Radio

SHORT WAVE LISTENING

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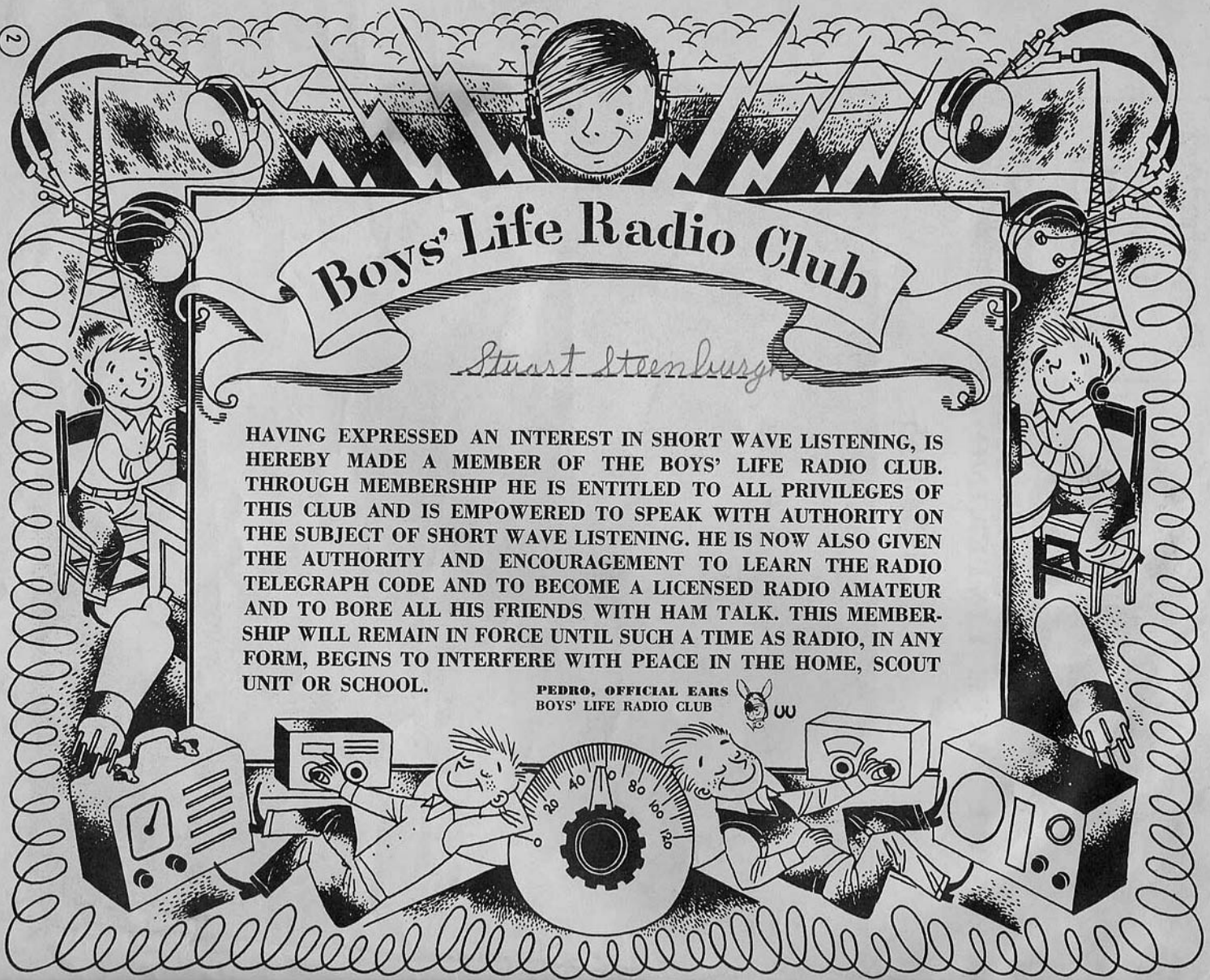


Boys' Life Radio Club

Stuart Steenburgh

HAVING EXPRESSED AN INTEREST IN SHORT WAVE LISTENING, IS HEREBY MADE A MEMBER OF THE BOYS' LIFE RADIO CLUB. THROUGH MEMBERSHIP HE IS ENTITLED TO ALL PRIVILEGES OF THIS CLUB AND IS EMPOWERED TO SPEAK WITH AUTHORITY ON THE SUBJECT OF SHORT WAVE LISTENING. HE IS NOW ALSO GIVEN THE AUTHORITY AND ENCOURAGEMENT TO LEARN THE RADIO TELEGRAPH CODE AND TO BECOME A LICENSED RADIO AMATEUR AND TO BORE ALL HIS FRIENDS WITH HAM TALK. THIS MEMBERSHIP WILL REMAIN IN FORCE UNTIL SUCH A TIME AS RADIO, IN ANY FORM, BEGINS TO INTERFERE WITH PEACE IN THE HOME, SCOUT UNIT OR SCHOOL.

PEDRO, OFFICIAL EARS
BOYS' LIFE RADIO CLUB

This certificate must be signed on the dotted line to be official.

The World at Your Fingertips

By Ken Boord

THE deep tones of Big Ben striking the hour in London . . . the bells of St. Peter's at the Vatican . . . soft chirps of a mechanical nightingale from fabled Baghdad . . . weird Arabic chanting from Egypt . . . or the haunting call of the Kookaburra bird of Australia . . . all this and more . . . the whole world is at your fingertips through the magic of short-wave radio.

It's not only fun, but it's easy, too! With practice and patience—under normal conditions—it's no trick at all to listen to all continents in a single evening—at times within only a few minutes!

HOW TO BEGIN

Did I say it's easy? Yes. All you need is a short-wave radio receiver, a simple aerial, a knowledge of where and when to listen . . . plus patience and stick-to-itiveness.

Any type of receiver that will tune to the short-wave bands will do—such as an all-wave broadcast receiver, a home-built short-wave set, or a low-priced communications type of receiver. Take a look at the family radio in the living room. A surprise may be in store for you! It may include the popular short-wave bands. If not, perhaps there's an amateur (ham) radio operator in your neighborhood who will help you build a simple short-wave set. One can be put together for a small sum.

From the results of SWL's (short-wave listeners) whom I know, more interest is needed than investment! For instance, a friend of mine in Brooklyn, New York, has brought in real DX from all corners of the globe on a 6-tube, 15-year-old PHILCO table set, even though he's located in a noisy reception area. He has verified such countries as Mozambique, Thailand (Siam), Indochina, Hong-Kong, and the Fiji Islands.

Across the continent, a few years ago, a 16-year-old youngster had exceptional success with 2- and 3-tube regenerative home-made receivers. With such equipment, he logged 105 countries on the short-wave broadcast and amateur bands; he picked up such short-wave outlets as Hong-Kong, Pakistan, Malaya, Burma, South Africa, the Anglo-Egyptian Sudan, Indonesia (USI), and Turkey. (One of his receivers used a 77 electron-coupled regen-detector, and a 6F7 cascade two-stage audio; the rectifier was an 80 supplying about 250-300 volts at 40 ma. He valued this receiver at $25—although it actually cost him only $8 in cash since he already had quite a few of the parts needed.)

YOUR EQUIPMENT

My advice to you is this:

Get the best equipment you can afford.

As for the aerial, your location and the space you have may make the difference—so a good idea is to experiment a little. An outside wire, as high as possible and clear of all obstructions, is desirable. However, if erection of such an aerial presents difficulties, try dropping one end of piece of *insulated* wire out the nearest window and attaching the other end to the antenna terminal (marked "A" on most sets) of your receiver.

For best reception, most experienced SWL's prefer the ordinary straightwire (sometimes called the inverted "L" or Marconi). Thirty to 100 feet in length seems to give excellent results on most bands. Carefully solder all connections. A lightning arrestor to protect your receiver is important. Whether or not to use a ground wire you can determine best by trying one out.

VARIETY OFFERED

Most SWL's listen on the SWBC (short-wave broadcast) bands or the ham bands—or both. However, there are many other "specialties" to listen to — such as code (CW); commercial phones (international telephone and point-to-point communications — standard or inverted speech); shipping and coastal radio; police, fire, and other local government agencies; plane and ground communications; weather station reports and contacts; special expeditions, and so on. Too, there's "freak" reception — such as VHF (very high frequency) skip of 30- to 50-mcs. (megacycles), taxicab, telephone relay, and others. And some SWL's like to listen for DX "the long way around"—which is another form of "freak" reception and normally seldom heard.

WHERE TO LISTEN

You'll find that the short-wave portions of the dial on your receiver are marked off in megacycles (mcs); a megacycle is 1000 kilocycles. Short-wave radio transmitters include land communications stations, maritime stations, aeronautical stations, amateur stations, and broadcasting stations. Of these, the broadcasting and amateur stations are of the most interest to SWL's. By international agreement, each type of station is assigned certain bands for operations.

The short-wave broadcasting stations operate chiefly in these megacycle (mc.) bands: 5.95 to 6.20 mcs.; 7.10 to 7.30 mcs.; 9.50 to 9.80 mcs.; 11.70 to 12.00 mcs.; 15.10 to 15.45 mcs.; 17.70 to 17.90 mcs.; 21.45 to 21.75 mcs. Some receivers also indicate these bands in meters (m.)—such as the 49-, 41-, 31-, 25-, 19-, 16-, and 13-meter bands, respectively. Thus *megacycles* refer to *frequency; meters* refer to *wavelength*. To change megacycles to meters, divide the frequency in mcs. into 300. For example, 6.00 mcs. (frequency) divided into 300 gives you 50 meters (wavelength); conversely, 50 meters (wavelength) divided into 300 gives you 6.00 mcs. (frequency).

Many short-wave stations lie outside the principal bands referred to. For example, the 60- and 80-meter bands are used for local (domestic) broadcasting over relatively short distances by many South and Central American stations and by stations in central Africa, Australia, India, and elsewhere.

The property possessed by short-wave radio of spanning great distances with strong signals has encouraged the nations of the world to make wide use of it for broadcasting purposes. For instance, the British Broadcasting Corporation (BBC), the Voice of America (VOA), the Canadian Broadcasting Corporation (CBC), All India Radio (AIR), the Australian Broadcasting Commission (ABC), the Soviet Union, and many of the other larger countries radiate on short-wave. These organizations have extensive short-wave services, in fact, for the benefit of listeners all over the world.

Most of these broadcasters use directional aerials—that is, their broadcasts are directed toward particular areas, and these give names to their various services—such as the European Service, Near Eastern, Middle Eastern, Far Eastern, Pacific, North American, and so on. Language and frequency (or wavelength) used vary according to the areas to which broadcasts are directed.

Some countries — such as Portugal — broadcast in their own language to former residents now living in foreign countries. Norway broadcasts also to its seamen on ships in various parts of the globe.

WAVELENGTH OR FREQUENCY

The wavelength of a station is measured in meters—a meter being approximately 1-1/10 yards. The wave length is the distance in meters between the crests of any two consecutive waves. For every wavelength there is a corresponding frequency, which is the number of complete waves, or cycles, sent out by a station in every second. A kilocycles is 1000 cycles; a megacycle is 1000 kilocycles or 1,000,000 cycles. You are concerned chiefly with megacycles (mcs.).

Most short-wave stations have their own particular identification call-sign, which normally consists of 3 to 5 letters or a combination of letters and figures, of which the first or first two denote the nationality in accordance with the international list of station prefixes. Some short-wave stations use these call-signs when they identify themselves.

WHEN TO LISTEN

Reception conditions on each of the short-wave broadcast bands vary a lot at different times of the day and night and also at different seasons of the year. It's highly important that you learn when to listen on each band.

In general, the best reception on each of these bands during the *autumn and spring months* should be:

The 6 mc. band—Evening for Latin America and Europe

The 7 mc. band—Late afternoon and evening for Europe

(see next page)

The 9 mc. band—Morning (6 to 8 a.m.) for Asia and Australia; afternoon for Europe and Africa; evening for Europe and Latin America

The 11 mc. band—Morning (6 to 9 a.m.) for Asia and Australia; afternoon for Europe and Africa; evening for Latin America

The 15 mc. band—Morning and afternoon for Europe and North America; evening for North and South America

The 17 mc. band—Morning and early afternoon for Europe and North America

The 21 mc. band—Late morning for Europe

During the *winter months*, the best bands for evening reception are lower than during the fall and spring. For instance, the 9 mc. band becomes poor for reception from Europe during the evening hours, and the 6 mc. band becomes the best band for European reception.

In the *summer months*, the best evening reception shifts to the higher bands. Evening reception from Europe becomes good in the 11 mc. band, although the 9 mc. band remains good for reception from that area.

Year-Around DX bands are the 9 mc. and 11 mc. bands, although consideration also must be given to receiving different parts of the world better in summer or winter.

The expected reception just outlined is for normal conditions. The factors which affect long-distance radio transmission vary from day to day. On some days, for instance, reception will be quite good, but at times—generally for periods of several consecutive days—transmission conditions will be "disturbed" and only the more powerful stations can be heard. But don't get discouraged because normal conditions will return after the disturbance has ended, and reception will again be good.

HOW TO TUNE

Another "must" for the SWL is to learn how to tune. You must know what to look for; when to look for it; and, above all, how to recognize it when you do hear it. This is largely a combination of knowledge, skill, and patience.

It's a good idea for the beginner first to familiarize himself with the operation of his receiver on all bands. Then he can decide what he gets the most fun from in his DX hobby and pursue that phase to his utmost enjoyment.

If possible, your receiver should have some method of bandspreading to help you to separate stations in the crowded short-wave bands. It's helpful to select "key" stations from which to cover the different sections of the particular band in use. WWV, the Bureau of Standards station in Washington, D. C.—which operates on such channels as 2.50, 5.00, 10.00, 15.00, and 20.00 mcs.—and any other stations *that do not drift* may be used for this purpose.

Operate your receiver at maximum sensitivity and broadest possible selectivity when "fishing" for a station. Once the station is located, adjust from there for best listening position. Ordinary "home" receivers and other smaller sets must be tuned very slowly and carefully (with volume turned up) or you may pass a weak signal and never realize it was there. (Don't forget there's a wide frequency range covered in each dial division.)

As the slow technique of tuning is mastered, you'll log more and more DX stations. Patience, perseverance, and persistence may be big words, but they are essential to successful SWL-ing.

Always tune carefully for the center—best reception point—of any desired station. Realize the possibility of images and other spurious (illegitimate) signals. Don't be frightened by squeals, whistles, and interference while tuning. For these may lessen greatly or completely disappear, once the signal is centered on the desired station. After the set is centered on the station, the volume and tone controls often can be adjusted to reduce noise and interference. Be prepared for dial calibration's (numbering) being "off"; in some cases, a careful alignment by a qualified serviceman may help, but it's seldom possible to get accurate readings across the entire spectrum (all bands).

In tuning, when interference is present from closely-adjacent stations, always tune in the *opposite* direction from the interfering signal for least QRM (other station interference). For example, if a station you wish to listen to is on 9.50 and another which is interfering with it is on 9.505, adjust the receiver so that reception of the 9.50 is towards 9.495 on the fringe of the 9.50 station's low frequency carrier; this may produce some distortion, but it often helps you to identify the station you're after.

Be sure your receiver is warmed up—15 minutes at least—to get the best results. Give the signal time to build up. You might hit a station just when it has a slow fade (QSB) which, in a little while, might come up to fair listening level. So don't try to hurry!

Be persistent—and in time you'll find it pays well not to overlook any weak signal—it may mean a fine DX catch. You cannot judge on signal strength alone. Perhaps reception may be exceptional that day from a particular area, from a station seldom heard that well—since at times even a station of only 50 or 100 watts power may sound like a 50,000 watter! Incidentally, it takes 1000 watts to make 1 kilowatt (kw.).

WHAT TO LISTEN FOR

The foreign stations which are heard best in the United States, of course, are the high-powered ones which broadcast special programs intended for this area. They use directional antennas beamed toward North America. Here are some of the stations which broadcast programs in English for North America which are heard well. (Times are given in American EST; subtract one hour for CST, two hours for MST, and three hours for PST. While these schedules were correct when compiled, you may find slight changes have been made by now.)

AFRICA — OTC, Leopoldville, **Belgian Congo,** provides excellent reception from the Dark Continent. It can be heard during the evening hours on 9.655 relaying ORU, Brussels, Belgium, "The International Goodwill Station," with programs in French, Spanish, Portuguese, and English; the English session is at 8 to 10 p.m. closedown.

Radio Brazzaville, **French Equatorial Africa,** usually has excellent signals with English news at 5:45 to 6 p.m. on 9.44 and 11.97. Listen for the distinctive interval signal of this one. When the station switches over from one direction to another, a call signal of five different notes is played on a native instrument (Kisanzi), consisting of several vibrating iron bars attached to a wooden box.

ASIA—Radio Ankara, **Turkey,** is the best-heard Asiatic station for listeners in the eastern U.S. Ankara transmits at 6:15 to 7 p.m. daily over TAT, 9.515, opening with typical Turkish music, followed by news of events in Turkey. This broadcast can also be heard in the western states, but the signal strength is less there.

Western listeners will find good Asiatic reception from Radio Japan, Tokyo, **Japan,** at 12 midnight to 1 a.m. (9 to 10 p.m. PST) over JOA6, 15.135, and JOA4, 11.705 (at times may use JOA3, 9.675, instead of 15.135). They also should be able to hear Radio Indonesia from Djarkarta, **Indonesia** (USI) on 9.71 with English around 9:30 to 10:30 a.m. (6:30 to 7:30 a.m. PST). This one sometimes can be heard in the eastern U.S. with English around 6:15 a.m., although it is not beamed to America at that hour. And western SWL's should receive "The Voice of Free China," Taipeh, **Taiwan (Formosa),** in English at 11 p.m. to 12 midnight (8 to 9 p.m. PST over BED6, 11.735, and BED3, 15.235; in summer, this schedule may be 10 p.m. to 1 a.m. (7 to 10 p.m. PST) over BED4, 11.920 and/or 11.735.

AUSTRALIA—Radio Australia transmits from Melbourne (transmitter may be listed at Shepparton), **Australia,** to eastern North America daily over VLC9, 9.615 at 7 to 8:45 a.m., with newscasts at 7:15 and 8:15 a.m. There are broadcasts to western North America at 10 to 11:15 a.m. (7 to 8:15 a.m. PST) on VLC9, 9.615, and at 9:55 to 11:15 p.m. (6:55 to 8:15 p.m. PST) on VLA15, 15.20. This latter transmission usually can be heard well also in the eastern U.S. Radio Australia is one of the most distant stations that can be heard in the United States. A music box plays *Waltzing Matilda* for five minutes preceding transmissions; broadcasts begin with clock chimes and the laugh of the Kookaburra Bird ("Laughing Jackass"). *Waltzing Matilda* in march time often precedes and concludes the newscasts.

EUROPE—You can hear real Swiss yodel music from the Swiss Broadcasting Corporation (SBC), Berne, **Switzerland,** which radiates to eastern North America daily at 8:30 to 10:15 p.m. and to western North America at 10:15 to 11 p.m. (7:15 to 8 p.m. PST) closedown — all over 6.165, 7.21, 9.535, 9.665 (probably best bet), and 11.865. The sessions of typical Swiss music are especially enjoyable. Has a distinctive interval signal played over and over on a Swiss music box for several minutes prior to opening its sessions.

ORU, Brussels, **Belgium,** "The International Goodwill Station," usually is a good signal on 9.767 (in summer on 11.850) evenings to North America; has English at 8 to 10 p.m. closedown. You may find this one in parallel (carrying same program) on 9.705, 9.144, or some other channel. Interval signal is played on a xylophone.

OZF, 9.52, Copenhagen, **Denmark,** is excellent most evenings in the eastern U.S. in its two sessions to North America—at 8:30 to 9:30 p.m. and 10 to 11 p.m.; has English the last half hour of each transmission (except Sunday). At times, can be heard well in the western states. Interval signal is the first movement of *Som en rejselysten Fluade*, composed by Carl Nielsen.

Helsinki, **Finland,** has English news at 6 a.m., 2:30 and 10 p.m. over OIX4, 15.19; OIX2, 9.555, and OIX5, 17.80, are in parallel (carrying same session), but these are difficult to log in America.

Rome, **Italy,** has English news at 7:20 and 9:45 p.m., usually at good level on approximately 9.575 and 11.905; you may find it parallel (carrying same session), on 11.81, 9.78 and/or 15.400. Interval signal is a bird chirping.

Germany has a new Overseas Service (mostly in German, but with English announcements), beamed to North America daily at 8:30 to 11:30 p.m. Signal peaks usually around 9:30 p.m. Frequencies normally in use for this transmission are 7.29 and 6.075, but at times 5.98 and/or 11.975 may be used instead.

Radio Sweden usually can be heard from Stockholm, **Sweden,** with English to eastern North America at 7 a.m. on 11.88 (or 15.155 or 11.705); at 4 to 4:30 p.m. (1 to 1:30 p.m. PST) to western North America over 11.88 or 11.705; at 7:30 to 8 p.m. to eastern North America on 9.535 (or 11.88 or 9.620), and again at 11 to 11:30 p.m. (8 to 8:30 p.m. PST) to western North America over 9.535 (or 11.88 or 11.705). You may have to try more than one channel to locate Stockholm at various seasons of the year because of frequency changes.

Norway beams a program from Oslo to eastern North America weekdays at 8 to 9 p.m. on LLG, 9.61 (at times may use LLH, 9.645, instead) and LKQ, 11.735; it is in Norwegian with announcements also in English; Sunday the schedule is extended at 9 to 9:20 p.m. when the feature "Norway This Week" in English is presented. The same program is beamed weekdays to western North America at 11 p.m. to 12 midnight (8 to 9 p.m. PST), and Sunday is extended for the English session at 12 midnight to 12:20 a.m. Monday EST (9 to 9:20 p.m. Sunday PST).

The "Voice of Spain," Madrid, **Spain,** usually can be heard at good strength on 9.363 (varies slightly at times) in its English sessions for North America at 6 to 6:40 p.m. and 10:05 to 10:45 p.m. Interval signal is a gong and a short tune.

An old standby of SWL's the world around is the BBC, London, **England.** When this was compiled, the BBC was broadcasting its North America Service at 10 to 11:15 a.m., 12 noon to 3 p.m. (Monday to Friday), 3 to 3:45 p.m. (Monday to Saturday) on 15.31; 3:45 to 4:15 p.m. on 15.31 and 11.93. And its General Overseas Service was beamed to North America at 4:15 to 5:15 p.m. on 15.31; 4:15 to 10 p.m. on 11.93; 5:15 to 10 p.m. on 9.825, and 11:30 p.m. to 1:15 a.m. on 9.41.

Hilversum, **Holland,** which boasts one of the world's oldest short-wave stations, can be heard, under favorable conditions, in North America weekdays at 4:30 to 5:25 p.m. on 11.73 (best), 9.59, and 6.025; at 9:30 to 10:10 p.m. on 9.59 and 6.025. Of much interest is "The Happy Station Program," produced and presented in multiple (several) languages, including English, by Edward Startz since the late 1920's, which is aired to North America on Sunday only at 9:30 to 11 p.m. over 9.59 and 6.025.

While most broadcasts from the **Soviet Union (USSR)**—as well as from its satellite countries—are concerned largely with Communist propaganda, and must be "taken with large grains of salt," good musical sessions also are provided by these outlets.

Moscow uses many frequencies in several of the short-wave bands for its English

broadcasts to North America daily at 6 p.m. to 1 a.m. Try 7.24, 9.48, 9.59, 9.67, 11.71, 11.74, 15.11, or 15.23. At the beginning of each session, Radio Moscow gives a list of its frequencies in use at the time. Since many of the satellite countries (such as Bulgaria, Czechoslovakia, Hungary, and Poland) relay Radio Moscow, the fact that "Radio Moscow" is announced does not mean that the transmitter to which you are listening is actually located in Russia. Several of the transmitters which carry Radio Moscow broadcasts are located in Siberia or other parts of the Soviet Union—far removed from Moscow itself.

Radio Sofia, 9.70, **Bulgaria**, can be heard with English at 6 to 6:15 p.m., 7:35 to 7:45 p.m. (weekdays only), and 8 to 8:30 p.m. Much of the remainder of the evening, Sofia takes relays from Radio Moscow of English sessions to North America. At certain seasons of the year, Sofia may use 15.33 instead of 9.70. Opens with a Bulgarian march.

Prague, 9.55 (at times may use 9.504 instead), **Czechoslovakia**, can be heard with its own program around 7:30 to 8 p.m. and 11 to 11:30 p.m.; other evening hours it, too, often relays Radio Moscow. Announces, "Prague calling—this is the Voice of Peace from Czechoslovakia." At times, uses 11.760 in parallel.

Radio Budapest, **Hungary**, uses 7.22, 9.833, and 11.91 in summer and 6.247, 7.22, and 9.833 in winter for its English broadcasts to North America evenings; has its own sessions around 5:15 to 6 p.m., 7:30 to 8:30 p.m. and 11 to 11:30 p.m.; at other hours, often relays Moscow.

Radio Warsaw, **Poland**, broadcasts in English to North America evenings on 9.57, 11.74, and other channels. Part of the time Warsaw takes relays from Radio Moscow. Try Warsaw on 11.74 at 5:15 to 6 p.m. when it has English for North America; also at 7:45 to 8:15 p.m. on 11.815 (and probably also on 9.57 and 11.74); at 11:15 to 11:45 p.m. and 12:30 to 1 a.m. on 6.025. Also mornings at 6 to 6:30 a.m. and 7:15 to 7:45 a.m. on 9.57 (or 11.74). Changes frequencies often, so you may have to try one or more channels before you locate Warsaw. Interval signal in Warsaw's Overseas Service is the *Revolutionary Etude* by Chopin.

LATIN AMERICA—"Brazil Calling" is a delightful program from South America—transmitted over ZYK3, 9.565, Recife, Pernambuco, **Brazil**, daily except Sunday at 8:05 to 8:30 p.m. The program includes lively Brazilian rumba music, and talks in English about Brazil. On Sundays this program is aired at 4:30 p.m.

The missionary broadcaster, HCJB, "The Voice of the Andes," at Quito, **Ecuador**, can be heard well most of the day and night with religious broadcasts. English to North America is at 9 p.m. to 12 midnight on 9.745, 11.915, and 15.115 (and at 11 p.m. to 12 midnight also on 6.05); English to North and South America is at 6:30 to 7:30 a.m. on 9.745, 11.915. HCJB is not on the air Monday.

Another interesting missionary station is TGNA, Guatemala City, **Guatemala**, with English on 11.85 (sometimes uses 9.668 in parallel) daily at 10 to 11:45 p.m. Has mailbag session Wednesday around 11:15 p.m. Slogan of this one is in keeping with its call-sign: "Telling the Good News Abroad."

WHAT IS DX?

The answer to the question "What is DX?" is almost as varied as there are DX enthusiasts! Here are some typical examples from experienced SWL's to whom I put this question:

"To me, any low-powered station that I cannot hear any night or day is a DX station; that type of station must have favorable reception conditions to be heard. *Choice* DX stations are those elusive, low-powered jobs half around the world that I never can quite seem to tune in!"

"It depends on the type of receiver, antenna, distance, power of the station, time of day, season, frequency, and so on. 'Super-DX' is long-distance, low-powered reception, or on a channel not favorable for long-distance reception at the time heard—rather a 'miracle!' "

"I feel that any station more than 3,000 miles distant is DX, regardless of frequency or power, and there's no doubt that a relatively low-powered station considerably closer also legitimately can be considered as DX."

"DX is anything of interest to the particular listener. Personally, it's any station that means a new country for my log or any station heard in a rare country. *For the beginner, almost anything would be DX.*"

IDENTIFICATION

Most short-wave stations now use English at least part of the time—especially for identification purposes. The best source for identification aids is the *World Radio Handbook*, which is available for $1.50, postpaid, direct from World Radio Publications, 47 Mounthaven Drive, Livingston, N. J. It lists announcements (by languages) used by a station, opening and signature tunes, interval signals, slogans, and so on.

The language alone is not conclusive proof of the origin of a broadcast which you may pick up. For instance, hearing a program in French or Spanish does not necessarily mean that it is transmitted by a French or Spanish station. Many short-wave organizations use multiple (several) languages, and many short-wave transmitters take relays from other stations. To make sure that you identify a station correctly, it is essential to wait for the announcement which most stations give at regular intervals (especially on the hour). If you can't wait that long one day, you'd better try it again next day. Of course, the more languages with which you are familiar, the easier the identification of the senders. More and more, you'll find stations are adding English, particularly for identification purposes.

If you know the equivalent of the word "calling" in several languages, you usually will be able to spot the location of the broadcaster—such as *Huna* Omdurman (the Anglo-Egyptian Sudan); *Ici* Paris (France); *Goverit* Moskva (Moscow, USSR); *Hona* el Kahera (Cairo, Egypt); *Aqui* Radio (Andorra); *Govori* Sofia (Bulgaria); *Edho* Athinai (Athens, Greece); *Utvarp* Reykjavik (Iceland), and so on.

Listen carefully to foreign languages for their chief characteristics; then pick out repeated words and phrases. Analyze station announcements. It's a good idea to listen to some stations—schedules of which are known, and which broadcast in various languages (such as the BBC or Voice of America)—to learn how to recognize the sound of one tongue from another—such as Spanish and Portuguese.

Tuning and interval signals are reliable guides. It pays to memorize any heard! National anthems are likewise helpful, as are other patriotic songs peculiar to the country.

REPORTING AND VERIFICATIONS

Most SWL's whom I know believe that "the proof of the pudding is in the eating!"

Hence, they collect verifications. Some have a desire to feel that they have a small, active part in the general business of short-wave broadcasting. Some try for verifications from different countries regardless of distance. Others attempt to verify all zones (quite an achievement, too!). Still others go after a high percentage of extremely distant stations. Some try to verify only low-powered transmitters.

Sending reception reports to stations heard and obtaining verification (QSL) cards from them to confirm their reception of these stations is considered by many SWL's as one of the most interesting parts of the hobby of DX. Some stations confirm by QSL card; others by QSL letter. A few organizations—such as the BBC which has its own monitoring service throughout the world—do not verify at all.

The many interesting and colorful verification cards that are sent by short-wave stations in answer to useful reports make a fine collection for display on a wall or in an album. (And getting them also helps a fellow add new foreign stamps to his stamp collection!)

In reporting to short-wave stations, it's well to remember that the broadcasters want to know (1) how well their transmissions come in in your locality, (2) under what conditions, and (3) what effect they have on you, the listener.

So make every report complete, clear, yet concise. Use a "personal, friendly" touch! Cover at least 15 minutes of any broadcast—preferably more—for each frequency you wish verified. Reception details over a period of several days—that is, five or six 15-minute periods on different days rather than an hour or so at one time—are of greatest value to a broadcaster, for this proves whether or not it was "freak" reception.

Detail the items. Be specific. All signal and reception characteristics and program content, by items, should be given.

USE OF GMT

Give the date. And report in Greenwich Mean Time (GMT) which is 5 hours ahead of American EST; 6 hours ahead of CST; 7 hours ahead of MST; and 8 hours ahead of PST. You can give your "local" time, too, if you wish. In general, short-wave broadcasters use a 24-hour clock system. In this system, midnight is 0000; 3 a.m. is 0300; 10 a.m. is 1000, and noon is 1200. Instead of starting again at 1 p.m., as the 12-hour system does, the 24-hour system continues to increase the number of each hour until 2359 (11:59 p.m.) is reached. Thus, 1 p.m. is 1300; 5 p.m. is 1700; 10 p.m. is 2200.

It will be a great advantage to you if you will learn now to use the 24-hour clock system for both your own "local" time and GMT. It's a great help in that it eliminates any possible confusion between times "a.m." and "p.m."

List the frequency on which the station was heard; give the signal strength; state the interference (QRM and/or CWQRM—that is, code QRM) from other stations, and the source if you know it; QRN (static, giving the type); QSB (fading, if any); give local weather conditions at the time of reception.

Then definitely, but politely (never demandingly), ask that the accuracy of your report be checked, and if found correct, that it be confirmed by "a verification of reception." Some stations which are "long" on "acknowledging" reports are extremely "short" on "confirming" them.

Write legibly (use a typewriter if you have one) in the working language of the station if you can do a good job. Otherwise, use English which is rapidly becoming a universal language. (If possible, reports to Latin American countries should be in Spanish.)

Never fake a report!

PROPER ADDRESS IMPORTANT

You can get QRA's (addresses) from *World Radio Handbook*, from magazines and club bulletins, through correspondence, by listening to DX sessions, and over-the-air (many stations ask for reports and give their QRA's during regular transmissions).

Many stations which are government-operated will verify without return postage being set to them. But it is the best policy always to send along an International Reply Coupon (IRC) unless you are certain the station doesn't require one. An IRC costs 11 cents at your post office and is good for one unit of return first-class surface postage from any country that is a member of the Universal Postal Union. (Your post office stamp clerk can tell you what countries do or do not accept IRC's.) Do not send U.S. stamps. Be sure to use the correct postage. (Get this information from your post office stamp clerk.)

Airmail is much faster than ordinary (surface) mail—but costs more. If you know an IRC is not required, you may wish to send your report on an airletter form (which costs only 10 cents at your post office, good via airmail to any place in the world—but you cannot enclose anything).

Reports on cards are definitely out for verification requests to international short-wave broadcasters, simply because you cannot give sufficient details on a card. A card might be used for later reports in which you do not ask for confirmation, especially if such further checks have been requested by the station. "Form" reports are convenient but should be prepared carefully, and it is better also to send along a "friendly" letter.

BE PATIENT!

Normally, a reasonable time to wait for a reply is 4 to 8 months. If no reply has been received at the end of that period, send a new report, if possible, and refer to the old one and say that no reply has been received. Don't hesitate to send a fresh report at intervals. Some stations seem to have a habit of answering for a time, and then stopping (especially is this true of Latin American broadcasters). Also, the station may be under new management and have a different policy. Some SWL's have received replies after years of waiting!

Stations fail to verify chiefly for one of two reasons—(1) a poor report on the part of the SWL or (2) poor management on the part of the station. Some stations lack time, personnel, or funds. Many stations will reply when they first take to the air, or when they have made a change of frequency or power, but then stop QSL-ing because they know how their station is being received, and reports are no longer of much value to them. Some stations literally get flooded under

with reports. And, as stated earlier, there are a few stations which have a definite policy of not verifying. By and large, however—according to a survey I made recently—SWL's receive approximately 75 per cent verification on the SWBC bands. Collecting verifications takes time and a little money—but it's great fun!

BUILD UP YOUR LOG

As you become more experienced in tuning the international short-wave broadcasting bands, the tips that follow should be a big aid to you in adding foreign broadcasters to your log.

(Times are given in American EST; subtract one hour for CST, two hours for MST, and three hours for PST. These schedules were as correct as possible when this was written, but since short-wave stations often change frequencies and/or schedules with little or no advance notice, you may find slight changes by the time you read this.)

ANDORRA—You may be able to log Radio Andorra on 5.990 (approximately) around 5 to 7 p.m. closedown; announces in French and Spanish.

ANGLO-EGYPTIAN SUDAN — With patience and a good break, you may pull in Radio Omdurman on approximately 6.437 in Arabic at 11:15 to 11:45 p.m.

ANGOLA—Try for Radio Clube de Angola, 11.862, Luanda, around 2:30 to 5:30 p.m.; uses only Portuguese and closes with the Portuguese national anthem, *A Portuguesa*.

AUSTRALIA—At 6 a.m. you should be able to hear VLW9, 9.61, Perth, Western Australia, with news in English. This station is a part of Australia's Inland Service (domestic). Around the same time you may be able to log VLQ9, 9.66, Brisbane, Queensland, and, in winter, try 6.090 at 6 a.m. for VLI6, Sydney, New South Wales.

AZORES—Ponta Delgada's CSA92, 11.925, can be heard in winter at 3 to 4 p.m., in summer at 2 to 3 p.m.; all-Portuguese; closes with the Portuguese national anthem, *A Portuguesa*.

BOLIVIA—Try for CP38, 9.444, La Paz, *La Cruz del Sur* ("The Southern Cross"), around 7 a.m. and 9:30 p.m. (off Tuesday).

BRAZIL—PRL7, 9.72, Rio de Janeiro, Radio Nacional, has nice music evenings to 11 p.m. or later, but usually has CWQRM (code station interference); occasionally uses English, but Portuguese is the principal language heard.

BRITISH GUIANA—ZFY, 3.255, Georgetown, Radio Demerara, uses English at 5:15 a.m. to 11:45 a.m. and 2:45 p.m. to 8:45 p.m. (at times possibly to 9:15 p.m.); relays BBC news at 6 p.m.

BRITISH HONDURAS — If you're lucky, some evening at 8 p.m. you may pick up the low-powered transmitter of Radio Belize on 3.300 and/or 4.95 with English news.

BRITISH NEW GUINEA — From far-off Port Moresby, VLT6, 6.13, has English news at 6 a.m., relayed from Australia; under favorable conditions, you should log this one.

CANADA — CHNX, 6.13, Halifax, Nova Scotia, is easy to log at 8 a.m. to 11:15 p.m. weekdays (opens 6 a.m. or earlier but may have interference from VLT6. British New Guinea, same channel, until latter closes around 7:45 a.m.); Sunday, runs 8 a.m. to 11:15 p.m. CFRX, 6.07, Toronto, Ontario, is a regular—is scheduled 4:45 a.m. to 12:05 a.m.

The International Service of Radio Canada (CBC—Canadian Broadcasting Corporation) can be heard from around 9 a.m. to 11 p.m. with various services on one or more of these channels — CKNC, 17.82; CKCX, 15.32; CKCX, 15.19; CKLX, 15.09; CHOL, 11.72; CKLO, 9.63; or CKNA, 5.97. As an interval signal, plays the first four notes of the Canadian national anthem, *O Canada*.

CEYLON—No trouble should be had in logging the Commercial Service of Radio Ceylon, Colombo, which opens around 8:30 p.m. on 15.120 (if not found there, try 11.975 or 11.770, which is used instead of 15.120 at some seasons of the year). You should pick up the 11.975 channel around 10 a.m. to 12 noon.

CHILE—CE960, 9.593, Santiago, Radio La Americana, is on the air daily 7 a.m. to 11 p.m.

CHINA — Chinese stations usually have weak signals and a bad flutter, but after several tries, you may be able to hear English news from Radio Peking at 4 a.m. over one or more of these channels—6.10, 7.50, 9.04, 10.26, 11.69, 15.06, or 15.17; or at 9:30 a.m. on 11.69 or 15.06.

COLOMBIA — Try HJKJ, 6.161, Bogota, Radio Cadena Nacional, scheduled 7 a.m. to 11:30 p.m.; all-Spanish.

COSTA RICA—TIDCR, 9.62, San Jose, La Voz de la Victor, is on the air in Spanish 7 a.m. to 11 p.m.

CUBA—You'll find COBC, 9.362, Havana, Radio Progreso, one of the best of the Cuban stations—on the air 7 a.m. to 12 midnight; uses Spanish.

CYPRUS — Sharq-al-Adna is the name of the station at Limassol which sends out much weird Arabic music; try for it on ZJM5, 6.17, or ZJM6, 6.79, around 10:25 p.m. to 12 midnight. Interval signal is Arabic music on stringed instruments.

DOMINICAN REPUBLIC — Try either HI4T, 5.97, or HI2T, 9.735, Ciudad Trujillo, La Voz Dominicana, at 7 a.m. to 11 p.m.; the one on 11.94 is the second harmonic of HI4T. Uses Spanish.

EGYPT—Radio Cairo, 9.475, can be heard usually around 1:20 to 5 p.m. (some days may close at 4 p.m.); has English news at 1:30 p.m. Try for the Arabic Service around 11 a.m. to 6:30 p.m. or later on 12.030 or 7.049, and opening again at 11:15 p.m. with clock chimes striking the quarter hour.

EL SALVADOR—YSAX, 11.947, San Salvador, is best mornings to around 1 p.m. YSS, approximately 9.55, San Salvador, is reported evenings to 11 p.m. closedown.

ETHIOPIA — Don't be discouraged if you don't log this one on first try. Keep after it! Listen on approximately 15.054 (varies slightly) at 1:30 to 2:30 p.m. closedown when Radio Addis Ababa should have its English session. Overseas sources report this one has moved to 15.345.

FRANCE—France has no English sessions for North America, but you can log Paris in French at 6:30 to 8 p.m. on 9.685 or 11.70 when it is beamed to the Antilles, French Guiana, and St. Pierre and Miquelon. Or in English to Britain at 3 to 4 p.m. on 11.700.

FRENCH EQUATORIAL AFRICA—Radio Brazzaville, 9.44 and 11.97, is usually a good signal in most parts of the U.S. with English news at 12:15 a.m., also at 3:50 p.m.

FRENCH WEST AFRICA—Radio Dakar, 9.56, has news in French at 5 p.m., closes around 5:30 p.m.; usually can be heard from around 1:30 or 2 p.m. Has English at 5:15-5:30 p.m. on Mon., Wed., Fri., and Sat.

GUATEMALA — TGWA, Guatemala City, La Voz de Guatemala, opens on 9.762 at 7:30 a.m. and runs to 1 a.m. (to 2 a.m. on Sunday morning); if not found on 9.762, try 15.17, which was formerly in use during daylight hours. This one is famous for its beautiful marimba music. TGWA uses English irregularly—at times has "The Belize Program" in English at 6 or 7 p.m. on Monday, Wednesday, Friday.

HAITI—4VEH, Cap Haitien, is a missionary station that uses English, French, Spanish, and Creole languages. Try 9.69 at 6 to 9 a.m.—daily except Thursday when it is off the air—when mostly English is featured; and on Sunday also, around 4:30 to 9:30 p.m., try for this session on 9.727.

HONDURAS — HRQ, 6.125, San Pedro Sula, is on the air around 7 a.m. to around 11 p.m. in Spanish.

HONG-KONG — Lucky western listeners may be able to log ZBW3, 9.525, Victoria, around 5 to 9 a.m. (2 to 6 a.m. PST); uses some English and often takes relays from the BBC, London; has news at 5 a.m. (2 a.m. PST).

ICELAND—TFJ, 12.175, Reykjavik, is a hard one to catch, but it's worth wading through the CWQRM to get. Is on the air only Sunday at 11:15 to 11:30 a.m.; uses Icelandic tongue.

INDIA—Tune to 11.960 (if not found there, try 11.85, formerly used for this transmission) a few minutes before 7:30 p.m. and listen for the signature tune of All India Radio, Delhi, which is a melody of eight seconds duration repeated with intervals of 10 seconds in between; the instruments used are violin, viola, cello, and tampura. At 7:30 p.m., the announcer will say in English, "This is All India Radio." English news will follow.

INDOCHINA (VIETNAM)—In some parts of the country, Radio France-Asie, Saigon, can be heard on 15.42 with English news at 5 a.m.

IRAN — Under average conditions, you should be able to hear Radio Teheran on 15.10 with English news at 3:15 p.m.; closes at 3:30 p.m.

IRAQ—From the land once known as Persia, Radio Baghdad broadcasts on 11.702 (best bet) and 6.135 from around 11 p.m.; uses Arabic. Is difficult to log, but keep trying!

ISRAEL—You should be able to hear "The Voice of Zion" program in English, relayed from Jerusalem by Tel Aviv on 9.008 (varies); in winter, try for this program from the Holy City at 4:15 to 5 p.m. closedown; in summer, at 4 to 4:45 p.m. closedown. Has new 50 kw. station in operation now.

JAMAICA—Radio Jamaica, Kingston, can be heard around 7 a.m. or earlier on 4.95; evenings to 11 p.m. closedown on 3.36 (or in some seasons on 4.95) when signs off by playing *God Save the Queen*.

LEBANON—When conditions are especially good, try for Radio Liban, 8.036, Beirut, at 4 to 4:30 p.m. closedown in Arabic and French.

LIBERIA—Under good conditions, you may log ELBC, 6.025, Monrovia, in English around 5 to 6:45 p.m. closedown. Plays a lot of American jazz music.

LUXEMBOURG—Some days you may hear Radio Luxembourg on 6.09 in French or English or both around 5 p.m. Interval signal is a Luxembourgian popular song played on piano.

MADAGASCAR — Another worth fishing for is Radio Tananarive, 9.515, which opens with the French national anthem, *La Marseillaise*, at 10:30 p.m. Usually, setting-up exercises start of the session. Interval signal is Malgache music (on Malgache guitar).

MALAYA—The British Far Eastern Broadcasting Service, Singapore, can be heard well in some parts of the country opening at 4 a.m. to 15.435 or 11.820; relays English news from the BBC, London, at 4:15 a.m.; may be readable as late as 11 to 11:30 a.m. closedown.

MONACO — Radio Monte Carlo, 3AM4, 7.349, or 3AM3, 6.035, may be heard around 1 to 3 a.m., and again around 5 p.m.

MOZAMBIQUE—CR7BU, 4.920, at Lourenco Marques, is often heard from opening at 11 p.m. (from 12 midnight on Saturday) with interesting English programs which consist of musical recordings, commercial announcements, and frequent time checks. (Mozambique time is 7 hours ahead of EST.)

NEW CALEDONIA—Radio Noumea, 6.035 (at times may vary, or may use 6.00), opens at 2 a.m. in French; runs to 5:30 a.m. Announces "La Voix de la France dans le Pacifique" ("The Voice of France in the Pacific").

NEW ZEALAND — Radio New Zealand, Wellington, in summer can be heard around 2 to 5:45 a.m. on 9.540 or 9.520. In winter, try 11.78, 15.22, or 15.28.

NICARAGUA—Try YNWW, 7.850, Granada, Radio Sport, around 8 to 10 p.m. or later; uses Spanish.

PAKISTAN—By careful tuning, you may be able to hear an English commentary at approximately 8 p.m. from Radio Pakistan, Karachi, on 11.885 (best), in parallel (carrying same program) on 15.255; plays a lot of Hindu music in this transmission which runs from 7:45 to 8:30 p.m. closedown.

PANAMA — At least some days, HOLA, 9.505, Colon, Radio Atlantico, has English around 9:30 or 10 p.m.; this one closes at 12 midnight.

PARAGUAY—Try ZPA1, 6.275, Asuncion, Radio Nacional, around 5:30 to 10:30 p.m. ZPA5, 11.950, Encarnacion, is scheduled 11 a.m. to 9:05 p.m. in Spanish.

PERU—OAX4T, 9.562, Lima, Radio Nacional del Peru, can be heard well usually in Spanish sessions around 7 to 10 p.m. or later; announces in English, French, and Spanish when closes at 12 midnight; also can be heard with news in Spanish at 7 a.m. sign-on. A new feature is English news at 11 p.m. in parallel over 6.082.

PHILIPPINES — Western listeners should have no trouble in listening to the Far East Broadcasting Co., Manila, over DZH7, 9.73, DZH9, 11.855, or DZH8, 15.30, Manila, around 9 a.m. (6 a.m. PST) or earlier.

PORTUGAL—Lisbon's Emissora Nacional normally has a good signal to the Americas daily at 7 to 9 p.m. over approximately 5.974 and/or approximately 9.745; all-Portuguese.

ROUMANIA—At some seasons of the year, Radio Bucharest may be heard on 9.254 around 3 to 4:45 p.m.; uses some English

(which is scheduled currently at 2:30 p.m.). Has English to North America at 10 to 10:30 p.m. and 11:30 p.m. to midnight on 6.144 and 9.570.

SAUDI ARABIA—Once in a while, you may be able to pick up the haunting Arabic chants from Djeddah on 6.175 or 7.30 (at times uses approximately 7.245 instead of 7.30) around 11 p.m. At times, also uses channels of 5.975 and/or 11.85 and/or 11.95.

SOUTH AFRICA — The South African Broadcasting Corporation (SABC), Johannesburg, is difficult to log in North America, but you might try 9.68 from 11:45 p.m. sign-on (Sunday sign-on is 12:55 a.m.); runs to 4:05 (Saturday to 4:45) p.m. closedown, but your best chance to hear this one is around 12 midnight. Cape Town also opens at 11:45 p.m. (Sunday at 12:55 a.m.) on 5.892. SABC uses both Afrikaans and English at various times.

SOUTH KOREA — Western DX-ers occasionally may hear HLKB, 7.235, Seoul, around 5 to 7 a.m. (2 to 4 a.m. PST) in the Korean language and/or English.

SURINAM (DUTCH GUIANA) — PZC, 15.408, Paramaribo, can be heard well at 8:30 p.m. with news in Dutch; occasionally, carries some English (try Wednesday at 7:30 p.m.). Parallel station is PZH5, 5.752.

SYRIA—Radio Damascus has English daily at 4:30 to 5:30 p.m. closedown on 9.555; newscasts are at 4:45 and 5:15 p.m.

TAHITI—Under very favorable conditions, especially in winter, you may be able to log Radio Tahiti, 6.135, Papeete, in the South Pacific, around 1 a.m.; uses mostly French, but at times has some English. Closedown should be 2:08 a.m. Interval signal is played on Tahitian drums.

TAIWAN (FORMOSA) — Listeners in the eastern U.S. sometimes can hear BED6, 11.735, or BED7, 7.13, "The Voice of Free China," Taipeh, in Chinese around 6 to 6:30 a.m. or later.

THAILAND (SIAM) — Don't give up on this one which is a real DX catch! Try for Bangkok's HSK8, 6.24, at 5:15 a.m. when it has English news; also, try the new 11.670 channel around 5:15 a.m. (call is HSK9 and is the new 50 kw. transmitter). Interval signal is a national song and three chimes.

TRINIDAD—VP4RD, Port-of-Spain, Radio Trinidad, can be heard evenings on 3.275 to 10 p.m. when closes by playing *God Save the Queen*. Uses 6.085 in parallel at 5 a.m. to 5 p.m.

TURKEY—Although it's beamed to Western Europe, the English session from Radio Ankara at 4 to 4:45 p.m. can be heard well in the eastern U.S. over TAU, 15.16, in summer; over TAS, 7.285, in winter. TAP, 9.465, parallels but usually has bad CWQRM.

URUGUAY—CXA19, 11.835, Montevideo, El Espectador, is scheduled 5:55 a.m. to 10 p.m., mostly Spanish.

VATICAN—HVJ has English at 10 a.m. on 9.55 (best bet), 11.685, 11.74, and 15.12; and at 1:15 p.m. on same channels (in winter, may use 5.968, 7.28, 9.55, and 11.685 for this latter period).

VENEZUELA—For an English session from this country, tune YVLK, 4.97, Radio Rumbos, Caracas, at 6 to 7 p.m.; news at 6:45 p.m.

YUGOSLAVIA—Try for English from Radio Yugoslavia, Belgrade, at 4:45 p.m. on 6.10 and 7.20 (at times, instead may use 6.150).

KEEP UP-TO-DATE

You can make your short-wave listening more enjoyable by keeping up-to-date. Consult current radio magazines for schedule and frequency changes, details on new stations, and so on. For further timely tips, listen regularly to DX sessions from these stations:

AUSTRALIA—Saturday at 11 p.m. (8 p.m. PST) to western North America over VLA15, 15.20. Repeated Sunday at 8:30 a.m. to eastern North America over VLC9, 9.615 (in winter, this may be over VLC11, 11.81 or 11.84, instead).

BELGIUM-BELGIAN CONGO — Each Wednesday in the North American transmission at 9 p.m. over ORU, 9.767 (best), 9.144, and 9.705 L or 11.850), Brussels, and relayed by OTC, Leopoldville, Belgian Congo, on 9.655 (usually excellent).

DENMARK—Each Tuesday at 9:15 p.m. and repeated at 10:45 p.m. over OZF, 9.52, Copenhagen.

SWEDEN—Friday at 10:45 a.m., repeated at 5:30 p.m., and again Saturday at 2:15 a.m., over 6.065.

SWITZERLAND—On the first Thursday of each month in the North American transmission at approximately 9:50 p.m. and repeated at approximately 10:35 p.m. over 6.165, 7.21, 9.535, 9.665 (probably best bet), and 11.865.

Get a copy of the current edition of *World Radio Handbook*—and *use* it! (Costs $1.50, postpaid, direct from World Radio Publications, 47 Mounthaven Drive, Livingston, N. J.)

By all means, keep a log—it's valuable for future reference. Record the date, time, station, frequency, location, nature of transmission or program content, signal strength and characteristics, kind of interference and its identity, and "remarks." A ruled analysis pad from your local bookstore is good for this purpose.

Many SWL's also find it an advantage to keep a card index file of individual stations—by frequency—using 3- x 5-inch cards—to list frequency, call, location, when heard, type of program heard, signal strength, readability, interference, dial setting, and "remarks" (with space for "changes" noted later on). Such a station file is a lot of help when you find what you believe to be a new station and wish to check the type of program heard with that of stations you have already logged on that particular channel.

Some DX-ers say they increase their pleasure considerably by learning CW (code). Many times you can copy CW press reports hours before the general public gets the news, for example.

ON THE AMATEUR BANDS

Amateur stations provide interesting listening on the short-wave bands. These are stations operated by private individuals and sometimes by club groups for the purpose of radio construction and experimentation and communication with other amateur stations.

The principal bands for amateur station operation are: 1.80 to 2.00 mcs.; 3.50 to 4.00 mcs; 7.00 to 7.30 mcs.; 14.00 to 14.35 mcs.; 21.00 to 21.45 mcs.; 28.00 to 29.70 mcs. The reception characteristics of these bands vary considerably.

The **160-meter band** (1.80 to 2.00 mcs.) is generally useful only for relatively short-distance transmission—up to a few hundred miles. Best reception is at night. On winter nights, however, this band offers reception up to several thousand miles at times. This band has a working range of only up to about 25 miles or so in daylight.

The **80-meter band** (3.50 to 4.00 mcs.) is useful for short-distance transmission during the day (up to 300 miles is possible). During darkness, reception is possible over several thousand miles. Reception is best in winter when less static is encountered and noise level is less. The winter months also promise transoceanic contacts. Many interesting contacts among U.S. amateurs can be heard on this band. Phone (voice) stations in the U.S. are assigned 3,80-4.00 mcs., the rest of the band being for CW (Morse code) operation.

The **40-meter band** (7.00 to 7.30 mcs.) is partially shared with broadcasting stations ouside the American area. The combination of amateur and foreign broadcast operations makes reception of amateurs somewhat difficult in this band at times. However, during daylight, reception over several thousand miles is possible. Best reception is at dawn and dusk periods when stations on the other side of the world can sometimes be heard well. In the early morning hours, just a few minutes after sunrise, stations from Asia, Australia, and New Zealand come in well. Just before sunset and after, stations from Europe and Africa come in well along with those from South America. In general, the winter months are better than the summer months for reception on this band. Summer static can be serious at times on this band. In the U.S., 7.00 to 7.30 mcs. is open to CW transmission, 7.20 to 7.30 mcs. to voice transmissions. Best area for CW DX in this band is 7.00 to 7.05 mcs., and foreign phone DX can be located best in the area of 7.05 to 7.15 mcs.

The **20-meter band** (14.00 to 14.35 mcs.) is the best band for foreign amateur reception. U.S. phone stations are assigned to the section 14.20 to 14.30 mcs. Most foreign phone operations are in the sections 14.10 to 14.20 and 14.30 to 14.35 mcs., on either side of the American phone band. Most CW operation is in the low end of the band between 14.00 and 14.10 mcs. This band is useful during daylight hours, but at times freak conditions leave it "open" almost 24 hours a day. In general, it is best at dawn and dusk. In this band, the "skip" effect is quite pronounced, and sometimes stations only several hundred miles away cannot be heard at all.

The foreign amateur stations which can be heard in the 20-meter band vary considerably with different hours of the day and different seasons. During the fall and spring months, the band opens up at about daybreak, with European and Latin American stations heard best. Australian and Asiatic stations will be heard occasionally in the eastern states and frequently in the western states. Most of the stations fade out by about 9 a.m. EST. The trans-Pacific stations are heard later in the western section of the country. During the afternoon hours, reception is best from Europe and Africa. In the evening, Latin American stations are heard.

During the winter months, the European stations usually fade out after early afternoon, but this provides a good chance to hear African stations without interference from the more numerous Europeans. After a period of Latin American reception in the late afternoon and early evening, the band often will be "dead" until the next morning during the winter months, except for local U.S. stations.

In the summer months, the Europeans and Africans can be heard on 20 meters during the afternoon hours and into the early evening period. The evening hours are good for reception from Central and South America.

The **15-meter band** (21.00 to 21.45 mcs.) is primarily a daylight band. During the fall, winter, and spring months, reception should be good from Europe and Africa during the morning and early afternoon. Latin Americans should be audible throughout the day, and Australians and perhaps a few Asiatics in the late afternoon and early evening.

This band offers good opportunity for future development — depending largely on how many countries authorize amateur phone operation on this relatively new band. Long-distance reception may be possible at the sunspot maxima; reception may be had 24 hours at times when sunspot activity is favorable, and regular reception over 2,000 miles can be had.

Now the **10-meter band** (28.00 to 29.70 mcs.) is quite good when it is good, which it was during the 1947-1950 period of high sunspot activity. But in the present period of decreasing sunspot activity, conditions for distant transmission on this band are declining. Like the 15-meter band, this is a daylight band. Best reception during the fall, winter, and spring months should be from Latin America during the morning and afternoon. There should be occasional reception from Africa in the late morning and early afternoon, and from Australia and New Zealand in the early evening. Reception from Europe on the 10-meter band is not too likely at present. Conditions affect this band more than any of the other amateur bands. Remember, at times during favorable sunspot activity, good long-distance reception is possible on this band in the late evening hours, but at other times you'll find it is entirely "dead"—when nothing can be picked up. When conditions are good, however, look for foreign DX especially between 28.00 and 28.50 mcs.

If your receiver covers still higher-frequency amateur bands and you wish to explore further, you'll find the **50.00 to 54.00 mcs. band** at times has good long-distance work, especially at the peak of the sunspot cycle. At other times, reception from a few hundred miles to about 3000 miles is possible in the early summer months. Normally, reception up to about 100 miles is possible, depending somewhat on the local terrain.

The **144.00 to 148.00 mcs. band** is best in the warmer months and when conditions are favorable, reception over 1000 miles is possible. In general, however, depending upon the equipment used, the average coverage for transmission is about 50 miles.

(The novice may operate on 3.70 to 3.75 mcs. (CW only); 7.17 to 7.20 mcs. (CW only); 26.96 to 27.23 mcs. (CW only); and 145.00 to 147.00 mcs. (CW and voice permitted).

You'll note that the stations of each country are designated by the prefix of their call letters. U.S. stations use W or K prefixes. The most frequently heard foreign countries from Europe and England (G), France (F), Germany (D1), and Italy (I); from Africa, Morocco (CN8) and South Africa (ZS); from the Pacific, Australia (VK), New Zealand (ZL), Japan (J), and Guam (KG6).

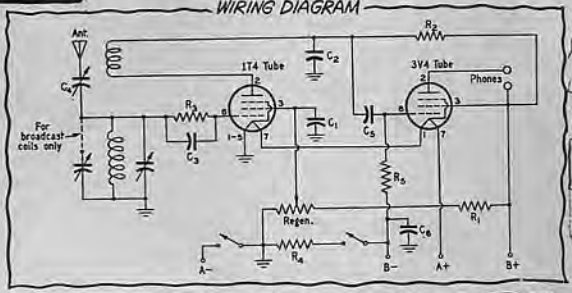
Reception of relatively low-powered ama-

(CONTINUED ON Pg 10)

HOW TO MAKE IT...

- Antenna Connection
- Ground Connection
- C — Fixed Condenser
- Variable Condenser
- Coil or Inductance
- R — Fixed Resistor
- Variable Resistor or Potentiometer
- On—Off Switch
- Terminals for external connections
- Wires Connected
- Wires crossing - not connected

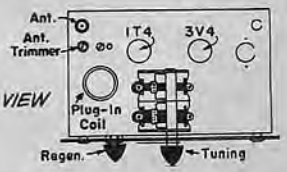
WIRING DIAGRAM



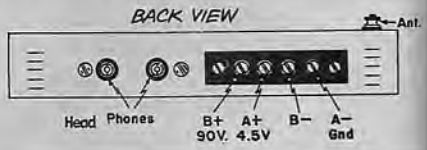
"THE EXPLORER"

ASSEMBLE THIS 2 TUBE BATTERY RADIO RECEIVER AND ENJOY YOUR FAVORITE PROGRAMS WITHOUT DISTURBING ANYONE ELSE. HERE ARE THE SIMPLE DIAGRAMS; ON THE OPPOSITE PAGE ARE THE ASSEMBLY DIRECTIONS.

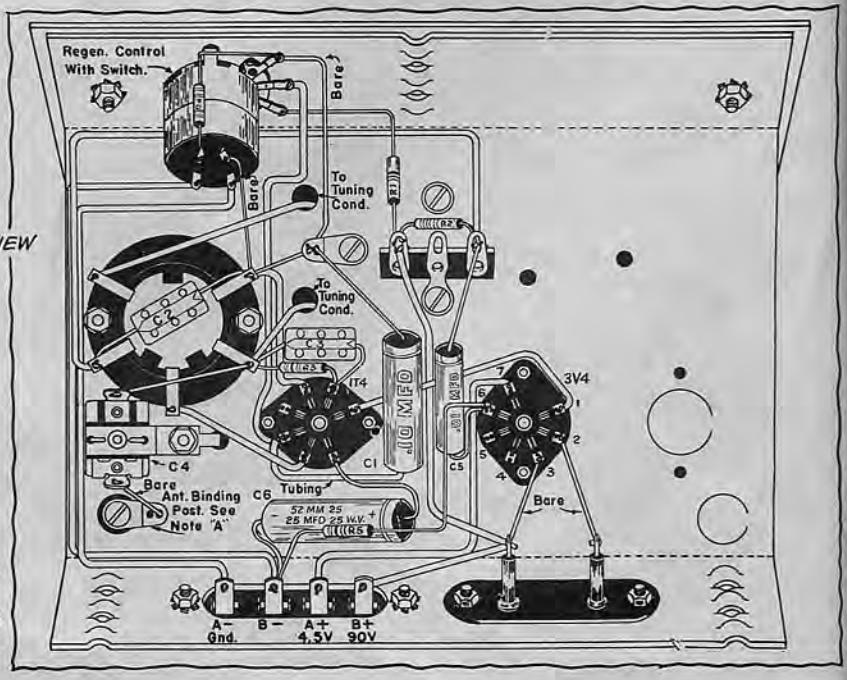
TOP VIEW



BACK VIEW



INSIDE VIEW



TAKE IT ALONG ON HIKES... IT WEIGHS PRACTICALLY NOTHING...

GET SET FOR THE radio listening contest in February! If you have a commercially-built short-wave receiver, fine. If not, here's a little unit, "The Explorer", which you can assemble quickly with a few tools.

There are several short-wave receiver kits available in radio jobber stores and through mail order radio firms. You will find their advertisements in the pages of BOYS' LIFE.

The kit described here is a typical sample and may be ordered through your local Boy Scout distributor. Other kits may vary somewhat but each contains specific instructions for assembly. You save yourself searching for specific parts, drilling holes in chassis, winding coils—and have the satisfaction of building your own. The cost is the same, or less, than if you purchased parts separately.

Follow the instructions closely and you'll breeze right through the assembly. A screwdriver, long-nose pliers with side-cutters, and a soldering iron are the only tools you need. First, mount all the parts; they fit into pre-punched holes in the chassis, and hardware is furnished. The picture story shows details.

Watch carefully such things as sockets—

...RADIO RECEIVER

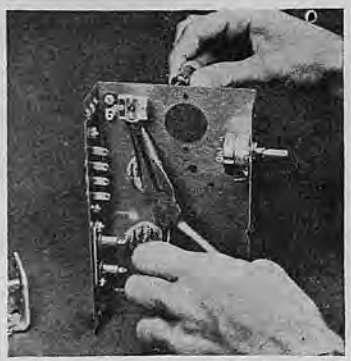
make sure you get them lined up exactly as in the pictorial, as this will save you trouble in wiring later. Tube pin connections are numbered by a system: Looking at the socket from its bottom, you will see one blank space in the circle of pins; this is the reference point for numbering. The first pin clockwise from the blank is No. 1, then No. 2, and so on, through No. 7. These numbers correspond with those on the diagram; a pin number not appearing on the schematic diagram is not a tube connection.

After wiring, double-check against both the pictorial and the schematic diagram—it may save you a burned out tube. When you've completed the assembly and wiring, insert the tubes and coil, connect the batteries as indicated, plug in a set of headphones, and attach the antenna lead. The antenna may be almost any wire 30 or more feet long, strung out your window to any convenient point such as a tree.

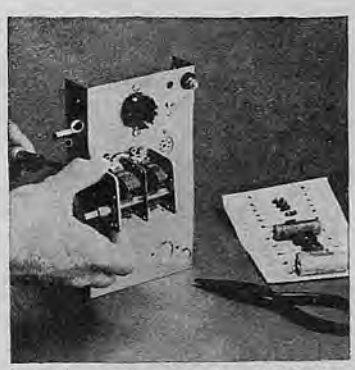
The regeneration knob (potentiometer) controls the amount of "feedback." Turn the knob to the right to turn the set "on," and then increase the feedback by turning the knob to the point where the receiver oscillates with a soft hiss. This is necessary for reception of c.w. (code) signals. Turn the tuning dial until you hear a whistle. For a voice reception, set the controls just below the soft hiss. Adjust the "antenna trimmer" C4 with a screwdriver if necessary to get a smooth oscillation control. Tune the dial very carefully, so you won't miss any weak signals.

Soon you'll become familiar with some of the activities on the short waves—you will locate foreign broadcast stations, amateurs, high-speed commercial code stations, aircraft, and a lot more. Read "The World At Your Fingertips" by Ken Boord, in the October and November issues of BOYS' LIFE. By February, you'll be able to tune your set skillfully and be all set to run up a big score.

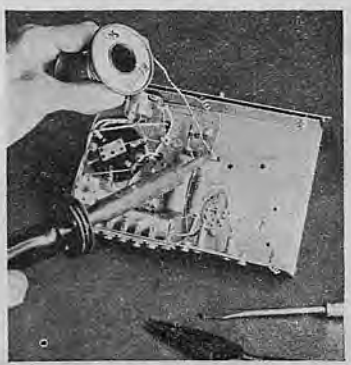
—THE AMERICAN RADIO RELAY LEAGUE



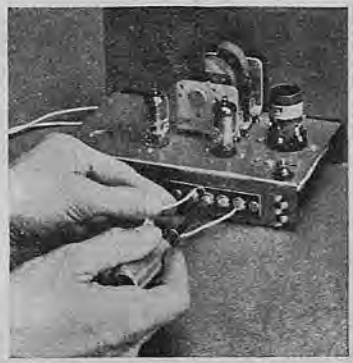
1. Parts fit into pre-punched holes on the chassis and mount quickly with hardware furnished. This "trimmer" condenser lets you adjust the set to the length of your aerial.



2. This "two-gang" condenser has a built-in planetary drive for easy tuning and smooth control. Small condensers and resistors used in the set are packed and labeled for easy identification.



3. Careful soldering insures a neat, efficient job. Don't apply solder to tip of iron. Touch solder to joint a few seconds after you have heated it from other side with iron. Use rosin core solder.



4. Watch these connections. They deliver power from batteries to receiver; a mistake may burn out tubes. Tighten screws well, so wires won't come loose and short out. Double check all wiring.

THE WORLD AT YOUR FINGERTIPS

(CONTINUED FROM P97)

teur stations varies greatly from day to day, so don't be discouraged if you don't hear much the first few tries. One good way to determine how reception conditions are is to note what stations the U.S. amateurs are calling.

REPORTS TO AMATEURS

For verifying amateur stations, many SWL's send specially-prepared QSL cards. (These may be purchased printed up from many sources, as advertised in the classified sections of such magazines as CQ or QST.) Normally, what is called the "Q" code is used in such reports. For instance: "Your signals were QSA5 (readability) and R9 (signal strength). There was some QRM (interference from others) on your frequency from Station 'XYZ.' There also was some QRN (static) present. There was slight QSB (fading) noted on your transmission. Your modulation (alteration of the amplitude or frequency of a wave in accordance with speech or a signal) was excellent."

Such a report will give the amateur operator an idea of how his station was being received at your location. For confirmation purposes, tell the amateur what approximate frequency he was heard on and include the call letters of stations with which he made contact and the time (in GMT) of each contact.

It's well to send a brief, friendly letter along with the card—also a self-addressed, stamped envelope for amateurs in the U.S. and possessions. (The Canal Zone uses its own stamps instead of U.S. stamps.) For countries abroad, you may be able to get mint stamps of the country to which you are sending a report. (Local stamp collectors might be able to help you locate these.) But if mint stamps are unavailable, then an IRC may be sent.

QRA's (addresses) of amateur stations, as given during contacts, should be carefully noted for use in reporting. If you have a friend who is an amateur, he probably can furnish you QRA's from the *Radio Amateur Call Book*.

As in verifying short-wave broadcasting stations, give the amateur ample time to reply before sending a follow-up report. My survey shows that SWL's receive only approximately 50 per cent verification on the ham bands.

Verification cards are difficult to obtain from some amateurs, especially for the SWL. In general, CW (code) operators seem more willing to verify with a QSL card than do the phone operators. Many amateurs have expressed the opinion that they are "not interested" in SWL reports. This may be true since they make so many contacts and get cards from these contacts which mean so much more to them. The average phone operator may receive hundreds of cards from SWL's, since many SWL's do not know code and pick up the phone stations to send their cards for verification. Nonetheless, if enough detail is given, many of the phone stations do verify. CW stations are more willing to verify since they are not flooded with cards from SWL's, and the few they do receive they usually are proud to get and to verify.

GOOD LISTENING

But whether you listen to the international short-wave broadcasting station bands, the amateur bands, or both—and whether or not you ever become a full-fledged amateur operator—truly, short-wave radio knows no boundaries! It is armchair traveling at its best! Yes, it's easy and it's fun! And it's one of the finest ways to further world friendship . . . to develop the brotherhood of man . . . and to establish a lasting peace among all nations!

THE END

"Q" Signals

"Q" signals used to express briefly and clearly expressions common in radio work. The "Q" abbreviation takes the form of a question if it is followed by a question mark.

QAV	Are you calling me? I am calling . . . .
QRG	What is my exact frequency? Your exact frequency is . . . .
QRK	What is the readability of my signals (or those of . . .)?
QRL	Are you busy? I am busy with . . . .
QRM	Are you being interfered with? I am interfered with.
QRN	Are you troubled by atmospherics? I am being troubled by atmospherics.
QRO	Shall I increase power? Increase power.
QRP	Shall I decrease power? Decrease power.
QRQ	Shall I send faster? Send faster (. . . . words a minute).
QRS	Shall I send more slowly? Send more slowly (. . . . words a minute).
QRT	Shall I stop sending? Stop sending.
QRU	Have you anything for me? I have nothing for you.
QRV	Are you ready? I am ready.
QRX	When will you call again? I will call you again at (. . . .)
QRZ	By whom am I being called? you are being called by (. . . .)
QSB	Does the strength of my signals vary? The strength of your signals varies.
QSL	Can you give me acknowledgement of receipt? I give you acknowledgement of receipt.
QSO	Can you communicate with . . . . I can communicate with . . . .
QSP	Will you relay to . . . . I will relay to . . . .
QTH	What is your position (location)? My location is . . . .
QTR	What is the exact time? the time is . . . .
QRRR	Official "land SOS." A distress call for use by a station in an emergency situation.

Standard abbreviation used by radio amateurs

AA	all after
ABT	about
AGN	again
ANI	any
BCI	broadcast interference
BCNU	I'll be seeing you
BK	break
BTR	better
CRD	card
CUD	could
CUL	see you later
DX	distance
ES	and
FB	fine business, good
FM	from
FR	for
GA	go ahead
GB	good-by
GG	going
GM	good morning
GN	good night
GUD	good
HAM	radio amateur
HRD	heard
HV	have
HW	how
K	go ahead
NIL	nothing
NR	number
OM	old man (any male amateur)
OP	operator
PSE	please
SKED	schedule (an appointment to meet on the air)
SWL	short wave listener
TNX	thanks
U, UR	you, your
VY	very
WAC	worked all continents
WAS	worked all States
WL	well
WX	weather
XMTR	transmitter
XTAL	crystal
XYL	wife of an amateur
YL	young lady (any female amateur)
73	best regards

The Ten U. S. Call Areas

Listen in on

LET'S SAY you're the navigator on one of today's king size ships. To do your navigating, you've got to know what time it is—exactly. But even the most accurate of clocks (chronometers, the sea dogs call 'em) vary enough to throw a navigator off-too far for comfort. And you can't call up the telephone operator to get the time.

Brother, you've got a problem: How do you check your clock when you're bouncing around maybe a thousand miles from land?

Or let's change jobs for a minute. Try to figure out how a piano tuner knows what pitch to start with when he tackles an off-key set of ivories.

You can find the answers to these questions and a lot more any time you're using a short wave radio receiver.

The National Bureau of Standards operates a radio station, WWV, that transmits almost an encyclopedia of good dope on the frequencies of 2.5, 5, 10, 15, 20, 25, 30, and 35 megacycles. When you tune in one of these frequencies, here's what you'll hear:

1. Standard time intervals of 1 second, 1 minute, and 4 minutes. Every second you'll hear a clock-like tick (sometimes it sounds like tock). This tick is eliminated at the last second of each minute. This arrangement is repeated for four minutes.

2. During the fifth minute you'll hear the time announcement in both code and voice. Time announcements in code are in *Greenwich Mean Time* (GMT), using the 24-hour system. This system begins with 0000 at midnight. Eight o'clock in the morning, for example is 0800, and one o'clock in the afternoon is 1300. Voice announcements are in *Eastern Standard Time*.

3. Standard audio frequencies—that piano note we mentioned. You will hear a *continuous* note or "audio frequency" of 440 cycles. You musicians will recognize this as the musical pitch A above middle C on your piano. You can check your piano's tuning against this pitch. Another audio pitch that WWV broadcasts is 600 cycles. You'll hear this along with the 440 cycle tone. The 440 tone is the lower one.

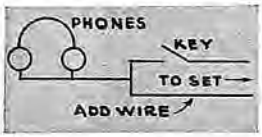
These audio frequencies are interrupted at exactly one minute before the hour and are resumed exactly on the hour, and every fifth minute thereafter.

4. The last thing to listen for is a series of International Morse Code Letters, either W. U. or N. These are what the pros call "radio propagation disturbance warnings." But you don't have to worry any about these signals until you're well along as a ham. Meantime you should be able to recognize the code characters (W . – –, U . . –, and N – .) that mark the three possibilities. W means "warning," U means "unstable," and N means "normal."

You Can Use WWV

Besides all these possibilities which may be just so much theory to you right now, radio station WWV can have a very practical value even to the beginningest of hams. BOYS LIFE reader Robert Blue, Jr., sent us this idea for a WWV code practice set which he says works swell.

You just rig up a set of earphones or a loudspeaker as indicated in the accompanying drawing. This set-up amounts to putting a key in one line. 'Course you have to tune your set with the key *down*. Let up on the key and you interrupt the sound. Tune in station WWV on one of the frequencies just mentioned earlier, and you've got yourself a code practice set.



Learn the Code

JUST FORGET Morse Code ever had anything to do with dots and dashes. Think of it as two sounds—"dit" and "dah"—and spaces, and you'll find code easy.

You can learn code alone, but with a class or gang it will be easier. Two 15 minute sessions are better than one full hour.

Memorize four letters at a time. Juggle them so you recognize them no matter what order you receive them in. Make words from them and get to recognize the words before tackling the next four letters.

When you see letters you know on billboards or anywhere, repeat them in code to yourself. It helps. When you think you're ready to practice with a telegraph key, try the "snorker" described on the next page.

Clip the code, at right, and carry it with you. No telling where you'll get a chance to brush up—waiting for someone, riding a bus, baby sitting, to name a few possibilities.

Code Chart

A. DiDah	R. DiDahDit
E. Di	S. DiDiDit
I. DiDit	T. Dah
O. DahDahDah	V. DiDiDiDah
U. DiDiDah	W. DiDahDah
B. DahDiDiDit	X. DahDiDiDah
C. DahDiDahDit	Y. DahDiDahDah
D. DahDiDit	Z. DahDahDiDit
F. DiDiDahDit	1. DiDahDahDahDah
G. DahDahDit	2. DiDiDahDahDah
H. DiDiDiDit	3. DiDiDiDahDah
J. DiDahDahDah	4. DiDiDiDiDah
K. DahDiDah	5. DiDiDiDiDit
L. DiDahDiDit	6. DahDiDiDiDit
M. DahDah	7. DahDahDiDiDit
N. DahDit	8. DahDahDahDiDit
P. DiDahDahDit	9. DahDahDahDahDit
Q. DahDahDiDah	0. DahDahDahDahDah

Period. DiDahDiDahDiDah
Comma. DahDahDiDiDahDah
Question Mark. DiDiDahDahDiDit

THIS IS AN EASY-TO-MAKE

Code Practice Buzzer

By Lyle Godwin

WITH THIS easy-to-make, inexpensive code practice outfit, you'll soon be banging out Morse Code like an expert. The only adjustment on this outfit is the spring on the key. You adjust that when you make the set, then you don't have to monkey with it again. So you can concentrate on learning the code.

About the only thing you'll have to lay out any money on is the buzzer itself. And that should run you a dollar and a half, or maybe less. You can use an old door buzzer if you like, but that requires more batteries, and is harder to listen to.

A couple of standard flashlight batteries are the only batteries you need for the kind of buzzer shown here.

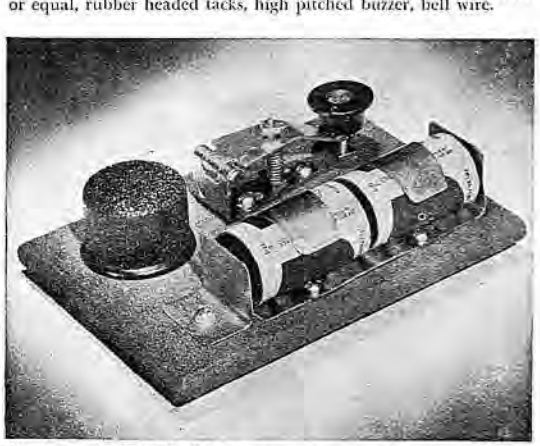
You make the key itself from a 3-inch strap hinge. A bright one will look nicer, but otherwise, the finish is immaterial. Try to get one with a reasonably tight joint, so there won't be too much side play. You can tighten the joint by tapping it carefully with a hammer. It's a lot easier to tighten the joint than loosen it, so go easy with that hammer. Drill the holes you'll need in the hinge before you bend it as indicated. Then you'd better use a vise to hold that hinge so you'll get square bends.

Two points you want to watch out for:

1. When the key comes down, it does *not* make contact with the hinge. What it strikes is a bolt that comes up through the board *separate* from the hinge.

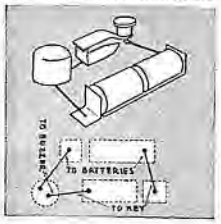
2. The battery holder is made of *two* pieces of metal. The large piece forms the back part of the holder, and also clamps around the batteries. The *small* piece holds the front end of the batteries only. Arrange parts as the photos show, and wire them following diagram at right. The key handle is a section of a small spool. Mount board on *three* rubber tacks to prevent rocking.

The parts you'll need are: small board, galvanized iron (furnace tin), 3" strap hinge, stove bolts and nuts, round head brass wood screws, small spool, Dowsett No. 11 tension spring (1¼" by 2½") or equal, rubber headed tacks, high pitched buzzer, bell wire.



This is the finished job. Notice position of parts. Bracket on this end of batteries does *not* connect with bracket that goes around batteries.

Phantom view of whole buzzer, and hook-up on bottom.



Here's the other side of the finished job. Note how batteries are held in place.

Radio Listening Contest

RULES

1. **OBJECT:** To log (hear and write information on log sheet) as many different radio stations as possible; to log 48 United States, 10 U. S. Call Areas, 6 continents and as many different countries as possible. It is permissible to log any station heard on any frequency—broadcast, TV, fm, code, armed forces, aviation, police, etc.
2. **ELIGIBILITY:** Anyone who has not reached his 19th birthday by February 1, 1955 is eligible. Licensed radio amateurs are not eligible but may earn the certificates.
3. **CONTEST LISTENING PERIOD:** All listening must be done between February 1, 1955 and midnight February 26, 1955, with no more than 8 hours of listening each calendar week (32 hours, total listening time). Logs must be postmarked before midnight, March 15, 1955.
4. **SCORING:** Each station logged: 1 point. A station may be counted for 1 point only once.

   Each different country logged: 10 points. A country may be counted for 10 points only once.

   Each different U. S. Call Area logged: 10 points. You may hear many stations in the same Call Area, but you may take credit only once for each Area. There are 10 Call Areas (see map on page 6). So your maximum number of points is 100 (plus a bonus of 500 points if you hear all 10).

   Each different state logged: 10 points. You will probably hear several stations in the same state. Again, claim credit for only the total number of different states you hear. 48 is the maximum. (Bonus of 1000 if you hear all 48 states.) U. S. "possessions," Alaska, Hawaii, etc., count as foreign countries.

   Each different continent: 50 points. There are 6 continents—North America, South America, Europe, Asia, Africa, Australia-Oceania. Claim credit for each continent only once. (Bonus of 500 points if you hear all 6 continents.)

   You may log any radio stations—amateur, broadcast, government, ships, airplanes—on any radio frequencies—but each station only once.
5. **CONDITIONS:** Decisions of judges are final.

   No logs can be returned—make carbon copies for your permanent use.

   Each entry must have adult attest.

   Each entry must be on the official entry form.

   In case of tie, the neatest log wins top prize.

   All logs will be spot checked with stations reported on the log and an error will disqualify the contest entry.
6. **ENTRY CLASSIFICATIONS:**

   Class A—Enter your log in this class if you used a manufactured receiver or a converted surplus receiver.

   Class B—Enter this class if you used a home-made receiver which you made yourself.
7. **LOG SHEETS:** Make your own sheets using the sample on page 15. All entries in logs must be complete and must show time, call, QTH, etc.
8. **PRIZE WINNERS:** Will be announced in the June issue of BOYS' LIFE.
9. **CERTIFICATES:**

The following certificates of achievement will be awarded. These are available all year and may be applied for at any time.

1. **The LACA (Logged All Call Areas) certificate to all entrants logging the 10 U. S. Call Areas.**
2. **The LAS (Logged All States) certificate to all entrants logging the 48 states. The District of Columbia may be substituted for Maryland.**
3. **The LAC (Logged All Continents) certificate to all entrants logging the six continental areas, North America, South America, Europe, Asia, Africa, and Australia-Oceania.**
4. **VACA (Verified All Call Areas) certificate will be awarded to anyone submitting verification (QSL) cards from stations in all ten U. S. Call Areas.***
5. **VAS (Verified All States) certificate will be awarded to anyone submitting verification (QSL) cards from stations in all 48 United States.***
6. **VAC (Verified All Continents) certificate will be awarded to anyone submitting verification (QSL) cards from all 6 continents.***
7. **WORLD LISTENER certificate will be awarded to anyone submitting verification (QSL) cards from 25 different foreign countries, with at least one card from each of the six continents.* Hawaii, Guam, Alaska, and other islands which have distinctive call prefixes are counted as separate countries.**

*** QSL Cards will be returned.**

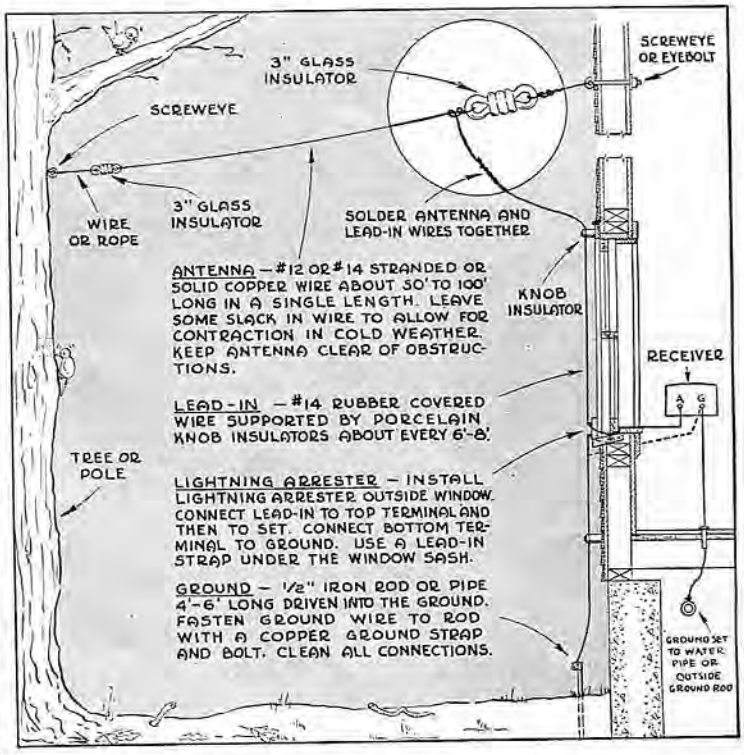
How to Hook Up Your

SKYWIRE

GOOD radio reception requires a good antenna and a good ground connection. Here are a few suggestions for hooking up both for your BOYS' LIFE radios.

The antenna should be erected as high as possible and as free from surrounding objects as conditions will permit. Keep the antenna from touching anything, and use insulated wire for a lead-in. Avoid running antenna parallel to power lines to minimize noise.

Be sure your installation is strong and secure. Any poles or masts should be fastened securely. Be careful where and how you climb. Don't take chances. And don't throw wires over power lines—high voltage kills—so save your life.

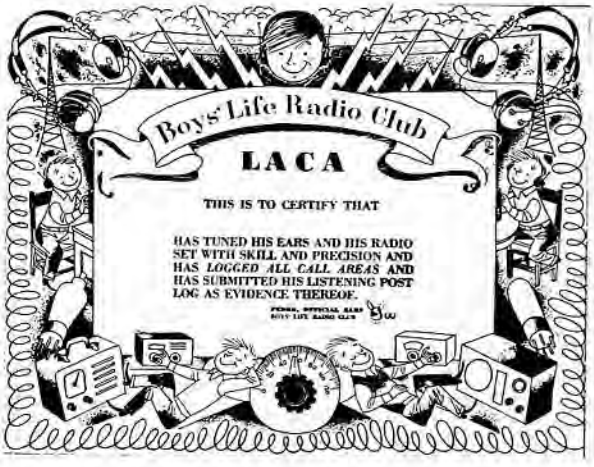


BOYS' LIFE RADIO CLUB

Welcome to the Boys' Life Radio Club. The main purpose of this club is the stimulation of interest in short wave listening. Membership in the Boys' Life Radio Club gives you an opportunity to earn certificates of achievement.

Make up log sheets like the sample on the back page and send in the results of your listening to Boys' Life Radio Club, 2 Park Avenue, New York 16, N. Y. You'll get your certificates of achievement soon afterwards.

And when you've received your amateur radio license, and if you are a member of the Boy Scouts of America, send in your call letters and become an Emergency Service Amateur Radio Operator.



RADIO LIBRARY

Books

Radio Merit Badge pamphlet. This pamphlet tells you specifically how to plan and build your set and how to install your antenna, and gives you information on earning the Radio Merit Badge. You can buy it from your local Scout dealer for 25¢.

How to Become a Radio Amateur. This book gives you practical advice on how to build receivers and transmitters and generally shows you how to get started in your new hobby. 50¢ will bring it to you from the American Radio Relay League, Inc., West Hartford 7, Conn.

The Radio Amateur's License Manual. When you get to the point where you want specific information on getting your ham license, this book will supply you with typical examination questions. The American Radio Relay League, Inc., West Hartford 7, Conn., will send it to you for 50¢.

Learning the Radiotelegraph Code. Learn how to send and receive in code by practice sessions at home alone or with a group when you follow instructions in this book. Especially designed for beginners, it costs 25¢ from the American Radio Relay League, Inc., West Hartford 7, Conn.

The Radio Amateur's Handbook. This reference book is intended primarily for hams past the Novice stage and includes almost anything you might want to know about ham radio. The American Radio Relay League, Inc., West Hartford 7, Conn., will let you have it for $3.00.

Magazines

QST. A monthly magazine which is of special interest to radio amateurs but which also aims to please SWLs. A subscription, plus membership in the ARRL, costs $4.00 a year and can be ordered from QST, 38 La Salle Road, West Hartford 7, Conn.

CQ. A regular department of this monthly magazine caters especially to the Novice. In addition, there are many features which will be of interest to all amateurs. An annual subscription, which costs $3.00, can be ordered from CQ Magazine, 67 West 44th Street, New York 36, New York.

RADIO AND TELEVISION NEWS. You'll find the regular short-wave section in this monthly magazine very useful and interesting. Subscriptions cost $4.00 a year and can be ordered from Radio and Television News, 366 Madison Avenue, New York 17, N. Y.

RADIO-ELECTRONICS. A monthly feature of this magazine is an amateur section. Subscriptions are $3.50 a year and should be ordered from the Subscription Department, Radio-Electronics, Erie Avenue, F to G Streets, Philadelphia 32, Pa.

DX LOG

Check Lists for States, Call Areas, & Continents

STATE CHECK LIST

State	Station	Date	Band	A1 A3	QSL	
					Sent	Rec'd
Alabama						
Arizona						
Arkansas						
California						
Colorado						
Connecticut						
Delaware						
Florida						
Georgia						
Idaho						
Illinois						
Indiana						
Iowa						
Kansas						
Kentucky						
Louisiana						
Maine						
Maryland						
Massachusetts						
Michigan						
Minnesota						
Mississippi						
Missouri						
Montana						
Nebraska						
Nevada						
New Hampshire						
New Jersey						
New Mexico						
New York						
N. Carolina						
N. Dakota						
Ohio						
Oklahoma						
Oregon						
Pennsylvania						
Rhode Island						
S. Carolina						
S. Dakota						
Tennessee						
Texas						
Utah						
Vermont						
Virginia						
Washington						
West Virginia						
Wisconsin						
Wyoming						

CALL AREA CHECK LIST

Call Area	Station	Date	Band	A1 A3	QSL	
					Sent	Rec'd
W1						
W2						
W3						
W4						
W5						
W6						
W7						
W8						
W9						
Wφ						

CONTINENT CHECK LIST

Continent	Station	Date	Band	A1 A3	QSL	
					Sent	Rec'd
Africa						
Asia						
Europe						
N. America						
S. America						
Oceania						

A1 - Code
A3 - Phone

LOG SHEET

Date	Time	Station Heard	Phone or C W	Location (Q T H)	Program	Frequency or Band

SAMPLE LOG SHEET
MAKE YOUR OWN

HOW TO USE THE OFFICIAL RADIO CONTEST LOG SHEETS

1. Number the pages (1, 2, 3, etc.).
2. DATE: Fill in the date on each new day you log any station. Once for each day is sufficient.
3. TIME: Use local time.
4. STATION HEARD: Give call letters or other identification heard, for example: WIAW, KZLO, "Radio Algiers."
5. PHONE-CW: If you hear voice or music, put "Ph"; if code, put "CW."
6. LOCATION (QTH): Give city and state for stations heard which are in the United States. For foreign stations, give country.
7. PROGRAM OR QSO WITH: Briefly describe the program: "news in English," "Spanish music," "lady singing in French," "orchestra music," etc. Amateurs must identify themselves and give their location at least once every ten minutes. Thus, the amateur 'phone bands are a pretty good place to log many stations quickly. If ypu know the code, the amateur code bands are even better. If you hear both sides of a ham contact, list each station as a "Station Heard" in the "Station Heard" column.
8. FREQUENCY: List the frequency as near as possible in kilocycles (kc), example: 1742 kc. Or megacycles (mc), example: 14.010 mc. Or give the band, example: 20 meters.

BOYS' LIFE RADIO CONTEST

To RADIO CONTEST . . . BOYS' LIFE, 2 Park Avenue, New York 16, New York

Attached are my log sheets as my entry in the Radio Contest. I understand my log sheets cannot be returned. I am not a licensed Radio Amateur.

My receiver is Class A (manufactured),_____ Class B (home built)_____ (Check one)
My receiver is a _____
It is made by _____

	Number	Multiplier	Score	Bonus	
Different stations heard (Count each station only once)	.....	x 1	.....		
States (U. S.) heard (No more than 48)	.....	x 10	.....	.....	(Bonus of 1000 for all 48)
U. S. Call Areas heard (No more than 10)	.....	x 10	.....	.....	(Bonus of 500 for all 10)
Continents heard (No more than 6)	.....	x 10	.....		
Foreign countries heard (Count each country only once)	.....	x 50	.....	.....	(Bonus of 500 for all 6)

SCORE ..... BONUS.....

TOTAL SCORE (Score plus Bonus).....

Name.....Scout Unit (if member BSA).....Age.....

Street Address.....City.....State.....

Adult Attest: To the best of my knowledge the operation of the receiver, the listening and logging as shown on this contest entry was done by the contestant without assistance.

Name.....Street Address .....

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