



# THESE YOU CAN HEAR

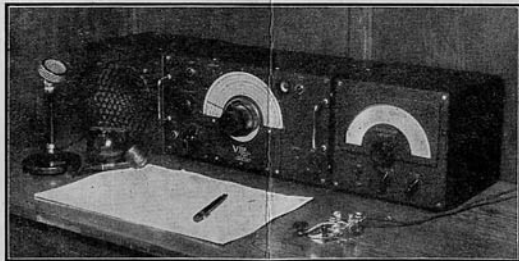


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## These You Can Hear

(An introduction to world-wide  
short wave reception)

BY  
W. NORMAN STEVENS.



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# The World at your Fingertips

TUNING WITHOUT TEARS.

THE magic of short wave radio brings world entertainment to the "man-in-the-street" but comparatively few take advantage of this golden opportunity. If a census were to be taken it would probably show that only 5%—or less—of listeners with "all wave" sets ever use the short wave bands. Why, then, this neglect of the short waves—are they so devoid of good solid entertainment? No, the answer is that, unlike medium wave listening, a certain amount of preliminary instruction is needed.

Let us take a typical example of a man-in-the-street and his experiences with a new radio. After the usual "trying out" on the medium waves, the idea of tuning in American programmes is quite fascinating and the switch is turned to "SW". This is the exact point where disillusionment comes into the picture. After several vain attempts, all that our friend hears is more noise, howls and shrieks intermingled with plaintive cries from the rest of the household to "switch to aural noise off!" Following this, a few more equally fruitless excursions are made at odd intervals but with equally disappointing results and the SW band is written off as useless. In nine cases out of ten the SW band is never even thought of again.

If our friend had only known it the stations he hoped to hear WERE there—the world WAS "at his fingertips"—but he

just did not know how to locate them and tune them in. It is as simple an explanation as that. All he needed was a little guidance and success would have been his. If you have read so far it is fairly obvious that you are also one of the millions who have passed by good entertainment for the lack of a few words of advice!

Short wave listening is simplicity itself once you know how to go about it. It is rather surprising that radio manufacturers in the main have not had the foresight to provide some means of introduction to the fascinating realms of short wave enjoyment. The object of this booklet, then, is to enable you—the average domestic listener—to sit back comfortably in your armchair and listen to Jack Benny or the Metropolitan Opera from New York, the Kookaburra Bird from Melbourne in sunny Australia or the latest news from troubled and mystic India.

What more enjoyable when, with an hour to go before your favourite BBC programme is due, you can fill in the time by listening to gay sambas from glittering Rio de Janeiro or the quaint guitar music from tiny Andorra in the Pyrenees. Again, news bulletins from all corners of the globe are there for the asking and the "other fellow's angle" is always worth hearing.

The short waves will bring the world to your own home and what a vast field of entertainment and education it can offer!

A view of the studio buildings at Radio Andorra, located in the Pyrenees. This powerful station can be heard all through the day on 50.03 metres (5996 kcs.)



It is there, always, just waiting for you to tune it in. This is how it can be done.

## Points to Watch.

Despite the many years of "all-wave set" production, the short waves are still much of a mystery to most people. The depths of this mystery can be probed by learning one or two fundamental points. Firstly, the "knob twiddling" which is often the order of the day on the medium waveband must give way to *fine careful tuning*. In everyday life, patience is said to be a virtue, but in short wave listening it is absolutely essential! Tune slowly and make certain that your arm is steady. Rest your arm on the table as you tune and, if necessary, as a further steadying press your third and fourth finger against the panel. A little practice will ensure the fine control of the tuning knob that is vital if success is to be attained.

A close-up of Eddie Startz, announcer at Station PCJ in Huizen, Holland. Eddie has recently been elected to honorary membership in the International Short Wave League, on the occasion of PCJ's 20th Anniversary, in recognition of his past services and contribution to international goodwill through the medium of his "Happy Station" programmes.

Search for your stations on the "broadcasting bands." These are plainly marked on your receiver and it will be observed that, in comparison with the complete range covered, the bands are quite narrow. You will see such bands as the 16, 19 and 25 metre bands. Within the confines of these "bands" lie the broadcasting stations of the entire globe. There are exceptions to this rule, but generally speaking the between-bands sections on your dial will only produce morse stations, relay stations and the like. It will be plainly seen that when the folly of "twiddling" is indulged in the broadcasting bands can easily be missed entirely and the more extensive spaces in between, consisting mainly of morse, will produce those frightening noises that have scared off so many from the short wave bands.

Before you go searching for stations, however, two other points must be borne in mind if disappointment is to be avoided.

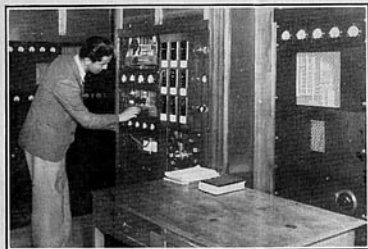
The right time to listen to various parts of the world must be selected. Most parts of the globe have their own optimum times of peak strength. For example South American stations are very rarely heard until late in the evening. Asiatic stations are at their best during the afternoons and South Africans can only be relied upon during the early evenings.

The right wavelength is another factor of importance. On short waves "local stations" are those within about 1000 miles radius and these stations can usually be heard at all times of the day on most wavelengths. We are dealing here, though, with long distance (or "DX") stations which call for a little more care in selection. We have mentioned previously the broadcasting bands. Due to the type of propagation which makes short wave radio possible different wavelengths are at their best at certain times of the day. A simple maxim is that, for most satisfactory results, the earlier the time of day the lower the wave-

length and the later the hour of the day the higher the wavelength. Thus we get better reception on the 16 metre band in the mornings and early afternoon whilst the 31 metre band is a better choice for early evenings and the 49 metre band is the best late at night. This is a progressive phenomena as will be clearly seen by referring to the table at the end of this booklet which gives a survey of the best times to listen on the various broadcasting bands. Also at the rear-end of the booklet we have given a chart showing the best times to listen to a selection of the more powerful short wave stations throughout the world. This is not intended to be fully comprehensive but it will give the newcomer an opportunity to search for, and we hope time in, the stations listed. When these stations have been located the converted short wave listener should have reached the stage whereby, using the time and wavelength guides given, he can look for new stations and so enlarge his range of prospective entertainers.



The weird instrument shown here is used to produce the interval signal that heralds the programmes from Radio Brazzaville in the heart of French Equatorial Africa. Radio Brazzaville can be heard every evening with strong signals on 25.06 metres (11970 kcs.) and 31.78 metres (9440 kcs.)



An engineer at the controls of Station HCJB, "The Voice of the Andes" in Quito, Ecuador. Listen for this station on 30.12 metres (9958 kcs.) during the late evenings.

#### Fading.

The newcomer to short wave listening often remarks that the fading experienced reduces to a large extent the enjoyment gained. Owing to the very nature of the short waves a certain amount of fading is unavoidable, but with such devices as AVC in receivers and the use elaborate beam aerials by transmitters the effect of fading has in recent years been greatly minimised. You must, however, be prepared for some fading, especially when conditions are not too favourable. It is only the sudden plunge from the fading-free reception of local medium wave stations that makes the comparison so severe. Listeners who are accustomed to short wave reception take hardly any notice of fading unless it is really bad.

#### Reliability.

Great strides have been made in recent years in short wave technique and very many stations can be relied upon for insistently good strong reception. Nature has, as always, the last word and in the case in question it is often a very decided last word! In other words reception as you know it on the medium wave band does not apply to the lower wave lengths. Often reception is perfect for weeks on end and then one day everything is weak and "flattery." If your regular American station is not so strong as usual one day, do not worry about the set, as so many people do. It is all in order and is just a spell of "bad conditions" at work. This may last for hours or days. There is no telling! It will not usually last for long,

however. To the dyed-in-the-wool short wave enthusiastic the vagaries and quixotic nature of the hobby only adds to the fascination. One never knows what is likely to happen! A spell of really good conditions will bring in all sorts of unexpected "catches" and this, to the real fan, keeps him on his toes—ever alert for the "rare" stations.

#### This Booklet.

The main bulk of this booklet consists of "visits" to various well-known short wave transmitters, all reliably received in this country. The original articles have appeared from time to time in "Short Wave News" which publishes nearly every month similar station descriptions. We hope that we will succeed in our objective, that is to stimulate the spirit of travel and adventure that is part of our national character. For if one cannot visit distant lands, at least we can learn about their characteristics, music, culture, humour and points of view by radio in the intimacy of our own homes. Next to actual travel, short wave radio offers the best possible medium for getting to know our neighbours of all races and affording that mind-broadening that is the answer to the attainment of international goodwill and understanding.

#### The advanced listener.

Once the initial stages have been negotiated, the short wave fan will discover that his thirst for information on

short wave happenings becomes greater every day. Where can up-to-the-minute news be obtained? The monthly "Short Wave News", mentioned elsewhere in this booklet, provides the answer. Due to unequalled facilities and reliable contacts all over the world, the very latest news is available each month.

When he reaches this stage, the listener can be said to have become a real fan, and it is obvious that the short wave "bug" has bitten. Such a listener not only tunes in to stations he knows but also tries to identify new ones. Sometimes he is successful but quite often the identity of the station will elude him. The identification of stations is a subject beyond the bounds of this booklet. However, the advantages of joining a recognised society, such as the International Short Wave League cannot be over stressed. The I.S.W.L., for in-

stance, offers, amongst many other vital facilities, a free Station Query Service which, in itself, more than compensates for the nominal membership fee.

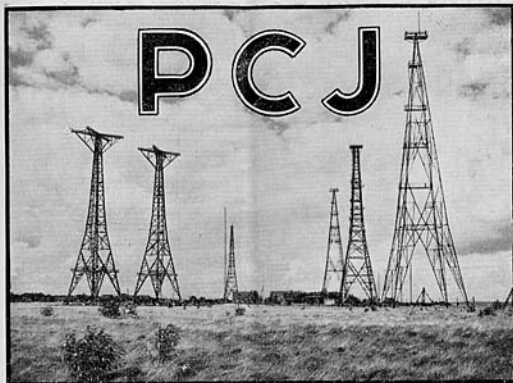
#### Conclusion.

The reader will, by now, have come to the conclusion that there is more in short wave listening than meets the eye! It is a hobby or a pastime according to how it takes you. Usually it starts off by being a pastime and ends up by being the most absorbing hobby discovered. Short wave radio is like that! Having aroused your interest we now pass along to the station descriptions which we trust will finally decide you on a fruitful and enjoyable entry to the ranks of the short wave listeners.

— Good listening!

Tuning up at "Polskie Radio" Warsaw.

The original station of Warsaw III was unique inasmuch as it first went on the air, in 1944, from a railway carriage! It now operates everyday from 1600-2300 GMT on 6100kcs. (49.18 metres) with a power of 7500 watts. English programmes are broadcast daily at 2050 GMT.



STATION PCJ, HUIZEN, HOLLAND.

FOR our first description we have great pleasure in taking our readers for a brief visit to the famous "Happy Station," [PCJ]. The transmitter is situated at Huizen, and is the outcome of many experiments at the Philips' works at Eindhoven. These experiments started as early as 1920, when the first short wave transmitter was constructed in the Philips' Laboratories. This station had the honour to be the very first short-wave broadcaster in Europe. Huizen, near the shores of the Zuider Zee, was chosen as the site for the aerial systems, and the Netherlands World Service (radiated especially to the Netherlands East and West Indies, South Africa and America) was broadcast from there since 1937.

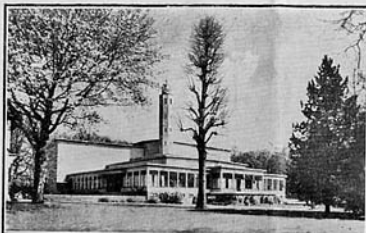
In May, 1940, the 9590 kcs. aerial was partially destroyed, but in such a way that repairs proved possible. During the occupation, the station was used for broadcasting Nazi propaganda, but soon after the liberation, Netherlands experimental transmissions started again.

The transmitter has ten stages, with an output of 30 kW, and a cooling-tower is used to keep the water-temperature of the cooling system at a constant low level.

#### Aerials.

The two aerials in use are both of the directional type. The first consists of a system of 8 sets of 3 vertical doublets, which are fed in phase, thus having the result of concentrating the energy. This beam is supported by two fixed masts and is oriented towards the East Indies. The second aerial is of unique construction, and, indeed, is the only one of this type in the world. The aerial is supported by a pair of 200ft. wooden masts, fixed together on one undercarriage. This is fitted with 8 sets of two wheels, so that the whole structure can revolve upon two circular rails by means of two electric motors. In cases of need two or three men can do the job. One day in 1944, the station engineers loosened the brakes and a fresh breeze did the rest!

This revolving aerial consists of four sets of three vertical dipoles and as many reflector dipoles for 9590 kcs. One quarter-wavelength behind this system there is a similar one acting as reflector, which is fed with a tension 90 degrees ahead in phase as compared with the aerial itself. The feeder is connected with the aerial in a flexible way and is led over the rails by means of a bridge.



*A view of the ultra-modern studio buildings at PCJ. The pleasant lines of the building lend themselves to the equally pleasant surroundings.*

ting aerial lay tangled and twisted along the ground. After 12 years of good-bill programmes, the "Happy Station" was no more.

The war went on, and the Gestapo moved in, PCJ was rebuilt by forced labour in order to pump the German propaganda

around this time Eddie Startz "disappeared," though how he squirmed through the Gestapo's net is "a story for some other time!" Shortly before the invasion in 1944, a storm put the rotating beam mechanism out of action, and through clever sabotage, the engineers fixed the mechanism so that for the remainder of the war all Nazi broadcasts were directed to the North and South Poles—where, Eddie says, the polar bears enjoyed excellent reception!

When the enemy finally moved out, they pillaged and looted everything of value, including PCJ's wonderful file of gramophone records, and then blew the station up again. However, the undaunted engineers got to work again and rebuilt the station in record time, so that the "Happy Station" is once more taking its place among the greatest of short wave broadcasters.

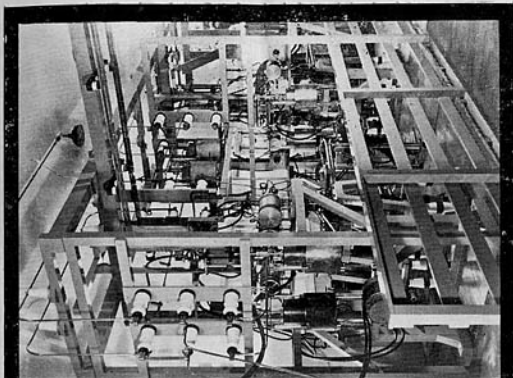
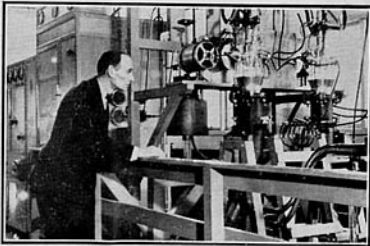
#### Studios.

The studios from whence the programmes emanate are situated at Hilversum, about 20 miles S.E. of Amsterdam, where the medium-wave broadcasts are also prepared and radiated.

#### The Occupation.

What happened to PCJ during the war? Eddie Startz, the popular announcer on the English sessions, says that in a programme such as the "Happy Station," there is no use in "crying over spilt milk," Eddie says "After all: we are free again and that is all that matters!" However, he tells us of some incidents worth mentioning. On the night of May 10th, 1940, the chief engineer broke the news that Holland was at war with Germany, and for four days and nights PCJ gave the latest reports of the one-sided battles. Then came a great explosion—PCJ was blown up, rather than let it fall into the hands of the enemy. The pride of Huizen, PCJ's rota-

*Here we see popular Eddie Startz deeply absorbed with the wonders of the PCJ amplifiers. He can speak something like one dozen different languages—all fluently! Listen to him compereing the English sessions and you will see why he has done so much to enhance the popularity, and to earn the well deserved name, of the "Happy Station."*



*(Left) The famous rotating beam aerial and (Right) the Final Amplifying Stage.*

# ICI BRAZZAVILLE

STATION FZI, BRAZZAVILLE, FRENCH EQUATORIAL AFRICA.

ON the banks of the River Congo, in

French Equatorial Africa, lies the capital of the Middle Congo. Its name is Brazzaville, a city with a population of only 2,000 "whites," and across the river, in Belgian Congo, lies Leopoldville. Brazzaville itself, whilst having very little history, is proud of the fact that for three years it was the capital of all the Free French territories. After the fall of France in 1940, General de Gaulle decided that the Fighting French must have a powerful and reliable radio system to stimulate and foster the cause of liberty. On August 30th, 1940, a convoy sailed out of Liverpool carrying with it General de Gaulle and the first units of the F.F.I. The departure of the expedition had been kept secret, as had its destination and cargoes. The end of the voyage was Brazzaville, and the secret cargo of the packet-boat "Westerland," consisted of the first equipment for the new famous radio station "Radio Brazzaville." A Service of Information was formed whose duty it was to find the personnel, equip the transmitter, and until the arrival of qualified technicians, to extemporize. Their success is now past history. On the 8th of December, Radio Brazzaville commenced its regular transmissions, and the telegram sent to General de Gaulle on December 16th said "Plan radio propaganda now in force. Seven transmissions per day; two in Morse, three for listeners in North Africa and Syria, and two for local listeners." Radio Brazzaville was born—due to the initiative of the leader of the F.F.I.

## Equipment.

Having spoken of the foundation of Radio Brazzaville, perhaps a word or two about the local station existing previously will not be amiss. This station was operated by the local radio club and was granted permission to broadcast in April, 1936. From then until June, 1940, regular transmissions took place, under the direction of Doctor Bizien, the founder, who was a well-known speaker on the programmes. The Radio Club still transmits programmes of a local nature, using the frequencies of 9980, 8500, 7035, and 8588 kcs.

When the first "Radio Brazzaville" was installed, the power was but 5 kW., and

therefore the range was somewhat limited, but as soon as the higher powered transmitters were put into operation appreciative letters from all corners of the globe began to pour in. To-day, programmes are radiated in French, English, Portuguese, and Greek.

Six aeriels are employed at Brazzaville, which can beam signals to Paris, Madagascar, Syria, North America, South America, and Indo-China, respectively.

## Our Illustrations.

On the opposite page, we show various views of the station and its environments. The photograph at top (left) shows the studio building. This long, single-story building has a frontage of some 500 feet, and is surrounded by the veranda. The studios are connected to the transmitter, situated near M'Pila, by a subterranean cable nearly two miles in length. At top (right) we show a technician at work tuning up one of the transmitters. The two central photographs show views of the master control, one a general view and the other a close-up. The bottom left-hand picture shows part of the veranda on the studio building, with the local market-day apparently in full swing! Finally, we show a close-up of the sound control, with the lady operator.

## Correspondence.

Radio Brazzaville is always pleased to receive useful reception reports and constructive criticisms that may lead to improvements. A monthly programme sheet is published and may be obtained on request. During the war, postal services were rather erratic, with frequent cases of delays and non-delivery of letters from the station to listeners, so that many who have written may have had the impression that the reports were not appreciated. This is not so, as all letters received are answered. We are informed that quite a few letters were collected and held by the censor, and are still trickling through—some of them dated as far back as 1943!



Some views of "Radio Brazzaville."

# RADIO CANADA

THE CANADIAN STATIONS AT SACKVILLE, ONTARIO.

CONSIDERATIONS for a Canadian International Short Wave Service began as far back as 1934, when the Canadian Broadcasting Corporation first studied the idea of such a project. In 1937, a proposal was put forward to the Federal Government, and accepted, for a short wave service to be administered by the C.B.C. and financed by the Dominion budget. Owing to the peculiar difficulties of short wave transmission in Canada, the selection of a suitable site was made with great caution. For example, the site had to be far enough East to protect the beam from absorption or distortion by the North magnetic pole, which lies in Canadian territory on Boothia Peninsula, and is a big long-beam for Canadian radio engineers. Also, the soil and site had to fulfil certain specifications of a technical nature to ensure proper transmission. Eventually the salt marshes of the Tantramar River, near Sackville, were found to meet all the requirements, and plans for the construction of "Radio Canada" on this site were submitted in 1938.

It was not, however, until September 18th, 1942, that the project was formally authorised by the Government, and the necessary funds provided. Wartime conditions hampered progress but owing mainly to the ingenuity of C.B.C. craftsmen, the first test transmission was aired on December 19th, 1944. This transmission was followed by a cable from the B.B.C. to the effect that the new voice of Canada was the strongest signal to be heard in Europe from North America. Success!

## Coverage.

Regular daily programmes commenced on February 25th, 1945, in four languages: English, French, German and Czechoslovakian. In June, Dutch language transmissions were added, and in July, on a test basis, Portuguese and Spanish. Plans are under way to include Flemish and the Scandinavian tongues. Special feature programmes have been radiated to 17 countries, including U.S.S.R., Mexico, Australia, Egypt, Palestine, Brazil, etc.

During the war, priority was given to domestic network relays in English and

French, for the benefit of Canadian troops serving overseas. The Canadian Armed Forces wanted news from home and cheerful entertainment; Nazi-occupied countries required accurate details on world events; Germany had to be aware of the futility of Nazi ambitions. "Radio Canada" fulfilled these requirements. In the post-war world, Canada, as one of the leading countries of the world, can now introduce herself more widely to other nations by direct information on her cultural, political and economic life.

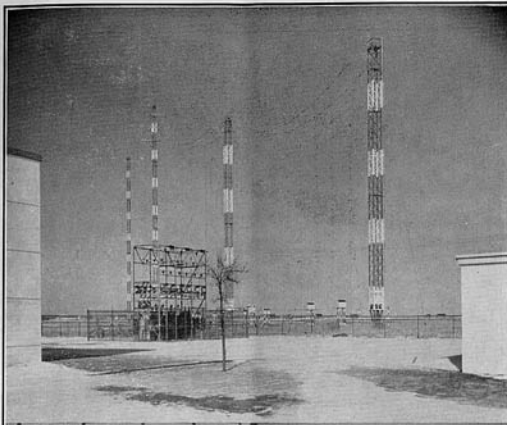
## Design.

The Sackville station, built on the salt marshes of the Tantramar, is one of the most modern in the world. Incidentally, Tantramar is an Indian word to describe the noise of the wild fowl that congregate in the area. The programme and administration headquarters are located in Montreal, with some 600 miles of specially-balanced land lines linking the studios to the transmitters.

The aerial curtains are supported by steel towers, varying in height from 170 feet to almost 400 feet. The aerial system comprises three arrays of intricately designed aerials which can be reversed so that, in effect, six directional beams can cover nearly every corner of the globe. For instance, the beam covering Britain, Western Europe and Russia can be reversed to cover Mexico, Central America and New Zealand. The two transmitters, each of 50,000 watts power, can operate simultaneously on different frequencies or directions, and are housed in a functional two-and-a-half storey building of reinforced concrete. The switching of frequencies can be done in roughly fifteen minutes by means of remote controlled switches right from the transmitters' consoles.

## Programmes.

To listeners who specifically request them, booklets called "Canada Calling" will be sent at regular intervals. These booklets carry details of programmes to be heard and notify listeners of schedule and frequency changes.



(Above) Some of the Aerials. (Below) One of the Control Panels.





The STATIONS AT LOURENCO MARQUES, MOZAMBIQUE.

ONCE again, our station description takes us to Africa, though this time we travel to another part of the continent, to pay a visit to Lourenco Marques, Mozambique, or Portugese East Africa, is a thickly forested country with swampy coastal districts, rising to mountain groups inland where the climate is temperate and salubrious. The country is famous for the Zambezi river, which runs through it during its 2,000 mile course. The chief products of Mozambique are sugar, cotton, maize, vegetable oils, timber and minerals. The excellent harbour and coaling port which is the capital city—Lourenco Marques—has a population of around 38,000 and was founded as a trading post as long ago as 1544.

#### Equipment.

In Lourenco Marques are the officers of the "Radio Club de Mozambique," which operates an efficient group of radio stations, some of which have been putting extremely strong signals into this country for many years.

At present, five transmitters are in use—three of 300 watts, one of 600 watts, and one of 10 kW.—the low powered ones for local coverage and the higher-powered stations for world-wide reception. In addi-

tion the Radio Club are now installing two more transmitters of 7.5 kW. each, which will greatly improve the services—a step that would have been taken previously but for the lack of supplies and shipping during the war years.

#### Programmes.

An interesting point about the Radio Club is that it is a private concern, operating on a non-profit basis. The main sources of revenue accrue from members' subscriptions and from a Government subsidy. As commercial ("sponsored") programmes take up a certain amount of air-time, this also helps to swell the funds.

#### Our Illustrations.

The Radio Club sent along many fine photographs, and we regret that more could not be reproduced. However, the photograph used to head this article was well worthy of inclusion, we felt. It is described simply as "An African Sunset." Need more be said? The remaining illustrations show (top left) the main studio, used for orchestral and variety programmes, (top right) the station's attractive QSL card—green and white with blue lettering, and (bottom) another studio, with station orchestra and choral groups.





STATION HCJB, QUITO, ECUADOR.

#### Location.

SOUTH AMERICA now claims our attention as the location of our station description. This time we take our readers to the famous "Voice of the Andes," HCJB of Quito, Ecuador.

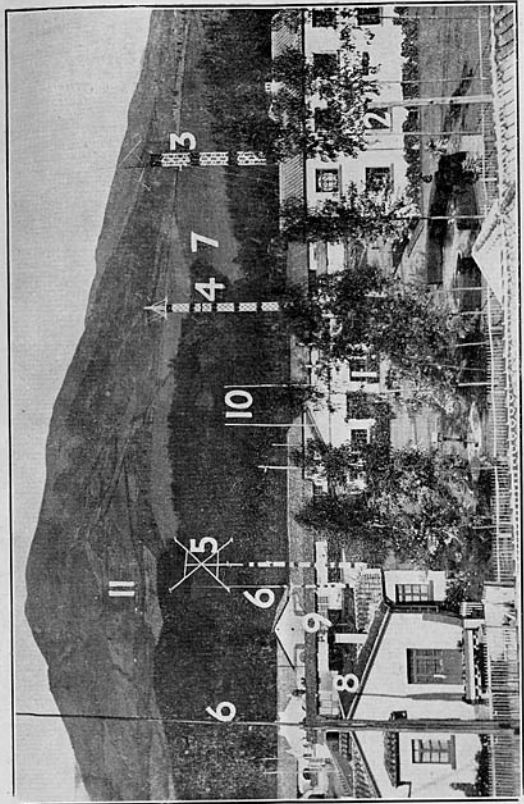
The station itself is located among the snow-peaked Andes—the "Switzerland of South America"—and the station buildings are built on the lower slopes of Mount Pichincha, an extinct volcano. Since the equator bisects Ecuador, the climate is mainly tropical, though the cool mountain areas allow a change of atmosphere.

The remoteness of some parts of the country may be judged by the fact that the exact boundary with Peru is still not fixed. Many peaks of the Andes in Ecuador are still actively volcanic, notably Mount Chimborazo (alt. 20,500 feet). Other notable features are plateaux 9,000 feet above sea-level and vast forest-covered plains.

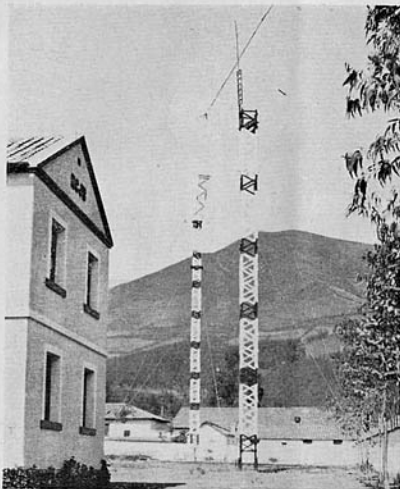
Products are many and varied. Cocoa is the staple product, and sugar, coffee, tobacco, rubber, petroleum, minerals (including gold) and vegetables are largely exploited. The famous "Panama Hats" are actually an Ecuadorian innovation. The population is 2,000,000 with the capital city—Quito—accounting for 84,000.

#### History.

HCJB is a real pioneer station, the first programmes being aired on Christmas Day, 1931, the year of the Incorporation of the World Radio Missionary Fellowship, who operate the stations. In 1932 a portable transmitter-loudspeaker system was installed in trains for special broadcasts in connection with a 25th railroad anniversary. The first HCJB Central Studio and office in Quito was opened in 1933, and the following year saw the beginning of the Radio Circle idea by which radio receivers were loaned to communities to hear HCJB. The next two years saw the purchase of a new transmitter for 73 metres, to replace the original one, and also the inauguration of mobile transmission systems. In 1937 the first 1,000 watt short wave station was installed and the first transmissions in English began. The intervening years were taken up mainly with plans for newer and better equipment, and in 1940, on Easter Sunday, the President of Ecuador opened officially the present 10,000 watt short wave station. During the next few years many changes were made and powers increased. Transmissions were now being given in the additional languages of Swedish, Russian, French, Dutch, Czech, Yiddish and Quechua.



General view of the HCJB Group. (1) Transmitter building (2) Studio and office building (3) 24-metre tower (4) 80-metre tower (5) 19-metre tower (6) Long wave aerial (7) 78-metre aerial (8) Co-director's residence (9) Staff members' apartment (10) Flagpole (11) Mount Pichincha.



*A corner of HCJB showing some of the transmitter buildings, the 24 and 30 metres towers with Mount Pichincha in the background.*

In 1931 there was a staff of three—this has now risen to many dozen. A board of trustees, elected by members of the W.R.M.F., vesting authority in the co-directors administers the affairs of HCJB. The organisation includes Regional Co-ordinators and a Home Advisory Council, composed of representatives in the U.S.A., Canada and Great Britain.

#### Equipment.

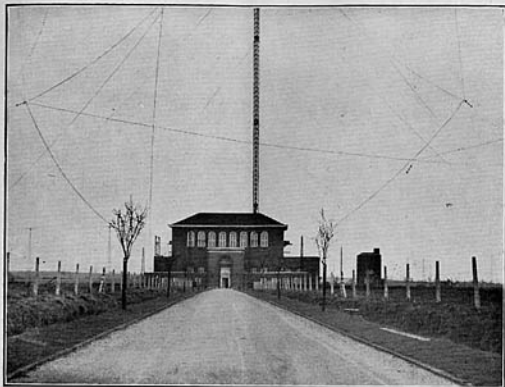
The studios are at Inaquito in a two story office and studio building near the transmitters. The transmitters themselves are built entirely by the HCJB engineering staff. Three different types of aerials are in use, a five-element rotary beam, a box-type beam, and "L" type.

#### Organisation.

The control of HCJB is in the hands of the World Radio Missionary Fellowship, Inc., a non-profit organisation founded in 1931. Although the station is the Quito outlet of the NBC chain, it is entirely an independent concern. The objective of HCJB, known sometimes as the Pioneer Missionary Broadcaster, is to radiate Gospel programmes to the far corners of the earth. This type of programme is not the only broadcasting from the station, however, and many fine musical, topical and special transmissions are also radiated.

#### Future Plans.

Clarence W. Jones, one of the HCJB Co-directors, tells us that the station is planning to secure larger grounds (to increase the size and power of the stations), and to construct more adequate beam aerial arrays. Though no tangible steps have been taken towards the actual visible accomplishment of these plans, it is hoped that it may not be long before they are put into effect.



## The G.P.O.'s Rugby Radio Station

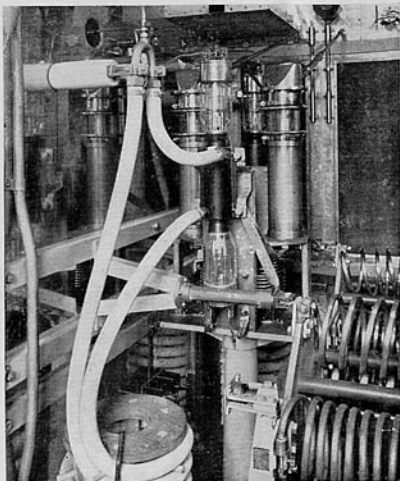
*(This station is not a broadcasting station in the accepted sense, but is one of the thousands of stations operated throughout the world for commercial point-to-point relays, special telegraphic communications and the like. Rugby, as one of the foremost of this type of station, was worthy of inclusion in this booklet from the general interest point of view).*

A SITE for a radio station to provide world-wide coverage was chosen at Rugby as long ago as the early 1920's and a 350 kilowatt transmitter operating on 16 kcs. was put into operation in 1926. The rapid progress and development of short wave radio communication has resulted in a great expansion of equipment at this station and now, by means of the G.P.O. International Switchboard in London, the ordinary public telephone subscriber can be connected to the radio station and thence by short wave radio to almost any part of the world, the return circuit being via the receiving station at Baldock.

Direct point-to-point short wave telephone circuits are provided to Australia,

Canada, South Africa, India, Egypt, Kenya, U.S.A., Bermuda, South America, Portugal, and Moscow. Telegraphic News Bulletins are broadcast daily to all parts of the world and to British ships at sea, and telegrams can be transmitted to ships in every part of the world. In addition to these services, time signals are transmitted from the Royal Observatory, Greenwich at 1000 and 1800 hours G.M.T. daily.

The radio station site covers an area of some 900 acres and is situated about 4 miles S.E. of Rugby. The station buildings consist of two groups, the Main Building and the Telephony Building. The former houses the three long wave transmitters, whilst the latter is devoted entirely



*A close-up of one of the Rugby amplifying stages. Note the massive proportions of the valves, coils and water cooling cables.*

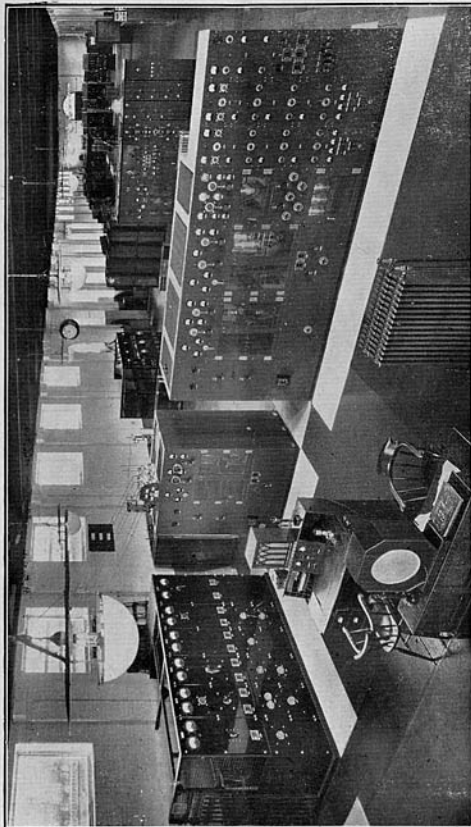
condensation pumps. This type of valve can be taken to pieces and filament or electrodes replaced when necessary. This demounting and reassembly takes about two hours. Bitumen is used for making the more permanent seals and special grease for the demountable seal. The seals are water cooled as are the anodes of these valves. The frequency range of these senders is from 4.0 to 21 Mcs., wave change being effected by changing the coil and a change of frequency can be made in a few minutes. Each sender has its own power supply. The H.T. of 10,000v. for the final amplifiers is obtained from rectifiers of either the cold cathode mercury

to short wave equipment. Power for the whole station is normally obtained from the Leicestershire and Warwick Electric Power Co., Ltd., but a diesel generator is provided for emergencies.

There are thirteen short wave senders, two of them being single side band sets. They are all controlled by quartz oscillators installed in racks at the end of the transmitter room. Any oscillator can be coupled to any sender, by means of coaxial cable. The crystals are oven temperature controlled at 50 degrees C plus/minus 1 degree. The required harmonic is selected from the oscillator and fed to three R.F. amplifiers each using two valves in push-pull. The valves in the third stage are water cooled. The normal final amplifier has a power input of 60 kW and uses four 15 kW triode water-cooled valves in parallel push-pull. Some of the senders however have two tetrode 60 kW demountable valves in push-pull. These latter valves are under continuous evacuation by two oil

pool, hot cathode mercury vapour or the hard thermionic valve types. The intermediate H.T. of 2,000v. and the bias and filament supplies are obtained from motor generators.

There are over 100 short wave aerials as well as the long wave aerial system. Out of interest we may mention that the latter is supported on twelve steel masts, 820 feet in height, spaced 1 mile apart. The aerial itself takes the form of an irregular octagon one end of which is open. The masts are triangular in section, being braced so as to make them thoroughly rigid. The base of each mast forms a tripod, the lower portion of which forms a ball and socket joint, permitting free movement of the mast on its base. The masts are insulated by porcelain and Swedish granite insulators. Each mast is supported by 18 wire stays and will withstand a wind of 140 m.p.h. An electric lift capable of carrying three persons is provided on each mast to facilitate maintenance work and inspection.



*General View of the Sender Room, Telephony Buildings.*

The short wave aerials are supported from steel towers 120 to 180 feet high. Various types are employed taking the form of beamed arrays and cage dipoles. The arrays are so arranged that the directivity of the beam produced is along the great circle path to the receiving station, and they are designed to give a narrow or wide beam depending on whether point-to-point or zonal coverage is required. The cage

dipoles provide directional or omnidirectional aerials depending on the service area to be covered. In the case of some of the vertical dipoles where great height is required to sling them, they are hung from the long wave mast guys. The short wave aerials are fed by means of overhead transmission lines, which can be connected to any of the transmitters by a system of plugs and sockets.



STATION ZFY, GEORGETOWN, BRITISH GUIANA.

#### Locality.

ONCE again, we take our readers to South America—this time to Station ZFY, "The Voice of Guiana," in Georgetown. This colony, with an area of less than 90,000 square miles, has a population of 308,000. The climate is not unhealthy, although the flat swampy coastal area is in places below sea level. The chief products of the colony are sugar, coffee, rubber, rice, coconuts, timber and bauxite. The colony possesses but 97 miles of railway. The capital, Georgetown, being on the coast—at the mouth of the Demerara river—has an unhealthy climate, and has a population of around 60,000.

#### History.

"The Voice of Guiana" was one of the pioneer S.W. broadcasters. In the '30's two stations were operating in Georgetown,

viz: VP3MR and VP3BG. Although both these stations were of very low power they were received in this country with moderate reliability and were often at excellent strength. In 1936 it was decided to merge the two stations, thus the original "twins" became the new ZFY.

#### Coverage.

ZFY is the only English-speaking commercial broadcasting station in the Caribbean area, and is the Caribbean relay point for the B.B.C. It thus has quite a large duty to perform in covering the English-speaking areas of the Caribbean. The primary reception area is over 400 miles (Georgetown and district), and the secondary reception area (British West Indies, Surinam, etc.) doubles the normal service area.

The number of radio receivers in British Guiana itself is 5,000 and there are also 30,000 receivers in the secondary area capable of picking up the ZFY programmes. During daylight hours, when long-distance short wave reception is difficult, regular reception is reported from all over the West Indies.

#### Programmes.

ZFY radiates "sponsored" programmes, which it relies upon for a good deal of its revenue. Besides the sponsored programmes, however, ZFY radiates recorded programmes from the American Forces Radio Service, the U.S. Office of Information and the B.B.C. The popularity of some of these recorded programmes may be assessed from the fact that a British Guiana Chapter of the "Tommy Handley Club" is in existence!

The station also originates a number of local shows, from their studios and from outside broadcasts. The news bulletins broadcast from the station are in the main rebroadcasts of the B.B.C. bulletins.

#### Listening Habits.

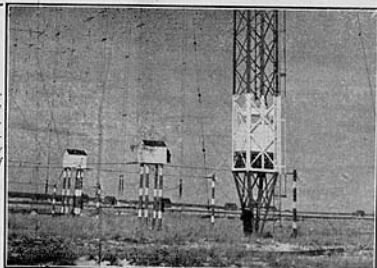
The tropical climate dictates that people should rise and retire early, so that the peak time for commercial broadcasting is during the daylight hours. With this in view, ZFY comes on the air at 07.00 and signs off at 21.00 local time.



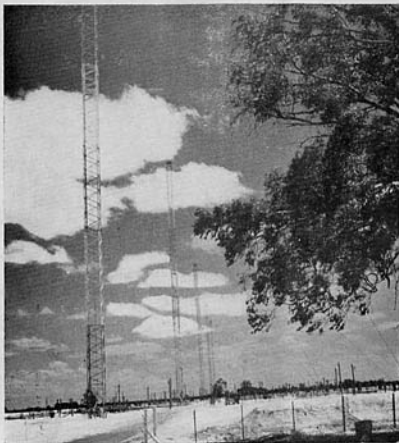
A view of ZFY's control room.

#### Technical Facilities.

The very latest Western Electric studio sound amplification system is used, with modern recording units and allied equipment. Some while ago, it was decided to install a medium-wave transmitter to cover the broadcast band, with the object of doubling the Georgetown and district audience. This project, however, has recently been abandoned for the time being. The photograph heading this article shows the temporary Headquarters of the British Guiana United Broadcasting Company in Georgetown. The three members of ZFY's staff to be seen are on the verandah, outside No. 1 studio.



A close-up of the base fittings of "Radio Canada" aerial masts. These massive aerials are a big contributing factor to the outstanding reception of the station in this country.



## Radio Australia



THE  
COMMONWEALTH'S  
INTERNATIONAL  
SERVICE.

### Beginnings.

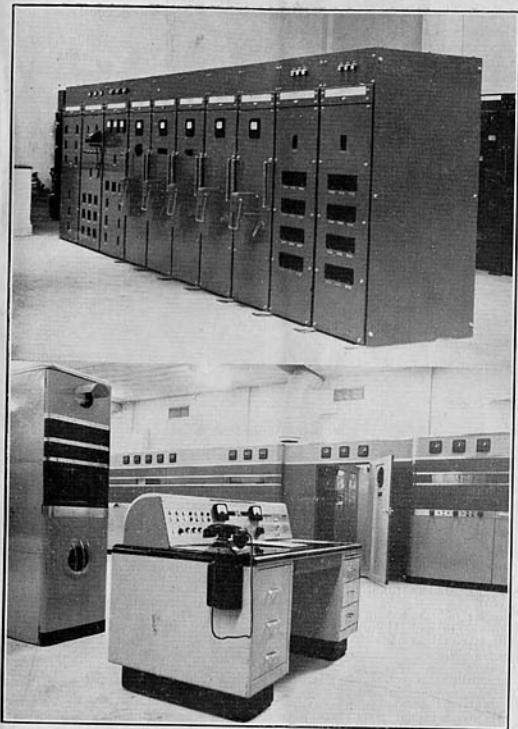
ALTHOUGH Australian short wave stations have been heard in this country since the days of VK2ME, that famous pioneer of the 1920's, it was not until 1939 that a really reliable service from "down under" became a fact. This was the year that "Radio Australia" came into being. By "Radio Australia" we refer to the International stations of the A.B.C. which does not include the stations at Perth (VIW) and internal services. "Radio Australia" commenced operations in a fairly modest way, with just one 10,000 watt station, and it was this small beginning that gave rise to a comment from certain quarters that the Australian short wave service was only a "penny whistle in the Pacific." This jibe, even unjust at the time, has been entirely refuted by the great developments of "Radio Australia" into the great international system we now know. In the early stages the system was admittedly weak in point of distances, but today, however, with transmitters amongst the strongest in the world, the service extends literally from pole to pole.

### The War Years.

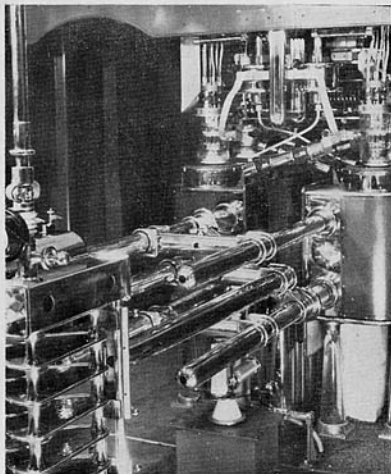
During the war, "Radio Australia" had two main functions (a) to tell the true facts of the war and (b) to tell the world that the Aussies were really "over there." The Nazis early recognised the quality of the Australian commentators and caution was applied when answering the radio tilts from them. Now that the war is over, it is apparent that these broadcasts also struck home to the Japs High Command. From the U.S.A. came the opinion "Australian news commentators are the saltiest in the world, and even more pungent than the Germans when they really go to town"!! "Short Wave News," in its humble way, echoes these sentiments and congratulates R.A. on a fine job of work.

### News Bulletins.

Every 24 hours there are 23 news bulletins prepared and broadcast. Some are purely Australian bulletins, some world news and others a mixture of both. Three of these are specially prepared for Australian forces overseas. News is radiated in French, Dutch, Chinese, Malay, Siamese, Japanese



(Above) A View of the 100,000 watt transmitters.  
(Below) A Control Desk at "Radio Australia."



A close-up of an amplifying stage showing the neat and efficient layout of components.

These programmes are primarily designed to attract migrants by giving the facts of Australian sportsmen, to show Australian cultural advancements, and to supply special programmes sought by overseas stations. This system clearly presents the country to the world as a young and vigorous democratic nation and the popularity is such that over 600 letters a month are received from all parts of the globe.

#### The DX Sessions.

Of special interest to readers are the two weekly DX programmes. One session is beamed to Britain and one to North America, both programmes being prepared and narrated by Ernest H. Suffolk of the Australian DX Radio Club. Times for these "DX" sessions

are given at end of book.

#### Transmitters.

The Commonwealth's official short wave station has four transmitters, VLA, VLB, VLC and VLG. The first three are situated at Shepparton (Victoria) 120 miles from Melbourne. VLG is located at Lyndhurst, Victoria. The original station, VLG, has a power of 10,000 watts; VLC has a 50,000 watt R.C.A. transmitter; the "big brothers" VLA & VLB are both of 100,000 watts and are of Australian manufacture. These two stations are both equipped with two 100,000 watt amplifiers to permit rapid frequency changing. VLA was designed and built during the war, whilst VLB is the latest addition to "Radio Australia."

#### Literature.

Listeners specially requested schedule sheets will have them mailed at regular intervals. These give full details of channels used, times, direction of beams, languages used and other similar data.

## WHEN TO LISTEN TO THE STATIONS DESCRIBED.

(ALL times are given in the 24-hour clock system, G.M.T. For B.S.T. add one hour, for D.B.S.T. add two hours).

### Station PCJ, Huizen, Holland.

Channels used:—  
6026 kcs. (49.79 metres).  
11730 kcs. (25.58 metres).  
9590 kcs. (31.28 metres).  
15220 kcs. (19.71 metres).  
17770 kcs. (16.88 metres).  
"Happy Station" programmes, in English, are broadcast at the following times:—  
Sundays and Wednesdays:  
1830-1700 GMT: 15220, 17770 and 6026 kcs.  
2100-2230 GMT: 11730, 9590 and 6026 kcs.  
0230-0400 GMT: 11730, 9590 and 6026 kcs.  
Tuesdays:  
0800-0930 GMT: 17770, 9590 and 6026 kcs.  
Postal Address: Radio Station PCJ, P.O. Box 150, Hilversum, Holland.

### Station FZI, Brazzaville, French Equatorial Africa.

Channels used:—  
6180 kcs. (48.54 metres).  
11970 kcs. (25.06 metres).  
9440 kcs. (31.78 metres).  
15595 kcs. (19.24 metres).  
17527 kcs. (17.12 metres).  
English programmes are broadcast at the following times (with lady announcer):—  
Daily:  
1215 GMT: 17527, 15595 and 11970 kcs.  
1845 and 2045 GMT: 17527, 11970 and 9440 kcs.  
2215 and 2330 GMT: 11970 and 9440 kcs.  
Postal Address: "Radio Brazzaville," Poste National Française, Ministère de L'Information, Brazzaville, French Equatorial Africa.

### "Radio Canada" Stations.

Channels used:—  
CHLA, 21700 kcs. (13.83 metres).  
CKCS, 15320 kcs. (19.88 metres).  
CKCX, 15190 kcs. (19.75 metres).

CKNC, 17820 kcs. (16.84 metres).  
CHTA, 15220 kcs. (19.71 metres).  
CKLN, 15090 kcs. (19.88 metres).  
CKEN, 11900 kcs. (25.21 metres).  
CHOL, 11720 kcs. (25.60 metres).  
CHMD, 9640 kcs. (31.12 metres).  
CHLS, 9610 kcs. (31.22 metres).  
CKOB, 6090 kcs. (49.26 metres).  
CKRA, 11760 kcs. (25.51 metres).  
CKXA, 11705 kcs. (25.63 metres).  
CKLO, 9630 kcs. (31.15 metres).  
CHAC, 6160 kcs. (48.70 metres).

The above channels are not all in use at the same time, but vary according to season. However, one may be reasonably certain of hearing one station on each of the 16, 19, 25 and 31 metre bands at the times given below (the schedule at time of going to press):—

English programmes from "Radio Canada":  
1400-1700 GMT: CKCX, 15190 kcs. and CKNC, 17820 kcs.  
1700-2300 GMT: CKNC, 17820 kcs. and CKCS, 15320 kcs.  
Postal Address: Canadian Broadcasting Corporation, P.O. Box 189, Station H, Montreal, Canada.

### "Radio Club de Mozambique" Stations.

Channels used:—  
CR7AA, 5863 kcs. (50.30 metres).  
CR7BU, 4925 kcs. (60.91 metres).  
CR7BI, 9378 kcs. (31.97 metres).  
CR7AB, 3493 kcs. (85.85 metres).  
CR7BE, 9710 kcs. (30.90 metres).  
CR7BD, 15243 kcs. (19.68 metres).  
All programmes are broadcast in Portuguese and English, to the following schedule:  
Daily: 0500-0600; 0930-1145; 1645-2030 GMT.  
Sundays: 0900-1200; 1500-1930 GMT.  
Best reception is during the evening, over stations CR7BE and CR7BI.  
Postal Address: "Radio Club de Mozambique," P.O. Box 594, Lourenço Marques, Mozambique.

and English. Bulletins in English are given at the following times. Letters in brackets indicate target area of beam. WA is Western North America, EA is Eastern North America, P is Pacific and Asia, UK is United Kingdom.

Group 1 (Australian and New Zealand news): 0515 (WA), 0730 (UK), 1200 (EA), 1330 (EA), 1500 (P), 1515 (UK) and 1600 (WA).

Group 2 (World and Australian news): 0230 (P), 0900 (P) and 2145 (P).

Group 3 (World news): 0200 (P), 1045 (P) and 1230 (P).

#### Talks and Features.

These fall into two main groups (a) the Basic Programme and (b) Alterations and additions to the basic programme. Category (a) covers regular features such as "Australia To-day," "Australian Sports Round-up" and "DX-ers call Britain." The second category covers special topical features in the sporting, domestic or political world.

**Station HCJB, Quito, Ecuador.**

Channels used:—  
 4107 kcs. (73.00 metres).  
 9658 kcs. (30.12 metres).  
 6240 kcs. (48.08 metres).  
 12455 kcs. (24.10 metres).  
 15115 kcs. (19.85 metres).

English programmes are radiated five times daily, except Monday, at the following times: 1200, 1300, 1930, 2230 and 0230 GMT. The most favourable reception is on the 9958 and 12455 kcs. outlets, during the 2230 session.

Postal Address: Radio Station HCJB, Casilla 691, Quito, Ecuador.

**Station ZFY, Georgetown, British Guiana.**

Channel used:—  
 6000 kcs. (50.00 metres).

All programmes are in the English language.

Operating times are:—  
 1045-1245; 1445-1645 and 1945-0045 GMT.

On Sundays:—  
 1045-1645; 1945-0045 GMT.

The best time to hear this station is from 2230 GMT onwards.

Postal Address: P.O. Box 272, Georgetown, British Guiana.

**"Radio Australia" Stations.**

Channels used:—  
 Altogether, stations VLA, VLB, VLC and VLG are currently using 32 different fre-

quencies, in the 13, 16, 19, 25, 31 and 41 metre bands. To avoid confusion we will list only those channels that are currently used for broadcasts beamed to Great Britain, or for broadcasts that are heard well in this country.

**Programmes beamed to Great Britain:**

2030-2330 GMT: VLA4, 11770 kcs.  
 1745-1915 GMT: VLA8, 11760 kcs.  
 (25.51 metres); VLC11, 15210 kcs.  
 (19.72 metres).

0615-0730 GMT: VLA4, 11770 kcs.  
 (25.49 metres); VLB8, 21600 kcs.  
 (13.89 metres); VLC9, 17840 kcs.  
 (16.82 metres)—(VLC9 from 0645 GMT).

1500-1600 GMT: VLB4, 11810 kcs.  
 (25.40 metres); VLA4, 11770 kcs.  
 (25.49 metres); VLC9, 17840 kcs.  
 (16.82 metres); VLG10, 11760 kcs.  
 (25.51 metres).

**Special "DX" Programmes.**

1700 GMT Sundays over VLA8,  
 11760 kcs. (25.51 metres) and  
 VLC11, 15210 kcs. (19.72 metres).

0525 GMT Sundays over VLA5,  
 15320 kcs. (19.59 metres); VLB8,  
 21600 kcs. (13.89 metres); VLG6,  
 15240 kcs. (19.69 metres) and  
 VLC9, 17840 kcs. (16.82 metres).

0020 GMT Sundays over VLA9,  
 21600 kcs. (13.89 metres) and  
 VLC9, 17840 kcs. (16.82 metres).

Postal Address: "Radio Australia,"  
 Department of Information, 375, Collins  
 Street, Melbourne, Australia; or to:  
 Australia House, Australian Information  
 Bureau, London.

**THE BEST TIMES TO LISTEN.**

13 metre band	1000—1600 GMT.	31	..	..	1900—1000 GMT.
16 .. ..	1300—1800 GMT.	41	..	..	2000 onwards.
19 .. ..	1430—1930 GMT.	49	..	..	2100 onwards.
25 .. ..	1700—2100 GMT.				

**SOME STATIONS TO SEARCH FOR.**

The chart on the following page has been prepared with the object of giving the newcomer to short wave listening a good guide to when to listen for the major short wave broadcasters of the world. The list is by no means meant to be comprehensive, but it contains stations that are normally well heard on even the simplest receiver.

The numbers at the top of the chart indicate the time of day in GMT that is to say the chart starts at 0700 GMT and ends at 2400 GMT. The thick horizontal lines show the operating times of the stations, thus it will be seen that station WBOS in the air from 1415-1745 GMT.

Call Place W/L (metres)  
 North America.

WBOS	Boston	19.72
WCBN	New York	19.65
WCBX	New York	16.83
WCRC	New York	13.91
WGEEA	Schenectady	13.90
WGEO	Schenectady	19.57
WGEN	Schenectady	16.78
WLWO	Cincinnati	16.85
WLWK	Cincinnati	13.83
WLWK	Cincinnati	19.07
WLW1	Cincinnati	16.71
WLW51	Cincinnati	13.86
WNBI	New York	16.87
WRCA	New York	19.80
WNRA	New York	13.88
WNRE	New York	19.63
WNR1	New York	16.52
WNRX	New York	13.81
WOOW	New York	16.88
WOOC	New York	19.74
WRUA	Boston	19.54
WRUS	Boston	19.54
WRUL	Boston	19.62
WRUW	Boston	16.90
KCBA	Delano	30.77
KWID	San Fran'co	31.35
KCBA	Delano	13.98
KMEX	Dixon	25.45
KGEX	San Fran'co	25.50
CKNC	Montreal	16.84
CKCX	Montreal	19.75
CKCS	Montreal	19.58

**South America.**

HONA	Panama City	19.87
PRL8	Rio de Jan.	25.60
PRL7	Rio de Jan.	30.86
TGWA	Guatemala C	30.98
LRS	Buenos Aires	32.21

**Africa.**

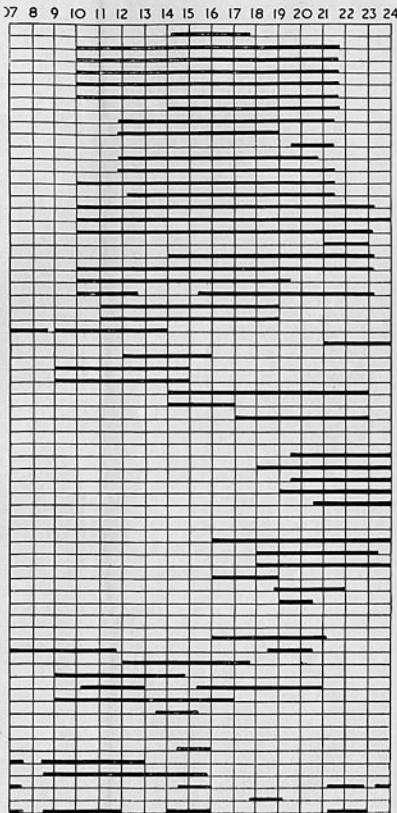
FZL	Brazzaville	25.06
	Tangier	48.47
OTC2	Leopoldville	30.79
VQZLO	Nairobi	49.50
FGA	Dakar	19.55
CRTEB	Lourenco M.	31.10

**Asia.**

TAP	Ankara	31.70
	Colombo	19.84
VUD4	Delhi	31.02
VUD7	Delhi	19.79
ODE	Beirut	37.30
XGOY	Chungking	25.18
XYZ	Rangoon	31.45

**Australia.**

VLB4	Shepparton	25.40
VLB8	Shepparton	13.88
VLG10	Lyndhurst	25.51
VLC9	Shepparton	18.82
VLA8	Shepparton	25.51
VLA6	Shepparton	19.74





## ENGLISH PROGRAMMES.

Most foreign stations radiate special programmes in English, and we give below a selection of the better received programmes together with times and wavelengths.

### Albania.

Station ZAA, Tirana. At 2015 on 38.22 metres (7850 kcs.).

### Belgian Congo.

Station OTC2, Leopoldville. At 1630-1715 GMT on 30.78 metres (9748 kcs.) and at 2030-2145 GMT on 16.88 metres (17770 kcs.).

### Bulgaria.

"Radio Sofia". At 2030-2040 GMT on 39.16 metres (7660 kcs.).

### China.

Station XGOY, Chungking. At 1000 GMT on 25.18 metres (11913 kcs.). At 1200 and 1400 GMT on 31.13 and 48.47 metres (9635 and 6155 kcs.). At 1615 GMT on 25.18 and 48.74 metres.

### Finland.

Station OIX2, Pori. At 0630 GMT on 31.58 metres (9500 kcs.).

### Greece.

Station SVD2, Athens. At 2015-2030 on 41.12 metres (7205 kcs.).

### India.

Station VUD4, Delhi. At 14.30 GMT on 31.02, 25.27 and 19.79 metres (9670, 11870 and 15160 kcs.).  
Station VID7, Delhi. At 1550 GMT on 48.47 metres (6190 kcs.).

### Indonesia.

"Radio Saigon". At 1330-1430 on 25.47 metres (11780 kcs.).

### Iran.

Station EPB, Teheran. At 1130-1140 and 1215-1230 GMT on 19.87 metres (15100 kcs.).

### Italy.

Rome. At 1820-1900 GMT on 31.15 and 25.40 metres (9630 and 11810 kcs.).

### Java.

"Radio Indonesia," Djokjakarta. At 0900-0930, 1030-1230, 1400-1430 and 1600-1630 GMT on 27.27 metres (11070 kcs.).

### Mozambique.

Station CR7BE, Lourenco Marques. At 1955 GMT on 31.10 metres (9645 kcs.).

### Poland.

"Polskie Radio," Warsaw. At 2050 GMT on 49.18 metres (6100 kcs.).

### Sweden.

Station SDB2, Motala. At 1730-1740 GMT on 27.83 metres (10780 kcs.).

### Syria.

"Radio Levant," Beirut. At 1600-1645 GMT on 37.41 metres (8020 kcs.).

### Tangier.

"Radio International," Tangier. At 2145-2200 GMT on 48.47 metres (6190 kcs.).

### Turkey.

Station TAP, Ankara. At 2130 GMT on 31.70 metres (9468 kcs.).

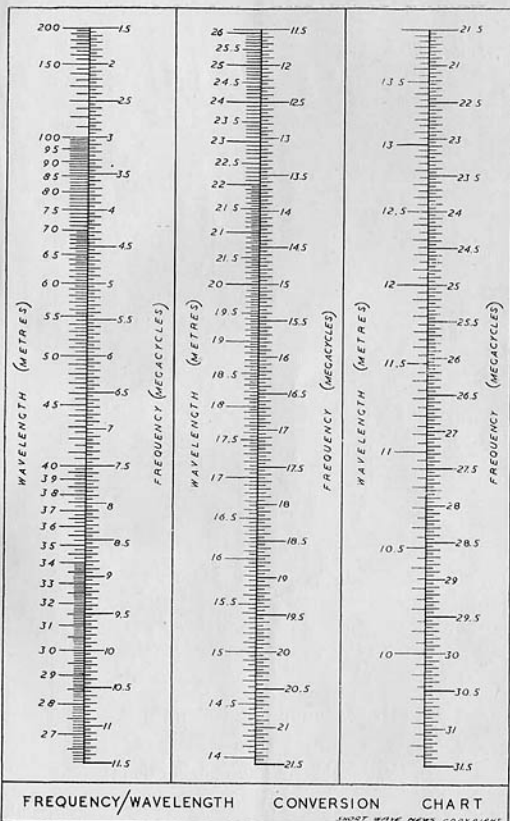
## FOR YOUR FUTURE LISTENING.

The times and frequencies mentioned throughout this booklet were accurate at time of going to press, but owing to seasonal changes, variation of conditions and other factors, schedules are liable to be altered without previous notice. It should, therefore, be obvious that the enthusiastic listener must have some authentic source from which details of schedule changes can be obtained.

The International Short Wave League, with its sponsor journal "Short Wave News", provides this necessary source, Of

most interest to readers of this booklet is the Broadcasting Station Query and Schedule Service, which is only one of the many free services to which I.S.W.L. members are eligible. Unknown stations are identified for you, and current schedules of stations sent on request. This valuable service is yours upon receipt of your I.S.W.L. membership certificate.

The annual subscription to the League is purely nominal and is, in fact, but one shilling per annum! Write now for full details to:—Secretary, I.S.W.L., 57, Maida Vale, Paddington, London, W.9.



Join the



# THE INTERNATIONAL SHORT WAVE LEAGUE

(Sponsored by "SHORT WAVE NEWS")



for **BETTER LISTENING**

## ● OBJECTS

To bring together the short wave enthusiasts of the world, regardless of race, creed or politics, to their mutual benefit.

To foster and promote international goodwill through the medium of short wave radio interest.

To provide facilities which will enable enthusiasts to carry out their hobby to the greatest advantage to themselves and their fellow enthusiasts.

## ● CONDITIONS OF MEMBERSHIP

The only condition of membership is a genuine interest in some aspect of short wave radio, and the will to further the objects of the League to the best of one's ability. Each member will be allotted an identification number.

## ● MEMBERSHIP FEES

A nominal charge of 1/- (One Shilling) per annum will be made in order to cover enrolment costs, membership certificate, etc.

## ● LEAGUE NEWS

The latest activities of the I.S.W.L. are reported exclusively in the "Short Wave News."

## ● LEAGUE SUPPLIES

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## ● QUERY SERVICES

A number of services are now in operation, and others are being organised.

## ● REPRESENTATIVES

Applications are invited for positions as I.S.W.L. Representatives IN ALL PARTS OF THE WORLD AND IN EVERY PART OF THIS COUNTRY.

## ● QSL BUREAU

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