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A SHORT-WAVE JOURNEY of DISCOVERY

with Hendrik Willem Van Loon

25¢

RCA Victor Radio

RCA Victor

PRESENTS:

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Exploring new worlds with Columbus

A Short-Wave Journey of Discovery

By HENDRIK WILLEM VAN LOON

ILLUSTRATED BY THE AUTHOR

HOW perfectly wonderful that must have been!" All of us have said it and all of us have thought it and all of us have felt it.

"How perfectly wonderful it must have been to have lived in the glorious days of the Crusades when we could have been an Ivanhoe or a humble follower of that most glorious Knight, the little peasant girl from Arc!"

And as a rule we then felt very sorry for ourselves and asked why we, who are now in our twenties or forties or fifties, had to be born in an age quite as drab and commonplace as our own.

Now if only we had been contemporaries of Christopher Columbus we could have explored the uncharted seas in one of those little vessels that looked so much more picturesque than the steamers of this the fourth decade of the Twentieth Century year of Grace 1937. And when we came home we could have made our neighbors gape at our stories about these newly discovered lands, where the cities were made of pure gold and where all the men and women went around in the feathers of humming birds.

The Incredible Years

All this came to my mind when RCA asked me to write something for them about the role that radio and especially the short-wave radio will play in the lives of the coming generation. "This ought to be something exactly in your line of work," so they argued when I objected that radio, like electricity and chemistry, was practically a closed book to me. "Of course, you are not an expert. We knew that; but if we wanted an expert to do this work, we surely would get one of the brilliant young men who work in our research laboratories. But you have lived through this entire period when all the great discoveries within the field of the 'air' were made. For example, you must remember the coming of Wireless. At one moment or another you must have become aware of the existence of Radio. You must have been impressed when you heard your first broadcast. You tell us that you were born in 1882. Alexander Graham Bell got his first patent in 1875. When you were a small boy you must therefore have seen the coming of the Telephone. X-rays did not make their appearance until you had worn out at least twenty pairs of long pants. You see, you have been sitting patiently on the side-lines during all these incredible years. Now all we want you to do is to get at your typewriter (unless you are so old-fashioned that you still write with a goose-quill) and tell us about the coming of these inventions and how they struck you when they were first brought to your attention."

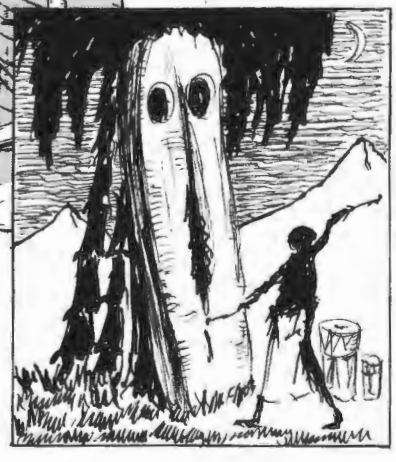
Progress by Surprise

This statement being very flattering to my pride (who does not dearly love to be called a bright fellow, even by indirect implication?) I answered, "Very well, I will do the best I can." And thereupon I found a quiet little

And so we went forth upon imaginary Crusades

The castle of our dreams

At least two countries claim the honor of having invented the telephone



The Ceremonial drums of Africa

corner and far removed from both telephone and radio, I am now trying to reconstruct the exact circumstances under which all those startling inventions were first of all brought to my attention.

So far this has been no easy task and I have received many a rude shock. For I soon discovered that all these great changes had come so gradually and often so quietly that they had been functioning for years before I became actually aware of their existence. And so here I am (and there you are, for most likely your own experience was not different from mine) and I must confess to my great shame and humiliation that I have lived through the most stupendous epoch of human progress and that I have only the vaguest notions of what it was all about.

Glamour Belongs to the Past

But let me give you a bit of consolation. There is nothing new in all this. Our ancestors, too, lived through the most glamorous adventures and they apparently had no more idea of what it all meant than we did. In most cases they were merely "contemporaries" and they were not even aware of the fact that anything out of the ordinary had happened to them.

There is, for example, the printing-press. Our history books take it for granted that Gutenburg (or Gooseflesh, as he was called before he changed his name) was the inventor of the printing-press. He undoubtedly was one of the earliest printers, but was he also the inventor? The answer is that we do not know.

There is the problem of the steam-boat. A steam-boat roared down the river Elbe a century and a half before Fulton was born, but we have only the meagrest details about this event, as nobody cared. And our John Fitch ran a regular steam-boat line on the Chesapeake Bay long before Fulton brought us his steam-boat from Scotland. But who today remembers the name of poor John Fitch, who in a fit of despondency killed himself, as nobody seemed in the least interested in his successful experiments?

The telephone: At least two countries claim the honor of having invented it.

Anaesthetics: The quarrel between the different claimants continues as merrily as it did a century ago.

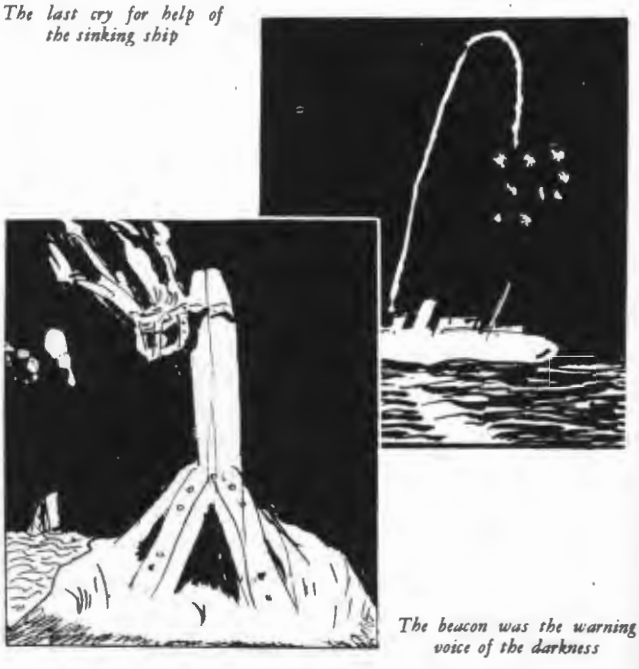
All of which I give you by way of an appetizer and to show you how very little the human race has changed during all these many ages and how ignorant most of us are about the very events that shape our own destinies.

And now let us come down to actual facts. What do we ourselves know or remember about the epoch-making inventions of our own life-time? I shall unlock the door of that little room in which I keep the pleasant memories of my childhood. I shall tell you what I remember. You will probably be surprised to find out that your experiences were very much like my own. We vaguely heard of this and that but it was years afterwards that we suddenly asked ourselves the question: "Was I really a contemporary to all these glorious events?"

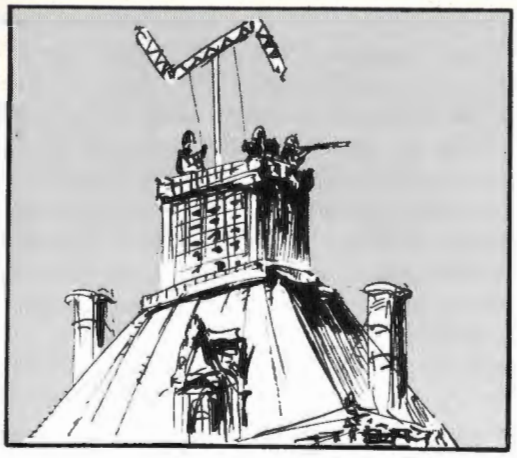
The Beat of a Drum

It is the year of grace 1886. I am four years old and I make the acquaintance of a strange survival from early prehistoric days. I hear a drum being used as a means of communication. We happened to live in a small village on the seashore, a very tiny village in Holland, the charming relic of something that several hundreds of years before had been a proud and prosperous city. In the winter the people still heated their houses with fires of peat.

The last cry for help of the sinking ship



The beacon was the warning voice of the darkness



Napoleon had his telegraph on the roof of his own palace

During the summer they ate fish. Both the peat and the fish were imported from elsewhere and they came to us by boat. Therefore, whenever a boatload of fresh fish or of peat had dropped anchor in our tiny harbor, an old man used to march up and down our streets, loudly beating a drum. That drum was a signal for all good housewives to go to the waterfront and there to bargain.

Years afterwards, in the islands of the Pacific and in South Africa, I was to run once again across that drum as a means of communication. The throbbing tum-tum-tum —tum-ta-tee-tum of the savage drum was spelling out its message as it had done in the age of the reindeer and the mammoth, 50,000 years ago, and as it had done on our own continent when the drum and the smoke-signal of the Indians had first spread the news of the coming of the white man, that same white man, who within a very short space of time was to replace drums and smoke signals by the more prosaic but also infinitely more reliable dashes and dots of his own telegraphic apparatus.

A Flame in the Night

Our village was situated near the mouth of the Scheldt. It had been a port of departure for the British Isles ever since the days of the Romans, or even longer, for all we knew. On a high dune near the spot where we found most of our bits of old Roman pots and pans (the result of carelessness on the part of the stewards on the trans-Channel boats of the Roman days) there stood a beacon. It may have been the descendant of a beacon that had been first erected by Caesar when he had visited these parts, fifty years before the birth of Christ. In case of a threatening storm, a big red lantern was hoisted to the top of that beacon. It was merely the "fire signal" by means of which our ancestors had warned each other of the coming of a suspicious stranger. That "fire signal" (of my youth) was a substitute for the human voice, shouting, "Be on your guard! A storm is coming!"

Many years afterwards, one cold and stormy night, trying to pull the unwilling oar of a life-boat, I was forcibly reminded of that beacon. An hour before, we had left our ship. It was now sinking fast. As a last agonized appeal for help, it was sending up rockets. Once more I came face to face with the "fire signals" of our ancestors. I hope that I shall never see them again. There are pleasanter and less desperate means of communication!

Tidings of Great Moment

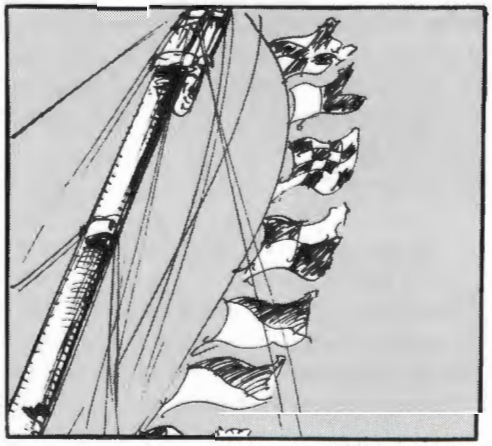
Now it must have been some time during those years when I still lived quite peacefully and happily among these medieval surroundings of my childhood days that I caught my first glimpse of that instrument that has since then become so completely a part of our modern life that we can hardly imagine how people were ever able to live without it. I refer of course to the telephone, that mysterious brown box that was fastened to the wall of my father's office and that was said to be a highly dangerous toy for little children, especially during a thunder-storm when it might give you a terrific shock.

It was explained to me as a sort of talking telegraph, for, of course, I had always known of the existence of the telegraph, and like most other children, I was terribly scared of the telegraph. For in those far away days of the late eighties, a telegram could mean only one of three things: Grandpa had died, Grandma was sick or Aunt Emmy had given birth to a seven-pound boy.

Hence Her Majesty's telegraphic messenger boys, who were usually venerable old Dutch gentlemen with whiskers, were greatly feared by all of us, for they were harbingers of evil tidings.

Where the Steeples Went

Speaking of the telegraph, it was not until many years later that I discovered why so many of the church towers in the Low Countries—In Holland and Belgium and all through northern France—had lost their steeples. I had always taken it for granted that this had been caused by the Reformation. During the many centuries of religious



Modern signal flags go back to the days of the Romans

The hand which all of us knew when we were young

warfare, people had been too poor to finish these mighty cathedrals. Hence the flat topped church steeples. But many years later I discovered that I had been completely mistaken. Napoleon was to blame and the Reformation had nothing to do with it. For, once Napoleon had conquered all the western Europe, he came to depend for his success upon a much speedier and much more reliable system of information than that provided by the imperial couriers, riding madly over the roads of Europe, and so he had installed the optical telegraph of Claude Chappe all over the continent. This optical telegraph consisted of an upright post on top of which a transverse bar was fastened. At the end of this bar there were two smaller arms which moved up and down on pivots. The position of these bars spelled out the letters and the whole contraption was always erected on the top of some high tower (and most of the high towers were, of course, church towers) so that it might be seen as far as possible. In case there was a steeple, the steeple was torn down so as to make a convenient platform.

It sounds a bit clumsy, but in the year 1792 when the French government adopted it officially it was possible to send messages at a speed of fifteen minutes for every fifty miles. Eventually the thing was given up because it was not always reliable. Even with a good telescope it was not easy to spell out these letters. And, furthermore, there was absolutely no privacy about this system.

Reminders of Things Past

Today the flag signals of our ships and the curious flags of the weatherman on top of the buildings in which he performs his intricate magic are about the only survivals of a time when long-distance intelligence could be relayed only by means of "visible methods."

Even mail coaches and sailing boats, and even carrier-pigeons were slow and not very dependable methods, but since nobody was ever in a great hurry, it was quite sufficient for all current needs. Who cared whether the news of the victory of Trafalgar reached London in six or seven days after the event? The French navy had been sunk beneath the surface of the ocean, hadn't it? Well, wasn't that enough? Of course it was! Now all good patriots could once more sleep the sleep of the just, and unnecessary hurry about such things would only have made them nervous and would have spoiled their appetites for dinner.

Morse invented the telegraphic apparatus in the year 1837. Bell's telephone first began to tinkle in 1877 (two years, I believe, after he got his patent). These two destroyers of time and space were therefore quite firmly established when I made my appearance on this planet. And enjoying as I did the doubtful advantages of a strictly classical education, I was not really aware of any very startling innovations within the realm of the natural sciences until suddenly in the year 1895 we were startled by the appearance in all the illustrated papers of a picture of a woman's hand, clearly showing the bones and a ring on one of the fingers. Next came a hand holding a key. Next came pictures of an old-fashioned German professor with a very low collar and a very broad brimmed hat, such as had been affected by the leaders of the great liberal movement of 1848.

Beloved Professor Roentgen

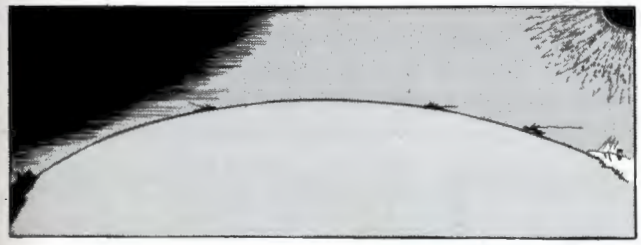
I was to know this kindly old gentleman quite well when I studied at the University of Munich, but we always talked about music and never about his X-rays. Together with millions of other people, I bear him a great debt of personal gratitude. I don't know how his rays work. But I realize that without this discovery, I would not now be sitting at my desk, telling you of these strange pre-war days when the papers were not so completely filled with the rumors of war and unrest that there was

The first collision in which wireless saved all lives

no room left for the news from those quiet laboratories where the patient scientist was engaged in doing the real work of this world.

But now, via Professor Roentgen and his mysterious rays, I am fast approaching a period of my own life (and in that of all my contemporaries) when the scientist at last made so indelible an impression upon our minds that even the most indifferent among us were forced to take notice, whether we liked it or not. I refer to the researches and discoveries of a young Italian by the name of Guglielmo Marconi, who was born in the year 1874 and who, most unfortunately, departed this earth only a little while back. I here salute him, as the Father of all Radio and the dearly beloved foster-parent of RCA.

I heard of him first in connection with a popular lecture which I attended more, I am afraid, from a desire to get away from school for one evening than inspired by a real thirst for knowledge. The subject of the lecture was a certain Heinrich Rudolf Hertz. This learned Teuton, who died in his late thirties, was explained to us as a sort of new Messiah, who by his discoveries within the realm of the electro-magnetic waves, was said to have gone further afield than any of his predecessors and who was only prevented by his premature death from making the discovery which was to make the name of Roentgen so famous, only a few years later. Even so, as the father of the Hertzian waves (whatever these were) he had laid



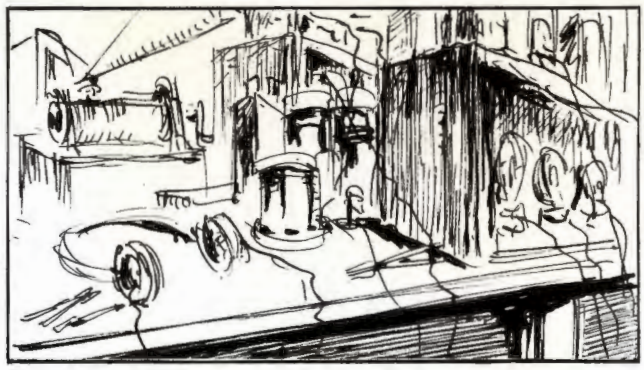
The first wireless message crackled from Cornwall to Newfoundland

the foundation for all the startling discoveries that were eventually to give us our X-rays, wireless, and radio.

And then came the day when the famous but exceedingly vague Hertzian waves, modified (or should I say "adapted") by Signor Marconi, brought themselves to our attention in so graphic a manner that even that most ignorant of all students of the natural sciences—myself—was forced to sit up and take notice and say, "Oh, boy!" or whatever was the equivalent of "Oh, boy!" in those long-ago days.

A Distress Call Answered

It happened this way. Early in March of the year 1898 the East Goodwin lightship of the English coast was rammed by a passing steamer. The lightship had one of Mr. Marconi's new-fangled wireless sets on board. It



Yes, this mess actually produced sound

sent out an appeal for help to the South Foreland lightship, twelve miles away. The appeal for help safely crossed that distance of twelve miles and the crew of the East Goodwin lightship was saved.

Here was something that people who lived near the sea could grasp and understand. When two years later Marconi managed to send his first message across the ocean from Cornwall to Newfoundland, we again realized that something very important had happened. Even though most of us doubted whether Marconi had actually heard anything at all, for wireless was more than we could understand, and poor Marconi for a while suffered the fate of all great leaders of Mankind. People doubted his claims to fame. They said, "Show us!" Well, he did. And what he might yet have shown us, had he lived, is a matter for stimulating conjecture.

How Dimly I Remember!

And now I am forced to make a big jump. I remember definitely that I first heard of Marconi in 1899 but when did I at last discover that there was such a thing as Radio? It sounds quite unbelievable, but I must have lived through the entire period when radio first developed and I never even noticed that such a thing existed. I remember vaguely having visited a house in the country where

To other points, South, East, North and West

people were playing with a complicated contraption of wires and coils and electric bulbs and a couple of ear-phones. I listened through one of the ear-phones and distantly—very distantly—I heard a popular tune. It reminded me of the phonographs of my childhood days, when you paid a dime and after a good deal of scratching and announcing were privileged to hear "Columbia, the

The prehistoric Broadcasting Studio went in heavily for draperies

Gem of the Ocean" played on the banjo, the barrel-organ and the xylophone. Shortly afterwards I went to Europe for a couple of years. When I returned to Connecticut all my artist friends and all my literary neighbors had radios and whenever there was a big prize-fight, the possessor of an extra loud radio was made happy by the sudden arrival of all his friends.

My Microphone Debut

And then suddenly and without a word of warning, I found myself, so to speak, right in the middle of the air. It came about this way: I had returned to Holland and was peacefully working on my book "Rembrandt", when I got a letter from Amsterdam. They were going to try to send their first broadcast from Holland to America. In view of the fact that "I seemed to enjoy a certain popularity in the country of my adoption," (The Dutch are very careful never to show too much enthusiasm. They call it "being honest.") would I consider speaking from Amsterdam to New York, San Francisco, Moose Jaw and other points, south, east, north and west?

I said yes, although I had not the slightest idea how that sort of thing was done, and so on the appointed day I took the six o'clock train from Flushing (Zeeland, not Long Island) to Amsterdam. I had prepared a most noble address. It was of course much too long. All of one's first radio efforts are always much too long. So I spent the day shortening my ten pages to seven and then to five and finally to a mere four. I was to talk ten minutes, and four typewritten pages were just about enough for ten minutes.

Six of my minutes were to be in English. Three minutes were to be in Dutch. I was to end up with a final farewell in English and would I please be careful to slide from one language into the next without noticeable change of gears!

Since then I have broadcasted in sixteen languages, within thirteen minutes, but I have never been as scared as at that moment, when for the first time in my life I stood in front of that little sardine-tin that hung suspended from the ceiling.

Keeping Warm in Winter

It was a cold day. The thought of talking to Java and Sumatra may have kept the usual performers in a comfortable sweat. But on this occasion, probably having visions of snow-clad New York, they were all of them shivering, and the fiddler and the bull-fiddler were wrapped in a series of heavy woolen sweaters. I asked them why they did not light a stove, but they explained that that was not allowed by the police on account of all the combustible material with which the room was filled. And, indeed, the establishment looked like one of the Turkish cozy-corners that were so popular in our homes and in the more fashionable hotels at the beginning of the present century. These draperies, I was informed, were necessary for the sake of the acoustics.

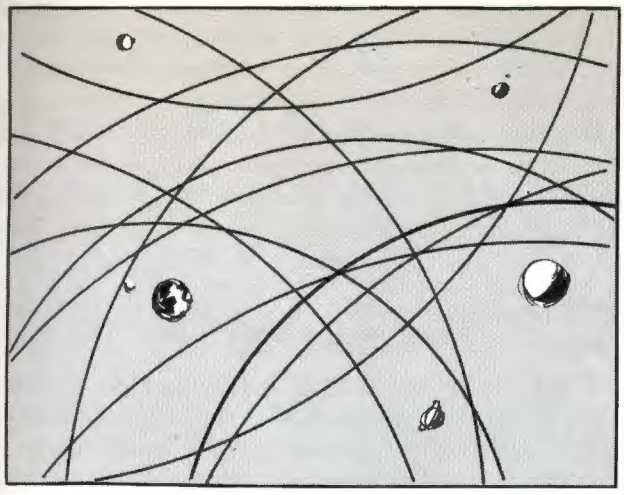
Came the hour and an eager young man in a green sweater and wearing a muffler and who thus far had been engrossed in a delightful and quite intimate conversation with a pleasant looking young girl, now stepped forward, picked up a heavy wooden hammer, and at a sign from the master of ceremonies, who, if I am not mistaken, is now the manager of the big commercial station in Luxemburg (Luxemburg being an independent commonwealth and situated most conveniently in the heart of Europe can go in for radio-advertising in a big American way)—

Broadcasting with Table Mountain, South Africa, as a backdrop

well, at the drop of the watch of this dignitary, he banged just as hard as he could on a series of a dozen steel bars.

Then a quartet (in sweaters and with frozen fingers) played a selection of well known Dutch tunes. And then it was my turn. And the very moment I addressed that little sardine-can, my nervousness dropped from me like the dew of summer disappearing before the rays of the July sun.

Incidentally, that has been my experience ever since. I have now been broadcasting for some eight years. And every time again, when I find myself face to face with a



We have only begun to explore our universe

mike, I suffer most horribly from an almost irrepressible stage-fright. Indeed, if it were not for the Bach fugues which my most faithful accompanist, the nimble fingered Gracie, is apt to play upon such occasions until the very moment I go on the air, I would undoubtedly have run away at least once out of every four occasions when I have had the privilege of addressing the eager multitudes of the U. S. A., Canada, Mexico, and the West Indian Islands, below, beneath and right in the heart of the Trade Winds.

Those Infant Short-Waves

Though I didn't know it then, my first broadcast was via short-wave—those mysterious small replicas of our regular radio waves, which travel so much farther and skip around the world so wonderfully; those short-waves which, scientifically speaking, are still in their swaddling clothes but, speaking of healthy babies, there, my friends, is a lusty giant for you!

That was quite a number of years ago, and since then I have spoken in almost all parts of the world. I have wrestled with Australian mikes and with those of New Zealand and South Africa and South America. My voice has been carried to the most distant and lonely islands of the Pacific, and my Dutch accent has troubled the natives of the dark Congo hinterland, as it has those of our own country.

So far so good, but what does all this have to do with short-wave sets? Let me try and tell you.

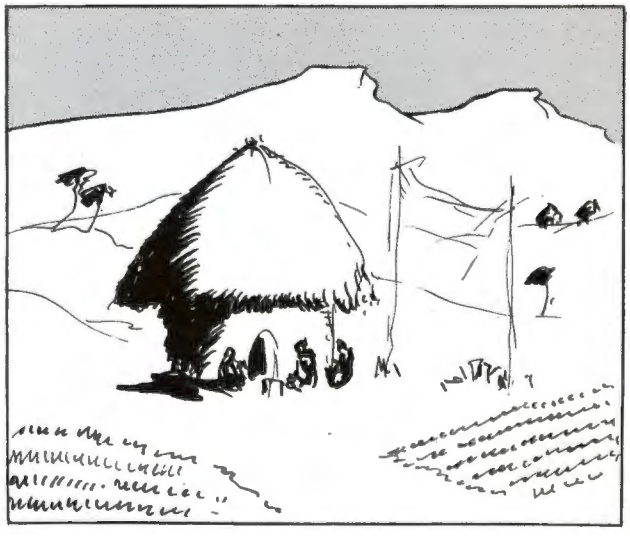
We often hear it said that we live in a prosaic and dull world with nothing but humdrum jobs and taxes, and every part of the planet has been thoroughly explored, and every continent has been discovered, and every symphony has been composed, and every book has been written, and every ocean has been crossed and recrossed, and almost all the elephants have been shot, and all the big fish have been caught, and what is there left for a bright young lad or girl to do?

Exploring the Unknown

Now part of this statement is undoubtedly true. Both the North and the South Poles have been closely examined by the inquisitive human eye. The forbidden cities of Tibet come to you in the movies between Mickey Mouse and the latest super-feature. When you go forth to shoot the big pachyderms of Kenya, you take a train to the hunting fields, where a uniformed game-warden carefully inspects your permit for "one elephant and two giraffes." And it is hard to find a new subject for a sumphony or a novel. But what of it? We are only at the beginning of our explorations of the universe. Within the realm of the sciences we have so far only scratched the surface. Within the realm of politics we have not yet succeeded in bringing man beyond the stage of a greedy and predatory cave-animal. And there is the air, that vast realm of the ether, or whatever theory has replaced that of the ether since I read last evening's newspaper. The whole of the air, the whole of the ether, is still practically an unexplored field in which we are bound, during the next hundred years, to make discoveries of which so far we have never even dreamed. And there, I would say, is where the short-wave comes in as your friend and ally.

The Dollar Standard

During the last half century, we have become so accustomed to the so-called miracles of science that we are apt to take just a little too much for granted. We can hear practically every long-wave station of the whole of the United States on our ordinary radio set. And so we rush to the conclusion that listening in to short-wave



We no longer live alone in this world

messages and speeches and concerts is merely a matter of plunking down so many dollars in a radio shop and saying: "Give us a short-wave set. The best you have."

That is only part of the story. With a good short-wave set you will get much better results than with a little contraption that will only bring you the intimate police-car conversations of a couple of cops patrolling one of the outlying suburban districts. But even with the best of short-wave sets you will soon begin to realize that the results will very much depend upon your own ability to handle the creature in the right way. For a short-wave radio is merely the key that opens the door to aerial adventure. What use you will thereupon make of this opportunity—that will depend almost entirely upon yourself. Just as you can buy the best fishing tackle on the market and come home with nary a fish, because you either did not know how to catch them or because you fell asleep or because just then you were thinking of something else than catching fish. And just as you can also have the thrill of landing the biggest fish of the local waters, if you have the knowledge.

Frontiers Are Down

And now I want to mention something else that makes the possession of a good short-wave set such a worthwhile investment. We no longer live alone in this world. Bell and Marconi and Hertz and Samuel Morse and the Wright Brothers and Stephenson and old Count Zeppelin and all the many others who gave us our modern means of communication, have successfully destroyed time and space. The whole world today, by way of speaking, is merely one vast suburb where everybody either knows what his neighbor is doing or can find out in a minimum of time and with a minimum of trouble. In such a world, it is just as well to understand a little something more about your neighbors than the fact that they happen to print very pretty postage stamps or that they are said to be fond of light wines and dancing (see the Geography book of your childhood days). Indeed, it is not merely "just as well," but in this age of revolution and sudden change, it almost becomes a moral necessity, for in the end this thorough understanding of your neighbor and his way of thinking and expressing himself, may prove to be a positive life-saver! It may keep us out of war, or if it fail to do so, it may at least tell us what we are fighting for.

Only Change is Certain

We happen (I have so often said before), we happen to live in an age of world-wide changes of an economic, social, spiritual and religious nature. Not to mention the realm of science which is in a constant uproar caused by the far-reaching discoveries and inventions that are now almost a daily occurrence. We may regret all this commotion, as many of my neighbors do. We may accept it as the promise of a much better and much more humane society, as I myself happen to do. But, regardless of our own preferences and prejudices, we have got to recognize these facts—we have got to realize that this is a fast-changing world, if we want to play the role which we as citizens of one of the most powerful and, on the whole, one of the most intelligent nations of this planet, will be called upon to play during the events of the next half-century.

The Ever-Listening Ear

In order to be able to do so and not to make any mistakes, we must first of all know what is happening from week to week, from day to day, and sometimes from hour to hour. It is for that reason that I keep my short-wave set constantly within reaching distance, where by the mere turning of a small black knob, a little this way or that way, I can find out for myself what the rest of the world is doing or saying or thinking.

If I merely wanted to be amused, even then I would be getting my money's worth. But leaving the amusement field out of consideration just now, there is my duty—and your duty—a duty inspired by a sense of self-preservation, to keep one of these sets within easy reaching distance, so that at any moment of the day or night, we can ask, "What are the short-waves saying?"

For upon their answer, all of us will depend, not only for our own happiness and for that of our children, but also for the peace and prosperity of untold generations that will arise from the present turmoil of our sadly afflicted world.

Far-reaching discoveries and inventions are now almost a daily occurrence

A Guide to Short-Wave Listening

By LAURENCE M. COCKADAY

{All hours mentioned are Eastern Standard Time}

Even the best fishermen rely upon a guide who knows the local waters and the habits of the fish. So I will assume the role of radio guide to you in your ether fishing.

In angling for distant short-wave stations there are two important factors that must be considered. They might be called the "when" and "where" of short-wave listening. The "when" refers to time in your own locality in relation to time in another part of the world when the station you would like to hear is transmitting. We must not forget that it is not eight o'clock at night here when it is eight o'clock in some far distant land. So it is very important to know at exactly what time foreign programs start and end in our own local time. That is what I am going to tell you and I will denote all hours in Eastern Standard Time, as most American listeners are familiar with this designation. Our second consideration—the "where"—does not refer to geographical location, even though you may have always thought so. It refers to the "spot" on the tuning dial that you must turn to in order to hear the desired station. These two bits of information, outside of ordinary skill in tuning, are what make short-wave exploring a real pleasure, rather than a hit-and-miss affair.

Kilocycles and Megacycles

The engineers have worked out a very clever method for finding the spot on your dial to tune to for a given station. The term is known as "frequency" and you will find your short-wave set dial marked in "kilocycles" or "megacycles." I do not feel it is necessary for you to worry about what kilocycles or megacycles really are—except that you have to turn the pointer on your dial to that number of kilocycles or megacycles on which the desired station is transmitting.

First Stop, London

Now I will assume my role as your short-wave radio guide. What would you like to listen to for regular fare on the short-waves? As a first surmise I would say it would probably be England, as that nation has complete short-wave programs in English. The British stations are the only ones that use this one language alone. But other European countries now devote considerable time to programs in the English language.

Starting with short-wave programs from *England,* we find that they are broadcast from Daventry under the call letters beginning with "G" and are commonly referred to as G-stations (although they are not operated by G-men!). They are run, however, by a government agency known as the British Broadcasting Corporation—familiarly, the BBC.

Among the features that may be heard from the G-stations, most popular to American listeners are the following: The Empire News (at the end of each program period), the Weekly News Letter, The England I Find (interviews of British subjects from all walks of life), World Affairs (addresses by statesmen and leaders in public life). These are the spoken programs. Then there are musical programs of all types: Henry Hall's dance orchestra (quite Americanized! He frequently visits us to study our methods), BBC Orchestra concerts, the BBC Men's Chorus; His Majesty's Scots' Guards Band, His Majesty's Irish Guards Band, and all types of ballad music and folk songs. Then there are the series of well-written and acted radio plays that can be heard almost daily.

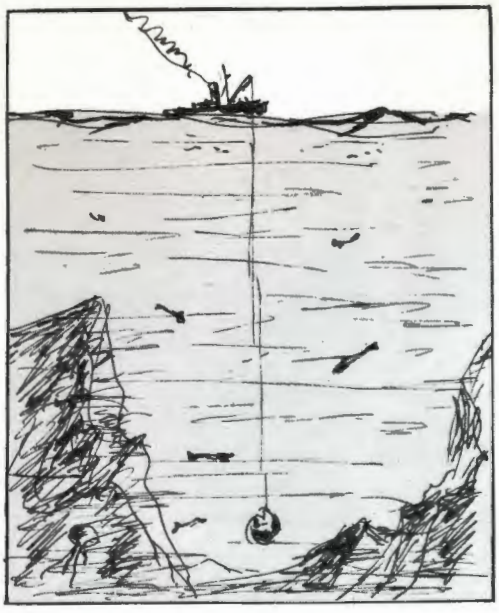
How to Find Your Station

We can always recognize a G-station by the announcement "This is London calling!" and ending with Big Ben chimes and the playing of "God Save the King!"

Now, who are these British stations and where can they be found on the dial? They are as follows:

CALL LETTERS	FREQUENCY MC/S	WAVE-LENGTH METERS
GSA	6.05	49.59
GSB	9.51	31.55
GSC	9.58	31.32

Englishmen all over the world tune in on the chimes of Big Ben



A talk from Dr. Beebe's Bathosphere was the subject of a recent round-the-world broadcast

CALL LETTERS	FREQUENCY MC/S	WAVE-LENGTH METERS
GSD	11.75	25.53
GSE	11.86	25.29
GSF	15.14	19.82
GSG	17.79	16.86
GSH	21.47	13.97
GSI	15.26	19.66
GSJ	21.53	13.93
GSK	26.10	11.49
GSL	6.11	49.10
GSN	11.82	25.38
GSO	15.18	19.76
GSP	15.31	19.60
GST	21.55	13.92

This list gives you the "spot" on which to tune your dial to any British station; but as we have pointed out before, that is not enough to know. We also have to learn when to tune. The Empire transmissions are six in number, Transmission 1 continuing between the hours of 11 p.m. and 1 a.m. In the summer, the stations used on Transmission 1 are usually GSG, GSO, GSD and GSB, on the 16, 19, 25 and 31-meter bands. However, other G-stations on these same four wave-lengths may be substituted at times from the list. Occasionally there will be two or three of these stations broadcasting at the same instant, and one will be considerably louder than the other in your particular locality. In the wintertime, Transmission 1 may be made from higher wave-length stations such as GSA or GSL on the 49-meter band, from GSB, GSC on the 31-meter band, and possibly GSD, GSE or GSN on the 25-meter band.

Other Transmissions

Transmission 2 occurs between the hours of 5 a.m. and 7 a.m. In the summertime, the stations regularly used are GSJ and GSH in the 13-meter band, and GSG in the 16-meter band. In winter, stations used may be any of those designated in the 16, 19, 25 or 31-meter bands.

Transmission 3 is accomplished in summer on GSJ and GSH on 13 meters, GSG on 16 meters, and GSF on 19 meters. However, other 19-meter stations may be substituted. In the winter, Transmission 3 is usually made on 19, 25 and 31-meter stations.

Transmission 4 takes place between the hours of 12 noon to about 6 p.m. The stations that may be heard will be found on 16, 19, 25 and 31 meters winter and summer.

Transmission 5 takes place between the hours of 6 p. m., and 9 p. m., and is designed primarily for the American continent. In the summertime, the stations on 19 and 25 meters predominate. During the winter, stations on the 25, 31 and 49-meter bands prevail.

Transmission 6 takes place between the hours of 7 p.m. and 11 p.m., and in summer the stations used are on 16, 19, 25 and 31 meters. In the winter they will probably be made on the 25, 31 and 49-meter stations. These programs in Transmission 6 are especially suited to the listeners in the western part of the United States.

The mailing address for all BBC stations is British Broadcasting Corporation, Broadcasting House, London, W. 1.

Radio Mathematics

I have spoken about wave-lengths. To find the dial setting for the stations in the list corresponding to the wave-lengths, we just take the kilocycles for that particular station. For instance, 49.5 meters is 6050 kilocycles for Station GSA. Again, 6050 kilocycles is equal to 6.05 megacycles. Either kilocycles or megacycles may be given on the dial of your radio receiver.

I have gone into considerable detail about tuning in

RADIOSTATION: **RADIONATIONS**

Callsign	Wavelength	Power & Aerial	Emission
HBL	31.27 m., 9595 k.c.	20 k.w. omnidir.	Official bulletin
HBP	38.47 m., 7797 k.c.	20 k.w. direction.	Information Section, L.o.N.
HBO	26.35 m., 11385 k.c.	20 k.w. omnidir.	International Labour Office
.....	.....	.....	Radio-Suisse (private)

Your report of ..... received and checked with our transmission, found correct and hereby verified.

Date .....

League of Nations - Geneva

8700-7.35-3000

RADIONATIONS

An "acknowledgement card" received by a listener from the League of Nations station in Geneva

KURZWELLENSENDER DER OSTERR. RADIOVERKEHRS A.G.

UR LTR CRD RCVD — 19— OER2 TNX FR UR MSG

RADIO WIEN DANKT HERZLICH FÜR DIE FREUNDLICHE EMPFANGSBESTÄTIGUNG

OER 2

TRANSMISSION HOURS

SUNDAY MONDAY TUESDAY WEDNESDAY THURSDAY FRIDAY SATURDAY | 14-22 GMT = 15-23 MEZ

14-23 GMT = 15-24 MEZ

TRANSMITTER CRYSTAL CONTROLED

[illegible] MC 25·42 m. 11801 KC

POWER 1·5 KW

OSTERR. RADIOVERKEHRS A.G.

WIEN, I., JOHANNESGASSE 4 b

OSTERREICH

"When in doubt, write." That's what a short-wave listener did, and received this reply from Central Europe

the British stations, and now that you have a fairly clear idea of the tuning-in process and what is involved, I will be briefer, as a good guide should be.

Now let me take you across the North Sea to *Germany.* Broadcasting in this country is also on a high technical standard, and the general method of transmission is similar to that of England. The programs are broadcast from Zeesen under the call letters beginning with "D." All the German stations are controlled by a government agency known as the Reichsrundfunkgesellschaft.

German Favorites

The program features most liked by American listeners are the following: German folk songs, symphonic band concerts, and male choirs. These are the musical programs. The spoken programs most popular are: News in English (near the end of the program), travel talks, Daily Life in Germany—and, for those who desire to observe Nazi ideas at first hand, the Economic Review. The Sports Review is also quite extensive.

The German short-wave stations are listed below:

CALL LETTERS	FREQUENCY MC/S	WAVE-LENGTH METERS
DJA	9.56	31.38
DJB	15.2	19.74
DJC	6.02	49.83
DJD	11.77	25.49
DJE	17.76	16.89
DJL	15.11	19.85
DJM	9.54	31.45
DJQ	15.28	19.63
DJR	15.34	19.56

The principal stations to listen for are DJE, DJB and DJQ, which may be heard from midnight to 10 a.m. daily. DJL is usually on the air from 11 a.m. to 5 p.m. DJD is heard from 11 a.m. until midnight. DJA and DJM transmit from about 4 p.m. to 5 a.m. with slight variations. DJC may be heard from noon till 4 p.m., and sometimes until late in the evening, in the fall and winter. Other German stations are sometimes substituted throughout the year, but they come in so powerfully that they can be easily found by a casual tuning over the 16, 19, 25, 31 and 49-meter bands. One added hint is that a German station may always be found very close on the dial to British stations.

German announcers address their listeners first in German, then in English with, "Dear friends and listeners abroad." Programs wind up with the Nazi "Marching Song" and "Deutschland Uber Alles."

The mailing address for German stations is Deutscher Kurzwellensender, Haus des Rundfunk, Berlin-Charlottenburg 9, Germany.

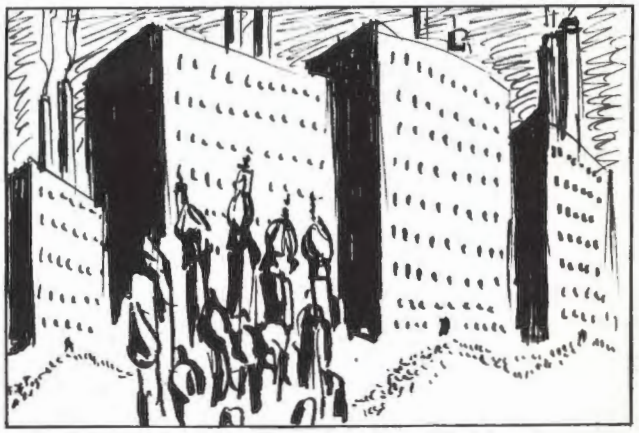
On to Paris

And now across the Rhine to ***Paris.*** French short-wave broadcasting originates at Pontoise, from the government station "Radio-Coloniale," an agency of the Ministry of Posts, Telegraphs and Telephones, often referred to as "P.T.T."

Programs always start with a concert or with gramophone records. News in French, English, German and Italian follow in swift succession. Classical music also takes up a considerable portion of the program. The "Message From Paris" in English is quite popular. Colonial market prices interest some American listeners.

The French stations are three in number: TPA2 may be found on 15,243 kilocycles on your dial (wave-length 19.68 meters), from the hours of 6 a.m. to 11 a.m.; TPA3 transmits on 11,885 kilocycles (25.24 meters), from 2 to 5 a.m., and from noon to approximately 6 p.m.; TPA4's frequency is 11,720 kilocycles (25.6 meters), and their time on the air is from 6 p.m. to around 2 a.m.

Locating French stations is relatively simple. "Ici Paree" is what you will hear the announcer say between selections. The program ends with the playing of "The Marseillaise."

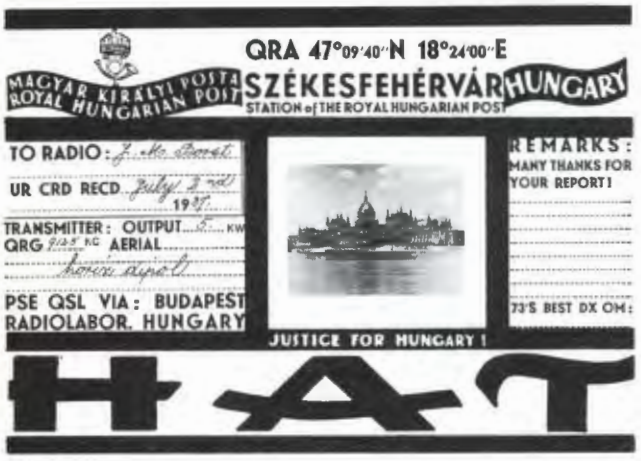


From Moscow you hear much about the aspirations of Soviet Young Pioneers

The mailing address for the "T" stations is Radio-Coloniale, 98bis, Boulevard Haussmann, Paris 8.

City of the Seven Hills

Flying high across the snow-capped Alps we arrive at ***Rome.*** Italian broadcasting on the short-waves is trans-



"We're glad you heard us," says this postal card from Budapest

mitted from Prato Smeraldo-Rome. The radio transmissions are government-controlled by the agency E.I.A.R.

Programs consist of complete operas, choral music, string music, Arabic music and folk songs. News in English and Italian, consisting largely of economic and military events, are interspersed freely throughout the program. Premier Mussolini, like dictators in other countries, is apt to be heard at any time. Some of the spoken features are broadcast in the following languages: Chinese, Japanese, Turkish, Spanish, Portuguese, French, German, English, Arabic, Danish and, of course, Italian. The linguistic ability of Italian announcers is one of the highest in the world.

The Italian transmissions are made from a single station I2RO (announced as 2RO4). In the summertime, this station operates on 11,810 kcs. (25.4 meters), from 6 a.m. to as late as 7 p.m. on some days. In the winter, the station may change frequency. Along about noon (announcing as 2RO3) this station may be found on your dial at 9635 kcs. (31.4 meters).

Rome may be recognized on the air by a woman announcer, who always starts each program feature by saying "Radio Roma Napoli." Programs end with the Fascist Anthem.

The U. S. S. R.

If you like, I will now guide you to Moscow—the center of Soviet short-wave broadcasting. The call letters are RV59 (very seldom mentioned over the air). This is a government station.

From ***Moscow,*** which is powerfully received in America, you will hear a preponderance of spoken programs, mostly one-hour talks on a given subject. These subjects run all the way from parachutism, to football, news, the People's Front, harvesting, polar expeditions, and the dreams and aspirations of Soviet Young Pioneers. If you like your Socialism undiluted, you can get it from Moscow. Also there is an hour of really worthwhile Russian music each week. You can easily recognize the station by its continuous dialogue and by its "Hello, Hello, Moscow Calling!"

Moscow may be found on the dial at 12,000 kcs. (25 meters), for one hour between 4 and 5 p.m., except Saturdays. On Wednesday only, the program is musical at this time, preceded by an hour of talk. English programs are heard daily at 7 p.m., and on Sundays at 6 a.m., 10 a.m., 4 p.m., and 7 p.m. Other Russian stations may be found in the short-wave station list.

The mailing address for Russia is Miss Inna Marr, Radio Center, Solianka 12, Moscow.

The Tulip Country

There are other stations in Europe that must be mentioned briefly. There is Huizen, ***Holland*** (call letters PCJ, 15,220 kcs., 19.71 meters), with its really good symphonic music and rather Americanized programs. It may be heard best from 8 to 11 a.m. on Wednesdays and, if you are a very early riser, from 4 to 6 a.m. on Tuesdays. PCJ may also be heard Sundays on 95.90 kcs. (31.28 meters), from 10 a.m. to 2 p.m. Station address is PCJ Studios, Hilversum.

Then there is the new station OLR4A, in ***Czechoslovakia,*** transmitting on 11,840 kcs. (25.34 meters), from 2 to 4 p.m. daily, and from 7 to 10 p.m. on Mondays and Thursdays. This station's announcement includes a fanfare of trumpets and is noted for its excellent band music. Station's address is Czechoslovak Short-Wave Station, Prague.

Stirring events are happening in Spain. Your short-wave radio is ready to tell you all about them

From picturesque Belgium come daily broadcasts that are exceedingly worth your while

And the Rest of Europe

Other Europeans worth fishing for are:

EAQ, Madrid, ***Spain,*** 9860 kcs. (30.43 meters), heard daily 6 p.m. to midnight. Address: Transradio Espanol, Apartado 951, Madrid.

CT1AA, Lisbon, ***Portugal,*** 9650 kcs. (31.09 meters), heard Tuesdays, Thursdays and Saturdays, 4 to 7 p.m. Address: Avenida Antonio Augusto de Aguiar 144, Lisbon.

SPW, Warsaw, ***Poland,*** 13,653 kcs. (22.16 meters), heard Mondays, Wednesdays and Fridays, 11 a.m. to 2 p.m., and on Sundays, 5 to 11 p.m. Address: Polskie Radjo S.A., Mazowieckca 5, Warsaw.

HAT4, Budapest, ***Hungary,*** may be picked up on your dial at 9125 kcs. (32.88 meters), on Sundays, for an hour, at 6 p.m. Address: Research Labs. for Electrical Communication of the R. Hungarian Post, Gyali-ut 22, Budapest.

ORK, Ruysselede, ***Belgium,*** 10,330 kcs. (29.04 meters), is heard for a few hours after 1 p.m. daily. Address: Direction des Radiocommunications, Brussels.

LZA, Sofia, ***Bulgaria,*** 14,970 kcs. (20.04 meters), may be heard Sundays, with a sensitive receiver, from 10 a.m. to 5 p.m., and also from 11 p.m. till 7 in the morning if you have a sleepless night. Address: Radio Garato, Sofia.

LKJ1, Jeloy, ***Norway,*** 9530 kcs. (31.48 meters), transmits from 5 to 8 a.m. Address: Department of Commerce, Division of Radio Telegraphy, Oslo.

A new ***Swedish*** station to listen for is SBG, Motala, which broadcasts daily from 1:30 a.m. to 5 p.m., and on Sundays, from 3 a.m. to 5 p.m. The frequency is 11,705 kcs. (25.63 meters), before 1:30 p.m., and 6065 kcs. (49.46 meters), after that time. Address: Official Swedish Short-Wave Radio Station, Motala.

Peace Center

HBL (announcing as Radionations), the League of Nations Station at Geneva, ***Switzerland,*** 9595 kcs. (31.27 meters), broadcasts some interesting talks on Saturdays, from 4 to 7 p.m. Address: Radionations, Prangins, Vaud.

HVJ, ***Vatican City,*** 15,121 kcs. (19.84 meters), announces as "Christus Laudator," and has a weekday program at 5 a.m. Address: Pontificia Accademia della Scienze, Roma-Castino Pio IV, Citta del Vaticano.

In the wintertime, by very careful tuning, you may be able to hear OER2, Vienna, ***Austria,*** 6073 kcs. (49.4 meters), transmitting weekdays, from 9 a.m. till better than 5 p.m. Address: Osterr, Radioverkehrs, A.G. Johannesgasse 4b, Vienna.

Also, OXY, Skamlebaek, ***Denmark,*** 6060 kcs. (49.5 meters), is a good catch from noon to 6 p.m. Address: Statsradiofonien, Heibergsgade, 7, Copenhagen.

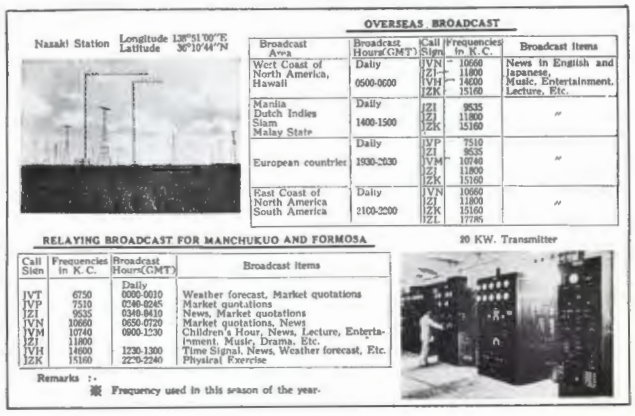
This group of European stations, collectively, will give you a good insight into what the various peoples of Europe are thinking and doing in the realms of government, business, music, science and art.

"Away Down Under"

Hurdling the vast space over oceans and continents to the Antipodes, we arrive in ***Australia.*** Here we find three or four stations that are always favorites with the American listener. Their programs are in English. Their psychology is simple, straight-forward and friendly. I like their pronunciation. Their programs come in loud and clear.

These stations, from "away down under," are four in number. VK2ME, Sydney, 9590 kcs. (31.28 meters), is heard best from 4 a.m. to about noontime in various sections of the United States. If you are interested in cricket, you may hear descriptions of these games on Sundays, from midnight to 2 a.m. This station is known

(*Continued on page 23*)



Nasaki Station Longitude 138°51'00"E Latitude 36°10'44"N

OVERSEAS BROADCAST

Broadcast Area	Broadcast Hours(GMT)	Call Sign	Frequencies in K.C.	Broadcast Items
West Coast of North America, Hawaii	Daily 0500-0600	JVN JZI JVH JZK	10660 11800 14600 15160	News in English and Japanese, Music, Entertainment, Lecture, Etc.
Manila Dutch Indies Siam Malay State	Daily 1400-1500	JZI JZJ JZK	9535 11800 15160	〃
European countries	Daily 1930-2030	JVP JZI JVM JZJ JZK	7510 9535 10740 11800 15160	〃
East Coast of North America South America	Daily 2100-2200	JVN JZI JZK JZL	10660 11800 15160 17795	〃

RELAYING BROADCAST FOR MANCHUKUO AND FORMOSA

Call Sign	Frequencies in K. C.	Broadcast Hours(GMT)	Broadcast Items
		Daily	
JVT	6750	0000-0010	Weather forecast, Market quotations
JVP	7510	0240-0245	Market quotations
JZI	9535	0340-0410	News, Market quotations
JVN	10660	0650-0720	Market quotations, News
JVM	10740	0800-1230	Children's Hour, News, Lecture, Entertainment, Music, Drama, Etc.
JZJ	11800		
JVH	14600	1230-1300	Time Signal, News, Weather forecast, Etc.
JZK	15160	2250-2340	Physical Exercise

Remarks :-

※ Frequency used in this season of the year.

20 KW. Transmitter

Japan sends detailed information on its broadcasts to listeners on the other side of the world

MOSCOW

13 Picture Vignettes

VATICAN CITY

MOSCOW In Russia, everything is owned by the government, including the precepts of Karl Marx. Naturally, you hear a lot about these precepts on the Moscow radio station. But if you are interested in aviation, agriculture, science or industry, Moscow has much to teach you of these, too. Then, too, there are probably more good bass voices in the choirs of Moscow than in all the other cities of the world put together. If you want to hear those voices, you can listen in undisturbed by politics or anything else. The Moscow station is good and loud, as befits a nation anxious to spread its gospel to the four corners of the earth.

VATICAN CITY We of this generation have seen the first Pope in history to install a telephone at his desk, to own and operate a radio station, and to venture beyond the Vatican walls in a motor car. This latter privilege is the indirect result

RIO DE JANEIRO

AUSTRIA

sby Hendrik Willem Van Loon

WITH COMMENTS BY THE EDITOR

of the Lateran Treaty of 1929, between the Papal State and the Italian Government. But the radio station is largely the work of the late Marconi who, besides being the discoverer of short waves, was himself a dignitary of the Church. If Urban II had had a radio transmitter in 1095, the outcome of the Crusades might have been quickly settled, and with much less bloodshed. But Peace and Reform are the concerns of the present Pope who, happily, has talked on both these subjects to hundreds of millions at a time.

RIO DE JANEIRO There is a great deal of wealth in Brazil, some of it lying in the steaming jungles, and some of it situated more handily in the banks of a few large cities. Now, wherever there is wealth there is leisure. And wherever there is leisure there is culture. So it is only natural that the radio stations of Brazil export a lot of excellent music, symphonic, operatic and dance, all of which is yours for the asking if you take the trouble to tune in. Some of these programs are announced in English, but the preponderant tongue is Portuguese.

AUSTRIA Pretty little Austria today is the object of desperate undercover politics, and there are some people who think that unless she chooses another Hapsburg, she will eventually be gobbled up by one of her neighbors. All of this might make the Austrians unhappy, were it not for their music, which has a way of reducing political squabbles to minor issues indeed. Any Austrian with a good radio set can tune in Salzburg and there find consolation in the works of Mozart, Beethoven or Wagner. For that matter, Americans can, too; and they will find it exceedingly worthwhile, particularly in the festival seasons when Toscanini conducts and when many great singers, including Americans, hold forth right near the spot where Mozart lived and died.

The Sun Never Sets On RCA Victor Radio

WHEN IT'S 5:00 O'CLOCK IN LONDON

It's high noon in New York. The difference in time is made clear on this map, which will help you establish the hour in any part of the world corresponding to noon standard time in the American metropolis. For purposes of clarity, only a few short-wave stations are shown. Use these as reference points to approximate the locations of other stations.

300 MILLION RCA RADIO TUBES HAVE BEEN BOUGHT BY RADIO USERS . . . IN TUBES, AS IN RADIO SETS, IT PAYS TO GO RCA ALL THE WAY!

VENEZUELA

FRANCE

HAVANA

ITALY

13 Picture

FRANCE

If you were in France looking for a good place to put up a transmitter for short-wave programs, you would sooner or later pick the Eiffel Tower for your antenna. Well, as a matter of fact, you would be too late; for the government already uses it for that purpose. You can verify this fact by tuning in your short-wave set and, by so doing, incidentally confer a favor on yourself. For the French have much to offer that is entertaining, instructive and interesting; and if you are a Wall Street banker, you may hear something very profitable besides. For the Paris radio transmits all the latest Colonial market prices, in addition to classical music, and news in French, German and Italian.

VENEZUELA

Venezuela is a confederation of states, as loosely grouped together as was our own Confederation in 1787, and having a smaller population now than this country had then. There is at least one good station in Venezuela, and that one is located in Caracas. Some night when you are "fishing around the dial," you are sure to tune it in. You may not recognize it at first, since it serves large helpings of pulsating jazz which might equally come from Havana, Rio, or a dozen other places. But when the announcer says, "Egree-ay-gah—vay-dos-erray-say," *{*YV2RC*}* *then* you know you're *there.*

HAVANA

Returning tourists from Cuba say that Havana is the Paris of America, by which they mean that the night life is very gay. There are others, however, who claim that this distinction really belongs to Rio, and that all those who claim otherwise are simply country bumpkins. Now, we do not want to take sides in this argument, but we *will* say that the music that comes from Havana sounds very much as if the *players* were having a good time. But if you want to judge for yourself, the quickest way to do so is to tune in both cities on your short-wave set and compare. The musical fare in Rio and Havana consists mainly of rhumbas, tangos, and Spanish melodies with guitar accompaniment. You will probably enjoy everything you hear, especially as distance lends enchantment to the listening.

ITALY

Mussolini is an omnipresent figure in Italy, and if you tune in on this country, you are apt to hear him any time. In case you don't, there are others who will tell you what he is thinking and saying. They will do this in Italian and in English. But there is music in the air of Italy, too, just as there is everywhere else. You can hear opera, choral music, string music or folk songs, as your heart desires. But if you are a musicologist and go in for things that are rare or novel, then listen to the programs especially made for export to the Italian possessions. The linguistic ability of the Italian announcers will delight you, even though you do not always understand them.

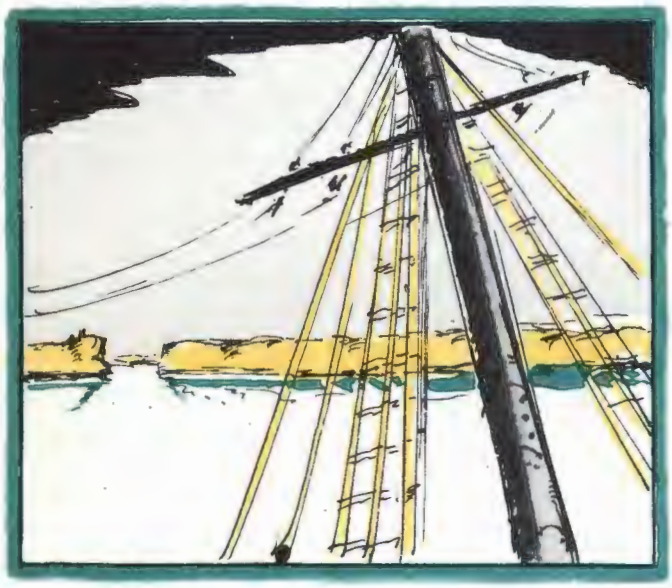
HOLLAND

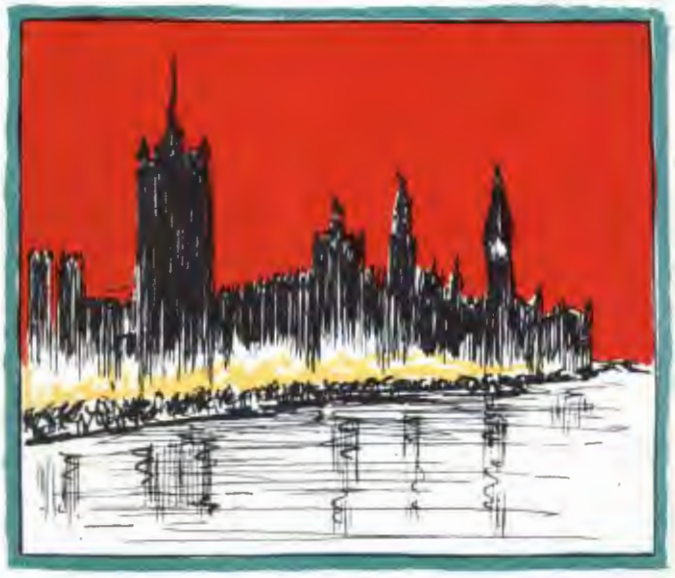
GERMANY

AUSTRALIA

TOKYO

LONDON





HOLLAND

Since Mr. Van Loon has contributed so charmingly to this booklet, and since his drawings also accompany these words, we feel sure you will want to get better acquainted with the land of his nativity. Mr. Van Loon has vivid recollections of moonlight skating parties in Holland, some of which were made especially memorable by draughts of an ambrosian pea soup. Unfortunately, the Dutch radio stations do not consider a skating party in the category of a sports broadcast, nor do they advertise their culinary secrets in English. Americans, however, will be well satisfied with their symphonic music and with their special programs for New World listeners.

GERMANY

The Nazification of Germany has brought radio under the control of the State; consequently, the air is full of talk about what Germans will or will not do, and sometimes there are speeches by Herr Hitler himself. But you must not suppose that this is all you will hear. For the Germans love to sing, and you will hear aplenty of their wonderful choral groups. Then too, there are symphonic concerts, and frequent news reports and travelogues in English. To get a good idea of what Hitlerism is all about, listen to the Economic Review.

LONDON

If you listened to the recent Coronation broadcasts, you will readily understand that Englishmen dearly love their king and queen. If you are familiar with Great Britain itself, you will also understand that Englishmen like their radio system. It is owned by the government and sometimes censored by the government, but it always tries to give its customers what they want. If you are a play-goer, you will much enjoy the dramatic presentations. If you are interested in world affairs, you will get keen delight out of listening to some of the foremost leaders of public thought. Of news reports there is almost a plethora. All short-wave broadcasts are in English.

AUSTRALIA

Australia is located in the Antipodes, where everybody walks upside down. If you expect from this that the Australian radio system is different from that of the Mother Country, you are quite right. The broadcasting stations are privately owned; and programs are considerably different from British standards. But you must remember that approximately 7,000,000 Australians occupy Australia, whereas the British make a better showing than that in London alone. In any case, you will enjoy listening to the Australian radio, because it gives you insight into the customs of the country and because it is still wonderful to hear what people are saying at the other end of the earth.

TOKYO

Japan is another country where the long arm of government reaches into the broadcasting booth. But it is worth your while to tune in on those charming islands, if for no other reason than to compare our own radio system with theirs. Besides, events are on the march in the Far East; and the news reports in English from Tokyo will help you keep up to date. As for music, you can take your choice of two varieties, occidental and oriental.

HOW TO *Tune In Foreign Stations . . .*

By LAURENCE M. COCKADAY

1. Tuning for short-wave broadcasting stations should be done carefully—turn the tuning knob slowly and evenly and not in jerks.

2. The energy received by your antenna from a far-distant, short-wave station, may be hundreds of times weaker than that from a local broadcast station. You should, therefore, adjust your receiver for maximum sensitivity and for maximum selectivity when you start tuning in.

3. Short-wave stations are located on your tuning dial according to "frequency." Frequency is designated in "megacycles" or in "kilocycles." One megacycle equals 1,000 kilocycles. As an example: Station GSD may be found on the tuning dial at 11,750 kcs., or 11.75 mcs., according to whether your dial is calibrated in kilocycles or in megacycles.

4. Most short-wave broadcasting is done on special wave-bands set aside for that purpose by international convention. The 16-meter band gives best results in the early morning hours. The 19-meter band and the 25-meter band are best during daylight. The 31-meter band reaches a maximum during twilight and the 49-meter band is excellent at night.

5. Keep a log of the best short-wave stations you hear so that you can come back to their dial settings at the right time, to hear them again. If you hear a station too weak to identify one evening, come back to it the next night, and the next, and you may hear it strongly.

6. A good all-wave receiver deserves the best all-wave antenna you can purchase, and requires it for best short-wave results.

7. Choose a radio set with a wide-vision dial, accurately calibrated in megacycles or kilocycles or both, and one that is clearly illuminated but not too blindingly bright.

8. The tone control on your receiver, judiciously used, cuts out considerable noise that may exist when atmospherics are bad.

9. Consult the leading monthly radio periodicals that print up-to-date short-wave time-tables, as many stations change operating frequencies and program schedules from time to time.

10. Refer to the accurate short-wave station list printed in this book when you need help to identify any unknown station you tune in.

11. A short-wave receiver must be kept working at top efficiency and should be checked once or twice a year by an authorized serviceman for alignment and tube efficiency.

12. If you are interested in verifying your reception of short-wave broadcasts from a distance, write to the station, telling what you heard, when you heard it, and how it was received. Most stations will send you an attractive "verification" card that you can keep for proof and for a memento.

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After you have become proficient, you can make other expeditions through Siberia

(*Continued from page 13*)

as "The Voice of Australia," and programs open and close with the "laughter" of the Australia kookaburra or laughing jackass. This, by the way, is a bird and not a quadruped!

Here is another Australian you will want to hear: VK3ME, Melbourne, 9510 kcs. (31.5 meters), heard weekdays, 4 to 7 a.m. The items broadcast comprise musical entertainment interspersed with interesting talks on Australian life.

The address for both VK2ME and VK3ME is Amalgamated Wireless, Ltd., 47 York Street, Sydney.

The third Australian station is VK3LR, Lyndhurst, 9580 kcs. (31.32 meters), heard weekdays, from 3 to 8 a.m. Address: Box 1686, G.P.O., Melbourne, C2.

And the fourth "down under" station is VK6ME, Perth, 9590 kcs. (31.28 meters), heard from 6 to 8 a.m., weekdays. Address: Amalgamated Wireless, Ltd., Perth, Western Australia.

Unlike most other foreign short-wave systems, Australian broadcasting is privately owned and their freedom from restraint is quite noticeable and refreshing.

To short-wave listeners in the Western part of the United States, programs from ***Asia*** are a more or less common occurrence. In California, it doesn't take much knowledge to fish around for and hear Japanese, Chinese, Javanese, Siberian and even Indian stations at one sitting. That is because the signals come across the Pacific with very little loss. But when they have to traverse half or possibly the whole of the United States as well, a little more knowledge of their habits is necessary. So let's make a speedy expedition through the most important spots in Asia.

Leaving Australia we turn northwest to the Sunda Islands, and our first stop is at Tandjongpriok, ***Java***, at Station YDA, which may be heard during the winter on 6040 kcs. (49.6 meters), from 3 to 7 a.m., when the weather is suitable. Address: N.I.R.O.M., Tandjongpriok. There are a number of other Javanese stations which do some broadcasting intermittently. They are at Soerabaia, Batavia and Bandoang. Frequencies of these are in the short-wave station list.

Toward the Orient

Across the Malacca Straits is ***Singapore***, where we find ZHI, 6012 kcs. (49.80 meters), broadcasting Sundays, from 11 p.m. to 2 a.m., and irregularly in the mornings, from 6 to 9 a.m. Address is Radio Service Co. of Malaya, Singapore.

Skipping across the Bay of Bengal there are two stations we might try for. One on the Island of ***Ceylon***, is VPB, at Colombo, 6160 kcs. (48.7 meters). It transmits weekdays, from 6 a.m. to noon. The other station in ***India*** is VUB, at Bombay, on 9565 kcs. (31.36 meters), heard irregularly early mornings. Address: Station director, All-India Radio, Bombay.

One station in ***Siam***, at Bangkok, call letters HSHPJ, is heard fairly well on Mondays, from 8 to 11 a.m., on

A good luck wish from Ecuador

10,955 kcs. (27.35 meters), and on 9350 kcs. (31.35 meters). Try both frequencies. Address: Superintending Engineer, P. Aram, Post and Telegraph Department, Bangkok.

In the Far East

Winging up the ***China*** Coast, we come to Macao and Hong Kong on opposite sides of the Sikiang River basin, just below Canton. In these cities are the best Chinese stations: CQN, of Macao, 9677 kcs. (31 meters), best heard from 7 to 9 a.m., on Mondays and Fridays. Address: Government Broadcasting Station, General Post Office, Macao, Portuguese, China. The station at Hong Kong is ZBW (announcing as ZBW4), on 15,190 kcs. (19.75 meters), heard intermittently, from 9 p.m. to 10 a.m. It may also be heard (announcing as ZBW3), on 9525

A greeting from Colombia

kcs. (31.49 meters), with the same schedule. In the winter it may be heard (announcing as ZBW2), on 6090 kcs. (49.26 meters). Station address: Post Office Box 200, Hong Kong.

Although all of these Asiatic stations announce in English, you may expect to hear some quite primitive languages and music (if you could call it such by our own standards) of unusual varieties: tom toms, sounds like rattling sticks, queer pipes, plucked strings, struck brass, in exotic cadences and discordant tones.

The most popular Asiatic programs are probably those from the far-off Land of the Rising Sun. This broadcasting comes to us from Nazaki. The broadcasting agency is the Broadcasting Corporation of ***Japan,*** with studios at Tokio.

After Japan — Siberia

The complete list of Japanese stations can be found in the short-wave station list, but the best two stations that can be heard are JZK, 15,160 kcs. (19.79 meters), and JZJ, 11,800 kcs. (25.42 meters). These may be heard transmitting regularly between the hours of 4 and 5 p.m., and intermittently between 7 and 11 p.m.

News in English is broadcast every day at 4 p.m. Both oriental and western music are broadcast. Travelogues about Japan are also interesting, as are the records of Japanese life. The programs close with the Japanese national anthem. Station address: Overseas Section, Broadcasting Corporation of Japan, Tokio.

There is a real opportunity for the short-wave listener, who, when he has become proficient in exploring, to make ether expeditions through ***Siberia, Manchukuo*** and ***Formosa,*** for rare radio catches. I refer our prospective listeners to the short-wave station list for their proper calls and frequencies, as space does not permit my telling you of their program idiosyncracies. After all, time does not mean much in Asia, and it is a lot of fun to make some of these discoveries for yourself.

Darkest Africa

Now for some enlightening radio facts about the Dark Continent. Any radio short-wave listener tackling ***Africa*** must feel as Livingstone did when he set out to conquer that vast impenetrable jungle. For that is what it is, also, in a radio sense. There are only a few stations in Africa that penetrate to these shores. Catching one, even for brief periods of time, is a real accomplishment.

African stations are heard mostly during our winter. You might listen for VQ7LO, Nairobi, Kenya, on 6083 kcs. (49.32 meters). If you are lucky, you might pick it up sporadically between 6 a.m. and 6 p.m.—but you'll have to fish for it. Another radio safari will lead you to CR7AA, at Lourenzo, Marques, and you will find it at 6137 kcs. (48.88 meters), if conditions are right and if you tune sharply between the hours of 4 a.m. and 4 p.m. You might tune for ZTJ, at Johannesburg, slightly south of CR7AA, on 6098 kcs. (49.2 meters). Crossing over to the South Atlantic side is a small station, CR6AA, at Lobito, Angola, on 7177 kcs. (41.7 meters), that sometimes percolates through on Wednesdays and Saturdays, from 2 to 5 p.m. Station OPM, at Leopoldville, Belgian Congo, on 10,140 kcs. (29.59 meters), occasionally puts on a broadcast. Station ZEB, at Bulawayo, Southern Rhodesia, on 6148 kcs. (48.8 meters), occasionally gets through in the afternoon. Crossing the Mozambique Channel to ***Madagascar*** you might look for FIQA, at Tananarive, on 6000 kcs. (exactly 50 meters). In Northern Africa, in ***Morocco, Libia, Egypt,*** or ***Ethiopia*** and the Somalilands, are a number of new stations (or old stations with new call letters), springing up with broadcast propaganda of all kinds since conditions there have been in such a turmoil. Africa, then, is virgin soil for the short-wave explorer, and don't be surprised if you hook a big fish there.

For verification purposes you can address the African stations as follows: VQ7LO, Cable & Wireless, Ltd., P.O. Box 777, Nairobi, Kenya; CR7AA, Gremio dos Radifilos da Colonhia de Mozambique, Caixa Postal 594, Lourenzo Marques, Mozambique; ZTJ, African Broadcasting Co., Ltd., P.O. Box 4559, Johannesburg, South Africa; CR6AA, P. O. Box 103, Lobito, Angola, Portuguese West Africa; OPM, Leopoldville, Belgian Congo; ZEB, P. O. Box, 792, Salisbury, Southern Rhodesia; FIQA, Administration des Postes, des Telegraphes et des Telephones, Tananarive, Madagascar.

Southeast of Mexico

Lastly, we arrive at that hodge-podge of short-wave broadcasting, that is Central and South America, including the West Indies. Here is a sort of Never-Never Land, where you will hear plenty of stations (and loud, too), but seldom will be able to identify them unless you are well versed in the Spanish language. You will

A verification card from Venezuela

hear them all over the 25-meter band. You will hear them battling together on the 31-meter band. And you will hear them joggling each other on the 49-meter band like the fragments of floating victuals in a nice big juicy stew. Short-wave stations in this wide area, in general, seldom announce in English, and even those that do (rather disdainfully), announce only between long intervals of rhumbas, tangos and "spot" air advertisements, all in Spanish syllables so fast that they sound as if projected from a machine gun.

We can here mention a few stations you would enjoy listening to, however. COCX, Havana, ***Cuba,*** 11,435 kcs. (26.24 meters), may be heard from 8 a.m. to noontime, and on Sundays, from 6 to 9 p.m., with good Spanish music. Address: Apartado 32, Havana. The same is true of Station COCH, 9248 kcs. (31.82 meters), which may be heard early morning and right around the clock. Address for COCH is: P.O. Box 41, Havana.

In Mexico Itself

In ***Mexico,*** you might listen for XEFT, Vera Cruz, 9590 kcs. (31.56 meters). It is on the air from 11 a.m. to 3 p.m., and from 7 p.m. till midnight. Address: "La Voz de Vera Cruz," Av. Independencia 28, Vera Cruz. Another Mexican station you can recognize is XEWI, Mexico, D. F., 11,900 kcs. (25.2 meters), which can be heard from noon to midnight. The announcer rings two gongs before speaking and the station slogan is, "My Voice to the World From Mexico." Address: P. O. Box 2874, Mexico, D. F.

You may also fish around for stations in ***Costa Rica,*** whose calls start with TI; in ***Honduras,*** station calls start with HR; in ***Nicaragua,*** station calls start with YN; in ***Panama,*** station calls start with HP5; in ***Argentina,*** station calls start with LR and LS, and, in ***Bolivia,*** station calls start with CP. In ***Brazil,*** PRF5 is a good station to listen for on 9500 kcs. (31.58 meters). It is heard between 1 and 3 p.m., and between 4 and 6 p.m., with programs in English and with good Spanish music. Stations in ***Colombia*** have calls starting with HJ; in Chile, calls start with CB and CE; in ***Ecuador,*** call letters start with HC; in ***Peru,*** call letters start with OAX. One particular Peruvian station to listen for is OAX4D, Lima, 5780 kcs. (51.9 meters), which may be heard in the morning from 9 a.m. to noon, on Mondays and Thursdays, and in the evening, from 9 p.m. till midnight, on Mondays, Wednesdays and Saturdays. In ***Venezuela*** the calls start with the letters YV. A large number of stations in the ***Dominican Republic*** have call letters starting with HI, and one readily recognized is HIT, at Trujillo, 6630 kcs. (45.25 meters), which is heard from noon to 2 p.m., and from 6 to 8 p.m. This station's slogan is "La Voz de la RCA Victor." Address: Apartado 1105, Ciudad, Trujillo. ***Haiti*** also has a number of stations beginning with the call letters HH.

A Final Word

The short-wave listener cannot escape hearing South American stations, and our recommendation is to look at your station list, when you hear one, to identify it from the frequency setting on your dial.

Of course, there are short-wave stations in the United States and Canada which you will readily identify by their call letters and their spoken announcements, as well as by their program material.

In conclusion, I know that starting with these few pointers, you will soon become expert in tuning for your favorite short-wave stations, and will find many new ones that I have not mentioned. These results should satisfy even the most avid fisherman exploring the ether lanes. Yes, you certainly will enjoy your short-wave radio. I predict it!

PROGRAM NOTES

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World-Wide

SHORT-WAVE STATION LIST

Kc.	Meters	Call	Location	Kw.	Service, Etc.
400,000	0.75	W1XEG	Storrs, Conn.	0.5	Experimental
60,500	4.96	W8XKA	Pittsburgh, Pa.	0.15	Experimental
55,500	5.41	W8XKA	Pittsburgh, Pa.	0.15	Ex.; relays KDKA
41,000	7.32	W2XG	New York, N. Y.	0.1	Experimental
31,600	9.50	W1XKA	Chicopee Falls, Mass.	0.5	Experimental
31,600	9.49	W3XKA	Philadelphia, Pa.	.....	Exp., relays KYW
31,600	9.49	W8XAI	Rochester, N. Y.	0.1	Exp.; relays WHAM
31,600	9.49	W8XKA	Pittsburgh, Pa.	.....	Experimental
31,600	9.49	W8XWJ	Detroit, Mich.	0.1	Exp.; relays WWJ
31,600	9.49	W9XPD	St. Louis, Mo.	0.1	Exp.; relays KSD
26,100	11.49	GSK	Daventry, England	20.0	Broadcast
21,540	13.93	W8XK	Pittsburgh, Pa.	40.0	Bc.; relays KDKA
21,530	13.93	GSJ	Daventry, England	15.0	Broadcast
21,520	13.94	W2XE	Wayne, N. J.	.....	Bc.; relays WABC
21,520	13.94	JZM	Nazaki, Japan	.....	
21,470	13.97	GSH	Daventry, England	20.0	Broadcast
21,460	13.98	W1XAL	Boston, Mass.	5.0	Broadcast
21,450	13.99	OLR6A	Podebrady, Czechoslovakia	25.0	Broadcast
21,420	14.01	WKK	Lawrenceville, N. J.	20.0	Phone
21,160	14.18	LSL4	Hurlingham, Argentina	60.0	Phone to London and Rio; day
21,140	14.19	KBI	Manila, P. I.	10.0	Phone
21,080	14.23	PSA	Marapicu, Brazil	10.0	Phone; broadcast
21,060	14.25	WKA	Lawrenceville, N. J.	20.0	Phone to England
21,060	14.25	KWN	Dixon, Calif.	20.0	Phone
21,020	14.27	LSN6	Hurlingham, Argentina	60.0	Phone to New York; day
20,910	14.35	PSB	Marapicu, Brazil	10.0	Phone
20,860	14.37	EHY	Madrid, Spain	7.5	Phone to Buenos Aires
20,820	14.41	KSS	Bolinas, Calif.	40.0	Phone
20,780	14.44	KMM	Bolinas, Calif.	40.0	Phone
20,140	14.90	DWG	Nauen, Germany	.....	Phone
20,040	14.97	OPL	Leopoldville, Belgian Congo	9.0	Phone to ORG; mornings
20,020	14.99	DFZ	Nauen, Germany	.....	Phone to South America
19,980	15.02	KAX	Manila, P. I.	20.0	Phone to Calif.
19,820	15.14	WKN	Lawrenceville, N. J.	20.0	Phone to England
19,720	15.21	EAQ	Madrid, Spain	10.0	Phone to Latin America
19,700	15.23	DFJ	Nauen, Germany	.....	Phone
19,660	15.26	SUY	Abu Zabal, Cairo, Egypt	0.1	Phone
19,600	15.31	LSF	Monte Grande, Argentina	7.0	Phone
19,520	15.37	IRW	Rome, Italy	20.0	Phone to South America
19,460	15.42	DFM	Nauen, Germany	.....	Phone
19,345	15.51	PMA	Bandoeng, Java, D. E. I.	40.0	Phone; sometimes bc.
19,260	15.58	PPU	Sepetiba, Brazil	12.0	Phone
19,220	15.61	WKF	Lawrenceville, N. J.	20.0	Phone
19,200	15.62	ORG	Ruysselede, Belgium	8.0	Phone
19,140	15.68	LSM3	Hurlingham, Argentina	60.0	Phone to Madrid, Berlin, Paris; day
19,050	15.75	JVC	Nazaki, Japan	.....	Phone; sometimes bc.
19,020	15.77	HS8PJ	Bangkok, Siam	.....	Broadcast
18,910	15.86	JVA	Nazaki, Japan	20.0	Phone to Europe; occ. bc.
18,890	15.88	ZS8	Klipheuvel, S. Africa	5.0	Phone to Rugby
18,860	15.91	WKM	Rocky Point, N. Y.	40.0	Phone
18,830	15.93	PLE	Bandoeng, Java, D. E. I.	40.0	Phone to Dixon and Nazaki
18,670	16.08	OCI	Lima, Peru	.....	Phone
18,620	16.11	GAU	Rugby, England	15.0	Phone to WM1, VWY
18,600	16.13	PDM	Kootwijk, Holland	40.0	Phone
18,545	16.18	PCM	Kootwijk, Holland	40.0	Phone
18,480	16.23	HBH	Prangins, Switzerland	20.0	Phone
18,405	16.30	PCK	Kootwijk, Holland	40.0	Phone to Bandoeng
18,340	16.36	WLA	Lawrenceville, N. J.	20.0	Phone to GAS
18,310	16.38	FZS	Saigon, French Indo-China	15.0	Phone to France
18,270	16.42	IUD	Addis Ababa, Ethiopia	.....	Phone
18,190	16.49	JVB	Nazaki, Japan	10.0	Phone to Java; P. I.; bc.
18,165	16.51	PPZ	Sepetiba, Brazil	20.0	Phone
18,135	16.55	PMC	Bandoeng, Java	40.0	Phone; sometimes bc.
18,090	16.58	TYE	Pontoise, France	12.0	Phone to U. S. A.
18,040	16.63	KQR	Bolinas, Calif.	40.0	Phone
18,020	16.65	KQJ	Bolinas, Calif.	40.0	Transpacific phone
17,980	16.69	KQZ	Bolinas, Calif.	40.0	Phone
17,940	16.72	WQB-W2XBJ	Rocky Point, N. Y.	40.0	Phone
17,920	16.74	WQF	Rocky Point, N. Y.	40.0	Phone
17,790	16.86	GSG	Daventry, England	15.0	Broadcast
17,785	16.87	JZL	Nazaki, Japan	.....	Broadcast
17,780	16.87	W8XK	Pittsburgh, Pa.	40.0	Bc.; relays KDKA
17,780	16.87	W3XAL	Bound Brook, N. J.	15.0	Broadcast; relays WJZ
17,780	16.87	W9XAA	Chicago, Illinois	0.5	Experimental
17,775	16.88	PHI	Huizen, Holland	23.6	Broadcast
17,760	16.89	W2XE	Wayne, N. J.	.....	Bc.; relays WABC
17,760	16.89	DJE	Zeesen, Germany	5-50	Broadcast
17,755	16.90	ZBW5	Hongkong, China	2.0	Broadcast
17,750	16.90	IAC	Coltano, Italy	14.0	Phone; early mornings
17,740	16.91	HSP	Bangkok, Siam	20.0	Phone to JVG
17,640	17.00		British Ships	.....	Phone
17,520	17.12	DFB	Nauen, Germany	.....	Phone to YVR
17,480	17.16	VWY2	Kirkee, India	.....	Phone to Rugby
17,310	17.33	W3XL	Bound Brook, N. J.	20.0	Experimental
17,265	17.37	DAF	Norddeich, Germany	.....	Phone
17,130	17.51	HAS5	Szekesfehervar, Hungary	20.0	Broadcast
16,820	17.84	NAA	Arlington, Virginia	.....	Time signals; 9:55-10:00 a.m. E. S. T.
16,665	18.00		German Ships	.....	Phone
16,305	18.40	PCL	Kootwijk, Holland	.....	Phone to Bandoeng
16,270	18.44	WLK	Lawrenceville, N. J.	20.0	Phone to Rugby
16,240	18.47	KTO	Manila, P. I.	40.0	Phone to Dixon
16,120	18.61	IRY	Rome, Italy	20.0	Phone
16,030	18.71	KKP	Kahuku, Hawaii	40.0	Phone to KWO
15,985	18.77	KQH	Kahuku, Hawaii	40.0	Phone
15,950	18.81	PLG	Bandoeng, Java	.....	Phone; afternoons
15,880	18.89	FTK	Ste. Assise, France	30.0	Phone to Saigon
15,865	18.91	CEC	La Granja, Chile	0.5	Phone
15,860	18.91	JVD	Nazaki, Japan	.....	Phone to Shanghai
15,810	18.97	LSL3	Hurlingham, Argentina	60.0	Phone to London, Rio; morn. and eve.
15,750	19.05	JIA	Tyureki, Formosa	10.0	Phone to Nazaki
15,680	19.13	JZA	Kanjoshi, Manchukuo	20.0	Phone to Nazaki
15,660	19.16	JVE	Nazaki, Japan	10.0	Phone to PLE, P. I.; occ.bc.
15,620	19.21	JVF	Nazaki, Japan	20.0	Phone to KWU; occ. bc.
15,505	19.35	CMA3	Havana, Cuba	.....	Tests, irr.
15,490	19.37	KEM	Bolinas, Calif.	40.0	Phone
15,475	19.39	KKL	Bolinas, Calif.	40.0	Phone
15,450	19.42	IUG	Addis Ababa, Ethiopia	.....	Phone
15,420	19.45	XEBM	Mazatlan, Sinaloa, Mexico	.....	Bc.; relays XEBL
15,420	19.45	KWO	Dixon, Calif.	20.0	Phone to Hawaii, Manila
15,370	19.52	HAS3	Szekesfehervar, Hungary	20.0	Broadcast
15,360	19.53	DZG	Zeesen, Germany	.....	Phone
15,355	19.54	KWU	Dixon, Calif.	20.0	Phone to Hawaii
15,340	19.56	DJR	Zeesen, Germany	50.0	Broadcast
15,330	19.57	W2XAD	Schenectady, N. Y.	20.0	Bc.; relays WGY
15,320	19.58	OLR5B	Podebrady, Czechoslovakia	25.0	Broadcast
15,310	19.60	GSP	Daventry, England	20.0	Broadcast
15,300	19.60	CP7	La Paz, Bolivia	1.0	Phone
15,280	19.63	DJQ	Zeesen, Germany	5-50	Broadcast
15,280	19.63	LRU	Buenos Aires, Argentina	5.0	Bc.; relays LR1
15,270	19.65	W2XE	Wayne, N. J.	15.0	Bc.; relays WABC
15,260	19.66	GSI	Daventry, England	15.0	Broadcast
15,250	19.67	W1XAL	Boston, Mass.	5.0	Broadcast
15,243	19.68	TPA2	Pontoise, France	12.0	Broadcast
15,230	19.70	OLR5A	Podebrady, Czechoslovakia	25.0	Broadcast
15,220	19.71	PCJ	Huizen, Holland	20.0	Experimental
15,210	19.72	W8XK	Pittsburgh, Pa.	40.0	Bc.; relays KDKA
15,200	19.74	DJB	Zeesen, Germany	5-50	Broadcast
15,190	19.75	ZBW4	Hongkong, China	2.0	Broadcast
15,180	19.76	GSO	Daventry, England	15.0	Broadcast
15,160	19.79	JZK	Nazaki, Japan	.....	Broadcast
15,160	19.79	OLR5C	Podebrady, Czechoslovakia	25.0	Broadcast
15,150	19.80	YDC	Bandoeng, Java	.....	Broadcast
15,140	19.81	GSF	Daventry, England	15.0	Broadcast
15,123	19.84	HVJ	Vatican City	10.0	Broadcast
15,110	19.85	DJL	Zeesen, Germany	5-50	Broadcast
15,070	19.91	PSD	Marapicu, Brazil	12.0	Phone
15,055	19.93	WNC	Hialeah, Florida	0.4	Phone
15,040	19.95	RKI	Moscow, U.S.S.R.	20.0	Phone to WQG, mornings
15,000	20.00	WWV	Beltsville, Md.	1.0	Freq. standard; Tue., Wed., Fri., 2-3 p.m., E. S. T.
14,985	....	YSL	San Salvador, El Salvador	.....	Phones Mexican stations
14,980	20.03	KAY	Manila, P. I.	40.0	Phone to Dixon
14,970	20.04	LZA	Sofia, Bulgaria	.....	Broadcast
14,960	20.05	YSL	San Salvador, El Salvador	.....	Phone
14,935	20.09	PSE	Marapicu, Brazil	.....	Phone; broadcast
14,910	20.12	JVG	Nazaki, Japan	10.0	Phone to Formosa; broadcast
14,690	20.42	PSF	Marapicu, Brazil	.....	Phone; broadcast
14,600	20.55	JVH	Nazaki, Japan	20.0	Phone; broadcast
14,590	20.56	WMN	Lawrenceville, N. J.	20.0	Phone
14,535	20.64	HBJ	Prangins, Switzerland	20.0	Phone
14,530	20.65	LSN1	Hurlingham, Argentina	60.0	Phone to New York; morn., eve.
14,500	20.69	LSM2	Hurlingham, Argentina	60.0	Phone to Madrid, Berlin, Paris; morn., eve.
14,480	20.72	YNA	Managua, Nicaragua	.....	Phone to WNC
14,460	20.75	DZH	Nauen, Germany	.....	Phone
14,440	20.78	GBW	Rugby, England	15.0	Phone
13,980	21.46	VPD2	Suva, Fiji Islands	.....	Experimental
13,820	21.70	SUZ	Abu Zabal, Cairo, Egypt	20.0	Phone
13,820	21.70	SU1CH	Cairo, Egypt	.....	Amateur; broadcast
13,811	21.72	SUZ1	Abu Zabal, Cairo, Egypt	8.0	Phone
13,760	21.80	TYE2	Pontoise, France	12.0	Phone to U. S. A.
13,690	21.91	KKZ	Bolinas, Calif.	40.0	Phone to Japan, Java

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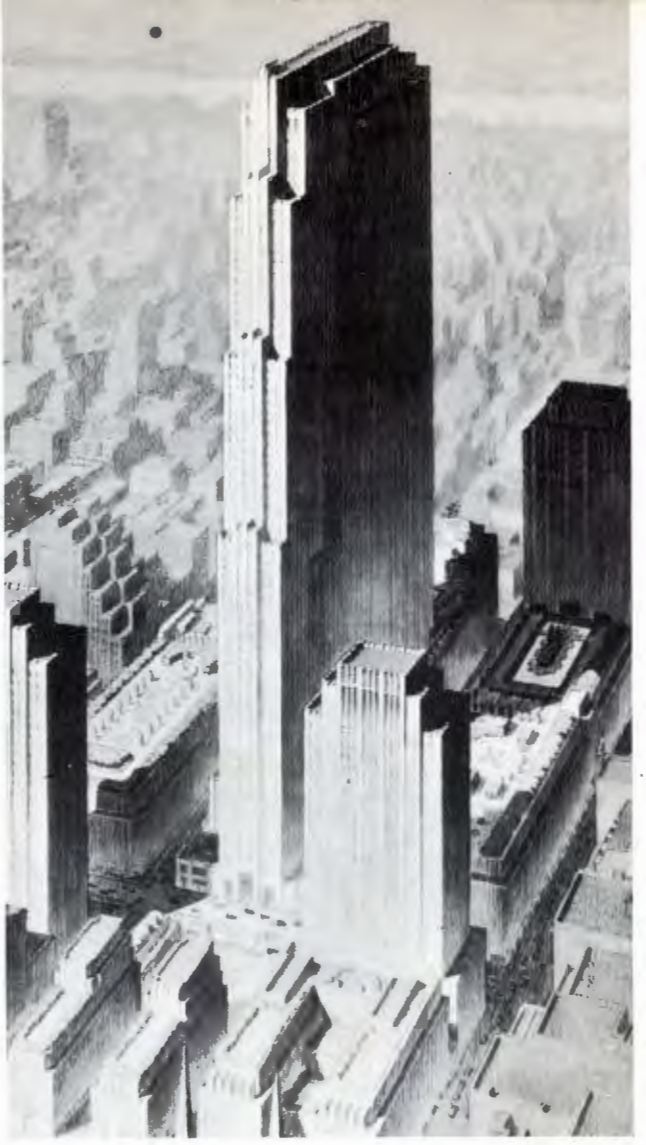
World-Wide Short-Wave Station List by Courtesy of RADIO NEWS

WORLD-WIDE SHORT-WAVE STATION LIST

Kc.	Meters	Call	Location	Kw.	Service, Etc.
13,635	22.00	SPW	Warsaw, Poland	20.0	Broadcast
13,610	22.04	JYK	Kemikawa-Cho, Japan	.....	Experimental; bc.
13,585	22.08	GBB	Rugby, England	15.0	Phone
13,560	22.12	JVI	Nazaki, Japan	10.0	Phone to Manchukuo; also bc.
13,337	22.47	YVQ	Maracay, Venezuela	20.0	Phone
13,320	22.70	....	British Ships	.....	Phone
13,285	22.58	CGA3	Drummondville, Canada	15.0	Phone to ships
13,240	22.66	KBJ	Manila, P. I.	40.0	Phone
13,210	22.71	FNSK	S.S. Normandie	.....	Phone
13,140	22.83	CWH	Cerrito, Uruguay	1.5	Phone
13,050	22.99	....	Italian Ships	.....	Phone
13,020	23.04	JZE	Nazaki, Japan	10.0	Phone to ships
12,795	23.44	IAC	Coltano, Italy	52.0	Phone
12,885	23.28	NPG	San Francisco	.....	Time signals; 4:55-5:00 p.m. E. S. T.
12,830	23.38	CNR	Rabat, Morocco	12.0	Phone to France
12,680	23.66	YNE	Puerto Cabezas, Nicaragua	0.1	Phone
12,630	23.75	NAA	Arlington, Va.	.....	Time signals; 9:55-10:00 a.m. E. S. T.
12,290	24.41	GBU	Rugby, England	15.0	Phone
12,250	24.49	TYB	Pontoise, France	.....	Phone to JVH, ships
12,235	24.52	TFJ	Reykjavik, Iceland	.....	Broadcast
12,215	24.56	TYA	Pontoise, France	15.0	Phone
12,150	24.69	GBS	Rugby, England	15.0	Phone to U. S. A.
12,130	24.73	DZE	Zeesen, Germany	.....	Phone
12,060	24.88	PDV	Kootwijk, Holland	60.0	Phone
12,020	24.96	VIY-VK3ME	Melbourne, Australia	.....	Tests with Drummondville
12,000	25.00	RV59	Moscow, U.S.S.R.	20.0	Bc. and phone
11,955	25.09	IUC	Addis Ababa, Ethiopia	3.5	Phone
11,950	25.11	KKQ	Bolinas, Calif.	40.0	Phone
11,900	25.21	XEWI	Mexico, D. F., Mexico	.....	Broadcast
11,900	25.21	CT1GO	Parede, Portugal	0.35	Broadcast
11,900	25.21	OLR4D	Podebrady, Czechoslovakia	25.0	Broadcast
11,895	25.22	HP5I	Aquadulce, Panama	0.05	Broadcast
11,895	25.22	XEXR	Mexico, D. F., Mexico	.....	Broadcast
11,880	25.25	XEXA	Mexico, D. F., Mexico	0.1	Broadcast
11,880	25.25	TPA3	Pontoise, France	.....	Broadcast
11,880	25.25	W9XF	Chicago, Illinois	.....	Bc., relays WENR
11,875	25.26	OLR4C	Podebrady, Czechoslovakia	25.0	Broadcast
11,870	25.27	W8XK	Pittsburgh, Pa.	40.0	Bc.; relays KDKA
11,860	25.29	YDB	Soerabaja, Java, D. E. I.	1.0	Broadcast
11,860	25.30	GSE	Daventry, England	20.0	Broadcast
11,855	25.31	DJP	Zeesen, Germany	5-50	Broadcast
11,840	25.34	OLR4A	Podebrady, Czechoslovakia	25.0	Broadcast
11,830	25.36	W2XE	New York, N. Y.	10.0	Bc.; relays WABC
11,830	25.36	W9XAA	Chicago, Illinois	0.5	Bc.; relays WCFL
11,830	25.36	XEBR	Hermosillo, Sonora, Mexico	.....	Bc.; relays XEBH
11,820	25.38	GSN	Daventry, England	20.0	Broadcast
11,810	25.40	CRCX	Toronto, Canada	0.5	Broadcast
11,810	25.40	I2RO4	Rome, Italy	25.0	Broadcast
11,804	25.42	OAX5A	Ica, Peru	....	Broadcast
11,801	25.42	OER2	Austria, Vienna	1.5	Broadcast
11,800	25.42	JZJ	Nazaki, Japan	....	Broadcast
11,795	25.43	DJO	Zeesen, Germany	5-50	Experimental
11,790	25.45	W1XAL	Boston, Mass.	5.0	Broadcast
11,770	25.49	DJD	Zeesen, Germany	5-50	Broadcast
11,760	25.51	OLR4B	Podebrady, Czechoslovakia	25.0	Broadcast
11,750	25.53	GSD	Daventry, England	20.0	Broadcast
11,740	25.55	HP5L	David, Panama	0.35	Broadcast
11,730	25.57	PHI	Huizen, Holland	23.6	Broadcast; winter months
11,730	25.57	CJRX	Winnipeg, Man., Canada	2.0	Bc.; relays CJRC
11,720	25.60	TPA4	Pontoise, France	12.0	Broadcast
11,718	25.60	CR7BH	Lourenco Marques, Mozambique	0.33	Broadcast
11,705	25.63	SM5SX	Stockholm, Sweden	.....	Broadcast
11,680	25.68	KIO	Kahuku, Hawaii	40.0	Phone to Bolinas
11,670	25.71	PPQ	Sepetiba, Brazil	5.0	Phone
11,660	25.73	JVL	Nazaki, Japan	10.0	Phone to Formosa; bc.
11,595	25.88	VRR4	Stony Hill, Jamaica	.....	Phone to Hialeah, Fla.
11,540	26.00	XGR	Shanghai, China	20.0	Phone
11,495	26.10	VIZ-3	Fiskville, Australia	.....	Phone to Drummondville
11,435	26.24	COCX	Havana, Cuba	1.0	Bc.; relays CMX
11,430	26.25	YNE	Puerto Cabezas, Nicaragua	0.1	Phone
11,385	26.35	HBO	Prangins, Switzerland	20.0	Broadcast
11,340	26.46	DAF	Norddeich, Germany	....	Phone
11,280	26.50	HIN	Trujillo, D. R.	0.75	Broadcast
11,140	26.93	....	German Ships	.....	Phone
11,040	27.17	HRW-HRY	La Ceiba, Honduras	0.1	Phone
11,040	27.17	CSW	Lisbon, Portugal	5.0	Broadcast
11,000	27.27	ZLT4	Wellington, New Zealand	.....	.....
11,000	27.27	PLP	Bandoeng, Java	3.0	Phone; occ. bc.
10,955	27.38	HSG2	Bangkok, Siam	.....	Phone; bc.
10,850	27.65	DFL	Nauen, Germany	.....	Phone
10,840	27.68	KWV	Dixon, Calif.	20.0	Phone to Hawaii
10,770	27.86	GCP	Rugby, England	15.0	Phone
10,740	27.93	JVM	Nazaki, Japan	20.0	Phone to U. S. A.; occ. bc.; relays JOAK
10,670	28.12	CEC	La Granja, Chile	0.5	Phone
10,660	28.14	JVN	Nazaki, Japan	20.0	Bc.; relays JOAK
10,620	28.25	WEF	Rocky Point, N. Y.	40.0	Phone to Europe
10,610	28.28	WEA	Rocky Point, N. Y.	40.0	Experimental
10,578	28.36	FYB	Paris, France	.....	Time signals; 7:55-8 p.m., E. S. T.
10,535	28.48	JIB	Tyureki, Formosa	6.0	Phone to Japan
10,430	28.76	TYE3	Pontoise, France	12.0	Phone to U. S. A.
10,430	28.76	YBG	Medan, Sumatra, D. E. I.	3.0	Phone; occ. bc.
10,420	28.79	XGW	Shanghai, China	20.0	Phone
10,410	28.82	KES	Bolinas, Calif.	40.0	Phone
10,410	28.82	LSY	Monte Grande, Argentina	10.0	Phone
10,410	28.82	PDK	Kootwijk, Holland	60.0	Phone
10,400	28.85	KEZ	Dixon, Calif.	40.0	Phone
10,375	28.92	JVO	Nazaki, Japan	10.0	Phone to Manchukuo; bc.
10,370	28.93	EAJ43	Tenerife, Canary Islands	.....	Broadcast
10,350	28.98	EAJ33	Caramaca, Spain	.....	Broadcast
10,350	28.98	LSX	Monte Grande, Argentina	12.0	Phone; also bc.
10,335	29.03	ZFD	St. George, Bermuda	1.5	Phone; mostly telegraph
10,330	29.03	ORK	Ruysselede, Belgium	11.0	Broadcast
10,310	29.10	PPM	Sepetiba, Brazil	20.0	Phone
10,300	29.13	LSL2	Hurlingham, Argentina	60.0	Phone to London, Rio; night
10,290	29.16	DZC	Zeesen, Germany	.....	Phone
10,260	29.24	PMN	Bandoeng, Java, D. E. I.	3.0	Phone; occ. bc.
10,250	29.27	LSK3	Hurlingham, Argentina	60.0	Phone to Madrid, Berlin, Paris; night
10,230	29.33	CED	Antofagasta, Chile	0.4	Phone; bc.
10,220	29.35	PSH	Marapicu, Brazil	.....	Phone; bc.
10,170	29.48	RIO	Baku, U.S.S.R.	.....	Phone
10,140	29.59	OPM	Leopoldville, Belgian Congo	15.0	Phone to ORK
10,080	29.76	RIR	Tiflis, U.S.S.R.	4.0	Phone to RIO, RNE
10,070	29.79	EDN	Madrid, Spain	10.0	Experimental
10,065	29.81	TDE	Kanjoshi, Manchukuo	20.0	Phone to JVO
10,055	29.84	ZFB	St. George, Bermuda	1.5	Phone
10,055	29.84	SUV	Abu Zabal, Cairo, Egypt	20.0	Phone to Germany, England
10,042	29.87	DZB	Zeesen, Germany	.....	Phone
10,000	30.00	WWV	Beltsville, Md.	.....	Standard frequency
9,990	30.03	KAZ	Manila, P. I.	40.0	Phone
9,940	30.18	CSW	Lisbon, Portugal	.....	Broadcast
9,890	30.32	LSN2	Hurlingham, Argentina	60.0	Phone to New York; nights
9,860	30.43	EAQ	Madrid, Spain	20.0	Broadcast
9,840	30.49	JYS	Kemikawa-Cho, Japan	10.0	Bc.; tests
9,740	30.80	COCQ	Havana, Cuba	.....	Bc.; relays CMQ
9,675	31.01	DZA	Zeesen, Germany	.....	Phone
9,670	31.02	T14NRH	Heredia, C. R.	.....	Broadcast
9,665	31.04	CT1AA	Lisbon, Portugal	2.0	Broadcast
9,660	31.06	PSJ	Marapicu, Brazil	.....	Phone
9,660	31.06	LRX	Buenos Aires, Argentina	5.0	Bc.; relays LR1
9,645	31.10	HH3W	Port-au-Prince, Haiti	0.03	Broadcast
9,635	31.14	I2RO3	Rome, Italy	20.0	Broadcast
9,618	31.18	HJ1ABP	Cartagena, Colombia	0.7	Broadcast
9,610	31.22	YDB	Soerabaja, Java, D. E. I.	1.0	Bc.; relays YDA
9,605	31.23	HP5J	Panama, Panama	0.16	Broadcast
9,600	31.25	CQN	Macao, Port China	.....	Broadcast
9,600	31.25	CB960	Santiago, Chile	0.1	Broadcast
9,600	31.25	RAN	Moscow, U.S.S.R.	.....	Broadcast
9,597	31.26	VK6ME	Perth, Australia	....	Experimental
9,595	31.27	HBL	Prangins, Switzerland	20.0	Broadcast
9,590	31.28	PCJ	Huizen, Holland	20.0	Exp.; broadcast
9,590	31.28	W3XAU	Philadelphia, Pa.	10.0	Bc.; relays WCAU
9,590	31.28	VK2ME	Sydney, Australia	20.0	Broadcast
9,580	31.31	VK3LR	Lyndhurst, Vic., Australia	20.0	Broadcast
9,580	31.31	GSC	Daventry, England	20.0	Broadcast
9,575	31.34	HJ2ABC	Cucuta, Colombia	0.25	Broadcast
9,570	31.35	W1XK	Millis, Mass.	10.0	Bc.; relays WBZ, WBZA
9,565	31.36	HP5S	....., Panama	0.1	Broadcast
9,565	31.36	VUB	Bombay, India	4.5	Broadcast
9,560	31.38	DJA	Zeesen, Germany	5-50	Broadcast
9,559	31.38	HJ1ABB	Barranquilla, Colombia	1.0	Broadcast
9,551	31.41	HH2Y	Port-au-Prince, Haiti	0.03	Broadcast
9,550	31.41	OLR3A	Podebrady, Czechoslovakia	25.0	Broadcast
9,540	31.47	LKJ1	Jeloy, Norway	1.0	Broadcast
9,540	31.47	DJN	Zeesen, Germany	5-50	Broadcast
9,535	31.46	JZI	Nazaki, Japan	.....	Broadcast
9,530	31.48	W2XAF	Schenectady, N. Y.	40.0	Bc.; relays WGY
9,525	31.49	ZBW3	Hongkong, China	2.0	Bc.; relays ZBW
9,520	31.51	XEME	Merida, Yucatan, Mexico	0.015	Bc.; relays XEFC
9,520	31.51	HJ4ABH	Armenia, Colombia	....	Bc.; relays HJ4ABN
9,510	31.55	GSB	Daventry, England	20.0	Broadcast
9,510	31.58	HJU	Buenaventura, Colombia	1.0	Broadcast
9,510	31.58	VK3ME	Melbourne, Australia	5.0	Broadcast
9,504	31.56	OLR3B	Podebrady, Czechoslovakia	25.0	Broadcast
9,500	31.58	PRF5	Rio de Janeiro, Brazil	....	Broadcast
9,500	31.58	HJ1ABE	Cartagena, Colombia	0.05	Broadcast
9,493	31.60	XEFT	Vera Cruz, Ver., Mexico	.02	Broadcast
9,490	31.61	KEI	Bolinas, Calif.	20.0	Phone
9,490	31.61	WEF	Rocky Point, N. Y.	40.0	Phone
9,480	31.65	XEDQ	Guadalajara, Jalisco, Mexico	0.5	Bc.; relays XED
9,480	31.65	KET	Bolinas, Calif.	40.0	Phone
9,450	31.75	TGWA	Guatemala City, Guatemala	0.2	Experimental
9,441	31.78	HC2EBA	Guayaquil, Ecuador	.....	Broadcast
9,428	31.82	COCH	Havana, Cuba	10.0	Broadcast
9,425	31.83	NAA	Arlington, Va.	.....	Time signals
9,415	31.86	PLV	Bandoeng, Java, D. E. I.	80.0	Phone; sometimes bc.
9,360	32.05	....	Fort de France, Martinique, F. W. I.	.....	Broadcast
9,350	32.09	HS8PJ	Bangkok, Siam	.....	Broadcast
9,520	32.15	OAX4I	Lima, Peru	.....	Broadcast
9,300	32.26	YNGU	Managua, Nicaragua	.....	Broadcast
9,220	32.54	YNE	Puerto Cabezas, Nicaragua	0.1	Phone
9,125	32.87	HAT4	Szekesfeherrar, Hungary	20.0	Broadcast
9,045	33.17	VWY	Kirkee, India	....	Phone to England; mornings
9,040	33.19	TYA2	Pontoise, France	15.0	Phone to Algeria
8,960	33.48	FVA	Algiers, Algeria	....	Phone
8,948	33.53	HCJB	Quito, Ecuador	0.5	Broadcast
8,830	33.96	....	British Ships, French Ships	.....	Phone
8,795	34.11	HKV	Bogota, Colombia	.....	Broadcast
8,775	34.18	PNI	Makassar, Celebes, D. E. I.	3.0	Phone; occ. bc.
8,710	34.44	KBB	Manila, P. I.	.....	Phone
8,719	34.40	VPD2	Suva, Fiji Islands	.....	Broadcast
8,665	34.62	CO9JQ	Camaguey, Cuba	0.20	Broadcast
8,505	35.27	YNLG	Managua, Nicaragua	0.5	Broadcast
8,470	35.42	....	German Ships	.....	Phone
8,765	34.23	DAF	Norddeich, Germany	.....	Phone to ships
8,400	35.71	HC2CW	Guayaquil, Ecuador	.....	Broadcast
8,300	36.14	ZP10	Asuncion, Paraguay	0.015	Broadcast
8,290	36.19	HRW-HRY	La Ceiba, Honduras	0.1	Phone
8,185	36.65	PSK	Marapicu, Brazil	.....	Phone; bc.
8,120	36.95	KAZ	Manila, P. I.	20.0	Phone to Dixon, Calif.
8,035	37.34	CNR	Rabat, Morocco	12.0	Phone; bc.
8,035	37.34	CED	Antofagasta, Chile	0.4	Phone
7,901	37.98	LSL1	Hurlingham, Argentina	60.0	Phone to Rio; night
7,880	38.07	JYR	Kemikawa-Cho, Japan	5.0	Broadcast
7,860	38.12	SUX	Abu Zabal, Cairo, Egypt	20.0	Phone
7,854	38.20	HC2JSB	Guayaquil, Ecuador	0.5	Broadcast
7,830	38.31	PGA	Kootwijk, Holland	60.0	Phone
7,810	38.41	YNE	Puerto Cabezas, Nicaragua	0.1	Phone
7,797	38.47	HBP	Prangins, Switzerland	20.0	Broadcast
7,740	38.76	CEC	La Granja, Chile	0.5	Phone
7,620	39.32	IUB	Addis Ababa, Ethiopia	.....	Phone
7,560	39.68	YNLF	Managua, Nicaragua	.....	Broadcast
7,550	39.74	TI8WS	Puntarenas, Costa Rica	0.12	Broadcast
7,520	39.87	KKH	Kahuku, Hawaii	40.0	Phone
7,510	39.95	JVP	Nazaki, Japan	20.0	Bc.; phone
7,470	40.16	JVQ	Nazaki, Japan	10.0	Phone to Java
7,415	40.45	WEG	Rocky Point, N. Y.	40.0	Phone
7,380	40.65	XECR	Mexico, D. F., Mexico	20.0	Broadcast
7,370	40.71	KEQ	Kahuku, Hawaii	40.0	Phone
7,315	41.01	YNLAT	Granada, Nicaragua	.....	Broadcast
7,288	41.14	VK5DI	Adelaide, Australia	....	Experimental
7,281	41.20	SM5SD	Stockholm, Sweden	0.03	Broadcast
7,220	41.55	ECN1	Barcelona, Spain	.....	Broadcast
7,210	41.61	EA8AB	Santa Cruz, Tenerife, C. I.	.....	Broadcast
7,200	41.67	YNAM	Managua, Nicaragua	.....	Bc.; amateur
7,200	41.67	....	San Sebastian, Spain	.....	.....
7,177	41.80	CR6AA	Lobita, Angola, Port. W. Africa	0.5	Bc.; C. W., phone
7,165	41.87	....	Valencia, Spain	.....	Broadcast
7,100	42.25	FO8AA	Papeete, Tahiti	0.2	Broadcast
7,082	42.36	PI1J	Dordrecht, Holland	.....	Amateur; sometimes bc.

WORLD-WIDE SHORT-WAVE STATION LIST

Kc.	Meters	Call	Location	Kw.	Service, Etc.
7,020	42.73	EGP1	Barcelona, Spain	.....	Broadcast
7,000	42.86	EA9AH	Tetuan, Sp. Morocco	.....	Broadcast
7,000	42.86	PZH	Paramaribo, Dutch Guiana	.....	Broadcast
6,970	43.04	HCETC	Quito, Ecuador	0.03	Broadcast
6,960	43.10	VK8SC	Port Hedland, Australia	.....	Broadcast
6,900	43.48	HI2D	Ciudad, Trujillo	0.1	Broadcast
6,860	43.73	KEL	Bolinas, Calif.	40.0	Phone
6,848	43.81	XGOX	Nanking, China	.....	Broadcast
6,805	44.07	HI7P	Trujillo, D. R.	0.025	Broadcast
6,775	44.38	HIH	San Pedro de Macoris, D. R.	10.15	Broadcast
6,750	44.44	JVT	Nazaki, Japan	20.0	Phone to U. S. A.; bc.
6,730	44.48	HI3C	La Romana, D. R.	0.25	Broadcast
6,718	44.66	KBK	Manila, P. I.	40.0	Phone
6,710	44.71	KEF	Bolinas, Calif.	40.0	Phone
6,687	44.86	TIEP	San Jose, Costa Rica	.....	Broadcast
6,672	44.96	YVQ	Maracay, Venezuela	10.0	Phone
6,635	45.22	HC2RL	Guayaquil, Ecuador	0.15	Broadcast
6,630	45.25	HIT	Trujillo, D. R.	0.2	Broadcast
6,620	45.32	PRADO	Riobamba, Ecuador	.....	Bc.; Thursdays
6,578	45.60	HCVT	Ambato, Ecuador	.....	Broadcast
6,555	45.76	HI4D	Trujillo, D. R.	.....	Broadcast
6,550	45.80	TIRCC	San Jose, Costa Rica	.....	Broadcast
6,545	45.84	...	Tetuan, Morocco	0.2	Broadcast
6,545	45.84	YV6RB	Ciudad Bolivar, Venezuela	0.25	Broadcast
6,540	45.87	YN1GG	Managua, Nicaragua	0.1	Broadcast
6,520	46.01	YV4RB	Valencia, Venezuela	0.3	Broadcast
6,520	46.01	HRW-HRY	La Ceiba, Honduras	0.1	Phone
6,500	46.15	HIL	Trujillo, D. R.	0.05	Broadcast
6,500	46.15	YV1RM	Cristo de Aranza, Venezuela	.....	Broadcast
6,479	46.31	HI8A	Trujillo, D. R.	.....	Broadcast
6,477	46.33	HI4V	Trujillo, D. R.	0.025	Broadcast
6,425	46.67	OAX4K	Lima, Peru	.....	Broadcast
6,425	46.69	W3XL	Bound Brook, N. J.	100.0	Experimental
6,420	46.73	HI1S	Santiago, D. R.	0.02	Broadcast
6,410	46.80	TIPG	San Jose, Costa Rica	1.0	Broadcast
6,400	46.88	YV5RH	Caracas, Venezuela	0.25	Broadcast
6,380	47.02	YV5RF	Caracas, Venezuela	0.1	Broadcast
6,375	47.10	HRW-HRY	La Ceiba, Honduras	0.1	Phone
6,365	47.14	YV1RH	Maracaibo, Venezuela	.....	Bc.; relays YV1RF
6,360	47.17	TIFA	San Jose, Costa Rica	.....	Broadcast
6,350	47.24	YNH6	Boom, Nicaragua	0.1	Phone
6,350	47.24	YNJ5	Waspook, Nicaragua	0.1	Phone
6,350	47.24	YNJ7	Wapam, Nicaragua	0.1	Phone
6,357	47.20	HRP1	San Pedro Sula, Honduras	0.075	Broadcast
6,340	47.32	YNE	Puerto Cabezas, Nicaragua	0.1	Phone
6,340	47.32	HIX	Trujillo, D. R.	.....	Broadcast
6,330	47.39	JZG	Nazaki, Japan	10.0	Phone to ships
6,310	47.54	HIZ	Trujillo, D. R.	0.02	Broadcast
6,300	47.62	YV4RD	Maracay, Venezuela	0.1	Broadcast
6,280	47.77	HIG	Trujillo, D. R.	0.05	Broadcast
6,280	47.77	COHB	Sancti Spiritus, Cuba	0.15	Broadcast
6,270	47.84	YV5RP	Caracas, Venezuela	.....	Broadcast
6,260	47.92	OAX4G	Lima, Peru	.....	Broadcast
6,250	48.00	YV5RJ	Caracas, Venezuela	.....	Broadcast
6,243	48.05	HIN	Trujillo, D. R.	0.75	Broadcast
6,235	48.11	HRD	La Ceiba, Honduras	0.25	Broadcast
6,225	48.19	YV1RG	Valera, Venezuela	0.2	.....
6,205	48.35	YV1RI	Coro, Venezuela	0.2	Broadcast
6,200	48.39	XEXS	Mexico, D. F., Mexico	0.1	Broadcast
6,200	48.39	COKG	Santiago, Cuba	2.4	Bc.; relays CMKB
6,198	48.08	HI8Q	Ciudad, Trujillo	0.025	Broadcast
6,190	48.47	HI1A	Santiago de los Caballeros, D. R.	0.05	Broadcast
6,164	48.67	OAX1B	Chiclayo, Peru	0.3	Bc.; relays OAK1A
6,150	48.70	CJRO	Winnipeg, Man., Canada	.....	Bc.; relays CJRC
6,150	48.78	FT4AJ	Tunis, Tunisia	.....	Experimental
6,156	48.73	YV5RD	Caracas, Venezuela	1.0	Broadcast
6,150	48.78	CB615	Santiago, Chile	0.15	Broadcast
6,150	48.78	HI5N	Santiago de los Caballeros, D. R.	0.1	Broadcast
6,150	48.78	HJ4ABU	Pereira, Colombia	0.1	Broadcast
6,150	48.78	VE9CL	Winnipeg, Man., Canada	.....	Broadcast
6,148	48.80	ZEB	Bulawayo, So. Rhodesia	0.325	Broadcast
6,140	48.86	W8XK	Pittsburgh, Pa.	40.0	Bc.; relays KDKA
6,137	48.88	CR7AA	Lourenco Marques, Mozambique	0.33	Broadcast
6,133	48.91	XEXA	Mexico, D. F., Mexico	.....	Broadcast
6,132	48.92	CT1GO	Parede, Portugal	0.35	Broadcast
6,130	48.94	COCD	Havana, Cuba	0.2	Bc.; relays CMCD
6,130	48.94	LKJ1	Jeloy, Norway	1.0	Broadcast
6,130	48.94	VP3BG	Georgetown, British Guiana	0.15	Broadcast
6,128	48.96	OAX7A	Cuzco, Peru	.....	.....
6,125	48.98	CXA4	Montevideo, Uruguay	1.0	Broadcast
6,122	49.01	HJ3ABX	Bogota, Colombia	.....	Broadcast
6,122	49.01	OAX4P	Huancayo, Peru	.....	Broadcast
6,122	49.01	OAX6A	Arequipa, Peru	.....	.....
6,120	49.02	YDA5	Bandoeng, Java, D. E. I.	1.5	Broadcast
6,120	49.02	XEPW	Mexico, D. F., Mexico	.....	Broadcast
6,120	49.02	XEFT	Vera Cruz, Ver., Mexico	0.12	Broadcast
6,120	49.02	HP5Z	Panama City, Panama	0.2	Broadcast
6,120	49.02	W2XE	Wayne, N. J.	10.0	Bc.; relays WABC
6,117	49.04	XEUZ	Mexico, D. F.	.....	Broadcast
6,115	49.06	XECU	Guadalajara, Mexico	.....	Broadcast
6,115	49.06	HJ1ABB	Barranquilla, Colombia	1.0	Broadcast
6,115	49.06	OLR2C	Podebrady, Czechoslovakia	25.0	Broadcast
6,110	49.10	GSL	Daventry, England	20.0	Broadcast
6,110	49.10	VE9HX	Halifax, N. S., Canada	0.2	Bc.; relays CHNS
6,109	49.10	VUC	Calcutta, India	0.5	Broadcast
6,108	49.11	HJ4ABB	Manizales, Colombia	.....	Broadcast
6,100	49.18	W3XAL	Bound Brook, N. J.	20.0	Bc.; relays WJZ
6,100	49.18	W9XF	Chicago, Illinois	5.0	Bc.; relays WENR
6,100	49.20	YTC	Belgrade, Yugoslavia	2.5	Broadcast
6,098	49.20	ZTJ	Johannesburg, S. Africa	5.0	Broadcast
6,097	49.20	HJ4ABE	Medellin, Colombia	0.1	Broadcast
6,090	49.26	ZBW2	Hongkong, China	2.0	Bc.; relays ZBW
6,090	49.26	HJ4ABC	Ibague, Colombia	.....	Broadcast
6,090	49.26	CRCX	Toronto, Ont., Canada	0.5	Broadcast
6,085	49.30	HJ5ABD	.....	.....	.....
6,083	49.32	VQ7LO	Nairobi, Kenya, Africa	1.25	Broadcast
6,080	49.34	ZHJ	Penang, Straits Settlements	0.05	Broadcast
6,080	49.34	CP5	La Paz, Bolivia	.....	Broadcast
6,080	49.34	W9XAA	Chicago, Illinois	20.0	Bc.; relays WCFL
6,079	49.35	DJM	Zeesen, Germany	5-50	Experimental
6,075	49.38	HP5F	Colon, Panama	0.2	Broadcast
6,075	49.38	YV1RD	Maracaibo, Venezuela	.....	Broadcast
6,073	49.37	CQN	Macao, Asia	0.5	Broadcast
6,070	49.42	VE9CS	Vancouver, B. C., Canada	0.01	Broadcast
6,070	49.42	CFRX	Toronto, Ontario	1.0	Broadcast
6,070	49.42	HJ3ABF	Bogota, Colombia	0.1	Broadcast
6,067	49.45	VPB	Colombo, Ceylon	.....	Broadcast
6,065	49.46	SBG	Motala, Sweden	10.0	Broadcast
6,065	49.46	XEXR	Mexico, D. F., Mexico	.....	Broadcast
6,060	49.50	OXY	Skamlebaek, Denmark	0.5	Broadcast
6,060	49.50	W8XAL	Cincinnati, Ohio	10.0	Bc.; relays WLW
6,060	49.50	W3XAU	Philadelphia, Pa.	10.0	Bc.; relays WCAU
6,050	49.59	HJ3ABD	Bogota, Colombia	1.0	Broadcast
6,050	49.59	XEXF	Mexico, D. F., Mexico	.....	Broadcast
6,045	49.62	XETW	Mexico, D. F., Mexico	.....	Broadcast
6,042	49.65	HJ1ABG	Barranquilla, Colombia	0.15	Broadcast
6,040	49.67	W4XB	Miami Beach, Fla.	2.5	Bc.; relays WIOD
6,040	49.67	HI9B	Santiago de los Caballeros, D. R.	0.1	Broadcast
6,040	49.67	W1XAL	Boston, Mass.	5.0	Broadcast
6,040	49.67	YDA	Tandjongpriok, Java, D. E. I.	10.0	Broadcast
6,033	49.72	HJ4ABP	Medellin, Colombia	.....	Broadcast
6,030	49.75	OLR2B	Podebrady, Czechoslovakia	25.0	Broadcast
6,030	49.75	HP5B	Panama, Panama	0.1	Broadcast
6,030	49.75	VE9CA	Calgary, Alberta, Canada	0.1	Bc.; relays CFCN
6,030	49.75	XEBQ	Mazatlan, Mexico	.....	Broadcast
6,025	49.79	HJ1ABJ	Santa Marta, Colombia	0.025	Broadcast
6,020	49.83	DJC	Zeesen, Germany	5-50	Broadcast
6,020	49.83	XEUW	Vera Cruz, Ver., Mexico	.....	Broadcast
6,015	49.88	XEWI	Mexico, D. F., Mexico	0.25	Broadcast
6,012	49.80	ZHI	Singapore, Malaya	.....	Broadcast
6,012	49.90	HJ3ABH	Bogota, Colombia	1.2	Broadcast
6,010	49.92	VP3MR	Georgetown, British Guiana	0.25	Amateur; bc.
6,010	49.92	COCO	Havana, Cuba	0.25	Broadcast
6,010	49.92	OLR2A	Podebrady, Czechoslovakia	25.0	Broadcast
6,005	49.96	CFCX	Montreal, Quebec	0.075	Bc.; relays CFCF
6,005	49.96	VE9DN	Montreal, Quebec	4.0	Broadcast
6,003	49.97	XEBT	Mexico, D. F., Mexico	1.0	Bc.; relays XEB
6,000	50.00	HJ1ABC	Quibdo, Colombia	0.1	Broadcast
6,000	50.00	YOI	Bucharest, Roumania	0.3	Broadcast
6,000	50.00	RV59	Moscow, U.S.S.R.	20.0	Broadcast
6,000	50.00	TGWA	Guatemala City, Guatemala	0.2	Broadcast
6,000	50.00	FIQA	Tananarive, Madagascar	.....	Broadcast
5,980	50.17	HIX	Trujillo, D. R.	1.0	Broadcast
5,969	50.26	HVJ	Vatican City	10.0	Broadcast
5,955	50.38	HJN	Bogota, Colombia	.....	Broadcast
5,995	50.04	RPT	Tashkent, U.S.S.R.	1.0	Phone
5,990	50.08	HJ2ABD	Bucaramanga, Colombia	0.1	Broadcast
5,990	50.08	HP5K	Colon, Panama	.....	Broadcast
5,940	50.50	TG2X	Guatemala City, Guatemala	0.2	Police; bc.
5,925	50.64	HH2S	Port-au-Prince, Haiti	0.1	Bc.; relays HH2T
5,917	50.71	YV4RH	Valencia, Venezuela	.....	Broadcast
5,917	50.71	YV15RV	Maracay, Venezuela	.....	Broadcast
5,899	50.84	YV3RA	Barquisimeto, Venezuela	0.25	Broadcast
5,882	51.00	ZEA	Salisbury, So. Rhodesia	0.325	Broadcast
5,880	51.02	IUA	Addis Ababa, Ethiopia	.....	Phone
5,875	51.06	HRN	Tegucigalpa, Honduras	0.4	Broadcast
5,865	51.15	HI1J	San Pedro de Macoris, D. R.	0.04	Broadcast
5,850	51.28	YV1RB	Maracaibo, Venezuela	0.3	Broadcast
5,845	51.32	KRO	Kahuku, Hawaii	40.0	Phone
5,830	51.46	TDD	Shinkio, Manchukuo	.....	Phone to Tokyo
5,830	51.46	CWD	Montevideo, Uruguay (Cerrito)	1.5	Phone
5,830	51.46	TIGPH	San Jose, Costa Rica	1.0	Broadcast
5,830	51.46	TIX2	San Jose, Costa Rica	0.5	Broadcast
5,800	51.72	YV5RC	Caracas, Venezuela	1.0	Broadcast
5,800	51.72	KZGF	Manila, P. I.	.....	Phone; occ. bc.
5,790	51.81	JVU	Nazaki, Japan	10.0	Phone to Manchukuo; also bc.
5,780	51.90	OAX4D	Lima, Peru	20.0	Broadcast
5,780	51.90	HJ4ABD	Medellin, Colombia	.....	Broadcast
5,758	52.10	YNOP	Managua, Nicaragua	.....	Broadcast
5,735	52.31	HC1PM	Quito, Ecuador	0.3	.....
5,730	52.36	JVV	Nazaki, Japan	10.0	Phone to Formosa; bc.
5,713	52.51	TGS	Guatemala City, Guatemala	0.2	Broadcast
5,710	52.54	YV2RA	San Cristobal, Venezuela	0.75	Broadcast
5,705	52.59	CFU	Rossland, B. C., Canada	.....	Phone; bc.
5,670	52.91	DAF	Norddeich, Germany	.....	Phone
5,555	54.00	YNE	Puerto Cabezas, Nicaragua	0.1	Phone
5,500	54.55	TI5HH	San Ramon, Costa Rica	0.2	Broadcast
5,490	54.64	ROI	Sverdlovsk, U.S.S.R.	15.0	Phone
5,435	55.19	LSH	Monte Grande, Argentina	.....	Phone
5,415	55.40	PMY	Bandoeng, Java, D. E. I.	0.45	Phone; bc.
5,170	58.03	HRW-HRY	La Ceiba, Honduras	0.1	Phone
5,140	58.37	PMY	Bandoeng, Java, D. E. I.	0.6	Broadcast
5,110	58.71	KIKB	Bolinas, Calif.	40.0	Phone
5,105	58.76	KEC	Bolinas, Calif.	40.0	Phone
5,025	59.70	ZFA	Hamilton, Bermuda	1.5	Phone
5,000	60.00	WWV	Beltsville, Md.	1.0	Frequency Standard; Tue., Wed., Fri.; noon, 1 p.m. E. S. T.
5,000	60.00	ZUD	Pretoria, S. Africa	.....	Experimental
4,975	60.30	GBC	Rugby, England	5.0	Phone to ships
4,820	62.24	GDW	Rugby, England	15.0	Phone to U. S.
4,795	62.56	VE9BK	Vancouver, B. C.	0.25	Broadcast
4,753	63.11	WOY	Lawrenceville, N. J.	20.0	Phone
4,753	63.11	WOO	Ocean Gate, N. J.	20.0	Phone
4,610	65.08	YNJ7	Wapam, Nicaragua	0.1	Phone
4,610	65.08	YNJ5	Waspook, Nicaragua	0.1	Phone
4,610	65.08	YNE	Puerto Cabezas, Nicaragua	0.1	Phone
4,610	65.08	YNH6	Boom, Nicaragua	0.1	Phone
4,605	65.16	HRW-HRY	La Ceiba, Honduras	0.1	Phone
4,600	65.22	HC2ET	Guayaquil, Ecuador	0.4	Broadcast
4,465	67.19	CFA2	Drummondville, P. Q., Canada	15.0	Phone
4,355	68.89	IAC	Coltano, Italy	56.0	Phone
4,273	70.21	RV15	Khabarovsk, U.S.S.R.	20.0	Broadcast
4,107	73.05	HCJB	Quito, Ecuador	0.5	Broadcast
4,100	73.17	LKJ1	Jeloy, Norway	1.0	Experimental
4,097	73.23	WND	Hialeah, Fla.	0.4	Phone
4,002	74.77	CT2AJ	San Miguel, Azores	0.5	Amateur; bc.
4,000	75.00	CT3AQ	Funchal, Madeira	.....	Broadcast; exp.
3,175	94.48	YNJ7	Wapam, Nicaragua	0.1	Phone
3,175	94.48	YNJ5	Waspook, Nicaragua	0.1	Phone
3,175	94.48	YNH6	Boom, Nicaragua	0.1	Phone
3,170	94.48	YNE	Puerto Cabezas, Nicaragua	0.1	Phone
3,800	78.95	ZP11	Asuncion, Paraguay	.....	Broadcast
3,770	79.56	HB9B	Basle, Switzerland	.....	Broadcast
3,525	85.11	HB9AQ	Lausanne, Switzerland	.....	Broadcast
3,376	88.83	HJA3	Barranquilla, Colombia	.....	Phone
3,330	92.88	YDV2	Bandjermasin, Borneo, D. E. I.	20.0	Broadcast
3,040	98.68	YDA	Tandjongpriok, Java, D. E. I.	10.0	Broadcast



It Pays to go RCA All The Way

All over the world, wherever broadcast messages are sent or received, you will find tangible evidence of RCA's vast experience in the field of radio. In towering Radio City, home of the National Broadcasting Company, you will find it busily transmitting the programs of two major networks. In the offices of the RCA Communication Service, you will find it in constant touch with 47 foreign nations and hundreds of ships at sea. In foreign countries, you will see its transmitters, microphones and other apparatus in countless broadcasting studios.

Thus, at home and abroad, RCA is the recognized clearing house of radio service and engineering skill—the one organization ideally suited to build receiving sets that tune in on the very sound it creates and transmits. That is why, when you buy your next radio, it will pay you to make it an instrument backed by the company that makes and deals with everything in radio—an instrument that gives you the extra value of RCA ALL THE WAY.