference whether your letter is laudatory or whether it contains a "brickbat," it will be published just the same, as long as the information is deemed worthy.

Address all communications to THE LISTENER SPEAKS, care of THE SHORT - WAVE LISTENER, 99-101 Hudson Street, New York City.

Most of the European stations I have located have been heard between 7 a.m. and 8 p.m., P.S.T. (Pacific Standard time.) Thus far I have heard the following stations:

W8XK—13 m., 19 m., 25 m. and 48 m.; W2XE—19 m. 25 m., 49.; WX8AL 49 m.; W3XAL—16 m., 49 m.; W1XK—31 m.; W2XAF—31 m.; W3XAU—31 m., 49 m.; W9XAA—49 m.; W9XF—49 m.; GSA-B-C-D-E-F. FYA—19 m., 25 m.; EAQ, 30 m.; PLV 31 m.; PLE, 16 m.; CJRX, 25 m.; CJRO, 49 m.; VK3LR, VK2ME. RV15.

One in Havana, Cuba, on 31 m. and one on 31 m. which I believe to be LKJ1. Also:

YV3RC—HKD—HJ1A, HJ5ABB, HIZ, HJ3ABF, XEBT.

One Japanese station on about 6750 kc., but no call heard, also on about 10600 kc.

In the near future I hope to have a complete "log" and some verifications. I have confidence in my new set and am going out for stations which are difficult to get, even though I probably will be obliged to lose some sleep. I think it is just as hard to get out of a nice warm bed here in California as it is in the East. The weather is quite cold here in the winter, and the fact that the sun shines in the daytime makes this doubly true.

When I lived back in Canada or some other place in the East where it gets cold, I had warm clothes, but out here no matter what I wear, my teeth will not keep from chattering—and as for shivering, I do very well at that also.

Well, I hope to write you again and I wish you all the best of luck.

Yours truly,

WERNER HOWOLD,
632 Fetterly St.,
Los Angeles, Calif.

A "Brick-Bat"

Editor, SHORT WAVE LISTENER:

I have before me a copy of the SHORT WAVE LISTENER and note that you want comments on it. Well I don't like the way you have listed the Short-Wave Stations on pages 34 to 36—because over half have been left out, and this half are easy to receive, and come in loud and clear. Now why is it that so few list such stations as CT3AQ? Or am I an exception to the general run?

The aerial tower is 125 feet high; the aerials are—at the top (125 feet high) a 6 wire cage doublet, the cages are 50 feet long and 10 inches in dia.; the rings for the cages are copper, spaced every 5 feet. The wires soldered to the rings around the lead-in is 30 strands of No. 24 bronze (this is the wire used by the U. S. Signal Corps). The other aerial is an R.C.A. I neglected to say that all insulators are Pyrex. The Audibility Meter is a U. S. Navy Standard.

At times I use a head-set, I use a Western Electric 194 W. Now for the receivers—No. 1 is a N-C 5 hooked up to a Majestic Model 50 with a few changes. No. 2 (I just got it) is a Model 263 R.C.A. The results? Well look at the March issue of *Short Wave Craft*, pages 669 to 671, on the R C A all of them, and several not listed, and the same on the NC5, but remember this—The cage is 125 feet high and tuned—The ground system—water pipes, about 2,000 feet of copper, buried about 2 feet. From what I have seen there are very few who can compete. Of course I am not an expert in this game, I have only been in it since the day of *Modern Electrics* and the *Electro Importing Company*. Now I have done it, there are not over 50 of us alive who remember those two, eh! what?

SHULER DORON,
DORON ELECTRIC CO.,
Hamilton, Ohio.

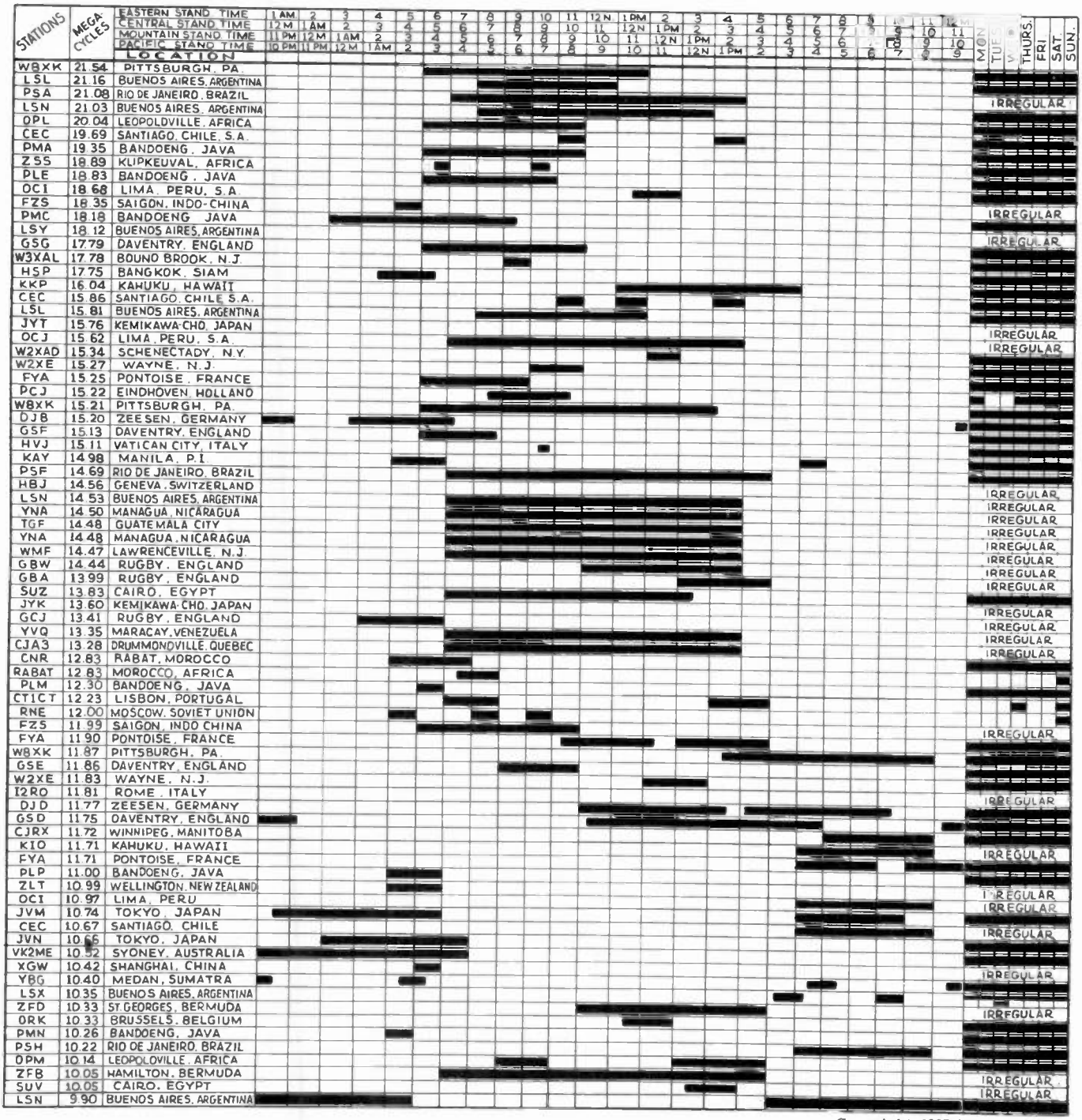
(CT3AQ is apparently an amateur call and we don't attempt to list these; there are upwards of 60,000 amateur and experimental calls in use throughout the world!—Editor.)

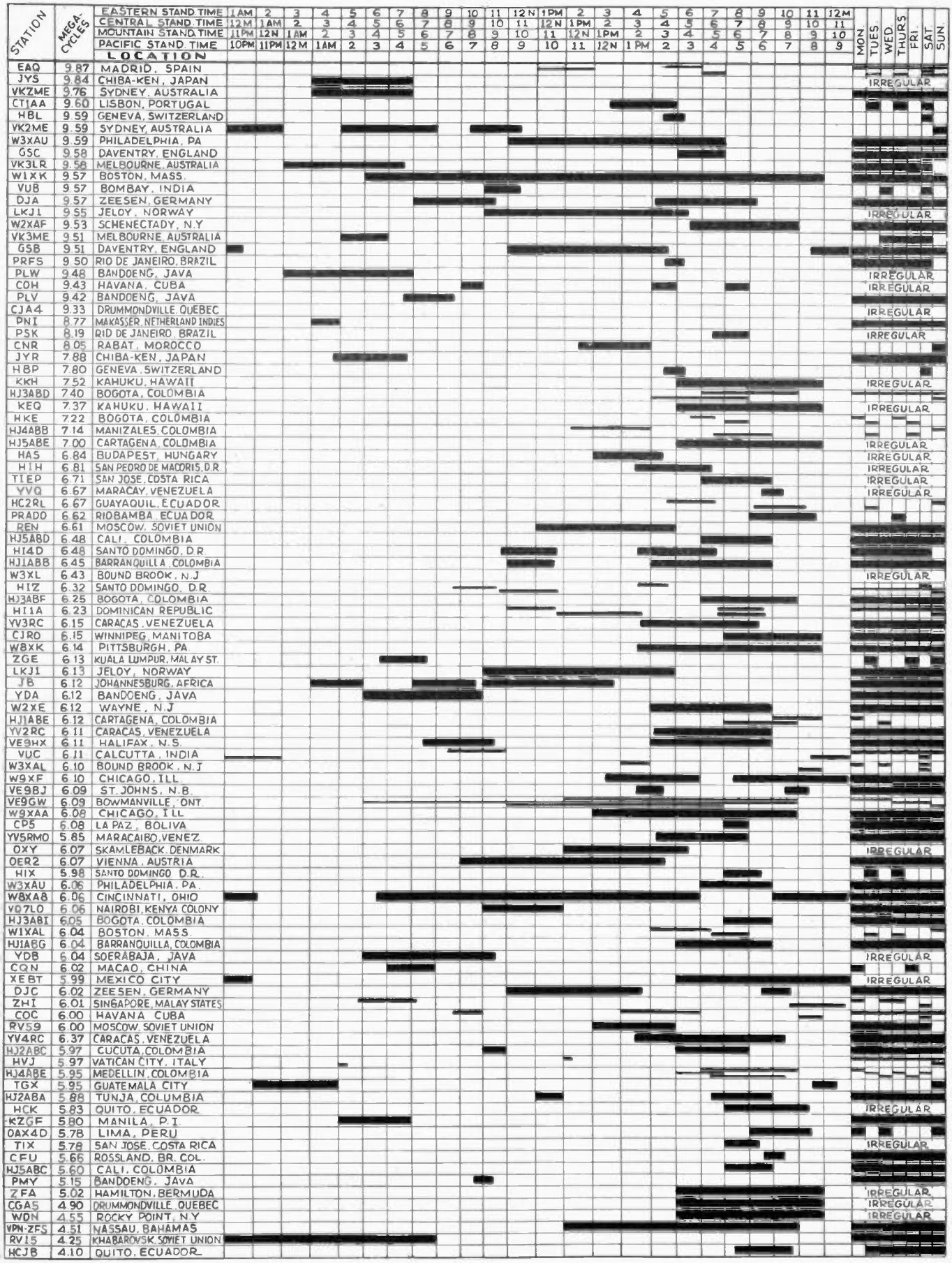
S-W Station Time Graph

(1) Each square under the hours represents 1 hour. For example: A line drawn through all the squares from 6 A.M. to 2 P.M. means that that station broadcasts from 6 A.M. to 2 P.M. This particular time is for Station W8XK, Pittsburgh, Pa., on 21.54 Megacycles. In the same way, a line is drawn through all of the squares under Mond., Tues., etc., meaning, that station is on every day in the week from 6 A.M. to 2 P.M. Above time based on Eastern Std. Time. Central, Mountain and Pacific Time are shown immediately under Eastern Std. Time.

(2) If a station broadcasts at different hours of the day on the same day, an explanation is best made by examining the chart under Station RNE, Moscow, Soviet Union, at 12.00 Megacycles. The 3 lines under the hours and the line under the days, show that the station is on the air from 5 A.M. to 6 A.M.; 8 A.M. to 9 A.M. and 10 A.M. to 11 A.M. on Sunday. This time is also based on Eastern Std. Time. The corresponding time for Central, Mountain and Pacific is given below the Eastern Std. Time.

(3) Draw a line through all of the "standard" times at the top of the page, except the one in which you are located. The chart will then be correct for your location.




STATION
MEGA-CYCLES
LOCATION
EASTERN STAND. TIME
CENTRAL STAND. TIME
MOUNTAIN STAND. TIME
PACIFIC STAND. TIME
1AM 2 3 4 5 6 7 8 9 10 11 12N 1PM 2 3 4 5 6 7 8 9 10 11 12M
12M 1AM 2 3 4 5 6 7 8 9 10 11 12N 1PM 2 3 4 5 6 7 8 9 10 11
11PM 12N 1AM 2 3 4 5 6 7 8 9 10 11 12N 1PM 2 3 4 5 6 7 8 9 10
10PM 11PM 12M 1AM 2 3 4 5 6 7 8 9 10 11 12N 1 PM 2 3 4 5 6 7 8 9
MON. TUES. WED. THURS. FRI. SAT. SUN.
EAQ 9.87 MADRID, SPAIN
JYS 9.84 CHIBA-KEN, JAPAN
VK2ME 9.76 SYDNEY, AUSTRALIA
CT1AA 9.60 LISBON, PORTUGAL
HBL 9.59 GENEVA, SWITZERLAND
VK2ME 9.59 SYDNEY, AUSTRALIA
W3XAU 9.59 PHILADELPHIA, PA
GSC 9.58 DAVENTRY, ENGLAND
VK3LR 9.58 MELBOURNE, AUSTRALIA
W1XK 9.57 BOSTON, MASS.
VUB 9.57 BOMBAY, INDIA
DJA 9.57 ZEESEN, GERMANY
LKJ1 9.55 JELOY, NORWAY
W2XAF 9.53 SCHENECTADY, N.Y
VK3ME 9.51 MELBOURNE, AUSTRALIA
GSB 9.51 DAVENTRY, ENGLAND
PRF5 9.50 RIO DE JANEIRO, BRAZIL
PLW 9.48 BANDOENG, JAVA
COH 9.43 HAVANA, CUBA
PLV 9.42 BANDOENG, JAVA
CJA4 9.33 DRUMMONDVILLE, QUEBEC
PNI 8.77 MAKASSER, NETHERLAND INDIES
PSK 8.19 RIO DE JANEIRO, BRAZIL
CNR 8.05 RABAT, MOROCCO
JYR 7.88 CHIBA-KEN, JAPAN
HBP 7.80 GENEVA, SWITZERLAND
KKH 7.52 KAHUKU, HAWAII
HJ3ABD 7.40 BOGOTA, COLOMBIA
KEQ 7.37 KAHUKU, HAWAII
HKE 7.22 BOGOTA, COLOMBIA
HJ4ABB 7.14 MANIZALES, COLOMBIA
HJ5ABE 7.00 CARTAGENA, COLOMBIA
HAS 6.84 BUDAPEST, HUNGARY
HIH 6.81 SAN PEDRO DE MACORIS, D.R.
TIEP 6.71 SAN JOSE, COSTA RICA
YVQ 6.67 MARACAY, VENEZUELA
HC2RL 6.67 GUAYAQUIL, ECUADOR
PRADO 6.62 RIOBAMBA, ECUADOR
REN 6.61 MOSCOW, SOVIET UNION
HJ5ABD 6.48 CALI, COLOMBIA
HI4D 6.48 SANTO DOMINGO, D.R.
HJ1ABB 6.45 BARRANQUILLA, COLOMBIA
W3XL 6.43 BOUND BROOK, N.J.
HIZ 6.32 SANTO DOMINGO, D.R.
HJ3ABF 6.25 BOGOTA, COLOMBIA
HI1A 6.23 DOMINICAN REPUBLIC
YV3RC 6.15 CARACAS, VENEZUELA
CJRO 6.15 WINNIPEG, MANITOBA
W8XK 6.14 PITTSBURGH, PA.
ZGE 6.13 KUALA LUMPUR, MALAY ST.
LKJ1 6.13 JELOY, NORWAY
JB 6.12 JOHANNESBURG, AFRICA
YDA 6.12 BANDOENG, JAVA
W2XE 6.12 WAYNE, N.J.
HJ1ABE 6.12 CARTAGENA, COLOMBIA
YV2RC 6.11 CARACAS, VENEZUELA
VE9HX 6.11 HALIFAX, N.S.
VUC 6.11 CALCUTTA, INDIA
W3XAL 6.10 BOUND BROOK, N.J.
W9XF 6.10 CHICAGO, ILL.
VE9BJ 6.09 ST. JOHNS, N.B.
VE9GW 6.09 BOWMANVILLE, ONT.
W9XAA 6.08 CHICAGO, ILL.
CP5 6.08 LA PAZ, BOLIVA
YV5RMO 5.85 MARACAIBO, VENEZ.
OXY 6.07 SKAMLEBACK, DENMARK
OER2 6.07 VIENNA, AUSTRIA
HIX 5.98 SANTO DOMINGO D.R.
W3XAU 6.06 PHILADELPHIA, PA.
W8XAB 6.06 CINCINNATI, OHIO
VQ7LO 6.06 NAIROBI, KENYA COLONY
HJ3ABI 6.05 BOGOTA, COLOMBIA
W1XAL 6.04 BOSTON, MASS.
HJ1ABG 6.04 BARRANQUILLA, COLOMBIA
YDB 6.04 SOERABAJA, JAVA
CQN 6.02 MACAO, CHINA
XEBT 5.99 MEXICO CITY
DJC 6.02 ZEESEN, GERMANY
ZHI 6.01 SINGAPORE, MALAY STATES
COC 6.00 HAVANA, CUBA
RV59 6.00 MOSCOW, SOVIET UNION
YV4RC 6.37 CARACAS, VENEZUELA
HJ2ABC 5.97 CUCUTA, COLOMBIA
HVJ 5.97 VATICAN CITY, ITALY
HJ4ABE 5.95 MEDELLIN, COLOMBIA
TGX 5.95 GUATEMALA CITY
HJ2ABA 5.88 TUNJA, COLUMBIA
HCK 5.83 QUITO, ECUADOR
KZGF 5.80 MANILA, P.I.
OAX4D 5.78 LIMA, PERU
TIX 5.76 SAN JOSE, COSTA RICA
CFU 5.66 ROSSLAND, BR. COL.
HJ5ABC 5.60 CALI, COLOMBIA
PMY 5.15 BANDOENG, JAVA
ZFA 5.02 HAMILTON, BERMUDA
CGA5 4.90 DRUMMONDVILLE, QUEBEC
WDN 4.55 ROCKY POINT, N.Y.
VPN-ZFS 4.51 NASSAU, BAHAMAS
RV15 4.25 KHABAROVSK, SOVIET UNION
HCJB 4.10 QUITO, ECUADOR
IRREGULAR

Best Short-Wave Stations

This list of short-wave relay broadcasting, commercial and experimental stations is the result of several years of work. Names and addresses are included wherever possible so that you may know where to write. The blank spaces are for the dial settings of your own set.

★ Stars designate the most active and best heard stations. Times are Eastern Standard

C—Commercial phone. B—Broadcast service. X—Experimental service.

Station	Dial
21540 kc. W8XK -B- 13.93 meters WESTINGHOUSE ELECTRIC PITTSBURGH, PA. 6 a. m.-2 p. m.; relays KDKA	
21530 kc. GSJ -B- 13.93 meters BRITISH BROADCASTING CORP. DAVENTRY, ENGLAND	
21470 kc. GSH -B- 13.97 meters BRITISH BROADCASTING CORP. DAVENTRY, ENGLAND	
20700 kc. LSY -C- 14.49 meters MONTE GRANDE, ARGENTINA Tests Irregularly	
19650 kc. LSN5 -C- 15.27 meters HURLINGHAM, ARGENTINA Calls Europe, daytime	
19600 kc. LSF -C- 15.31 meters MONTE GRANDE, ARGENTINA Tests Irregularly, daytime	
19355 kc. FTM -C- 15.50 meters ST. ASSISE, FRANCE Calls Argentine, mornings	
18830 kc. PLE -C- 15.93 meters BANDOENG, JAVA Calls Holland, early a. m.	
18620 kc. GAU -C- 16.11 meters RUGBY, ENGLAND Calls N. Y., daytime	
18345 kc. FZS -C- 16.35 meters SAIGON, INDO-CHINA Phones Paris, early morning	
18340 kc. WLA -C- 16.36 meters LAWRENCEVILLE, N. J. Calls England, daytime	
18135 kc. PMC -C- 16.54 meters BANDOENG, JAVA Phones Holland, early a. m.	
18115 kc. LSY3 -C- 16.56 meters MONTE GRANDE, ARGENTINA Tests Irregularly	
17810 kc. PCV -C- 16.84 meters KOOTWIJK, HOLLAND Calls Java, 6-9 a. m.	
17790 kc. ★GSG -B- 16.86 meters BRITISH BROAD. CORP. DAVENTRY, ENGLAND	
17780 kc. ★W3XAL -B- 16.87 meters NATIONAL BROAD. CO. BOUND BROOK, N. J. Relays WJZ Daily 8-9 a. m. Tues., Thurs., Sat., 2-3 p. m.	

Station	Dial
17785 kc. ★PHI -B- 16.88 meters N. V. PHILIPS' RADIO HUIZEN, HOLLAAND Daily exc. Tue. and Wed. 8:30-10 a. m., Sat. till 10:30, Sun. till 11 a. m.	
17760 kc. DJE -B- 16.89 meters BROADCASTING HOUSE BERLIN, GERMANY Irregular 8 a. m.-2 p. m.	
17760 kc. IAC -C- 16.89 meters PIZA, ITALY Calls ships, 6:30-7:30 a. m.	
17310 kc. W3XL -X- 17.33 meters NATIONAL BROAD. CO. BOUND BROOK, N. J. Relays WJZ Irregularly	
17120 kc. WOO -C- 17.52 meters A. T. & T. Co., OCEAN GATE, N. J. Calls ships	
17080 kc. GBC -C- 17.56 meters RUGBY, ENGLAND Calls ships	
16233 kc. FZR3 -C- 18.48 meters SAIGON, INDO-CHINA Calls Paris and Pacific Isles	
15880 kc. FTK -C- 18.90 meters ST. ASSISE, FRANCE Phones Saigon, morning	
15810 kc. LSL -C- 18.98 meters HURLINGHAM, ARGENTINA Calls Brazil and Europe, daytime	
15760 kc. JYT -X- 19.04 meters KEMIKWA-CHO, CHIBA-KEN, JAPAN Irregular in late afternoon and early morning	
15660 kc. JVE -C- 19.16 meters NAZAKI, JAPAN Phones Java 3-5 a. m.	
15620 kc. JVF -C- 19.2 meters NAZAKI, JAPAN Phones U. S., 5 a. m. & 8 p. m.	
15415 kc. KWO -C- 19.46 meters DIXON, CAL. Phones Hawaii 2-7 p. m.	
15370 kc. ★HAS3 -B- 19.52 meters ROYAL HUNGARIAN PDST, GYALI-UT. 22 BUDAPEST, HUNGARY Sun., 9-10 a. m.	
15355 kc. KWU -C- 19.53 meters DIXON, CAL. Phones Pacific Isles and Japan	

Station	Dial
15340 kc. DJR -X- 19.56 meters BROADCASTING HOUSE BERLIN, GERMANY Testing Irregularly	
15330 kc. ★W2XAD -B- 19.56 meters GENERAL ELECTRIC CO. SCHENECTADY, N. Y. Relays WGY daily 2-3 p. m.	
15280 kc. DJQ -B- 19.63 meters BROADCASTING HOUSE BERLIN, GERMANY 12:30-2 a. m. daily	
15270 kc. ★W2XE -B- 19.65 meters ATLANTIC BROADCASTING CORP. 485 Madison Ave., N.Y.C. Relays WABC daily, 10 a. m.-12 n.	
15260 kc. GSI -B- 19.66 meters BRITISH BROAD. CORP., DAVENTRY, ENGLAND	
15250 kc. W1XAL -B- 19.67 meters BOSTON, MASS. Irregular, in morning	
15243 kc. ★FYA -B- 19.68 meters "RADIO COLONIAL" PARIS, FRANCE Service de la radiodiffusion 103 Rue de Grenelle, Paris 6-10 a. m.	
15220 kc. PCJ -X- 19.71 meters N. V. PHILIPS' RADIO EINDHOVEN, HOLLAND Broadcasts 8-11 a. m., relaying PHI	
15210 kc. ★W8XK -B- 19.72 meters WESTINGHOUSE ELECTRIC & MFG. CO. PITTSBURGH, PA. 6 a. m.-4:15 p. m. Relays KDKA	
15200 kc. DJB -B- 19.73 meters BROADCASTING HOUSE BERLIN, GERMANY 12:30-2 a. m., 3:45-7:15 a. m.	
15140 kc. ★GSF -B- 19.82 meters BRITISH BROAD. CORP. DAVENTRY, ENGLAND	
15120 kc. HVJ -B- 19.83 meters VATICAN CITY ROME, ITALY 10:30-10:45 a. m.	
15090 kc. RKI -C- 19.88 meters MOSCOW, U.S.S.R. Phones Tashkent near 7 a. m. and relays RNE on Sundays Irregularly	
15055 kc. WNC -C- 19.92 meters HIALEAH, FLORIDA Calls Central America, daytime	

Station	Dial
14980 kc. KAY -C- 20.03 meters MANILA, P. I. Phones Pacific Isles	
14950 kc. HJB -C- 20.07 meters BOGOTA, COL. Calls WNC, daytime	
14590 kc. WMN -C- 20.56 meters LAWRENCEVILLE, N. J. Phones England morning and afternoon	
14535 kc. HBJ -B- 20.64 meters RADIO NATIONS, GENEVA, SWITZERLAND Broadcasts Irregularly	
14500 kc. LSM2 -C- 20.69 meters HURLINGHAM, ARGENTINA Calls U. S. evening	
14485 kc. TIR -C- 20.71 meters CARTAGO, COSTA RICA Phones Cen. Amer. & U.S.A. daytime	
14485 kc. HPF -C- 20.71 meters PANAMA CITY, PAN. Phones WNC, daytime	
14485 kc. TGF -C- 20.71 meters GUATEMALA CITY, GUAT. Phones WNC daytime	
14485 kc. YNA -C- 20.71 meters MANAGUA, NICARAGUA Phones WNC daytime	
13610 kc. JYK -C- 22.04 meters KEMIKAWA-CHO, CHIBA-KEN, JAPAN Phones California till 11 p. m.	
13585 kc. GBB -C- 22.08 meters RUGBY, ENGLAND Calls Egypt & Canada, afternoons	
13075 kc. VP1A -X- 22.94 meters AMALGAMATED WIRELESS OF AUSTRALASIA SUVA, FIJI ISLANDS Daily except. Sat. and Sun. 12:30-1:30 a. m.	
12840 kc. WOO -C- 23.36 meters OCEAN GATE, N. J. Calls ships	
12825 kc. CNR -B, C- 23.39 meters DIRECTOR GENERAL Telegraph and Telephone Stations, Rabat, Morocco Broadcasts, Sunday, 7:30-9 a. m.	
12800 kc. IAC -C- 23.45 meters PIZA, ITALY Calls Italian ships, mornings	

Station	Dial
12780 kc. GBC -C- 23.47 meters RUGBY, ENGLAND Calls ships	
12290 kc. GBU -C- 24.41 meters RUGBY, ENGLAND Calls N.Y.C., afternoons	
12000 kc. ★RNE -B- 25 meters MOSCOW, U. S. S. R. Sunday, at 5, 8, 10 a. m.	
11991 kc. FZS2 -C- 25.02 meters SAIGON, INDO-CHINA Phones Paris, morning	
11950 kc. KKQ -X- 25.10 meters BOLINAS, CALIF. Tests, irregularly, evenings	
11940 kc. FTA -C- 25.13 meters STE. ASSISE, FRANCE Phones CNR morning, Hurlingham, Arge., nights	
11875 kc. ★FYA -B- 25.25 meters "RADIO COLONIAL" PARIS, FRANCE 10:15 a. m.-1:15 p. m., 2-5 p. m.	
11870 kc. ★W8XK -B- 25.26 meters WESTINGHOUSE ELECTRIC & MFG. CO. PITTSBURGH, PA. 4:20-10:00 p. m. Fri. till 12 m. Relays KDKA	
11860 kc. ★GSE -B- 25.29 meters BRITISH BROAD. CORP. DAVENTRY, ENGLAND	
11855 kc. DJP -X- 25.31 meters BROADCASTING HOUSE BERLIN, GERMANY Tests irregularly	
11830 kc. ★W2XE -B- 25.36 meters ATLANTIC BROADCASTING CORP. 485 MADISON AVE., N. Y. C. 2-4 p. m. Relays WABC	
11811 kc. I2RO -B- 25.4 meters E.I.A.R. Via Mentalle 5 ROME, ITALY Broadcasts in morning	
11795 kc. DJO -X- 25.43 meters BROADCASTING HOUSE BERLIN, GERMANY Tests irregularly	
11790 kc. W1XAL -B- 25.45 meters BOSTON, MASS. Irregularly in the evening	
11770 kc. DJD -B- 25.49 meters BROADCASTING HOUSE BERLIN, GERMANY 12-4:30 p. m.	
11750 kc. ★GSD -B- 25.53 meters BRITISH BROAD. CORP. DAVENTRY, ENGLAND	
11720 kc. ★CJRX -B- 25.6 meters WINNIPEG, CANADA Daily, 8 p. m.-12 m. Sundays, 3-10:30 p. m.	

Station	Dial
11720 kc. ★FYA -B- 25.6 meters "RADIO COLONIAL" PARIS, FRANCE 6-9 p. m.; 10 p. m.-12 m.	
11680 kc. KIO -X- 25.68 meters KAHUKU, HAWAII Tests in the evening	
10740 kc. JVM -C- 27.93 meters NAZAKI, JAPAN Phones California evenings	
10675 kc. WNB -C- 28.1 meters LAWRENCEVILLE, N. J. Calls Bermuda, daytime	
10660 kc. JVN -C- 28.14 meters NAZAKI, JAPAN Tests 2-7 a. m.	
10520 kc. VLK -C- 28.51 meters SYDNEY, AUSTRALIA Calls Rugby, early a. m.	
10430 kc. YBG -C- 28.76 meters MEDAN, SUMATRA 5:30-6:30 a. m., 7:30-8:30 p. m.	
10420 kc. XGW -C- 28.79 meters SHANGHAI, CHINA Calls Manila and England 6-9 a. m. and California late evening	
10410 kc. PDK -C- 28.80 meters KOOTWIJK, HOLLAND Calls Java 7:30-9:40 a. m.	
10410 kc. KES -X- 28.80 meters BOLINAS, CALIF. Tests evenings	
10350 kc. ★LSX -C- 28.98 meters MONTE GRANDE, ARGENTINA Tests irregularly 8 p. m.-12 mid- night.	
10330 kc. ORK -C- 29.04 meters RUYSSELEDE, BELGIUM Broadcasts 1:30-3 p. m.	
10290 kc. DIQ -X- 29.16 meters KONIGSWUSTERHAUSEN, GERMANY Broadcasts irregularly	
10260 kc. PMN -C- 29.24 meters BANDOENG, JAVA Calls Australia 5 a. m.	
10250 kc. LSK3 -C- 29.27 meters HURLINGHAM, ARGENTINA Calls Europe and U. S., after- noon and evening.	
10055 kc. ZFB -C- 29.84 meters HAMILTON, BERMUDA Phones N. Y. C. daytime	
9950 kc. GCU -C- 30.15 meters RUGBY, ENGLAND Calls N.Y.C. evening	
9890 kc. LSN -C- 30.33 meters HURLINGHAM, ARGENTINA Calls New York, evenings	
9870 kc. WON -C- 30.4 meters LAWRENCEVILLE, N. J. Phones England, evening	

Station	Dial
9860 kc. ★EAQ -B- 30.43 meters P. O. Box 951 MADRID, SPAIN Daily except Saturday, 5:15-7:30 p. m.; Saturday, 1-3 p. m., 5:15-7:30 p. m.	
9840 kc. JYS -X- 30.49 meters KEMIKAWA-CHO, CHIBA- KEN, JAPAN Irregular, 4-7 a. m.	
9800 kc. LSE -C- 30.61 meters MONTE GRANDE, ARGENTINA Test irregularly	
9790 kc. GCW -C- 30.64 meters RUGBY, ENGLAND Calls N. Y. C., evening	
9760 kc. VLJ-VLZ2 -C- 30.74 meters AMALGAMATED WIRELESS OF AUSTRALIA SYDNEY, AUSTRALIA Phones Java and N. Zealand early a. m.	
9750 kc. WOF -C- 30.77 meters LAWRENCEVILLE, N. J. Phones England, evening	
9710 kc. GCA -C- 30.89 meters RUGBY, ENGLAND Calls Arge. & Brazil, evenings	
9635 kc. ★I2RO -B- 31.13 meters E.I.A.R. ROME, ITALY Daily, 2:30-5 p. m. and Mon., Wed., Fri., 6-7:30-7:45-9:15 p. m.	
9600 kc. ★CT1AA -B- 31.25 meters LISBON, PORTUGAL Tues. and Friday, 3:30-6 p. m.	
9595 kc. ★HBL -B- 31.27 meters LEAGUE OF NATIONS GENEVA, SWITZERLAND Saturdays, 5:30-6:15 p. m.	
9590 kc. ★VK2ME -B- 31.28 meters AMALGAMATED WIRELESS LTD., 47 YORK ST. SYDNEY, AUSTRALIA Sundays	
9590 kc. W3XAU -B- 31.28 meters NEWTOWN SQUARE, PA. Relays WCAU 11 a. m.-6:50 p. m.	
9580 kc. ★GSC -B- 31.32 meters BRITISH BROAD. CORP. DAVENTRY, ENGLAND	
9580 kc. ★VK3LR -B- 31.32 meters Research Section Postmaster Gen'ls. Dept., 61 Little Collins St., MELBOURNE, AUSTRALIA 3:15-7:30 a.m. except Sun.	
9570 kc. ★W1XK -B- 31.35 meters WESTINGHOUSE ELECTRIC & MFG. CO. SPRINGFIELD, MASS. Relays WBZ, 6 a. m.-12 m.	
9560 kc. DJA -B- 31.38 meters BROADCASTING HOUSE, BERLIN 8-11:30 a. m., 5:05-8:15 p. m.	

Station	Dial
9540 kc. ★DJN -B- 31.45 meters BROADCASTING HOUSE BERLIN, GERMANY 3:45-7:15 a. m., 8-11:30 a. m. 5:05-10:45 p. m.	
9540 kc. LKJ1 -B- 31.45 meters JELOY, NORWAY Relays Oslo 10 a. m.-4 p. m.	
9530 kc. ★W2XAF -B- 31.48 meters GENERAL ELECTRIC CO. SCHENECTADY, N. Y. Relays WGY 5:30-11 p. m.	
9510 kc. ★GSB -B- 31.55 meters BRITISH BROAD. CORP. DAVENTRY, ENGLAND	
9510 kc. ★VK3ME -B- 31.55 meters AMALGAMATED WIRELESS, Ltd. G. P. O. Box 1272l, MELBOURNE, AUSTRALIA Wed., Thurs., Fri., Sat., 5:00-7:00 a. m.	
9500 kc. ★PRF5 -B- 31.58 meters RIO DE JANEIRO, BRAZIL Daily except Sun. 5:30-6:15 p. m.	
9428 kc. ★COH -B- 31.8 meters 2 B ST., VEDADO, HAVANA, CUBA 10-11 a.m., 5-6, 8-9 p.m.	
9415 kc. PLV -C- 31.87 meters BANDOENG, JAVA Phones Holland, 7:40-9:40 a. m.	
9125 kc. HAT4 -X- 32.88 meters Royal Hungarian Post, Gyali-ut 22, BUDAPEST, HUNGARY Broadcasts Sun., 6-7 a. m.	
8185 kc. PSK -C- 36.65 meters RIO DE JANEIRO, BRAZIL 7-7:30 p. m. irregularly Relays PRA3	
8036 kc. CNR -B- 37.33 meters RABAT, MOROCCO Sunday, 2:30-5 p. m.	
7880 kc. JYR -B- 38.07 meters KEMIKAWA-CHO, CHIBA- KEN, JAPAN 4-7:40 a. m.	
7860 kc. HC2JSB -B- 38.17 meters GUAYAQUIL, ECUADOR 6:15-11:15 p. m.	
7799 kc. ★HBP -B- 38.47 meters LEAGUE OF NATIONS GENEVA, SWITZERLAND 5:30-6:15 p. m., Saturday	
7400 kc. HJ3ABD -B- 40.54 meters P. O. Box 509 BOGOTA, COLOMBIA Daily 12-2 p. m.; 7-11 p. m. Sunday, 5-9 p. m.	
7220 kc. HKE -B- 41.55 meters BOGOTA, COL., S. A. Tue. and Sat. 8-9 p. m.; Mon. & Thurs. 6:30-7 p. m.	
7140 kc. HJ4ABB -B- 42.02 meters MANIZALES, COL., S. A. P. O. Box 175 Mon. to Fri. 12:15-1 p. m.; Tues. & Fri. 7:30-10 p. m.; Sun. 2:30-5 p. m.	

Station	Dial
6905 kc. GDS -C- 43.45 meters RUGBY, ENGLAND Calls N.Y.C. evening	
6860 kc. KEL -X- 43.70 meters BOLINAS, CALIF. Tests irregularly	
6755 kc. WOA -C- 44.41 meters LAWRENCEVILLE, N. J. Phones England, evening	
6750 kc. ★JVT -X- 44.44 meters NAZAKI, JAPAN Relays JOAK, Tokio 2-7:45 a. m.	
6666 kc. ★HC2RL -B- 45.00 meters P. O. BOX 759, GUAYAQUIL, ECUADOR, S. A. Sunday, 5:45-7:45 p. m. Tues., 9:15-11:15 p. m.	
6660 kc. ★TIEP -B- 45.05 meters LA-VOZ DEL TROPICO SAN JOSE, COSTA RICA Irregular in evening	
6620 kc. ★PRADO -B- 45.30 meters RIOBAMBA, ECUADOR Thur. 9-11:30 p. m.	
6500 kc. HI4D -B- 46.14 meters SANTO DOMINGO, DOMINICAN REP. Mon. and Sat., 4:40-7:40 p. m.	
6530 kc. HIL -B- 45.94 meters SANTO DOMINGO, DOMINICAN REP. Sat., 8-10 p. m.	
6520 kc. ★YV6RV -B- 46.01 meters VALENCIA, VENEZUELA 5-7, 9-11 p. m.	
6490 kc. HJ5ABD -B- 46.22 meters MANIZALES, COL. 12-1:30 p. m., 7-10 p. m.	
6447 kc. HJ1ABB -B- 46.53 meters BARRANQUILLA, COL., S. A. P. O. BOX 715. 11:30 a. m.-1 p. m; 5-10 p. m.	
6425 kc. VE9AS -X- 46.7 meters FREDERICTON, N. B., CANADA Tests irregularly	
6425 kc. W3XL -X- 46.70 meters NATIONAL BROADCASTING CO. BOUND BROOK, N. J. Tests irregularly	
6375 kc. YV4RC -B- 47.06 meters CARACAS, VENEZUELA 7:30-9:30 p. m.	
6272 kc. HI1A -B- 47.84 meters P. O. BOX 243, SANTIAGO, DOMINICAN REP. 11:40 a. m.-1:40 p. m. 7:40-9:40 p. m.	

Station	Dial
6175 kc. HJ2ABA -B- 48.58 meters TUNJA, COL. 1-2 p. m., 7:30-10 p. m.	
6160 kc. ★YV3RC -B- 48.7 meters CARACAS, VENEZUELA Generally 4:00-10:00 p. m.	
6145 kc. CO9GC -B- 48.82 meters GRAU & CAMENEROS LABS., P. O. BOX 137, SANTIAGO, CUBA Irregular in daytime and 7-10 p.m.	
6150 kc. ★CJRO -B- 48.78 meters WINNIPEG, MAN., CANADA 8 p. m.-12 m. Sun. 3-10:30 p. m.	
6140 kc. ★W8XK -B- 48.86 meters WESTINGHOUSE ELECTRIC & MFG. CO. PITTSBURGH, PA. Relays KDKA 4:30 p. m.-1 a. m.	
6130 kc. ZGE -B- 48.92 meters KUALA LUMPUR, FED. MALAY STATES Sun., Tue., and Fri., 6:40-8:40 a. m.	
6122 kc. JB -B- 49 meters JOHANNESBURG, SOUTH AFRICA Daily except Sat. and Sun., 11:45 p. m.-12:30 a. m., 4-7 a. m., 9 a. m.-3:30 p. m. Sat. only, 4-7 a. m., 9 a. m.-4:45 p. m. Sun., only, 11:45 p. m.-12:30 a. m., 8-10:30 a. m., and 12:30-3 p. m.	
6120 kc. ★YDA -B- 49.02 meters N.I.R.O.M. BANDOENG, JAVA 10:40 p. m.-1:40 a. m. 5:40-9:40 a. m.	
6110 kc. HJ1ABE -B- 49.05 meters CARTAGENA, COL.	
6100 kc. ★W3XAL -B- 49.18 meters NATIONAL BROADCASTING CO. BOUND BROOK, N. J. Relays WJZ	
6100 kc. ★W9XF -B- 49.18 meters DOWNERS GROVE, ILL. Relays WENR, Chicago Daily except Mon., Wed. & Sat., 2:30 p. m.-2 a. m.	
6090 kc. ★VE9GW -B- 49.26 meters BOWMANVILLE, ONTARIO, CANADA Sun. 1-9 p. m. Mon.-Wed., 3 p. m.-12 m. Thurs.-Sat., 7 a. m.-12 m.	
6090 kc. VE9BJ -B- 49.26 meters SAINT JOHN, N. B., CAN. 7-8:30 p. m.	
6085 kc. ★I2RO 49.3 meters Via Montelle 5, ROME, ITALY Mon., Wed., Fri., 6-7:35 p. m.	

Station	Dial
6080 kc. CP5 -B- 49.34 meters LAPAZ, BOLIVIA 7-10:30 p. m.	
6080 kc. W9XAA -B- 49.34 meters CHICAGO FEDERATION OF LABOR, CHICAGO, ILL. Relays WCFL Sunday 11:30 a. m.-9 p. m. and Tues., Thurs., Sat., 4 p. m.-12 m.	
6079 kc. DJM -X- 49.35 meters BROADCASTING HOUSE BERLIN, GERMANY Tests irregularly	
6072 kc. OER2 -B- 49.41 meters VIENNA, AUSTRIA 9 a. m.-5 p. m. daily	
6070 kc. VE9CS -B- 49.42 meters VANCOUVER, B. C., CANADA Sun. 1:45-9 p. m., 10:30 p. m.-1 a. m.; Tues. 6-7:30 p. m., 11:30 p. m.-1:30 a. m. Daily 6-7:30 p. m.	
6060 kc. OXY -B- 49.50 meters SKAMLEBOAEK, DENMARK 1-6:30 p. m.; also 11 a. m.-12 m. Sunday	
6060 kc. ★W8XAL -B- 49.50 meters CROSLEY RADIO CORP. CINCINNATI, OHIO 7:30 a. m.-8 p. m.; 11 p. m.-1 a. m. Relays WLW	
6060 kc. VQ7LO -B- 49.50 meters NAIROBI, KENYA, AFRICA Mon., Wed., Fri., 5:45-6:15 a. m., 11 a. m.-2 p. m. Tues., 3-4 a. m., 11 a. m.-2 p. m., Thurs., 8-9 a. m., 11 a. m.-2 p. m., Sat., 11 a. m.-3 p. m. Sun., 10:50 a. m.-2 p. m.	
6060 kc. W3XAU -B- 49.50 meters NEWTOWN SQUARE, PA. Relays WCAU, Philadelphia 8 p. m.-11 p. m.	
6050 kc. GSA -B- 49.59 meters BRITISH BROADCAST CORP. DAVENTRY, ENGLAND	
6040 kc. W1XAL -B- 49.67 meters BOSTON, MASS. Tues., Thurs., 7:30-9; Sun. 5-7 p. m.	
6030 kc. ★HP5B -B- 49.75 meters MIRAMAR CLUB, PANAMA CITY, PANAMA 12 n.-1 p. m., 8-10:30 p. m.	
6030 kc. VE9CA -B- 49.75 meters CALGARY, ALBERTA, CAN. 9 a. m.-3 p. m., 7 p. m.-12 m.	
6020 kc. ★DJC -B- 49.83 meters BROADCASTING HOUSE, BERLIN 12 n. 4:30 p. m. 8:05-10:45 p. m.	

Station	Dial
6012 kc. ZHI -B- 49.9 meters RADIO SERVICE CO., 20 ORCHARD RD., SINGAPORE, MALAYA Mon., Wed., Thurs., 5:40-8:10 a. m.; Sat., 12:10-1:10 a. m., 10:40 p. m.-1:10 a. m. (Sunday)	
6010 kc. ★COC -B- 49.92 meters P. O. BOX 98 HAVANA, CUBA Daily 9:30 a. m.-12:30 p. m., 4-7, 8-10 p. m.	
6000 kc. RW59 -B- 50 meters MOSCOW, U. S. S. R. Daily 3-6 p. m.	
5980 kc. HIX -B- 50.17 meters SANTO DOMINGO DOMINICAN REPUBLIC Tues., and Fri., 8-10 p. m.; Sun., 7:45-10:40 a. m., 3-5 p. m.; Sat., 10:40-11:40 p. m.	
5970 kc. HJ2ABC -B- 50.27 meters CUCATA, COL. 11 a. m.-12 n.; 6-9 p. m.	
5968 kc. HVJ -B- 50.27 meters VATICAN CITY (Rome) 2-2:15 p. m., daily; Sun., 5-5:30 a. m.	
5965 kc. ★XEBT -B- 50.29 meters MEXICO CITY, MEX. P. O. Box 79-44 7 p. m.-1 a. m.	
5940 kc. TGX -B- 50.5 meters SR. M. NOVALES GUATEMALA CITY, GUAT. Daily except Sun. 8-10 a. m., 1-2:30 p.m., 8 p.m.-12 m.	
5930 kc. HJ4ABE -B- 50.06 meters MEDELLIN, COLOMBIA Mon., 7-11 p. m.; Tues., Thurs., Sat., 6:30-8:00 p. m.; Wed. and Fri., 7:30-11:00 p. m.	
5850 kc. ★YV5RMO -B- 51.28 meters MARACAIBO, VENEZUELA 5:15-9 p. m.	
5780 kc. OAX4D -B- 51.9 meters RADIO DUSA LIMA, PERU Mon., Wed. and Sat. 9-11:30 p.m.	
5660 kc. HJ5ABC -B- 53 meters CALI, COLOMBIA 11 a. m.-12 n. Tues. and Thurs. 8-10 p. m. Sun. 12 n.-1 p. m.	
4600 kc. HC2ET -B- 66.22 meters Apartado 249 GUAYAQUIL, ECUADOR Reported Wed., Sat. 9-11:30 p.m.	
4273 kc. RW15 -B- 70.20 meters KHABAROVSK, SIBERIA U. S. S. R. Daily, 3-9 a. m.	
4107 kc. HCJB -B- 73 meters QUITO, ECUADOR 7:14-10:15 p. m., except Monday	

Television Stations

2000-2100 kc.

W2XDR—Long Island City, N.Y.
WBXAN—Jackson, Mich.
W9XK—Iowa City, Ia.
W9XAK—Manhattan, Kans.
W9XAO—Chicago, Ill.
W6XAH—Bakersfield, Cal.

2750-2850 kc.

W3XAK—Portable
W9XAP—Chicago, Ill.
W2XBS—Bellmore, N.Y.
W9XAL—Kansas City, Mo.
W9XG—W. Lafayette, Ind.
W2XAB—New York, N.Y.

42000-56000, 60000-86000 kc.

W2XAX—New York, N.Y.
W6XAO—Los Angeles, Calif.
W9XD—Milwaukee, Wis.
W2XBT—Portable
W2XF—New York, N.Y.
W3XE—Philadelphia, Pa.
W3XAD—Camden, N.J.
W10XX—Portable & Mobile (Vicinity of Camden)
W2XDR—Long Island City, N.Y.
WBXAN—Jackson, Mich.
W9XAT—Portable
W2XD—New York, N.Y.
W2XAG—Portable
W1XG—Boston, Mass.
W9XK—Iowa City, Ia.

Police Radio Alarm Stations

CCZ	Vancouver, B.C.	2452 kc.
CJW	St. Johns, N.B.	2416 kc.
CJZ	Verdeen, Que.	2452 kc.
KCHA	Portable-Mobile	2490 kc.
KCHB	In State of Wash.	2490 kc.
KCHC	In State of Wash.	2490 kc.
KCHD	In State of Wash.	2490 kc.
KCHE	In State of Wash.	2490 kc.
KCHG	Las Vegas, Nev.	2474 kc.
KCHK	Palo Alto, Cal.	1674 kc.
KCHM	Reno, Nev.	2474 kc.
KCHO	Des Moines, Iowa	1682 kc.
KCHP	Lakton, Okla.	2466 kc.
KCHQ	Chinook Pass. W.	2490 kc.
KCHR	(Mobile) in Wash.	2490 kc.
KCHS	Spokane, Wash.	2414 kc.
KCHT	Brownsville, Tex.	2382 kc.
KCHU	Austin, Tex.	2442 kc.
KCHV	Corpus Christi, Tex.	2382 kc.
KCHW	Centralia, Wash.	2414 kc.
KCHX	Santa Ana, Cal.	2430 kc.
KCHY	Whittier, Cal.	1712 kc.
KCHZ	Little Rock, Ark.	2406 kc.
KCJX	Pasadena, Cal.	1712 kc.
KCLX	Albuquerque, N.M.	2414 kc.
KCOZ	Cedar Rapids, Iowa	2466 kc.
KCPA	Seattle, Wash.	2414 kc.
KCPB	Minneapolis, Minn.	2430 kc.
KCPC	St. Louis, Mo.	1706 kc.
KCPD	San Francisco, Cal.	2466 kc.
KCPE	Kansas City, Mo.	2422 kc.
KCPF	Santa Fe, N. Mex.	2414 kc.
KCPG	Vallejo, Cal.	2422 kc.
KCPH	Oklahoma City, Okla.	2450 kc.
KCPI	Omaha, Neb.	2466 kc.
KCPJ	Beaumont, Tex.	1712 kc.
KCPK	Sioux City, Iowa	2466 kc.
KCPL	Los Angeles, Cal.	1712 kc.
KCPM	San Jose, Cal.	2466 kc.
KCPN	Davenport, Iowa	2466 kc.
KCPO	Tulsa, Okla.	2450 kc.
KCPP	Portland, Ore.	2442 kc.
KCPQ	Honolulu, T.H.	2450 kc.
KCPR	Minneapolis, Minn.	2430 kc.
KCPS	Bakersfield. Cal.	2414 kc.
KCPW	Salt Lake City, Utah	2406 kc.
KCPX	Denver, Colo.	2442 kc.
KCPY	Baton Rouge, La.	1574 kc.
KCPZ	Wichita, Kans.	2450 kc.
KCZA	Fresno, Calif.	2414 kc.
KCZB	Houston, Tex.	1712 kc.
KCZC	Topeka, Kans.	2422 kc.
KCZD	San Diego, Cal.	2490 kc.
KCZE	San Antonio, Tex.	2482 kc.
KCZF	Chanute, Kans.	2450 kc.
KCZG	Des Moines, Iowa	2466 kc.
KCZH	Klamath Falls, Ore.	2382 kc.
KCZI	Wichita Falls, Tex.	2458 kc.
KCZJ	Phoenix, Ariz.	2430 kc.
KCZL	Shreveport, La.	1712 kc.
KCZM	El Paso, Tex.	2414 kc.
KCZN	Tacoma, Wash.	2414 kc.
KCZO	Santa Barbara, Cal.	2414 kc.
KCZP	Coffeyville, Kans.	2450 kc.
KCZQ	Waco, Tex.	1712 kc.
KCZR	Salem, Ore.	2442 kc.
KCZS	McAlester, Okla.	2458 kc.
KCZT	Santa Cruz, Cal.	1674 kc.
KCZU	Lincoln, Neb.	2490 kc.
KCZV	Aberdeen, Wash.	2414 kc.
KCZW	Lubhock, Tex.	2458 kc.
KCZX	Albuquerque, N. Mex.	2414 kc.
KCZY	San Bernardino, Cal.	1712 kc.
KIUK	Jefferson City, Mo.	1674 kc.
KNFA	Clovis, N. Mex.	2414 kc.
KNFB	Idaho Falls, Idaho,	2458 kc.
KNFC	SS Gov. Stevens, (Wash.)	2490 kc.
KNFD	SS Gov. J. Rogers, (Wash.)	2490 kc.
KNFE	Duluth, Minn.	2382 kc.
KNFF	Leavenworth, Kans.	2422 kc.
KNFG	Olympia, Wash.	2490 kc.
KNFH	Garden City, Kans.	2474 kc.
KNFI	Mt. Vernon, Wash.	2414 kc.
KNFJ	Pomona, Cal.	1712 kc.
KNFK	Bellingham, Wash.	2490 kc.
KNFL	Shuksan, Wash.	2490 kc.
KNFM	Compton, Cal.	2490 kc.
KNFN	Waterloo, Ia.	1682 kc.
KNFO	Storm Lake, Ia.	1682 kc.
KNFM	Compton, Cal.	2466 kc.
KNFP	Everett, Wash.	2414 kc.
KNFQ	Skykomish, Wash.	2490 kc.
KNGE	Cleburne, Tex.	1712 kc.
KNGF	Sacramento, Cal.	2422 kc.
KNGG	Phoenix, Ariz.	1698 kc.
KNGH	Dodge City, Kans.	2474 kc.
KNGJ	El Centro, Cal.	2490 kc.
KNGK	Duncan, Okla.	2450 kc.
KNGL	Galveston, Tex.	1712 kc.
KMFP	Niagara Falls, N. Y.	2422 kc.
KSNE	Duluth, Minn.	2382 kc.
KSW	Berkeley, Cal.	1658 kc.
KVP	Dallas, Tex.	1712 kc.
VYR	Montreal, Can.	1712 kc.
VYW	Winnipeg, Man.	2452 kc.
WGK	Belle Island, Mich.	2414 kc.
WEY	Boston, Mass.	1558 kc.
WKDT	Detroit, Mich.	1558 kc.
WKDU	Cincinnati, Ohio	1706 kc.
WMDZ	Indianapolis, Ind.	2442 kc.
WMFP	Niagara Falls, N. Y.	2422 kc.
WMJ	Buffalo, N. Y.	2422 kc.
WMO	Highland Park, Mich.	2414 kc.
WMP	Framingham, Mass.	1666 kc.
WPDA	Tulare, Cal.	2414 kc.
WPDB	Chicago, Ill.	1712 kc.
WPDC	Chicago, Ill.	1712 kc.
WPDD	Chicago, Ill.	1712 kc.
WPDE	Louisville, Ky.	2442 kc.
WPDF	Flint, Mich.	2466 kc.
WPDG	Youngstown, Ohio	2458 kc.
WPDH	Richmond, Ind.	2442 kc.
WPDI	Columbus, Ohio	2430 kc.
WPDK	Milwaukee, Wis.	2450 kc.
WPDL	Lansing, Mich.	2442 kc.
WPDM	Dayton, Ohio	2430 kc.
WPDN	Auburn, N.Y.	2382 kc.
WPDO	Akron, Ohio	2458 kc.
WPDP	Philadelphia, Pa.	2474 kc.
WPDR	Rochester, N.Y.	2382 kc.
WPDS	St. Paul, Minn.	2430 kc.
WPDT	Kokomo, Ind.	2490 kc.
WPDU	Pittsburgh, Pa.	1712 kc.
WPDV	Charlotte, N.C.	2458 kc.
WPDW	Washington, D.C.	2422 kc.
WPDX	Detroit, Mich.	2414 kc.
WPDY	Atlanta, Ga.	2414 kc.
WPDZ	Fort Wayne, Ind.	2490 kc.
WPEA	Syracuse, N.Y.	2382 kc.
WPEB	Grand Rapids, Mich.	2442 kc.
WPEC	Memphis, Tenn.	2466 kc.
WPED	Arlington, Mass.	1712 kc.
WPEE	New York, N.Y.	2450 kc.
WPEF	New York, N.Y.	2450 kc.
WPEG	New York, N.Y.	2450 kc.
WPEH	Somerville, Mass.	1712 kc.
WPEI	E. Providence, R.I.	1712 kc.
WPEK	New Orleans, La.	2430 kc.
WPEL	W. Bridgewater, Mass.	1666 kc.
WPEM	Woonsocket, R.I.	2466 kc.
WPEP	Kenosha, Wis.	2450 kc.
WPES	Saginaw, Mich.	2442 kc.
WPET	Lexington, Ky.	1706 kc.
WPEV	Portable (in Mass.)	1666 kc.
WPEW	Northampton, Mass.	1666 kc.
WPFA	Newton, Mass.	1712 kc.
WPFG	Muskegon, Mich.	2442 kc.
WPFE	Reading, Pa.	2442 kc.
WPFG	Jacksonville, Fla.	2442 kc.
WPFH	Baltimore, Md.	2414 kc.
WPFI	Columbus, Ga.	2414 kc.
WPFJ	Hammond, Ind.	1712 kc.
WPFK	Hackensack, N.J.	2430 kc.
WPFL	Gary, Ind.	2470 kc.
WPFM	Birmingham, Ala.	2382 kc.
WPFN	Fairhaven, Mass.	1712 kc.
WPFO	Knoxville, Ten.	2474 kc.
WPFP	Clarksburg, W. Va.	2490 kc.
WPFQ	Swathmore, Pa.	2474 kc.
WPFR	Johnson City, Tenn.	2470 kc.
WPFS	Asheville, N.C.	2474 kc.
WPFT	Lakeland, Fla.	2442 kc.
WPFU	Portland, Me.	2422 kc.
WPFV	Pawtucket, R.I.	2466 kc.
WPFW	Bridgeport, Conn.	2475 kc.
WPFX	Palm Beach, Fla.	2442 kc.
WPFY	Yonkers, N. Y.	2442 kc.
WPFZ	Miami, Fla.	2442 kc.
WPGA	Bay City, Mich.	2466 kc.
WPGB	Port Huron, Mich.	2466 kc.
WPGC	S. Schenectady, N.Y.	1658 kc.
WPGD	Rockford, Ill.	2458 kc.
WPGF	Providence, R.I.	1712 kc.
WPGG	Findlay, Ohio	1596 kc.
WPGH	Albany, N.Y.	2414 kc.
WPGI	Portsmouth, Ohio	2430 kc.
WPGJ	Utica, N.Y.	2414 kc.
WPGK	Cranston, R.I.	2466 kc.
WPGL	Binghamton, N.Y.	2442 kc.
WPGN	South Bend, Ind.	2490 kc.
WPGO	Huntington, N.Y.	2490 kc.
WPGP	Muncie, Ind.	2442 kc.
WPGQ	Columbus, Ohio	1596 kc.
WPGS	Mineola, N.Y.	2490 kc.
WPGT	New Castle, Pa.	2470 kc.
WPGU	Boston, Mass.	1712 kc.
WPGW	Mobile, Ala.	2382 kc.
WPGX	Worcester, Mass.	2466 kc.
WPGZ	Johnson City, Tenn.	2474 kc.
WPHA	Fitchburg, Mass.	2466 kc.
WPHB	Nashua, N. H.	2422 kc.
WPHC	Massillon, O.	1682 kc.
WPHD	Steubenville, O.	2458 kc.
WPHE	Marion Co., Ind.	1634 kc.
WPHF	Richmond, Va.	2450 kc.
WPHG	Medford, Mass.	1712 kc.
WPHI	Charleston, W. Va.	2490 kc.
WPHJ	Fairmont, W. Va.	2490 kc.
WPHK	Wilmington, O.	1596 kc.
WPHL	Portable in Ohio	1682 kc.
WPHM	Orlando, Fla.	2442 kc.
WPHN	Tampa, Fla.	2466 kc.
WPHO	Zanesville, Ohio	2430 kc.
WPHP	Jackson, Mich.	2466 kc.
WPHQ	Parkersburgh, W. Va.	2490 kc.
WPHS	Cluver, Ind.	1634 kc.
WPHT	Cambridge, Ohio	1682 kc.
WPHV	Bristol, Va.	2450 kc.
WPHY	Elizabethton, Tenn.	2474 kc.
WPSP	Harrisburg, Pa.	1674 kc.
WRBH	Cleveland, Ohio	2458 kc.
WRDQ	Toledo, Ohio	2474 kc.
WRDR	Grosse Pt. Vil'ge, Mich.	2414 kc.
WRDS	E. Lansing, Mich.	1666 kc.

Grand Short-Wave Station List

● *This Grand List of Short-Wave Stations of the World is a carefully edited one, and especially compiled by the editors. Only those short-wave stations which the average listener is likely to hear have been included in this list. A special "Quick Reference" list appears elsewhere in the magazine, giving the "Star" short-wave broadcasting stations, while another specially edited list contains the "Television" and "Police" station call letters.*

The editors will be glad at all times to receive corrections from our readers, and particularly any additional information on new stations not found in this list. In giving this information, please write such data on a separate sheet if the letter contains references to any other subject, so that these corrections can be handed directly to the editor of this department. A post-card will frequently serve the purpose for sending us such information.

Short Wave Phone Stations By Order of Frequency in Megacycles

Mega-cycles	Meters	Station	Dial Setting
3.040	98.62	CFQ, Edmonton, Alta. (B-Z) (Edmonton Journal, Ltd.)	
		CGE, Calgary, Alta. (B-34)	
		CKS, Calgary, Alta. (B-34) (Portable)	
3.070	97.66	CJU, Winnipeg, Man. (G-45)	
3.093	96.94	KGM, Ketchikan, Alaska (Alaska Pacific Salmon Co.) (KIAX-KIAY)	
		KICI, View Cove, Dall Island, Alaska	
		....., Uganik Bay, Alaska (San Juan Fishing & Packing Co.)	
		....., Willow Creek Mines, Alaska (W. E. Dunkle)	
3.152	95.12	CGM, Montreal, P. Q.	
		CGY, Yamaschiche, P. Q.	
3.190	93.99	KIGP, Egushik, Alaska (Libby McNeill & Libby)	
		KIIK, Circle, Alaska	
		KIIL, Fort Yukon, Alaska	
		KIIM, Hot Springs, Alaska	
		KIIN, Eagle, Alaska	
		KIIO, McGrath, Alaska	
		....., Peril Straits, Alaska (Peril Straits Packing Co.)	
3 65	91.83	KIIT, St. Michael, Alaska (Territorial Govt. of Alaska)	
		....., Kadiak Island, Alaska (Kadiak Fisheries Co.)	
		....., Port Conclusion, Alaska (Northwestern Herring Co.)	
		....., Shearwater Bay, Alaska (Kadiak Fisheries Co.)	
		....., Washington Bay, Kuiu Island, Alaska (Sorrfold & Grondahl Packing Co.)	
3.268	91.74	CGP, Prince Rupert, B. C.	
3.340	89.77	CGD, Drummondville, P. Q.	
		CGM, Montreal, P. Q.	
3.385	88.57	KIIU, Marshall, Alaska (Territorial Govt. of Alaska)	
3 387	88.50	KGYA, Longmire, Wash.	
		KGYB, Longmire, Wash.	
		KGYC, Paradise, Wash.	
		KGYD, Sunrise, Wash.	
		KGYE, White River, Wash.	
		KGYF, Carbon, Wash.	
		KGYG,-H,-I, Portables	
3.410	87.92	WRJ, Poe Reef Lighthouse, Mich.	
		WST, Dry Tortugas Lighthouse, Fla.	
		WWAJ, Manitou Island Lighthouse, Mich.	
		WWAL, Passage Island Lighthouse, Mich.	
		WWAM, Rock of Ages Lighthouse, Mich.	
		WWAO, Huron Island Lighthouse, Mich.	
		WWE, Fourteen Foot Shoals, Mich.	
		WWG, Cheboygan Range, Mich. (Lighthouse)	
		WWH, Stannard Rock Lighthouse, Mich.	
		WWM, Marquette Lighthouse, Mich.	
		WWN, Detroit River Lighthouse, Mich.	
		WWR, Detroit, Mich. (Lighthouse)	
		WWZ, Key West, Fla. (Lighthouse) (These lighthouses are operated by the United States Department of Commerce Bureau of Lighthouses.)	
3.423	87.59	WOZ, New York, N. Y. (American Telephone & Telegraph Co.)	
3.452	86.85	CJU, Winnipeg, Man.	
3.490	85.96	PK1WK, Bandoeng, Java	
3.500 to 4.000	74.96 to 85.66	Amateur band. Phone band from 3.900 to 4.000 megs.	
3.543	84.67	CR7AA, Lourenco Marques, Mozambique, E. Africa	
3.600	83.5	CT2AJ, Ponta Delgada, Sao Miguel, Asores	
3.750	79.95	CT1CT, Lisbon, Portugal	
4.098	73.16	WND, Hialeah, Fla.	
4.107	73.00	HCJB, Quito, Ecuador	
4.124	72.70	KIFM, Fairbanks, Alaska (Pacific Alaskan Airways, Inc.)	
4.253	70.50	WKF, Lawrenceville, N. J.	
		WOG, Ocean Gate, N. J.	
4.273	70.65	RV15, Khabarovsk, USSR.	
		WOO, Ocean Gate, N. J.	
		WOY, Lawrenceville, N. J.	
4.276	70.11	WIR, Rocky Point, N. Y.	
4.307	69.60	WTDV, Virgin Island	
		WTDW, Virgin Island	
4.320	69.40	DAF, Norden, Germany	
		G6RX, Rugby, England	
		GDB, Rugby, England	
4.348	68.96	CGA9, Drummondville, P. Q.	
4.465	67.14	CFA2 Drummondville, P. Q.	
4.467	67.11	YID, Bagdad, Iraq	
4.505	66.55	CGO, Ocean Falls, B. C.	
		CZO, Prince George, B. C.	
		XZP, Claydon Bay, B. C.	
4.513	66.43	ZFS, Nassau, Bahamas	
4.550	65.89	WDN, (W2XBJ), Rocky Point, N. Y.	
4.713	63.62	EDP, Palma de Mallorco, Balaeric Islands	
4.753	63.08	WOO, Ocean Gate, N. J.	
		WOY, Lawrenceville, N. J.	
4.755	63.05	CFU, Roesland, B. C. (Consolidated Mining & Smelting Co. of Canada, Ltd.)	
4.785	66.66	CZA, Drummondville, P. Q.	
4.835	62.00	GDW, Rugby, England	
4.865	61.63	CGT, Campbell River, B. C.	
4.972	60.30	G6RX, Rugby, England	
4.975	60.27	GBC, Rugby, England	
6.045	59.42	ZFA, Hamilton, Bermuda	
5.143	58.30	PMY, Bandoeng, Java	
5.263	56.96	WQN, Rocky Point, N. Y.	
5.344	56.10	EDP, Palma de Mallorco, Balearic Islands	
5.405	55.47	CGP, Prince Rupert, B. C.	
		CZQ, Anyox, B. C.	
6.505	54.46	WQN, Rocky Point, N. Y.	
5.660	53.00	CFD, Kenora, Ont. (Ont. Dept. of Lands and Forests)	
		CFJ, Red Lake, Ont. (Ont. Dept. of Lands and Forests)	
		CFU, Roesland, B. C. (Consolidated Mining & Smelting Co. of Canada, Ltd.)	
		KBTY, Butte, Mont.	
5.660	53.00	HJ5ABC, Cali, Colombia	
5.678	52.80	VK3LR, Melbourne, Australia	
5.694	52.65	HCK, Quito, Ecuador	
5.765	52.01	KZGF, Manila, P. I. (Philippine Long Distance Telephone Co.)	
5.766	52.00	XAM, Merida, Yucatan, Mexico	
5.780	51.9	CMB, Havana, Cuba	
5.780	51.9	OAX4D, Lima, Peru	
5.795	51.74	KZGH, Iloilo, P. I. (Philippine Long Distance Telephone Co.)	
5.825	51.47	HJA2, Bogota, Colombia, S. A.	
		KZGG, Cebu, P. I. (Philippine Long Distance Telephone Co.)	
		WQN, Rocky Point, N. Y.	
5.845	51.30	KRO, Kahuku, Hawaii	
5.850	51.28	YV5RMO, Maracaibo, Venezuela	
6.853	51.25	WOB, Lawrenceville, N. J.	
5.930	50.60	HJ4ABE, Medellin, Colombia	
5.940	50.5	TGX, Guatemala City, Guat.	
5.965	50.29	XEBT, Mexico City, Mex.	
5.968	50.27	HVJ, Vatican City, Rome, Italy	
5.970	50.27	HJ2ABC, Cucuta, Col. S. A.	
5.980	50.17	HIX, Santo Domingo, Dominican Rep.	
6.000	50.	RW59, Moscow, USSR.	
6.005	49.96	VE9DN, Montreal, Can.	
6.010	49.92	COC, Havana, Cuba	
6.012	49.9	ZHI, Radio Service Co., Singapore, Malaya	
6.020	49.83	DJC, Broadcasting House, Berlin, Ger.	
6.030	49.75	HP5B, P. O. Box 910, Panama City, Pan.	
6.040	49.67	YDB, Soerabaia, Java	
6.040	49.67	W1XAL, Boston, Mass.	
6.050	49.59	GSA, British Broadcast. Corp., Daventry, England	
6.060	49.50	W3XAU, Newtown Square, Pa	
		VQ7LO, Nairobi, Kenya, Africa	
		W8XAL, Crosley Radio Corp., Cincinnati, Ohio	
		OXY, Skamleboaek, Denmark	
6.070	49.42	VE9CS, Vancouver, B. C., Can.	
6.072	49.41	OER2, Vienna, Austria	
6.079	49.35	DJM, Broadcasting House, Berlin, Ger.	
6.080	49.34	W9XAA, Chicago Fed. of Labor, Chicago, Ill.	
6.080	49.34	CP5, Lapaz, Bollvia, S. A.	
6.085	49.3	2RO, E. I. A. R., Rome, Italy	
6.090	49.26	VE9BJ, St. John, N. B., Can.	
6.090	49.26	VE9GW, Bowmanville, Ont., Can.	

Mega-cycles	Meters	Station	Dial Setting
6.100	49.18	W9XF, Downers Grove, Ill.	
		W3XAL, National Broadcasting Co., Bound Brook, N. J.	
6.110	49.10	VUC, Calcutta, India	
6.110	49.10	VE9HX, Halifax, Nova Scotia	
6.112	49.08	YV2RC, Caracas, Venezuela	
6.115	49.05	HJ1ABE, Cartagena, Col., S. A.	
6.120	49.02	W2XE, Atlantic Broadcasting Corp., Wayne, N. J.	
		YDA, Bandoeng, Java	
6.122	49.	JB, Johannesburg, So. Africa	
6.130	48.92	ZGE, Kuala Lumpur, Fed. Malay States	
6.140	48.86	W8XK, Westinghouse Electric & Mfg. Co., Pittsburgh, Pa.	
6.150	48.78	CJRO, Winnipeg, Man., Can.	
6.160	48.7	YV3RC, Caracas, Venezuela	
6.175	48.58	HJ2ABA, Tunja, Colombia, S. A.	
6.272	47.84	HI1A, Santiago, Dominican Rep.	
6.316	47.5	HIZ, Santo Domingo, Dominican Rep.	
6.375	47.06	YV4RC, Caracas, Venezuela	
6.425	46.70	W3XL, National Broadcasting Co., Bound Brook, N. J.	
6.447	46.53	HJ1ABB, Barranquilla, Co., S. A.	
6.490	46.22	HJ5ABD, Manizales, Col., S. A.	
6.500	46.15	HI4D, Santo Domingo, Dominican Rep.	
6.611	45.38	RW72, Moscow, USSR.	
6.615	45.32	WMEP, Suffield, Ohio	
		WMEU, St. Petersburgh, Fla.	
		WMEV, Opa Locka, Fla. (Goodyear Zeppelin Base)	
6.618	45.31	WVD, Seattle, Wash. Phones Alaska	
6.620	45.30	PRADO, Riobamba, Ecuador, S. A.	
6.650	45.1	IAC, Piza, Italy	
6.660	45.05	TIEP, San Jose, Costa Rica	
6.666	45.00	HC2RL, Guayaquil, Ecuador, S. A.	
6.662	45.00	WXH, Ketchikan, Alaska	
6.670	44.95	KNRA, "Seth Parker"	
6.672	44.94	YVQ, Maracay, Venezuela	
6.675	44.91	DGK, Nauen, Germany	
6.690	44.82	CGA6 Drummondville, P. Q., Can.	
6.710	44.68	YNCRG, Granada, Nicaragua (Radio Club of Granada)	
6.718	44.62	WBD, Rocky Point, N. Y.	
6.720	44.62	CFU, Rossland, B. C. (Consolidated Mining & Smelting Co. of Canada, Ltd.)	
6.725	44.57	WQO, Rocky Point, N. Y.	
6.733	44.53	KEQ, Kahuku, Hawaii	
6.740	44.48	WEJ, Rocky Point, N. Y.	
6.750	44.44	JVT, Nazaki, Japan	
6.755	44.38	WOA, Lawrenceville, N. J.	
6.760	44.35	CJA6, Drummondville, P. Q., Can.	
6.790	44.16	CMB, Havana, Cuba	
6.800	44.12	HIH, San Pedrode Macoris, Dominican Rep.	
6.813	44.00	DEL, Nauen, Germany	
6.860	43.71	KEL, Bolinas, Calif.	
6.880	43.58	CGA7, Drummondville, P. Q., Can.	
6.900	43.45	GDS, Rugby, England	
		IMA, Rome, Italy	
6.928	43.27	WEZ, Rocky Point, N. Y	
6.935	43.23	WEB, Rocky Point, N. Y.	
6.950	43.13	WKP, Rocky Point, N. Y.	
6.958	43.09	WEO, Rocky Point, N. Y.	
6.966	43.04	EDO, Madrid, Spain	
		EDQ, Madrid, Spain	
7.000 to 7.300	41.07 to 42.83	Amateur Band. Foreign amateurs use phone in this band; U. S. A. and Canada, code only.	
7.140	42.02	HJ4ABB, Manizales, Col., S. A.	
7.175	41.78	CR6AA, Lobito, Portuguese West Africa	
7.205	41.61	EA8AB, Santa Cruz de Tenerife, Canary Isds.	
7.220	43.86	HAT, Budapest, Hungary	
7.220	41.55	HKE, Bogota, Col., S. A.	
7.370	40.67	KEB, Bolinas, Calif.	
		WJN, Rocky Point, N. Y.	
7.384	40.60	ZLT, Wellington, N. Z.	
7.400	40.51	WEM, Rocky Point, N. Y.	
7.400	40.54	HJ3ABD, Bogota, Colombia, S. A.	
7.415	40.43	WEG, Rocky Point, N. Y.	
7.465	40.16	HJP, Bogota, Colombia, S. A.	
7.520	39.87	KDK, Kahuku, Hawaii	
		KKH, Kahuku, Hawaii	
		RKI, Moscow, USSR.	
7.550	39.71	CFQ, Edmonton, Alta., The Edmonton Journal Ltd.	
		CGE, Calgary, Alta.	
		CKS, Calgary, Alta. Portable	
7.565	39.63	KWY, (6XN), Dixon, Calif.	
7.575	39.58	XGO, Shanghai, China	
7.610	39.40	KWX, Dixon, Calif.	
7.620	39.34	RIM, Irkutsk, USSR.	
7.685	39.01	TIR, Cartago, Costa Rica	
7.715	38.86	KEE, Bolinas, Calif.	
7.770	38.59	FTF, Ste. Assise, France	
7.797	38.47	HBP, Geneva, Switzerland, "Radio Nations"	
7.830	38.29	PDV, Kootwijk, Holland	
7.900	38.07	JYR, Kemikawa-Cho, Chiba-Ken, Japan	
7.940	37.76	VK2ME, Sydney, Australia	
7.960	37.67	CMB, Havana, Cuba	
		XGL, Shanghai, China	
7.980	37.57	HSJ, Bangkok, Siam	
8.515	35.21	CZA, Drummondville, P. Q., Can.	
8.560	35.03	WOO, Ocean Gate, N. J.	
		WOY, Lawrenceville, N. J.	
8.630	34.74	CMA, Havana, Cuba	
8.646	34.56	GBC, Rugby, England	

Mega-cycles	Meters	Station	Dial Setting
8.760	34.34	PNI, Macassar, Celebes	
8.770	34.19	RSZ, Irkutsk, USSR.	
8.820	33.99	KNRA, "Seth Parker"	
8.940	33.92	KNRA, "Seth Parker"	
8.930	33.57	WAD, Rocky Point, N. Y.	
		WEC, Rocky Point, N. Y.	
8.940	33.54	KZGG, Cebu, P. I. (Philippine Long Distance Telephone Co.)	
		WKL, Rocky Point, N. Y.	
8.950	33.50	WEL, Rocky Point, N. Y.	
8.980	33.59	VWY, Kirkee, Poona, India	
9.010	33.28	KEJ, Bolinas, Calif.	
9.014	33.26	GCS, Rugby, England	
9.014	32.93	LST, Buenos Aires, Argentina	
9.120	32.88	CP5, La Paz, Bolivia, S. A.	
9.168	32.70	YVR, Maracay, Venezuela	
9.170	32.70	KZGF, Manila, P. I. (Philippine Long Distance Telephone Co.)	
9.170	32.70	WNA, Lawrenceville, N. J.	
9.273	32.33	GCB, Rugby, England	
9.332	32.13	CGA4, Drummondville, P. Q., Can.	
9.340	32.10	XDC, Mexico City, Mexico	
9.375	31.97	XDA, Mexico City, Mexico	
9.410	31.86	PLV, Bandoeng, Java	
9.428	31.8	COH, Havana, Cuba	
9.448	31.74	WES, Rocky Point, N. Y.	
9.460	31.79	WKJ, New Brunswick, N. J.	
9.470	31.55	WET, Rocky Point, N. Y.	
9.480	31.63	PLW, Bandoeng, Java	
		WDA, Rocky Point, N. Y.	
9.490	31.59	KZGH, Iloilo, P. I. (Philippine Long Distance Telephone Co.)	
		WEF, Rocky Point, N. Y.	
9.500	31.58	PRF5, Rio de Janeiro, Brazil, S. A.	
9.510	31.55	VK3ME, Amalgamated Wireless, Ltd., Melbourne, Australia	
9.510	31.55	GSB, British Broad. Corp., Daventry, England	
9.530	31.48	W2XAF, General Electric Co., Schenectady, N. Y.	
9.540	31.45	DJN, Broadcasting House, Berlin, Ger.	
		LKJ1, Jeloy, Norway	
9.560	31.38	DJA, Broadcasting House, Berlin, Ger.	
9.565	31.36	VUB, Bombay, India	
9.570	31.35	W1XAZ, Westinghouse Electric & Mfg. Co., Springfield, Mass.	
9.580	31.32	VK3LR, 61 Little Collins St., Melbourne, Australia	
		GSC, British Broad. Corp., Daventry, Eng.	
9.590	31.28	W3XAU, Newtown Square, Pa.	
		PCJ, N. V. Phillips' Radio, Eindhoven, Holland	
		VK2ME, Amalgamated Wireless Ltd., Sydney, Australia	
9.595	31.27	HBL, League of Nations, Geneva, Switzerland	
9.600	31.25	CT1AA Lisbon, Portugal	
9.609	31.20	DGU, Nauen, Germany	
9.635	31.13	I2RO, Rome, Italy	
9.690	30.94	CMA, Havana, Cuba	
9.702	30.90	GCA, Rugby, England	
		LQA, Buenos Aires, Arg.	
9.740	30.78	CMA, Havana, Cuba	
9.750	30.75	VLJ, Sydney, Australia	
		WOF, Lawrenceville, N. J.	
9.340	32.10	XDC, Mexico City, Mexico	
9.772	30.68	EAM, Madrid, Spain	
9.798	30.60	GOW, Rugby, England	
9.823	30.52	IRM, Rome, Italy	
9.830	30.50	LSI, Buenos Aires, Argentina	
9.840	30.47	FTI, Ste. Assise, France	
9.862	30.40	EAQ, Madrid, Spain	
		JYS, Tokio, Japan	
9.870	30.38	WON, Lawrenceville, N. J.	
9.890	30.32	LSA, Buenos Aires, Argentina	
9.895	30.30	LSN, Buenos Aires, Argentina	
9.928	30.20	HJY, Bogota, Colombia	
9.942	30.15	GCU, Rugby, England	
9.990	30.01	KAZ, Manila, P. I.	
9.993	30.00	LSL, Buenos Aires, Argentina	
10.014	29.84	SUV, Cairo, Egypt	
10.020	29.92	CMA, Havana, Cuba	
10.060	20.80	ZFB, Hamilton, Bermuda	
10.135	29.58	OPM, Leopoldville, Belgian Congo	
10.164	29.79	EHY, Madrid, Spain	
10.212	29.35	PSH, Rio de Janeiro, Brazil	
10.250	29.25	PMN, Bandoeng, Java	
10.285	29.15	DIQ, Zeesen, Germany	
10.290	29.14	HPC, Panama City, Panama	
10.296	29.12	LSU, Buenos Aires, Argentina	
10.330	29.02	ORK, Brussels, Belgium	
10.335	29.01	ZFD, Hamilton, Bermuda	
10.350	28.97	LSX, Buenos Aires, Argentina	
10.370	28.91	WCG, Rocky Point, N. Y.	
10.400	28.83	KEZ, Bolinas, Calif.	
10.410	28.80	KES, Bolinas, Calif.	
		PDK, Kootwijk, Holland	
		YBG, Medan, Sumatra	
10.435	28.73	EHZ, El Tablero, Tenerife, Canary Isl.	
10.465	28.64	WKC, Rocky Point, N. Y.	
10.520	28.50	CFA4, Drummondville, P. Q.	
		VLR, Sydney, Australia	
10.550	28.42	WOK, Lawrenceville, N. J.	
10.610	28.25	WEA, Rocky Point, N. Y.	
10.613	28.25	EDN, Madrid, Spain	

Mega-cycles	Meters	Station	Dial Setting
		EDX, Madrid, Spain	
10.630	28.20	WED, Rocky Point, N. Y.	
10.670	28.10	CEC, Santiago, Chile	
10.761	27.86	GBP, Rugby, England	
10.840	27.66	KWV, Dixon, Calif.	
10.850	27.63	DFL, Nauen, Germany	
10.890	27.53	CMA, Havana, Cuba	
10.962	27.35	OCI, Lima, Peru	
10.980	27.30	ZLT, Wellington, New Zealand	
11.111	26.98	XFD, Mexico City, Mexico	
11.187	26.80	XAM, Merida, Mex.	
11.360	26.39	CWG, Montevideo, Uruguay	
11.560	25.94	CMB, Havana, Cuba	
11.644	25.75	PPQ, Rio de Janeiro, Brazil	
11.680	25.67	KIO, Kahuku, Hawaii	
		YVQ, Maracay, Venezuela	
11.720	25.6	FYA, Paris, France	
11.720	25.6	CJRX, Winnipeg, Can.	
11.730	25.57	PHI, Huizen, Holland	
11.750	25.53	GSD, British Broad. Corp., Daventry, Eng.	
11.770	25.49	DJD, Berlin, Germany	
11.790	25.45	W1XAL, Boston, Mass.	
11.795	25.43	DJO, Berlin, Germany	
11.811	25.4	I2RO, Rome, Italy	
11.830	25.36	W2XE, Atlantic Broad. Corp.	
11.855	26.31	DJP, Berlin, Germany	
11.860	25.29	GSE, British Broad. Corp., Daventry, Eng.	
11.870	25.26	W8XK, Westinghouse Electric & Mfg. Co., Pittsburgh, Pa.	
11.875	25.25	FYA, Paris, France	
11.935	25.12	FTA, Ste. Assise, France	
11.950	25.08	KKQ, Bolinas, Calif.	
11.983	25.02	FZS, Saigon, Indo-China	
12.000	24.99	RNE, Moscow, USSR.	
12.051	24.88	PDV, Kootwijk, Holland	
12.100	24.78	CJA, Drummondville, P. Q.	
12.148	24.68	GBS, Rugby, England	
12.223	24.53	CT1CT, Lisbon, Portugal	
12.241	24.41	GBU, Rugby, England	
12.290	24.40	PLM, Bandoeng, Java	
12.394	24.19	DAF, Norden, Germany	
12.660	23.68	CZA, Drummondville, P. Q.	
12.780	23.46	GBC, Rugby, England	
12.785	23.45	IAC, Coltano, Italy	
12.820	23.38	CNR, Rabat, Morocco	
12.830	23.36	HJA3, Barranquilla, Colombia	
12.840	23.35	WOO, Ocean Gage, N. J.	
		WOY, Lawrenceville, N. J.	
12.930	23.18	WAW, Hialeah, Fla.	
13.074	22.94	JYK, Tokio, Japan	
13.200	22.71	CFU, Rossland, B. C. (Consolidated Mining & Smelting Co. of Canada, Ltd.)	
		KNRA, "Seth Parker"	
13.285	22.56	GGA3, Drummondville, P. Q.	
13.337	22.48	YVQ, Maracay, Venezuela	
13.390	22.39	WMA, Lawrenceville, N. J.	
13.420	22.34	WHR, Rocky Point, N. Y.	
13.435	22.31	WKD, Rocky Point, N. Y.	
13.450	22.28	WEX, Rocky Point, N. Y.	
13.465	22.26	WKC, Rocky Point, N. Y.	
13.480	22.24	WAJ, Rocky Point, N. Y.	
13.500	22.09	GBB, Rugby, England	
13.671	21.93	HAS, Budapest, Hungary	
13.690	21.90	KKZ, Bolinas, Calif.	
13.780	21.75	KKW, Bolinas, Calif.	
13.816	21.70	SUZ, Cairo, Egypt	
13.840	21.66	WPE, Rocky Point, N. Y.	
13.855	21.63	WQU, Rocky Point, N. Y.	
13.870	21.61	WIY, Rocky Point, N. Y.	
13.900	21.57	WQP, Rocky Point, N. Y.	
13.915	21.54	WQS, Rocky Point, N. Y.	
13.984	21.44	GBA, Rugby, England	
14.000 to 14.400	20.82 to 21.42	Amateur band. Phones from 14.150 to 14.250 megs.	
14.450	20.75	GBW, Rugby, England	
14.470	20.72	WMF, Lawrenceville, N. J.	
14.480	20.70	LSN, Buenos Aires, Arg.	
		YNA, Managua, Nicaragua	
14.530	20.65	LSA, Buenos Aires, Arg.	
14.545	20.69	HPF, Panama City, Panama	
		TGF, Guatemala City, Guatemala	
		TIU, Cartago, Costa Rica	
14.550	20.60	HBJ, Geneva, Switzerland, "Radio Nations"	
14.590	20.56	WMN, Lawrenceville, N. J.	
14.630	20.60	XDA, Mexico City, D. F.	
14.682	20.42	PSF, Rio de Janeiro, Brazil	
14.800	20.26	WQV, Rocky Point, N. Y.	
14.815	20.23	WQL, Rocky Point, N. Y.	
14.830	20.21	WKU, Rocky Point, N. Y.	
14.930	20.08	HJB, Bogota, Colombia	
14.969	20.03	EDQ, Madrid, Spain	
14.980	20.01	KAY, Manila, P. I.	
15.040	19.93	WQG, Rocky Point, N. Y.	
15.055	19.91	WNC, Hialeah, Fla.	
15.090	19.88	RKI, Moscow, USSR.	
15.104	19.85	RAU, Tashkent, USSR.	
15.120	19.83	HVJ, Vatican City, Rome, Italy	
15.140	19.82	GSF, British Broad. Corp., Daventy, Eng.	
15.200	19.73	DJB, Berlin, Germany	
15.210	19.72	W8XK, Westinghouse Electric & Mfg. Co., Pittsburg, Pa.	
15.220	19.71	PCJ, N. V. Philips' Radio, Eindhoven, Holland	
15.243	19.68	FYA, Paris, France	
15.260	19.67	W1XAL, Boston, Mass.	
15.26	19.66	GSI, Daventry, Eng.	
15.270	19.65	W2XE, Atlantic Broadcast Corp.	
15.280	19.63	DJQ, Berlin Germany	
15.330	19.56	W2XAD, General Electric Co., Schenectady, N. Y.	
15.340	19.56	DJR, Berlin, Germany	
15.355	19.53	KWU, Dixon, Calif.	
15.370	19.52	HAS3, Budapest, Hungary	
15.415	19.45	KWO, Dixon, Calif.	
15.445	19.41	WKW, Rocky Point, N. Y.	
15.505	19.34	CMA1, Havana, Cuba	
15.760	19.02	JYT, Kemikawa-Cho, Chiba-Ken, Japan	
15.810	18.96	LSL, Buenos Aires, Arg.	
15.821	18.95	OCJ, Lima, Peru	
15.860	18.90	CEC, Santiago, Chile	
15.863	18.90	FTK, Ste. Assise, France	
15.950	18.80	PLG, Bandoeng, Java	
15.970	18.77	WKO, Rocky Point, N. Y.	
16.015	18.72	WQR, Rocky Point, N. Y.	
16.030	18.71	KKP, Kahuku, Hawaii	
16.160	18.56	GBX, Rugby, England	
16.162	18.55	PSA, Rio de Janeiro, Brazil	
16.200	18.51	FZR, Saigon, Indo-China	
16.270	18.48	WLK, Lawrenceville, N. J.	
16.380	18.30	XGN, Shanghai, China	
17.080	17.55	GBC, Rugby, England	
17.122	17.51	HAT, Budapest, Hungary	
17.120	17.51	WOO, Ocean Gate, N. J.	
		WOY, Lawrenceville, N. J.	
17.260	17.37	CMA1 Havana, Cuba	
		DAF, Norden, Germany	
17.310	17.32	CZA, Drummondville, P. Q.	
		W3XL, Bound Brook, N. J.	
17.512	17.12	DFB, Nauen, Germany	
17.533	17.10	VWZ, Kirkee, Poona, India	
17.710	16.93	CJAS, Drummondville, P. Q.	
17.720	16.92	HSP, Bangkok, Siam	
17.760	16.88	IAC, Coltane, Italy	
17.760	16.89	DJE, Berlin, Germany	
17.775	16.88	PHI, Huizan, Holland	
17.780	16.87	W3XAL, National Broad. Co., Bound Brook, N. J.	
17.790	16.86	GSG, British Broad. Corp., Daventry, Eng.	
17.830	16.82	PCV, Kootwijk, Holland	
17.850	16.80	PLF, Bandoeng, Java	
17.860	16.78	WQC, Rocky Point, N. Y.	
17.880	16.76	WQI, Rocky Point, N. Y.	
17.900	16.75	WLL, Rocky Point, N. Y.	
17.920	16.73	WQF, Rocky Point, N. Y.	
17.940	16.71	WQB, Rocky Point, N. Y.	
18.020	16.64	KQJ, Bolinas, Calif.	
18.116	16.55	LSY, Buenos Aires, Arg.	
18.170	16.60	PMC, Bandoeng, Java	
18.180	16.49	CGA, Drummondville, P. Q.	
18.193	16.48	GAW, Rugby, England	
18.237	16.44	FTE, Ste. Assise, France	
18.296	16.39	YVR, Maracay, Venezuela	
18.304	16.38	GAS, Rugby, England	
18.340	16.35	FZS, Saigon, Indo-China	
18.350	16.34	WLA, Lawrenceville, N. J.	
18.400	16.29	PCK, Kootwijk, Holland	
18.444	16.25	HJY, Bogota, Colombia	
18.450	16.25	HBH, Geneva, Switzerland, "Radio Nations"	
18.600	16.12	PDM, Kootwijk, Holland	
18.611	16.11	GAU, Rugby, England	
18.620	16.10	GBJ, Bodmin, England	
		PLT, Malabar, Java	
18.670	16.06	OCI, Lima, Peru	
18.690	16.04	XGK, Shanghai, China	
18.820	15.93	PLE, Bandoeng, Java	
18.856	15.90	ZSS, Capetown, Union of So. Africa	
18.860	15.89	WKM, Rocky Point, N. Y.	
18.880	15.88	WQH, Rocky Point, N. Y.	
18.900	15.86	WDS, Rocky Point, N. Y.	
18.920	15.84	WQE, Rocky Point, N. Y.	
18.940	15.83	WTT, Rocky Point, N. Y.	
18.958	15.82	LSR, Buenos Aires, Arg.	
18.960	15.81	WQD, Rocky Point, N. Y	
18.963	15.81	GAG, Rugby, England	
18.980	15.79	WFX, Rocky Point, N. Y.	
19.121	15.68	LSM, Buenos Aires, Arg.	
19.182	15.63	ORG, Brussels, Belgium	
19.220	15.60	WKF, Lawrenceville, N. J.	
19.240	15.58	DFA, Nauen, Germany	
19.270	15.57	PPU, Rio de Janeiro, Brazil	
19.282	15.56	FTM, Ste. Assise, France	
19.400	15.45	FRO, Ste. Assise, France	
19.418	15.44	EDQ, Madrid, Spain	
19.468	15.40	PMA, Malabar, Java	
19.500	15.38	LSQ, Hurlingham, Buenos Aires, Arg.	
19.506	15.37	IRW, Rome, Italy	
19.519	15.36	EDN, Madrid, Spain	
		EDX, Madrid, Spain	
19.596	15.30	LSF, Buenos Aires, Arg.	
19.680	15.24	CEC, Santiago, Chile	
19.684	15.23	EAQ, Madrid, Spain	
19.820	15.13	WKN, Lawrenceville, N. J.	
19.830	15.12	FTD, Ste. Assise, France	
19.895	15.07	LSG, Buenos Aires, Arg.	
19.950	15.04	DIH, Nauen, Germany	
19.980	15.01	KAX, Manila, P. I.	
20.028	14.97	DHO, Nauen, Germany	
		OPL, Leopoldville, Belgian Congo	
20.100	14.91	WQY, Rocky Point, N. Y.	
20.140	14.88	DWG, Nauen, Germany	
20.180	14.85	WQX, Rocky Point, N. Y.	

Mega-cycles	Meters	Station	Dial Setting	Mega-cycles	Meters	Station	Dial Setting
20.260	14.79	WQQ, Rocky Point, N. Y.		21.220	14.13	WQA, Rocky Point, N. Y.	
20.368	14.72	GAA, Rugby, England		21.240	14.12	WQJ, Rocky Point, N. Y.	
20.606	14.55	PMB, Bandoeng, Java		21.260	14.10	WBU, Rocky Point, N. Y.	
20.820	14.40	LSY, Buenos Aires, Arg.		21.300	14.07	WQW, Rocky Point, N. Y.	
20.849	14.38	EDM, Madrid, Spain		21.410	14.00	WKK, Lawrenceville, N. J.	
		EHY, Madrid, Spain		21.470	13.96	GSH, Daventry, England	
21.020	14.27	LSN, Buenos Aires, Arg.		21.53	13.93	GSJ, Daventry, England	
21.060	14.24	KWN, Dixon, Calif.		21.540	13.92	W8XK, Pittsburgh, Pa.	
		WKA, Lawrenceville, N. J.		21.291	13.45	GBU, Rugby, England	
21.069	14.23	PSA, Rio de Janeiro, Brasil		24.380	12.29	VE9GW, Bowmanville, Ont., Canada	
21.128	14.19	LSM, Buenos Aires, Arg.					

AMATEUR PHONES ARE HEARD BETWEEN

1.875 and 2.000 megs.
3.900 and 4.000 megs.
7.000 and 7.300 megs. (Foreign only)
14.150 and 14.250 megs.

Alphabetical List

(Frequencies given are in megacycles.)

CEC, La Granja, Chile (Santiago) 10,670; 15,860; 19,680
CFA2, Drummondville, P.Q. (Montreal) 4.465
CFA4, Drummondville, P.Q. (Montreal) 10.520
CFD, Kenora, Ontario
CFJ, Red Lake, Ontario 5,.660
CFQ, Edmonton, Alta., 3.040; 7.550
CFU, Rossland, B. C., 4.755; 5.660; 6.720 13.200
CCA, Drummondville, P.Q. (Montreal) 18.180
CCA3, Drummondville, P.Q. (Montreal) 13,285
CCA4, Drummondville, P.Q. (Montreal) 9,332
CCA6, Drummondville, P.Q. (Montreal) 6.690
CCA7 Drummondville, P.Q. (Montreal) 6.880
CCA9, Drummondville P.Q. (Montreal), 4.348
CCD, Drummondville, P.Q. ((Montreal) 3.340
CCE, Calgary, Alta., 3.040; 7.550
CCM, Montreal, P. Q., 3.152; 3.340
CCO, Ocean Falls, B. C., 4.505
CCP, Prince Rupert, B. C., 3.268; 5.405
CCT, Campbell River, B. C., 4,865
CCY, Yamachiche, P. Q., 3.152
CJA, Drummondville, P.Q. (Montreal) 12.100
CJA3, Drummondville, P.Q. (Montreal) 17.710
CJA6, Drummondville, P.Q. (Montreal) 6.760
CJRO, Winnipeg, Man., 6.150
CJRX, Winnipeg, Man., 11.720
CJU, Winnipeg, Man. 3.070; 3.452
CKS, Calgary Alta., 3.040; 7.550
CMA, Havana, Cuba, 8.630; 9.690; 9.740; 10.020; 10.890
CMA1, Havana, Cuba, 15.505; 17.260
CMB, Havana, Cuba, 5.780; 6.790; 7.960; 11.560
CMB1, Havana, Cuba, 5.900
CNR, Rabat, Morocco, 12.820
COC, Havana Cuba, 5.996
CP5, La Paz, Bolivia, 6.081; 9.120; 15.300
CQN, Macao, Macao, 6.020
CR6AA, Lobito, Portuguese West Africa, 7.175
CT1AA, Lisbon, Portugal, 9.600; 5.980; 11.991
CT1CT, Lisbon, Portugal, 3.750; 12.223
CT1CO, Parede, Portugal, 6.198; 12.396
CWC, Cerrito, Uruguay (Montevideo) 11.360
CZA, Drummondville, P.Q. (Montreal) 4.785; 6.285; 8.515; 12.660; 17.310
CZC, Prince Rupert, B. C., 6.425
CZO, Prince George, B. C., 4.505
CZP, Claydon Bay, B. C., 4.505
CZQ, Anyox, B. C., 5,405
DAF, Norden, Germany, 4.320, 8.464; 12.394; 17.260
DEL, Nauen, Germany, 6.813
DFA, Nauen, Germany, 19.240
DFB, Nauen, Germany, 17.512
DFL, Nauen, Germany, 10.850
DCK, Nauen, Germany, 6.675
DCU, Nauen, Germany, 9.609
DHO, Nauen, Germany, 20.028
DIH, Nauen, Germany, 19.950
DIQ, Zeesen, Germany, 10.285
DJA, Zeesen, Germany, 9.560
DJB, Zeesen, Germany, 15.200
DJC, Zeesen, Germany, 6.020
DJD, Zeesen, Germany, 11.770
DJE, Zeesen, Germany, 17.760
DJM, Zeesen, Germany, 6.079
DJN, Zeesen, Germany, 9,540
DJO, Zeesen, Germany, 11.785
DJP, Zeesen, Germany, 11.855
DJQ, Zeesen, Germany, 15.280
DJR, Zeesen, Germany, 15.340
DWC, Nauen, Germany, 20.140
EAM, Aranjuez, Spain (Madrid), 9.772
EAU, Aranjuez, Spain (Madrid), 9.862; 19.684
EA8AB, Santa Cruz de Tenerife, Canary Ialands, 7.205
EDM, Madrid, Spain, 20.849
EDN, Madrid, Spain, 10.613; 19.519
EDO, Madrid, Spain, 6.966
EDP, Palma de Mallorco, Balaeric Islands, 4.713; 5.344; 6.475
EDQ, Madrid, Spain, 6.966; 8.017; 14.969; 19.418
EDX, Madrid, Spain, 10.613; 19.519
EHY, Madidi, Spain, 10.164; 20.849
EHZ, El Tablero, Tenerife, Canary Islands, 10.435
FRO, Ste. Assise, France, 19.400
FTA, Ste. Assise, France, 11.935
FTD, Ste. Assise, France, 19.830
FTE, Ste. Assise, France, 18.237
FTF, Ste. Assise, France, 7.770
FTI, Ste. Assise, France, 9.840
FTK, Ste. Assise, France, 15.863
FTM, Ste. Assise, France, 19.282
FYA, (See "Radio Coloniale")
FZR, Saigon, French Indo-China, 16.200
FZS, Saigon, French Indo-China, 11.983; 18.342
CAA, Rugby, England, 20.380
CAB, Rugby, England, 18.970
CAP, Rugby, England, 19.160
CAS, Rugby, England, 18.310
CAU, Rugby, England, 18.620
CAW, Rugby, England, 18.200
CBA, Rugby, England, 13.990
CBB, Rugby, England, 13.585
CBC, Rugby, England, 4.975; 8.646; 12.780; 17.080
CBJ, Rugby, England, 13.415
CBP, Rugby, England, 10.000
CBS, Rugby, England, 12.148
CBU, Rugby, England, 12.290
CBW, Rugby, England, 14.450
CCA, Rugby, England, 9.702
CCB, Rugby, England, 9.273
CCS, Rugby, England, 9.014
CCU, Rugby, England, 9.942
CDB, Rugby, England, 4.320; 6.790
CDS, Rugby, England, 6.900
CDW, Rugby, England, 4.835
CSA, Daventry, England (London), 6.050
CSB, Daventry, England (London), 9.510
CSC, Daventry, England (London), 9.580
CSD, Daventry, England (London), 11.750
CSE, Daventry, England (London), 11.680
CSF, Daventry, England (London), 15.140
CSC, Daventry, England (London), 17.790
CSH, Daventry, England (London), 21.470
CSI, Daventry, England (London), 15.26
CSJ, Daventry, England (London), 21.53
CSL, Daventry, England (London), 6.11
C6RX, Rugby, England, 4.320; 4.972
HAS, Skekesfehevar, Hungary (Budapest), 13.671
HAT, Skekesfehevar, Hungary (Budapest) 7.220; 17.120
HBH, Prangins, Switzerland (Geneva), 18.450
HBJ, Prangins, Switzerland (Geneva), 14.550
HBL, Prangins, Switzerland (Geneva), 9.595
HBP, Prangins, Switzerland (Geneva) 7.797
HCJ3, Quito, Ecuador, 4.107
HCK, Quito, Ecuador, 5.694
HC2RL, Guayaquil, Ecuador, 6.659
HIH, San Pedro de Macoris, Dominican Republic
HIX, Santo Domingo, Dominican Rep.
HIZ, Santo Domingo, Dominican Rep.
HI1A, Santiago de los Caballeros, Dominican Rep., 6.272
HJA2, Bogota, Colombia, 14.930
HJP, Bogota, Colombia, 7.465
HJY, Bogota, Colombia, 9.928, 18.444
HJ1ABB, Barranquilla, Colombia, 6.451
HJ1ABD, Cartagena, Colombia, 6.100
HJ1ABE, Cartagena, Colombia, 6.115
HJ2ABA, Tunja, Colombia, 6.175
HJ2ABC, Cucuta, Colombia, 5.970
HJ2ABD, Bogota, Colombia, 7.400
HJ4ABB, Manizales, Colombia, 7.140
HJ4ABE, Medelin, Colombia, 5.930
HJ5ABB, Cali, Colombia, 6.500
HJ5ABC, Cali, Colombia, 5.660
HKE, Bogota, Colombia, 7.090
HKI, Bogota, Colombia, 7.402
HKN, Medelin, Colombia, 7.138
HPC, Panama City, Panama, 10.290
HPF, Panama City, Panama, 14.545
HSJ, Bangkok, Siam, 7.980
HSP, Bangkok, Siam, 17.720
HVJ, Vatican City, 5.986; 15.120
IAC, Coltano, Italy (Pisa), 6.648; 12.785; 17.770
IAF, Fiumicino, Italy, 29.803
IAG, Golfo Aranci, Sardinia, 30.593
IMA, Rome, Italy, 6.900
IRM, Rome, Italy, 9,823
IRW, Rome, Italy, 19.506
I2RO, Rome, Italy, 5.555; 5.610; 5.660; 5.725; 6.065; 6.085; 6.160; 6.980; 9.600; 9.635 9.780; 11.811
JYK, Kemikawa-Cho, Chiba-Ken, Japan (Tokio), 13.07
JYS, Kemikawa-Cho, Chiba-Ken, Japan (Tokio), 9.840
JYT, Kemikawa-Cho, Chiba-Ken, Japan (Tokio), 15.760
KAX, Manila, Philippine Islands, 19.980
KAY, Manila, Philippine Islands, 14.980
KAZ, Manila, Philippine Islands, 9.990
KDK, Kahuku, Hawaii (Honolulu), 7.520 (Receiver at Kokohead)
KEB, Bolinas, Calif. (San Francisco), 7.370 (Receiver at Point Reyes)
KEE, Bolinas, Calif., 7.715
KEJ, Bolinas, Calif. (San Francisco), 9.010
KEL, Bolinas, Calif. (San Francisco), 6.860
KEQ, Kahuku, Hawaii (Honolulu-Kokohead), 6.733
KES, Bolinas, Calif., 10.410
KEZ, Bolinas, Calif., 10.400
KGM, Ketchikan, Alaska, 3.093
KGXU, Port Armstrong, Alaska, 2.994
KGYA, Longmire, Wash., 3.387
KGYB, Longmire, Wash., 3.387
KGYC, Paracide, Wash., 3.387
KGYD, Sunrise, Wash., 3.387
KGYE, White River, Wash., 3.387
KGYF, Carbon, Wash., 3.387
KGYG, Portahle in Washington, 3.387
KGYH, Portable in Washington, 3.387
KGYI, Portahle in Washington, 3.387
KIAX, Ketchikan, Alaska, 3.093
KIAY, Ketchikan, Alaska, 3.093
KICI, View Cove, Dall Island, Alaska, 3.093
KIFM, Fairbanks, Alaska, 4.124
KICP, Egushik, Alaska, 3.190
KIIK, Circle, Alaska, 3.190
KIIL, Fort Yukon, Alaska, 3.190
KIIM, Hot Springs, Alaska, 3.190
KIIN, Eagle, Alaska, 3.190
KIIO, McGrath, Alaska, 3.190
KIIT, St. Michael, Alaska, 3.265
KIIU, Marshall, Alaska, 3.385
KIO, Kahuku, Hawaii, 11.680

KKH, Kahuku, Hawaii, 7.520
KKP, Kahuku, Hawaii, 16.030
KKQ, Bolinas, Calif., 11.950
KKW, Bolinas, Calif., 13.780
KKZ, Bolinas, Calif., 13.690
KNRA, Schooner "Seth Parker," 6.160; 6.660; 6.670; 8.230; 8.820; 8.840; 13.200
KJQ, Bolinas, Calif., 18.020
KRO, Kahuku, Hawaii, 5.845
KWN, Dixon, Calif., 21.060
KWO, Dixon, Calif., 15.415
KWU, Dixon, Calif., 15.355
KWV, Dixon, Calif., 10.840
KWX, Dixon, Calif., 7.610
KWY, Dixon, Calif., 7.565
KZCF, Manila, Philippine Islands, 5.765; 9.170
KZCC, Cebu, Philippines, 5.825; 8.940
KZCH, Iloilo, Philippines, 5.795; 9.490
LQA, Hurlingham, Argentina (Buenos Aires), 9.600; 9.702
LSA, Hurlingham, Arg. (Buenos Aires), 9.890; 14.530
LSF, Hurlingham, Arg. (Buenos Aires). 19.596
LSC, Monte Grande, Arg. (Buenos Aires), 19.895
LSI, Monte Grande, Arg. (Buenos Aires), 9.830
LSL, Hurlingham, Arg. (Buenos Aires), 9.993; 10.296; 15.810
LSM, Hurlingham, Arg. (Buenos Aires), 19.121; 21.128
LSN, Hurlingham, Arg. (Buenos Aires), 9.895; 14.480; 21.020
LSQ, Hurlingham, Arg. (Buenos Aires), 19.500
LSR, Hurlingham, Arg. (Buenos Aires), 18.958
LST, Olivos, Arg. (Buenos Aires), 9.104
LSX, Monte Grande, Arg. (Buenos Aires), 10.350
LSY, Monte Grande, Arg. (Buenos Aires), 18.116; 20.820
OCI, Valverde, Peru (Lima), 10.962; 18.670
OCJ, Valverde, Peru (Lima), 15.821
OCM, Lima, Peru, 6.233
OER2, Vienna, Austria, 6.075
OPL, Leopoldville, Belgium Congo, 20.028
OPM, Leopoldville, Belgium Congo, 10.135
ORC, Ruysselede, Belgium (Brussels), 19.182
ORK, Ruysselede, Belgium (Brussels), 10.330
OXY, Skamlebaek, Denmark (Copenhagen), 6.060; 9.520
PCJ, Eindhoven, Holland 9.590; 15.220
PCK, Kootwijk, Holland, 18.400
PCM, The Hague, Holland, 6.430
PCV, Kootwijk, Holland, 17.830
PDK, Kootwijk, Holland, 10.140
PDM, Kootwijk, Holland, 18.600
PDV, Kootwijk, Holland, 7.830; 12.051
PHI, Hilversuum, Holland (Huizen), 11.725; 17.775
PK1WK, Bandoeng, Java, 3.490
PLE, Bandoeng, Java, 18.820
PLF, Bandoeng, Java, 17.850
PLC, Bandoeng, Java, 15.950
PLM, Bandoeng, Java, 12.290
PLT, Malabar, Java, 18.620
PLV, Bandoeng, Java, 9.410
PLW, Bandoeng, Java, 9.480
PMA, Malabar, Java, 19.468
PMB, Bandoeng, Java, 20.606
PMC, Bandoeng, Java, 18.170
PMN, Bandoeng, Java, 10,250
PMY, Bandoeng, Java, 5.143
PNI, Macassar, Celebes, 8.760
PPQ, Rio de Janeiro, Brazil, 11.644
PPU, Rio de Janeiro, Brazil, 19.270
PRF5, Rio de Janeiro, Brazil, 9.500
El Prado, Riobamba, Ecuador, 6.618
PSA, Rio de Janeiro, Brazil, 16.162; 21.069
PSF, Rio de Janeiro, Brazil, 14.682
PSH, Rio de Janeiro, Brazil, 10.212
PSK, Rio de Janeiro, Brazil, 8.180
Rabat, Morocco, 8.218; 12.820
Radio Coloniale, Pontoise, France (Paris), 11.705; 11.875; 15.243
RAU, Tashkent, USSR., 15.104
REN, Moscow, USSR., 6.433
RIM, Irkutsk, USSR., 7.621
RKI, Moscow, USSR., 7.520; 15.090
RNE, Moscow, USSR, 12.000
RSZ, Irkutsk, USSR., 8.770
RV15, Khabarovsk, USSR. (Siberia), 4.273
RV59, Moscow, USSR., 6.000
SUV, Abu Zabal, Egypt (Cairo), 10.014
SUZ, Abu Zabal, Egypt (Cairo), 13.816
TGF, Guatemala, City. Guatamala, 14.545
TIN, Cartago, Costa Rica (San Jose), 14.545
TIR, Cartago, Costa Rica (San Jose), 7.685
TIU, Cartago, Costa Rica (San Jose), 14.545
VE9BJ, St. John, N. B., 6.090
VE9CS, Vancouver, B. C., 6.070
VE9DN, Drummondville, P. Q., (Montreal), 6.005
VE9DR, Montreal, P. Q., 6.005
VE9GW, Bowmanville, Ont. (Toronto), 6.095
VE9HX, Halifax, N. S., 6.110
VK2ME, Pennant Hills, N.S.W., Australia (Sydney), 9.590
VK3LR, Melbourne, Victoria, Australia, 5.678; 9.580
VK3ME, Braybank, Vic., Australia (Melbourne), 9.510
VQ7LO, Nairobi, Kenya Colony, 6.060
VUC, Calcutta, India, 6.112
VWY, Kirkee, Poona, India, 8.980
VWZ, Kirkee, Poona, India, 17.533
WAD, Rocky Point, N. Y., 8.930
WAJ, Rocky Point, N. Y., 13.480
WAW, Hialeah, Fla., 12.930
WBU, Rocky Point, N. Y., 21.260
WCC, Rocky Point, N. Y., 10.370
WDA, Rocky Point, N. Y., 9.480
WDB, Rocky Point, N. Y., 6.718
WDN, Rocky Point, N. Y., 4.550
WDS, Rocky Point, N. Y., 18.900
WEA, Rocky Point, N. Y., 10:610
WEB, Rocky Point, N. Y., 6.935
WEC, Rocky Point, N. Y., 8.930
WED, Rocky Point, N. Y., 10.630
WEF, Rocky Point, N. Y., 9.490
WEG, Rocky Point, N. Y., 7.415
WEJ, Rocky Point, N. Y., 6.740
WEL, Rocky Point, N. Y., 8.950
WEM, Rocky Point, N. Y., 7.400
WEO, Rocky Point, N. Y., 6.958
WES, Rocky Point, N. Y., 9.448
WET, Rocky Point, N. Y., 9.470
WEX, Rocky Point, N. Y., 13.540
WEZ, Rocky Point, N. Y., 6.928
WFX, Rocky Point, N. Y., 18.980
WHR, Rocky Point, N. Y., 13.420
WIR, Rocky Point, N. Y., 4.276
WIY, Rocky Point, N. Y., 13.870
WJN, Rocky Point, N. Y., 7.370
WKA, Lawrenceville, N. J., 21.060
WKC, Rocky Point, N. Y., 10.465; 13.465
WKD, Rocky Point, N. Y., 13.435
WKDL, Miami, Fla., 3.070; 5.405
WKF, Lawrenceville, N. J., 4.253; 19.220
WKJ, New Brunswick, N. J., 9.460
WKK, Lawrenceville, N. J., 21.410
WKL, Rocky Point, N. Y., 8.940
WKM, Rocky Point, N. Y., 18.860
WKN, Lawrenceville, N. J., 19.820
WKO, Rocky Point, N. Y., 15.970
WKP, Rocky Point, N. Y., 6.950
WKU, Rocky Point, N. Y., 14.830
WKW, Rocky Point, N. Y., 15.445
WLA, Lawrenceville, N. J., 18.350
WLK, Lawrenceville, N. J., 16.270
WLL, Rocky Point, N. Y., 17.900
WMA, Lawrenceville. N. J., 13.390
WMDU, San Juan, Porto Rico, 3.070; 3.076; 5.405
WMEP, Suffield, Ohio, 6.615
WMEU, St. Petersburg, Fla., 6.615
WMEV, Opa Locka, Fla., 6.615
WMF, Lawrenceville, N. J., 14.470
WMN, Lawrenceville, N. J., 14.590
WNA, Lawrenceville, N. J., 9.170
WNC, Hialeah, Fla., 15.055
WND, Hialeah, Fla., 4.098
WOA, Lawrenceville, N. J., 6.755
WOB, Lawrenceville, N. J., 5.850
WOF, Lawrenceville. N. J., 9.750
WOC, Ocean Gate, N. J., 4.253
WOK, Lawrenceville, N. J., 10.550
WON, Lawrenceville, N. J., 9.870
WOO, Ocean Gate, N. J., 4.273; 4.753; 8.560; 12.840; 17.120

DID YOU HEAR

a new station not listed here? If you heard the call letters and it was a short-wave "telephone" or broadcasting station send the Editor the data. We are *not* interested in "code" or amateur stations—only S-W "telephone" or broadcasting stations. —Editor.

WOY, Lawrenceville, N. J., 4.273; 5.753; 8.560; 12.840; 17.120
WOZ, New York, N. Y., 3,423
WPE, Rocky Point, N. Y., 13.840
WQA, Rocky Point, N. Y., 21.220
WQB, Rocky Point, N. Y., 17.940
WQC, Rocky Point, N. Y., 17.860
WQD, Rocky Point, N. Y., 18.960
WQE, Rocky Point, N. Y., 18.920
WQF, Rocky Point, N. Y., 17.920
WQG, Rocky Point, N. Y., 15.040
WQH, Rocky Point, N. Y., 18.880
WQI, Rocky Point, N. Y., 17.880
WQJ, Rocky Point, N. Y., 21.240
WQL, Rocky Point, N. Y., 14.815
WQN, Rocky Point, N. Y., 5.263; 5.505; 5.825
WQO, Rocky Point, N. Y., 6.725
WQP, Rocky Point, N. Y., 13.900
WQQ, Rocky Point, N. Y., 20.260
WQR, Rocky Point, N. Y., 16.015
WQS, Rocky Point, N. Y., 13.915
WQU, Rocky Point, N. Y., 13.855
WQV, Rocky Point, N. Y., 14.800
WQW, Rocky Point, N. Y., 21.300
WQX, Rocky Point, N. Y., 20.180
WRDQ, Rocky Point, N. Y., 20.100
WQY, Toledo, Ohio, 2.470
WRJ, Poe Reef Lighthouse, Mich., 3.410
WST, Dry Tortugas Lighthouse, Fla., 3.410
WTDV, Virgin Islands, 4.307
WTDW, Virgin Islands, 4.307
WTT, Rocky Point, N. Y., 18.940
WVD, Seattle, Wash., 2.604; 5.995; 6.618
WWAZ, Mantou Island Lighthouse, Mich., 3.410
Passage Island Lighthouse, Mich., 3.410
WWAM, Rock of Ages Lighthouse, Mich., 3.410
WWAO, Huron Island Lighthouse, Mich., 3.410
WWE, Fourteen Foot Shoals, Lighthouse, Mich., 3.410
WWC, Cheboygan Range, Lighthouse, Mich., 3.410
WWH, Stannard Rock Lighthouse, Mich., 3.410
WWM, Marquette Lighthouse, Mich., 3.410
WWN, Detroit River Lighthouse, Mich., 3.410
WWR, Detroit, Mich., Lighthouse, 3.410
WWZ, Key West Fla., Lighthouse, 3.410
WXH, Ketchikan, Alaska, 6.662
W1XAL, Boston, Mass., 6.040; 11.790; 15.250; 21.460
W1XK, Millis, Mass. (Springfield), 9.570
W2XAD, Schenectady, N. Y., 15.340
W2XAF, Schenectady, N. Y., 9.530
W2XE, Wayne, N. J. (New York City), 6.120; 11.830; 15.270
W3XAL, Bound Brook, N. J. (New York City), 6.100; 17.780
W3XAU, Newton Square, Pa. (Philadelphia), 6.060; 9.591
W3XL, Bound Brook, N. J., 6.425; 17.310
W4XB, Collins Island (Miami, Fla.), 6.040
WBXAL, Mason. Ohio (Cincinnati), 6.060
WBXK, Saxonburg, Pa. (Pittsburgh), 6.140; 11.870; 15.210; 21.540
W9XAA, Chicago, Ill., 6.080
W9XF, Downers' Grove, Ill. (Chicago), 6.100
W9XQ, Downers' Grove, Ill. (Chicago), 6.100
XAM, Merida, Yuc., Mexico, 5.766; 11.187
XDA, Mexico City, D. F., 5.879; 9.375; 14.630
XDC, Mexico City, D. F., 9.340
XDM, Mexico City, D. F., 11.760
XDS, Mexico City, D. F., 11.760
XEBT, Mexico City, D. F., 5.965
XFD, Mexico City, D. F., 9.091; 11.111
XGK, Shanghai, China, 18.690
XGL, Shanghai, China, 7.960
XGN, Shanghai, China, 16.380
XGO, Shanghai, China, 17.575
YBC, Shanghai, China, 10.410
YID, Bagdad, Iraq, 4.467
YNA, Managua, Nicaragua, 14.480
YVQ, Maracay, Venzuela (Caracas), 6.672; 11.680
YVR, Maracay, Venzuela (Caracas), 13.337; 9.168; 18.296
YV2RC, Caracas, Venzuela, 6.112
YV3RC, Caracas, Venezuela, 6.160
YV4RC, Caracas, Venzuela, 6.475
YV5RMO, Maracaibo, Venzuela, 5.850
ZFA, St. George, Bermuda (Hamilton), 5.045
ZFB, St. George, Bermuda (Hamilton), 10.060
ZFD, St. George, Bermuda (Hamilton), 10.335
ZFS, Nassau, Bermuda, 4.513
ZHI, Kuala Lampur, Federated Malay States, 5.996
ZGE, Singapore, Federated Malay States, 6.060
ZLT, Wellington, New Zealand, 7.384; 10.990
ZSS, Capetown, Union of Africa, 18.856

company or nerve. But he was too far from his usual health to argue the matter. Jonesy appeared big and husky enough to master three of Ned's size.

"I can put you up for one night," Ned announced. "But the food is plain. The entertainment consists of one radio only."

"Yeh?" Jonesy showed increased interest.

The program had waxed louder, and Ned strolled over to tone it down.

They heard a clear station break: "W9XF, Chicago."

Ned was tuning to his home city's short-wave station, W2XA, when the watchful Jonesy blurted:

"W2? I been in Lakehead. Thought the station was K—"

"W2XA is a short-wave broadcaster," Ned told him.

Jonsey came smoothly to his feet, the lame knee forgotten.

"Short-wave?" he asked. "I've heard of—say, you got a sendin' set, too?" His cold stare swept the tiny table.

"No. I'm just a listener. It's a hobby."

"Check!" The visitor laughed harshly. "Listenin' is the best idea. I remember my aunt was a great listener. Boy, that girlie could hear plenty, radio or no radio. Come to think of it, Auntie musta died a few years before radio started."

Jonesy was oddly serious. Still puzzled, Ned repressed a grin.

He brought the radio market quotations from Lakehead in a bit louder. The prices had no immediate interest for him, but he wanted some covering noise for a discreet study of the party who called himself Jonesy.

"You from Lakehead?" Jonesy asked.

"Yes. My home town. My uncle brought me up here to help me recover from a spot of 'Flu' and—"

"But you're alone now?"

"Yes."

"No telephone?"

"No power line of any sort out here."

"Must be quiet for a young lad," Jonesy grinned.

"That," Ned said hopefully, "is what I need."

But hints never stuck to the big fellow.

"Still, the scenery's grand . . . I'm an artist, y'know," he informed Ned.

"That's interesting, Jonesy. I owe something to art, myself. Indirectly. I'm an author. Rather, I was one."

"No!"

"Fact," Ned chuckled. "I wrote five words."

"That a gag?" There was threat in the visitor's voice.

"Oh, not at all," Ned replied airily. "Better still, I sold the five words for five thousand dollars, then—"

"Five—get out!" Jonesy guffawed his derision. "Five G for five words... *easy*, pal!"

Ned switched off the radio.

"Sounds thick, I know," he assured Jonesy, "only it was in a prize contest. You had to give a title for a cartoon. One of the big soup companies. They have a bit of money, you know, and a contest advertises things with rare speed."

The Bottled Flag

(*Continued from Page* 63)

Ned was telling the truth. But he saw that the other did not credit a word of it. Ned decided to let the topic drop. If Jonesy were actually a mental case, he might become violent if he felt the lad was trying to best him at tall stories.

A better use for the Ned Gage wits, their owner realized, would be the invention of some plan to ease the crude Jonesy into the wide elsewhere. But no scheme promised much, lacking the larger man's co-operation. . . .

"You gotta pair of field glasses?" Jonsey asked.

"Surely." Ned produced them.

"Thanks, pal . . . man, you get a swell outlook down the ol' river, eh?"

"Yeh. Well, I must toddle to the same river for a pail of it."

"I'll go with you," Jonesy said quickly.

"But your sore knee?"

"I can't let it get stiff, Ned. The rest helped a lot."

Shortly before the 5 p.m. newscast, Ned apparently fell asleep in his chair, leaving the radio tuned to W2XA. If there had been any lively doings in crime during the day, W2XA would be airing the news. Slouched in his chair with his back to the window, Ned (while seemingly dead to the world) had a good view of Jonesy. One never knew nowadays what might happen . . . and from time to time, Ned had the elusive impression of having seen Jonesy previously. Or had it been a news photo . . . ?

Unwittingly, Jonesy did his part by leaving the radio tuned to the same station.

Ned felt sure the newscast would never begin. Was his watch slow? Had they altered the broadcasting schedule? Or . . . ?

Then the flash came!

"Well, everybody here is strictly agaga over the latest Talkie Noan job. The smooth lad pulled another perfect bank job . . . and, folks, I mean perfect . . . "

"Talkie" Noan!! Ned all but fell from his chair. Now he remembered! His guest was the lone bank-touching artist, who floated those one-way loans with such rude informality . . . Noan hunched there by the radio, laughing silently at the world. Keeping a wary glance swinging in Ned's direction. The robber bared his teeth in a hideous grimace as the radio crackled . . .)

" . . . loss is reported to exceed fifty thousand . . . how Noan fled the city is the big mystery! The bank 'phoned the police who had the call on the air almost at once. Every road and railway was watched. Yet it's a sure bet that Noan has made a getaway. It is never his custom to hide in town. A reward of three thousand dollars is offered . . . ")

Ned managed one gentle, convincing snore.

He saw Noan (ex-Jonesy) grin complacently. Ned shut his eyes. He had seen plenty! It was high time to concentrate on keeping his breathing regular. On holding his pose of untroubled slumber. It took scant thought to realize that his life depended on this bit of acting!

The newscast dragged to its close. Noan ambled lazily about the rooms. Now and then he laughed softly. Once he came close to Ned and stood quite still for eternal moments. Bad moments for Ned.

Noan went outside. He was gone but a few minutes. On his return, the slamming of the door was Ned's cue. He stirred uneasily, and came "awake" with nicely assumed blank surprise on his face.

"Y'got back, eh, Neddie?" Noan queried. Cheery voice.

"Was I asleep long?" Ned asked.

"Not very. I shut the radio off. It went dull."

Presently Ned consulted his watch.

"I missed the news!" he frowned. "You get it—anything new?"

"Nix . . . I only waited for part of it. When he got all political, I let it ride." The cabin housed two actors.

Parts of the news broadcast flamed vividly before Ned's mental vision: "... roads and railways watched . . ." Sure . . . but not the skyway! And that bank was so near the harbor airport . . . with so few aero cops . . . and really a big sky to patrol.

"Lord, I'm stiff!" Ned growled. "Guess another walk to the O.M. river is in order. Coming?"

"Nah," the bandit declined. Then chuckled: "I'll watch with the field glasses to see you don't fall in, buddy."

"Okay, and thanks." Ned must appear friendly now.

He stumbled a bit, just outside the door, and Noan heard a muttering about, 'Taking these old cans and bottles to the drink right now, 'fore I break my neck on 'em . . ."

At the river's edge, Ned fiddled idly over the dumping of the empties. He kept his back to the cabin. His mind was hitting on all sixteen.

He did not have much trouble getting the note into a bottle, and away toward the village. But growing doubts chilled him. Would anyone find it? There was about a half hour of daylight left . . . what was the river's speed?

Grimly he pleaded: "Step on it, Ol' Man River! Bring cops!"

"Welcome home, Duke!" was Noan's greeting as Ned returned . . .

Ned prepared a swell feed, so the guest declared. It tasted like warmed-over sawdust to Ned.

(If someone *did* get his note to the telegraph office, say within the hour... a police sedan from the city should reach Fayville in—hmmm—ninety-odd miles. Hour and a quarter? Night driving . . . then the bumpy sand road between Fayville and the cabin.)

(*Continued on Page* 94)

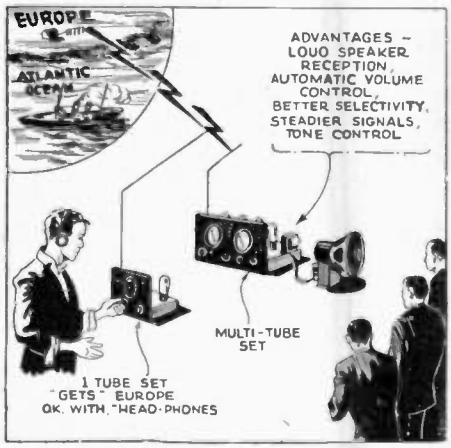
THE LISTENER

ADVANTAGES OF MULTI-TUBE RECEIVERS

Frank Jameson, Rochester, N. Y.

(Q) Is it necessary to use a 5 to 10 tube receiver in order to really "enjoy" short wave reception?

(A) As stated previously, a one tube receiver will bring in (on phones) nearly



Comparing large and small receivers.

all of the distant short-wave broadcast stations. However, when we get into the 5 and 10 tube class of receivers, we are able to enjoy the programs to a much greater degree, in that it is possible to incorporate automatic volume control, which will tend to compensate for the fading conditions present with many short-wave stations and hold them at a nearly constant volume level. We also have sufficient amplification to afford really comfortable speaker volume that can be compared with that obtained in the regular broadcast band (200 to 550 meters). In these multi-tube sets we also have "tone control" which tends to minimize the harsh scraping noises, and hiss when adjusted to give a deeper tone. Then, too, we have increased selectivity, which means that in the bands which are extremely crowded, such as the 49 meter band, you can separate all of the stations and not expect interference caused by stations operating on adjacent frequencies.

A GOOD GROUND

Paul F. Watson, Brooklyn, New York.

(Q) What constitutes a really good ground? Many of my friends have suggested many different arrangements.

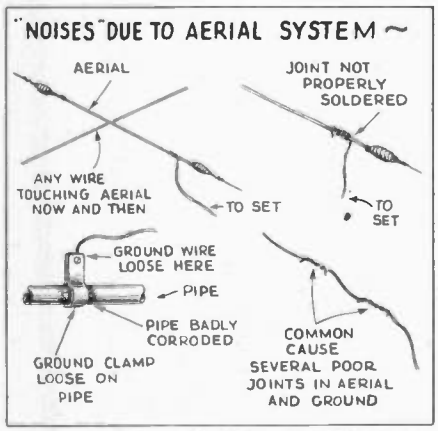
(A) Undoubtedly, the most convenient and the surest ground connection is one going to a cold-water pipe, although many other good grounds can be obtained by different methods, such as driving a long pipe into moist ground or burying a wire or some other metal object and making a connection to it. In another section of this magazine, you will find grounds described in detail, and we believe you will surely benefit by reading it.

LOOSE AERIALS AFFECT RECEPTION

Peter Jerome, Boston, Mass.

(Q) I have been a Short-Wave Listener for quite some time and have always had excellent results, but recently I have had considerable trouble in holding short-wave stations. They seem to skip a division or two on the dial and when the station moves I have to re-tune the set. I also notice a lot of clicking noises which seems to be worse when the stations are broken up or shift on the dial. I am using a 2-tube regenerative receiver and would like to have you suggest just what may be the trouble.

(A) If you are sure there are no loose connections in your receiver, we suggest that you look for a loose connection in your antenna or some other wires that may be located near the an-



Where noises in short-wave receivers may originate.

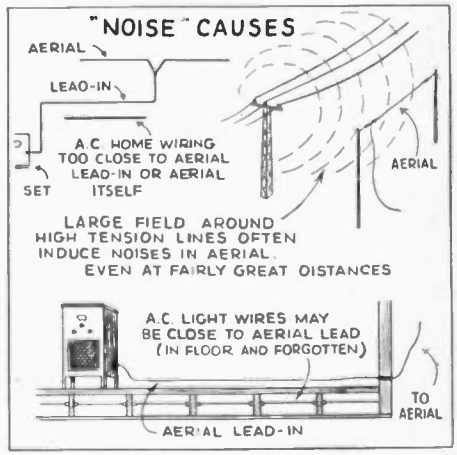
tenna and which have loose connections or are touching your aerial wire. This has been the cause of much trouble with receivers similar to the one you are using, and in most cases can be traced to loose connections somewhere either in near-by wiring or wires directly connected with the receiver.

DISTURBING HUM

Anthony Towsky, Chicago, Ill.

(Q) In a small receiver that I have just bought, I am troubled with quite a loud hum which is continuous and interferes with snort-wave reception especially on weak signals. This is called an AC-DC set.

(A) The num you mention is characteristic of nearly all AC-DC receivers, and there is really no way you can overcome it entirely. This is usually due to the construction of the receiver which is necessary when the AC-DC circuit is used. You may be having excessive hum due to the aerial wire being close



Causes of A.C. hum in short-wave sets.

to the A.C. house wiring. This can cause an increase in hum in AC-DC regenerative receivers. We suggest that you make sure that your aerial lead-in doesn't run parallel to any of the house wiring.

SIGNALS FADE

Joseph Slade, Houston, Texas.

(Q) I have recently become interested in short waves and have purchased a fairly good short-wave receiver, and I am having considerable difficulty in holding the short-wave stations. It seems that there is a rapid fading on nearly all of the stations I have heard, and would like to know if there is any method of overcoming this condition.

(A) That is one of the many obstacles which make short waves interesting. This fading condition you speak of is undoubtedly not due to the receiver which you are using, as most of the short-wave stations picked up in this country fade at some time or other. However, we have listened to programs from Germany and England which have been extremely steady for periods as long as an hour, but the majority of times we listened to the short-wave programs, there has been this more or less serious fading which you mentioned. This can be overcome somewhat by the use of a receiver having automatic volume control. However, in most cases when a station fades, serious distortion takes place, and even though a signal is brought back to normal volume, due

ASKS

Only questions of general "Listener" interest will be answered here. No queries can be answered by mail. No diagrams of a technical or involved nature will be given here—only those which the Editors feel will be of value to the average "Short-Wave Listener."

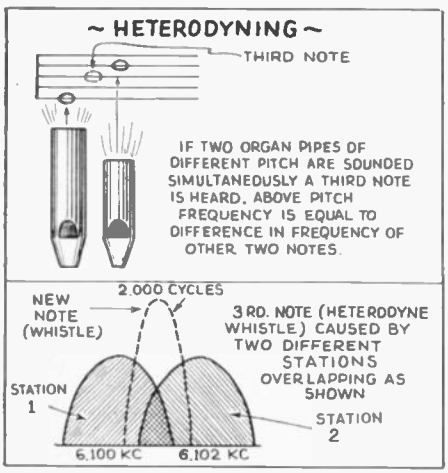
to the "AVC" (Automatic Volume Control) action of the receiver, it is so distorted that it may just as well have faded out. So far, we know of no method by which this fading condition can be absolutely overcome, and it will probably be quite a time before the engineers have worked out a successful method for the home receiver.

WHISTLE ON SOME STATIONS

Janette Stanley, Palo Alto, Calif.

(Q) On many of the short-wave stations I have listened to, I hear a continuous whistling sound and would like to know if this is caused by near-by radio stations or code interference.

(A) Undoubtedly, the whistling sound that you have reference to exists mostly in the 49-meter short-wave broadcast band. This is due to the fact that there are more stations operating in this very narrow band than there is really room for, and when two stations are very close together a *beat* note is caused by one station heterodyning with the other. This whistling sound is the *third* sound and comes about when two inaudible tones are very close in frequency. The audible tone has a frequency equal to the difference in frequency between the two inaudible sounds. We have often wondered why the parties concerned with the passing of international laws do not make provisions for widening this 49-meter band, so that listeners can enjoy programs.



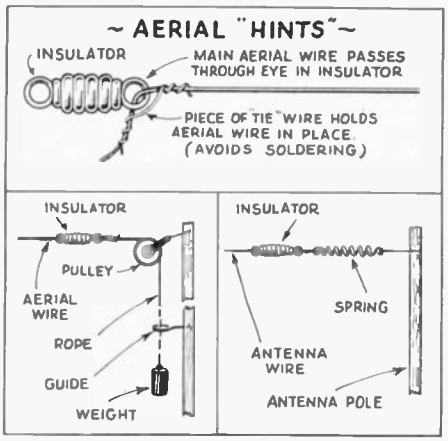
Graphic illustration of interference on the 49 meter band.

AERIAL CONSTRUCTION

Manuel Vico, Manchester, N. H.

(Q) What are the most important considerations in the construction of short-wave antennas or aerials?

(A) There are several very important considerations in the construction of short-wave aerials, and probably the most important is that the antenna should be located out in the clear and away from all surrounding objects, such as trees, buildings, metal roofs, or near-by lighting-wires and power-lines. Then, all connections should be thoroughly soldered, and if possible, connections should be avoided entirely by making the wire all one piece. Either stranded or solid wire can be used, and it can be either the bare or enamelled variety, although many radio experts claim there is no advantage in the enamelled type. Good insulators should be used



Important considerations in antenna construction.

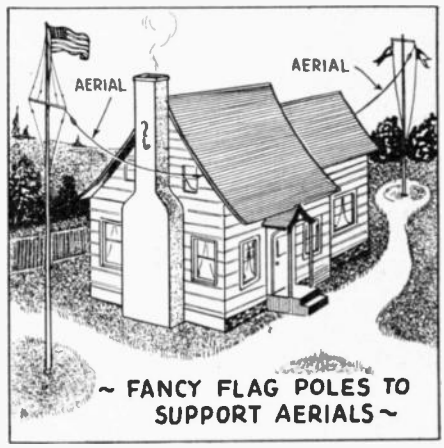
and where small ones are used two or three should be connected in series. Also, the antenna should not be hung from a metal mast or, if this is impossible, the space between the end of the antenna and the mast should be at least ten or twelve feet.

SET SQUEALS

Nat Applebaum, Bronx, N. Y.

(Q) I built a short-wave receiver which was described in SHORT WAVE CRAFT, and I am having trouble with the squeal on all short-wave stations. Being a newcomer to the Short-Wave Fan Fraternity, I am unable to account for this trouble. Would you kindly tell me whether it is characteristic of the receiver, or something that I have done incorrectly.

(A) Undoubtedly the receiver you built was of the regenerative type, and if the regenerator control is advanced far enough a squeal will be heard on all stations. However, when a station has been located the regeneration control should be *backed off* far enough to eliminate the squeal or whistle and allow the speech or music to come through clearly.



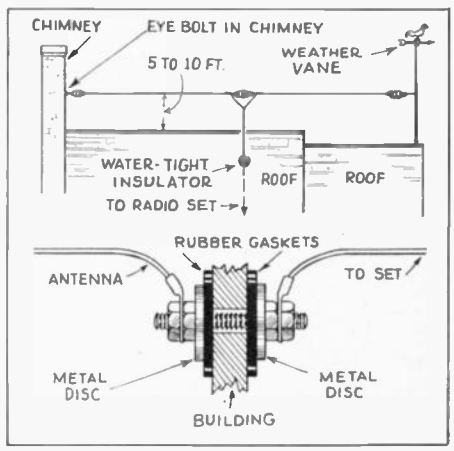
Suggestion for antenna erection.

BUILT-IN ANTENNA

R. P. Edwards, Philadelphia, Pa.

(Q) I am building a new home and would like to know if there are any provisions which you think I should make in order to facilitate reception of short-wave programs or television *when* it becomes practical. I have heard considerable mention of built-in aerials, and I am wondering if this is not a good idea.

(A) We have never seen a really good *built-in aerial.* There is no question that an outside antenna is absolutely the best, and we can see no reason why you should attempt to wire any special type of antenna into the construction of your new home, although we might suggest that while you have the workmen on the job, you have them put up at least one, and preferably two, fairly high poles or masts (wood, not metal), so that you can erect one of the modern-type antennas.



Further suggestions for erecting a good short-wave aerial. A "doublet" requires 2 insulated studs.

The Bottled Flag

(*Continued from Page* 91)

"Could you do me the favor of leaving the radio quiet tonight, pal?" Noan asked. It was more of a command. "I've got the step-mamma of all headaches . . . "

"Sure thing," Ned was agreeable. Noan didn't suspect . . .

It wasn't quite two hours later when Hobo uttered mild warning. Noan missed it. But Ned's straining ears also heard.

He worked up an explosive cough, and stepped outside.

The officers took Noan with astounding lack of gunfire.

A referee would have adjuged that there were too many officers. That it was an advantage when they stole in with no shoes on the leaders' feet. Also that it was amusing the way they discovered Noan with both hands in his trouser pockets.

The utter success of that surprise seemed to shame Noan more than the loss of his banknote plunder.

"Not your doin'?" he demand weakly of Ned.

"Don't mention it," Ned grinned. "You really made only two errors. First: thinking a short wave listener ever sleeps during a newscast. Second: not joining me in the second stroll to the river."

Ned had forgotten the reward, until, as they counted the recaptured money, the officers mentioned it.

"Three thousand dollars," Ned said thoughtfully. "For that note of—well, 'Jonesy,' it seems I've been an author twice. Only me rate slumped to a mere two hundred bucks per word on my second story. I'll retire again, awaiting new inspiration."

"But how," demanded a burly officer of Ned, "did you get anyone to spy that one floating bottle so soon? Granted that you knew the village kids played at the narrows each evening."

"I made sure that the bottle label was loose enough," Ned related, "to drop off before it hit town, yet not apt to go before it was out of view of Noan and the field glasses. Then, I wrapped the message in one of my last paper dollars. That's a ticket that gives any tub the All-Clear flag. Right of way, and fast delivery."

For some reason, Jonesy-Noan (limited and restricted) was not living up to his "Talkie" nickname.

9 Meter Police Calls

(*Continued from Page* 77)

the police telephone switchboard and in another the police teletype machines. The third room located between these two is the radio room from which the police dispatcher broadcasts alarms to the motor patrol.

The radio room contains a microphone and amplifiers as well as maps of the city giving the position of every police car. A fire alarm indicator is also in this room. The dispatcher controls the entire radio system from this room by push-button control.

About 25 police cars are equipped with receiving sets, the total planned being 40. The plan also calls for receiving sets in headquarters, precinct stations and the homes of a number of police and other city officials. A number of Fire Department official cars will likewise be equipped.

The receiving sets are of the 6-tube superheterodyne type. They are 6 by 10 inches in size, including the loudspeaker. Their operation is simple, involving only two controls, both located on the receiving set. *Photos courtesy Western Electric Co.*

Thrills on the S-W's.

(*Continued from Page* 55)

the operators and announcers at the American and German short-wave stations started "talking shop." As the writer happened to know several of the announcers, it was an enjoyable thrill to hear introductions being made "over the air" and many pleasantries being exchanged as well as reminiscences of his last trip to this country by one of the German announcers.

When the giant U. S. Naval airship, the *Akron*, crashed out over the Atlantic her last message was flashed on short waves and was picked up by an amateur operator! If you can imagine anything more thrilling than hearing the farewell message from the gallant officers and crew of a doomed airship, it is inconceivable.

"Spot News" Reporting

(*Continued From Page* 57)

Mobile short-wave unit extensively used in picking up "spot news" by the National Broadcasting Company. One of the outstanding events in which this car proved its worth many times over, was in the broadcasting of the personal experiences of the survivors from the ill-fated "Morro Castle"

Another important role for the short-wave portable transmitter of small size was recently displayed during the famous stratosphere balloon flights.

How "NBC" Broadcasts on Short Waves

(*Continued from Page* 70)

cilities, in order that the tremendous new audience in the making may enjoy the highest type of service.

W 9 X F

W9XF near Chicago operates on 6100 kilocycles with approximately 10,000 watt power. The antenna for W9XF is mounted on wooden poles several hundred feet from the transmitter building, which also houses WENR of the National Broadcasting Company. W9XF transmits network programs of the NBC during daylight hours. The water-cooled power amplifiers in this transmitter are modulated by a bank of water-cooled modulator tubes, giving full high-fidelity modulation.

WHY I COULDN'T DO WITHOUT SHORT WAVES

(*Continued from Page* 58)

Save the King," I am always reminded of the nearness of our relationship, realizing the refrain is the same as our National Anthem. Listening to the announcer with the decided English accent say, "This is London calling", never fails to bring a smile to my face. It is interesting as well as instructive to listen to the Lima, Peru, station talk about their coming exposition. We must always bear in mind that it is not necessary to be able to speak their language to understand the music of a foreign station as music is the universal language. And then too, I must not forget the Eastern U.S. stations, as there are many programs originating in the East that never reach the Pacific Coast, and it is only by means of short-wave that we are able to get these broadcasts. An example of this is the Will Rogers Program. He happens to be my favorite comedian, yet if it were not for W8XK, W2XAF and others, I couldn't enjoy his humor and philosophy. To me, listening in on the Byrd Broadcasts direct from Little America was many more times enjoyable than listening to it over the chain network.

Listening to Miss Earhart Flying the Pacific

One of my biggest radio thrills happened just recently, when a news broadcast announced that Amelia Earhart had taken off from Hawaii on her flight to California. I explored the short-wave channels and my patience was rewarded by hearing her say that "everything is all right." Needless to say, the thrill was something that will never be forgotten because I realized the event was *history in the making!*

The amateur operators have always fascinated me—their numerous conversations, in a language all their own, in voice and code. Being a curious person, I determined to learn the code, that I might know what they were saying. It was no time at all before I not only understood their language, but could speak it myself. How pleased I was! I thought I had been hearing interesting things, but *here was an amateur in Southern California directing aid to a snowbound, isolated camp in the Canadian Wilds!* And later, during the Earthquake disaster, they were sending messages by the score to anxious loved ones in the East!

It was a month later that I took the examination to become a Government Licensed Operator of my own station. I passed, and with the aid of my husband, put my first station on the air two years ago.

CREDIT FOR IDENTIFYING "SIGS."

Through an oversight we forgot to mention in the last issue of the OFFICIAL SHORT WAVE LISTENER that credit was due the New York Sun for the list of foreign station identifying signals which appeared on page 33.—Editor.

SHORT WAVE FICTION WANTED

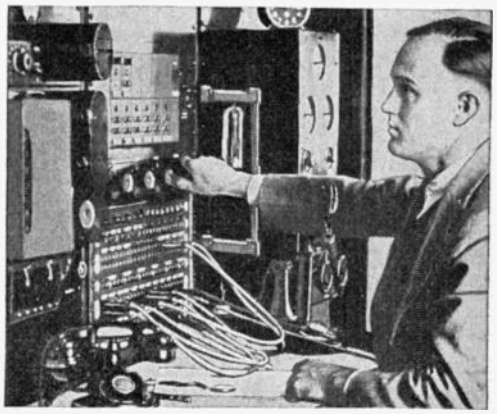
The editors are looking for good short-wave fiction stories and all such stories accepted and published will be paid for at regular rates. Read the fiction stories appearing in this and the last number, which will give you an idea of what the editors are after.

I WILL TRAIN YOU AT HOME IN SPARE TIME FOR A GOOD RADIO JOB!

J. E. SMITH, Pres.
National Radio Institute

FREE BOOK TELLS HOW MAIL COUPON

Act today for better pay. Act today to break away from a low pay, no-future job. Act to get away from having to skimp, scrape to pay your bills. Mail coupon for my free 64-page book. It tells you how I will train you at home in your spare time to be a Radio Expert; about my training that has doubled and tripled the pay of many.



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Hold your job. No need to leave home and spend a lot of money to be a Radio Expert. I'll train you quickly and inexpensively right at home in your spare time. You don't need a high school or college education. Many of my successful graduates didn't finish grade school. My practical 50-50 method of training—half with lessons, half with Radio equipment—gives you broad practical experience—makes learning at home easy, fascinating, practical and rapid. There is opportunity for you in Radio. Old jobs are becoming more complicated—many need better trained men. New developments are making new jobs. Short waves, loud speaker systems, police Radio, auto Radio, aviation Radio, television—Radio's newest uses are covered by my training. Here's a field that's growing. It is where you find growth that you find opportunity.

Many Rodio Experts moke $40, $60, $75, a Week

Consider these facts—think of the good jobs they stand for. Over 17,000,000 Radio sets in use, over 600 broadcasting stations, over 40 large manufacturers of Radio sets, over 3,000 manufacturers of parts, over 100 Police Departments Radio equipped, airplanes and airports Radio equipped. Thousands of ships touching every seaport of the world are Radio equipped. Over 35,000 stores selling sets and parts, about 2,000,000 autos Radio equipped and about 20,000,000 unequipped. Loud speaker systems wherever people gather, indoors and outdoors. Commercial Radio stations dotting our coast lines. Radio a big industry—is growing bigger fast. A few hundred $40, $60, $75 a week jobs, have grown to thousands.

Get ready now for Jobs like these

A spare time or full time service shop; installing, maintaining, operating—broadcast, aviation, commercial, ship, television and police stations. A Radio retail business of your own. Installing, maintaining, servicing, loud speaker systems. A service or sales job with a store or jobber. I'll train you for good jobs in every branch of Radio.

Many moke $5, $10, $15 a week extra in Spare Time While Learning

Every neighborhood can use a good part time serviceman. I'll start giving you special instruction material, plans, ideas, the day you enroll, for making money in spare time. Get my book—read how many of my students make $200 to $1,000 in their spare time while learning. Stanley Tulk, 2705 Hector Street, Montreal, Canada, writes—"I have been doing so much service work I haven't had time to study. In two months, I made about $200 in spare time." Lloyd V. Sternberg, 217 Fourth Avenue, Willmar, Minn., tells me—"I earned enough in spare time to pay for my Course. In one month I earned $125 in spare time." Yes, my training pays!

Your money back if not satisfied

I'll make this agreement with you. If you are not entirely satisfied with my Lesson and Instruction service when you finish, I'll refund your tuition.

Find out what Radio Offers

Mail the coupon. My book of information on Radio's spare time and full time opportunities is free to any ambitious fellow over 15. Read what Radio offers you. Read about the training I offer you. Read letters from graduates—what they are doing and making. There's no obligation. Mail coupon in an envelope or paste it on a postal card—NOW.

J. E. SMITH, President
National Rodio Institute, Dept. 5EH1
Washington, D. C.

HERE'S PROOF

Good Position Station WSMK

"I have a good job, make a nice salary, and all my success is due to N.R.I. I am operator of Station WSMK. I highly recommend the N.R.I. Course. It enabled me to pass the Government examination for an operator's license." JOHN HAJDUK, Jr., 21 Gerard Avenue, Southern Hills, Dayton, Ohio.

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"I have been getting along fine. I average ten calls a week, which nets me about $50, not counting profits on sales. I have serviced almost every make of set and have earned more than I ever expected. I owe my success to the N.R.I. and its wonderful Course." BERNARD COSTA, 150 Franklin St., Brooklyn, N. Y.

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I have doubled and tripled the salaries of many

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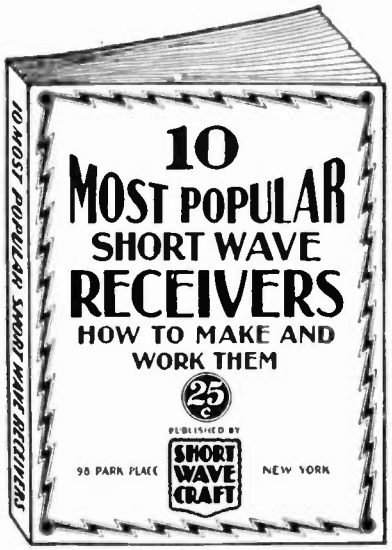
Ten Most Popular Short Wave Receivers. How to Make and Work Them



This new volume is a revelation to those who wish to build their own short wave receivers. The editors of SHORT WAVE CRAFT have selected ten outstanding short wave receivers and these are described in the new volume. Each receiver is fully illustrated with a complete layout, pictorial representation, photographs of the set complete, hookup and all worthwhile specifications. Everything from the simplest one tube set to a 5-tube T. R. F. receiver is presented. Complete lists of parts are given to make each set complete. You are shown how to operate the receiver to its maximum efficiency.

CONTENTS

40 PAGES
OVER 75 ILLUSTRATIONS

25c

IMPORTANT

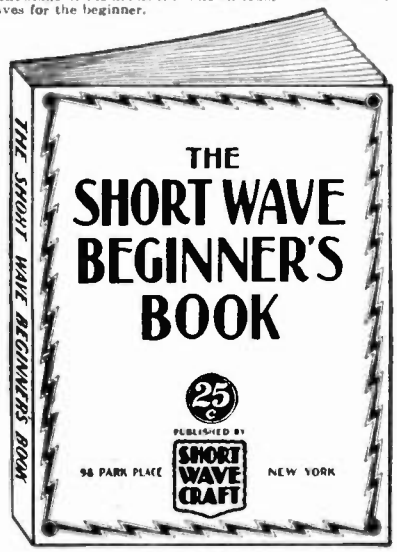
THERE IS NO DUPLICATION BETWEEN THIS BOOK AND OUR OTHER VOLUME—"HOW TO BUILD AND OPERATE SHORT WAVE RECEIVERS." ALL THE MATERIAL PUBLISHED IN THE NEW BOOK HAS NEVER APPEARED IN ANY BOOK BEFORE.

The Short Wave Beginner's Book

Here is a book that will solve your short wave problems—leading you in easy stages from the simplest fundamentals to the present stage of the art as it is known today. It is the only low-priced reference book on short waves for the beginner.

The book is profusely illustrated with all sorts of photos, explanations and everything worth while knowing about short waves—the book is not "technical." It has no mathematics, no "high-faluting" language and no technical jargon. You are shown how to interpret a diagram and a few simple sets are also given to show you how to go about it in making them.

It abounds with many illustrations, photographs, simple charts, hookups, etc., all in simple language. It also gives you a tremendous amount of very important information which you usually do not find in other books, such as time conversion tables, all about aerials, noise elimination, how to get verification cards from foreign stations, all about radio tubes, data on coil winding and dozens of other subjects.



Partial List of Contents

40 PAGES
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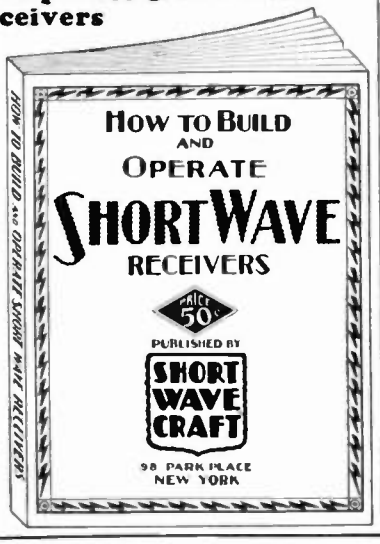
How to Build and Operate Short Wave Receivers

is the best and most up-to-date book on the subject. It is edited and prepared by the editors of SHORT WAVE CRAFT, and contains a wealth of material on the building and operation, not only of typical short-wave receivers, but short-wave converters as well. Dozens of short-wave sets are found in this book, which contains hundreds of illustrations; actual photographs of sets built, hookups and diagrams galore.

The book comes with a heavy colored cover, and is printed throughout on first-class paper. No expense has been spared to make this the outstanding volume of its kind. The book measures 7½x10 inches.

This book is sold only at such a ridiculously low price because it is our aim to put this valuable work into the hands of every short-wave enthusiast.

We know that if you are at all interested in short waves you will not wish to do without this book. It is a most important and timely radio publication.



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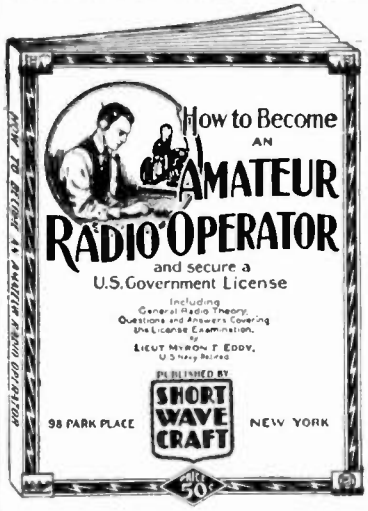
How to Become an Amateur Radio Operator



We chose Lieut. Myron F. Eddy to write this book because his long years of experience in the amateur field have made him pre-eminent in this line. For many years he was instructor of radio telegraphy at the R.C.A. Institute. He is a member of the I.R.E. (Institute of Radio Engineers), also the Veteran Wireless Operators' Association.

If you intend to become a licensed code operator, if you wish to take up phone work eventually, if you wish to prepare yourself for this important subject—this is the book you must get.

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