

April 1947

# “ Polskie Radio ”

## STATION DESCRIPTION No. 10

### History

THE short wave station “Warsaw III” came into being on January 31st, 1944, and began to operate regularly from Lublin. On the same day the Polish National Committee of Liberation gave place to the newly created Provisional Government.

The early stages of Warsaw III must surely be unique in the history of radio—what other station can claim to have first been installed and operated from a railway carriage! At first, programmes were radiated in English, French, Russian and Polish, with much time given to programmes designed to enable members of the Polish Forces to locate their missing relatives. Although the station radiated its own programmes, relays from the main Lublin Radio were quite frequent. During April, 1945, the station was removed to Warsaw, where it resumed broadcasting on May 2nd.

The next stage in the history of Warsaw III took place between July and August of 1945, as during this time the station was moved from its humble railway carriage and installed in the newly reconstructed building of the Radio Station Warsaw I. Shortly after this the station commenced its programmes in Yiddish, broadcast four times weekly. From November onwards daily broadcasts for Yugoslavia began. September, 1946 saw the inauguration of Esperanto broadcasts, which are now given once a week, whilst Bulgarian programmes started in October. The latest language to

be added will be Spanish, these programmes scheduled to begin by the time this article is being read.

### Organisation

The foreign language broadcasts are under the supervision of the Director of Programmes. An editorial staff works out the material for individual broadcasts and each foreign language programme has its own department and staff. Each department has its quota of interpreters, announcers and so forth. The technical side is taken care of by the technical director and his staff.

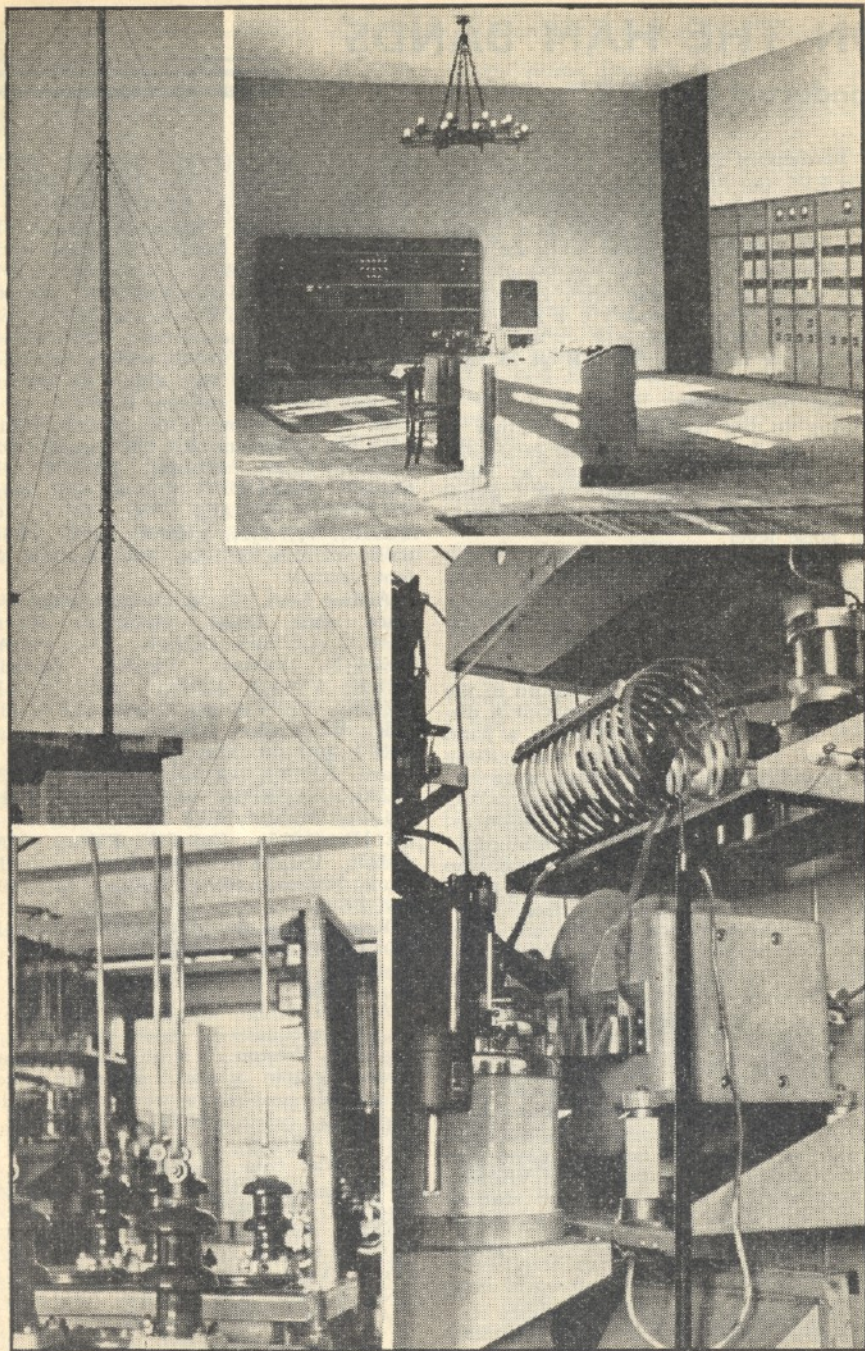
### Schedule

The station operates on 6100 kcs. with a power of 7500 watts, from 1600-2300 GMT. News bulletins, given daily, tell the news of Poland from the political, economic and cultural angles. Apart from this, occasional surveys of the daily Press are given, and special items such as sports news, survey of periodicals, talks on cultural and scientific matters, etc.

English programmes are radiated daily at 2050 GMT.

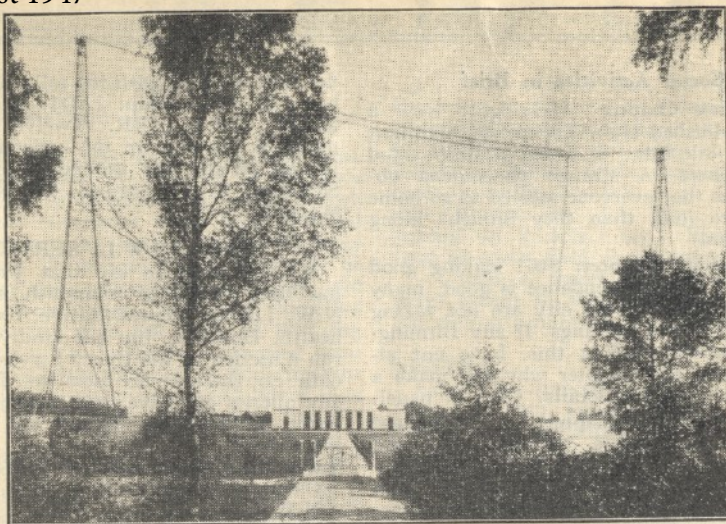
### Reports

Reception reports, which are appreciated, should be addressed to the following address:—Foreign Liaison, Polskie Radio, Noakowskiego 20, Warsaw.



(Top left) The Aerial mast. (Top right) a view of the control room.  
(Bottom left and right) close-ups of the transmitters.

**"POLSKIE RADIO"**



## “Radiojanst”

### Station Description No. 12

**A**T No. 8 Kungsgatan (King's Street), in Stockholm, the “Radiotjänst,” or Swedish Broadcasting Corporation, occupy the two upper floors of the building. Another house, close by, houses the Concert Hall and Musical Academy. Another house, just acquired, is used for the Theatre Section. The disposal of the studios and offices is just another sign of the housing problem, which obtains also in Sweden.

The Government has just granted permission for a new modern building which will make the Swedish Broadcasting a more self-contained unit. The new building, which will be completed by 1950, will contain 15 major studios, three of them concert halls with ample audience accommodation. The cost of the building will be 14 million Kronor.

Swedish radio is semi-state-owned, and the Government has the right to appoint four out of the seven governors of the board. In “Radiotjänst,” which is a joint-stock company, the Press and various radio firms are shareholders. Programmes are in the hands of entirely independent officials, and the political party in power at any time has no influence on the views expressed.

Radiotjänst was formed in 1924 and began its programme service in January, 1925. By 1935 Sweden had become so radio-minded that she had the highest number of licences, proportional to population, of

any country in Europe. At present there are almost 2 million licence holders, out of a population of just over 6½ million. The present licence fee is 10 kronor a year, and the entire cost of upkeep is maintained by the licence fees—no commercial advertising being practised.

The corporation “Roster i Radio” (Voices in Radio), is their equivalent to our Radio Times, and sells 120,000 copies weekly. Only one programme is radiated by the 33 radio stations in the country, which is one-third as big again as the British Isles. Half of the 10,000 transmitting hours per year are taken up by musical programmes, light music predominating. Talks and the arts are also in great demand, especially plays and topical events.

A recent innovation is the broadcasting of courses in English and French, and is another indication of the popularity of adult education by radio.

Reporters are often sent to various parts of the world to obtain information and recordings. During the war, especially, many fine recordings were made for posterity from various corners of the war areas.

For outside broadcasts Radiotjänst has five cars, all equipped with recording apparatus and VHF frequency modulated transmitters. These cars are very useful to reporters when in the remoter parts of the country.



Short Wave activities started in 1938, when the first experimental transmissions were made, over the stations at Motala in central Sweden. In 1939 an hourly transmission was made daily on two frequencies, and by 1940 a special Sunday programme for Swedes living abroad was introduced. The following year saw the inclusion of the English language programmes. Experiments have been made with programmes directed to South America, but have now been abandoned as the results were negative.

All the short wave stations are at Motala, and the following are the frequencies used at present:

SBT: 15155 kcs. SBP: 11705 kcs. SDB2: 10780 kcs. SBU: 9535 kcs. SBO: 6065 kcs.

These are the operating times (in G.M.T.)  
SBT: 0640-0800; 1100-1400; 1500-2300.  
Sundays: 0700-2200.

SBP: 1100-1400. Sundays: 0700-1355.  
SDB2: 0100-0200; 1500-2300. Sundays:  
0100-0200; 1400-2200.  
SBU: 0100-0200. Daily.  
SBO: 0640-0800; Not on Sundays.

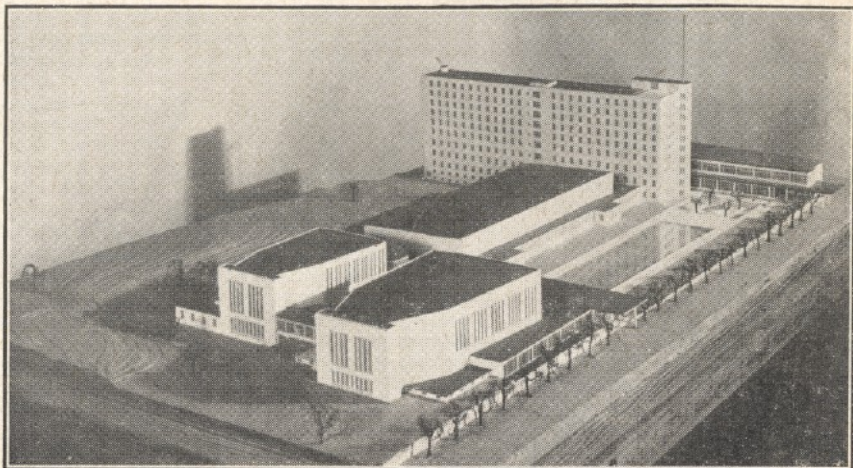
English programmes are radiated as follows:

Daily: 1500-1600 G.M.T., over SBT and SDB2. Weekdays: 1735 G.M.T., over SBT and SDB2.

Radiotjänst, Kungsgatan 8, Stockholm,

# SWEDISH RADIO

by ROY PATRICK.



*Model of proposed new Broadcasting House in Stockholm.*

The radio has developed very rapidly in Sweden as in the other Scandinavian countries. The Swedish radio has been of immense importance for spreading and enlightenment, rapid information and first-class entertainment—a quite natural development in a country where the distances are often great between the major towns and communities and the receiving set is the most important and sometimes even the only means of contact with the wide world.

No sponsored programmes are allowed and the whole system is financed by licence fees, as every household in Sweden using a radio has to pay an annual fee of 10 Krona. At present, Sweden has the largest number of licences in relation to the population of any country in Europe—a position which, as a matter of fact, the country had already reached in 1939. At present, Denmark ranks second in that respect, while Great Britain comes sixth.

Only one programme is broadcast to Home listeners, and is radiated over 33 Long and Medium Wave Stations, ranging from low-power 200 watt Local Stations to the powerful 150 k.w. Station at Motala. The transmitting period covers about 4,750 hours a year. In addition, the special short wave broadcasts cover about 1,000 hours a year, which include part of the National programme and several special items such as News

Bulletins in English, German and French, special broadcasts in Swedish and English for the U.S.A., and the popular weekly feature, "Sweden calling all DXers", a programme for all short wave enthusiasts giving information on other S. W. stations and Radio Clubs.

The composition of the Swedish Radio Programmes is very largely drawn up on the same lines as the Radio programmes in most European countries. Items of a purely entertainment value alternate with popular educative programmes, items of topical interest, plays, discussions and divine services. Nearly 50 per cent of the broadcasting hours are taken up with musical programmes, ranging from Symphony Concerts to Light Music. The international exchange of programmes, especially in the musical sphere, is being organized on an ever-growing scale. Co-operation between the Broadcasting Corporations in Scandinavia is particularly lively, the language difficulties being practically non-existent, as the interest is remarkably keen, notably English, though also French and Spanish. The latest basic textbook for the English course was issued in an edition of 60,000 copies.

The future plan of Radio Sweden is to have a home of its own, but owing to the difficulties of procuring materials, it will no doubt be some time before building can

be started on a grand new Broadcasting House in Stockholm.

As soon as the necessary material and financial conditions are present, the Swedish Radio is to provide several simultaneous programmes. In view of the geographical character of the country—the construction of FM stations is impracticable. The technical difficulties are more or less likely to be solved by extending a wired radio network over telephone lines.

The short wave service possesses at present two 12 k.w. short wave transmitters, which are located at Motala. Two new powerful transmitters of 100 k.w. have just been completed at HORBY in Southern Sweden for the short wave service, and so should be

on the air very shortly. Its transmissions will then reach the four corners of the World with ever increasing technical perfection.

Radio Sweden publish many publications in conjunction with programme series of various kinds, including a weekly journal "ROSTER RADIO" (Voice on the Radio), the normal circulation of which is 185,000 copies. It contains all the week's programmes, also DX items for all DXers. In addition, Radio Sweden publish quarterly a booklet which contains a complete list of S. W. Stations and time of transmissions, etc.

Radio Sweden welcome comments on the programmes and reception reports, which will be verified by a QSL card.

## MAN MADE INTERFERENCE. (Continued from page 707).

### Mains-borne Interference

This is removed by means of filters in the mains input to the receiver, and a suitable design is shown in the figure. There are suitable designs available commercially, at the cost of a couple of pounds or so. But no doubt most amateurs will prefer to make their own.

The filter is in two parts, the first half attenuates low frequency interference and the second half the higher frequencies. With it, it should be possible to run an unsuppressed vacuum cleaner motor off the same mains plug as the receiver, without hearing any interference. Provided of course that radiated interference has been attended to as previously described.

A word of warning. Watch the earthing. Not only must the filter case be solidly bolted to the receiver chassis but the receiver itself must be solidly earthed. If the receiver earth is omitted the size of filter condenser used is such that dangerous shocks can occur if the receiver case is touched. If a three way mains lead can be used to give additional protection, so much the better.

### Practical Design

Now a few words on the actual design. The case is an 18 SWG plated copper box which we happened to have handy. Tin plate or aluminium would do equally well. The fuses, of course, are to protect the mains in case of a condenser failure. The input condenser is a Dubilier nitrogel which has a very good high frequency characteristic. If non-inductive tubulars are used instead keep the lead lengths short or they will resonate with their own leads. When they

resonate, far from suppressing interference, they may then actually increase it. So to avoid any possibility of this they may be by-passed with .005  $\mu$ F, mica condensers in parallel.

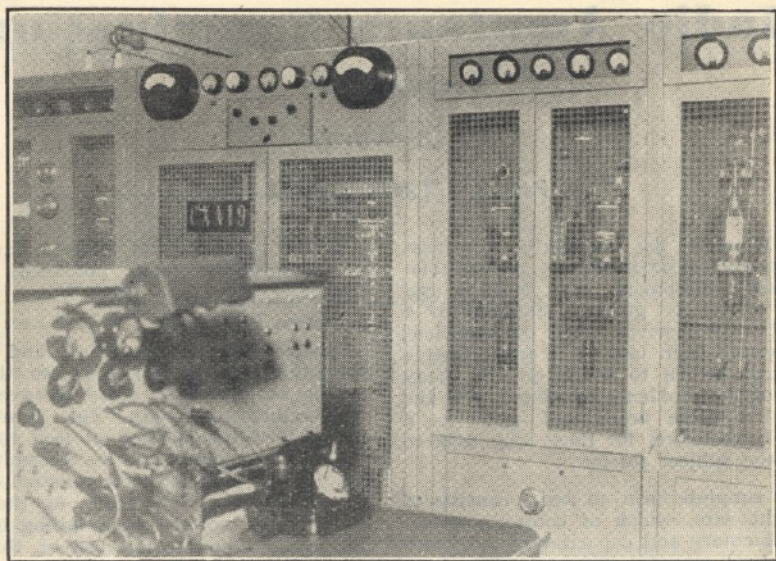
The author wound his own filter coils, but the low frequency pair may be tedious for anyone without the use of a lathe or coil winder. In this case a visit to your local junk shop will probably locate a pair. But do not reduce the wire size or the coil will overheat. The filter is rated at about 80 to 100 watts receiver consumption.

The last pair of condensers do not contribute appreciably to the interference filtering action directly, but they reduce the source impedance of the cable leading from the filter to the receiver. If they are omitted this cable can look like a very high impedance indeed at high frequencies. (Where resonances occur in the mains transformer). When this happens even the microscopic power getting through the cable screen can give trouble. With them, if the mains lead is short, the cable screen can generally be dispensed with.

### The Post Office

One other point should be mentioned. If, after all your efforts you are still troubled with some residual interference (although we very much doubt if you will), then it is a case for the G.P.O. Undoubtedly the interference must be many times the accepted permissible level. A form can be obtained from any Post Office and the Post Office engineers will be found most co-operative.

And before we leave the subject of man made interference, one final word of warning, make sure that the filter unit is earthed.



## “El Espectador”

### Station Description No. 13

THIS month we make a call at Montevideo, Uruguay, to visit Difusoras del Uruguay, a company which owns and operate a chain of stations in that city. Geographically, the country, bounded by Brazil (N.E.), Argentine (W.) and the Atlantic (S.E.), is mainly flat grass-land with some low ridges of hills in the North. The climate is a healthy one and the chief industries are sheep and cattle rearing, wheat, grapes and tobacco. Though mining is of slight importance, much mineral wealth is existant. The area of the country is 72,000 sq. miles and the population just under two millions.

The Difusoras de Uruguay own the following stations: CXA19 (11835 kcs.), CXA9 (15345 kcs.), CX14 “El Espectador” (810 kcs.) and CX18 “Radio Libertad” (980 kcs.) The station of main interest to us is the short wave outlet of CX14—namely CXA19. This station, without a doubt, is one of the most consistent short wave voices from South America and the short wave listeners who have not heard this station could possibly be counted on one’s fingers. The photo above shows the transmitter and part of the control desk.

The actual transmitter of CXA19, making its debut on the air in March, 1940, consists of a 1 kW. exciter unit, class B modulated and fed into a linear amplifier equipped with two CAT9’s. The power delivered to the aerial is 5 kilowatts. The

aerial is a full-wave horizontal type, running E.N.E.-W.S.W., with loops radiating towards North America and Europe. The complete transmitter was designed and built by local engineers and reception reports from all over the world testify to their success. Originally the station operated on the frequency of 11705 kcs. but owing to priority claims of SBP, Motala, the shift to 11835 kcs. was necessary. Until 1942 the station was running at a power of only 1 kilowatt, but even so reception was remarkable.

The language used throughout is Spanish, except for the daily transmission “Radio France pour l’Amerique du Sud” in French at 1310 GMT. Although no English transmissions are at present radiated, Jorge Cubilo, the Station Director, says that the matter is under consideration and that it is hoped to start some regular transmissions in the English language in the near future. We feel sure that this would do even more to enhance the popularity of CXA19. The station is now on the air daily from 1100-0300 GMT continuously.

Despite the fact that the listener-mail is very heavy, the station always appreciates reception reports. Until recently the verification took the form of a stereotyped letter-acknowledgment. Now, however, SWL’s have their reports acknowledged by a folder-type QSL which is one of the most beautiful that the writer has ever seen. The

# Station Description

## No. 14 RADIO OIX-7

**M**ANY readers will have heard the very fine signals put into this country during the past few months by the experimental transmitter OIX-7 owned by the Finnish Broadcasting Company. Operating in the 14 Mcs. amateur band, this transmitter gave many 14 Mcs. phone operators some of their most pleasurable QSOs and it gives us great pleasure to be able to describe this station for the benefit of our readers.

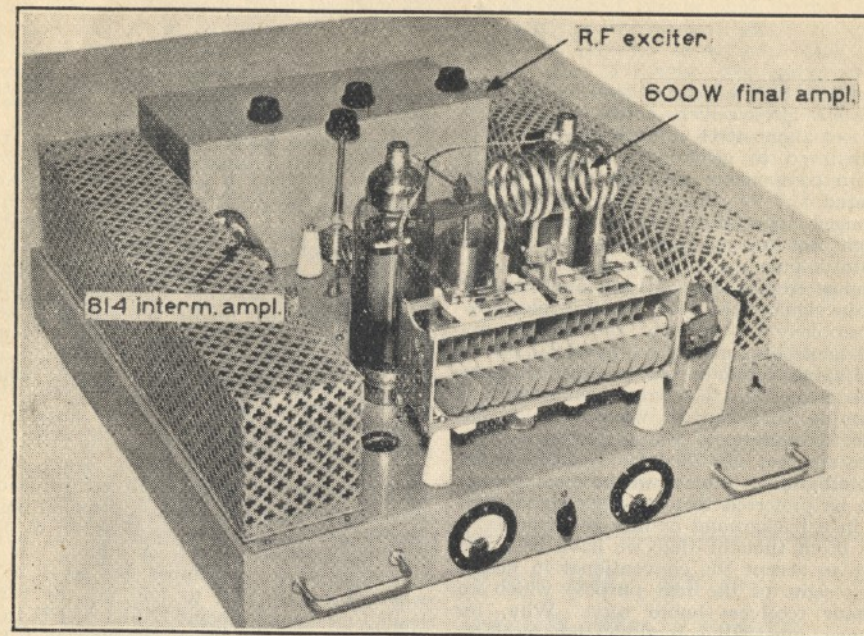
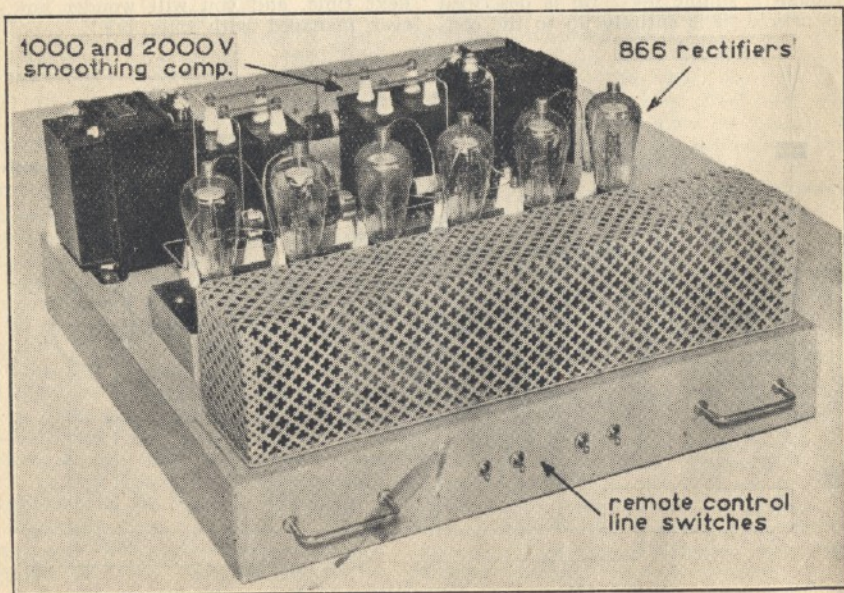
The Finnish Broadcasting Company owns several 10 to 15 kW short wave broadcast transmitters working in the broadcast bands. These have been on the air regularly since 1938 with rhombic aerials directed to the North and South of America. Very few reports were received from these countries for reception of these transmissions however and the engineers were at a loss to know just why. The northern location of Finland, the relatively low aerial power, the aurora, etc., were all suggested as possible causes.

In order to obtain more information on propagation conditions it was decided to put an experimental transmitter on the air

to make contact with amateur stations and thus get first hand information of how signals were getting out. OIX-7 was therefore built and put on the air on 28424 kcs. to start with. Subsequently operation was extended to cover the 14 Mcs. band.

The RF side of the transmitter is a five stage unit with an input to the final amplifier of 500-600 watts. A 6V6G is used in a crystal oscillator stage working on 7 Mcs. This is followed by two frequency doubler stages using 807's. An 814 is then used as an intermediate amplifier driving a pair of Amperex HF 300's in push-pull in the final amplifier.

The modulator comprises two 810 valves in Class B driven by four 6B4G's in Class A. Preceding this driver stage is a 6N7 resistance-capacitance phase inverter. The modulator is connected via a transformer to an ordinary 500 ohm telephone line 4 miles long, at the other end of which is the speech amplifier, the whole transmitter being remotely controlled over a two-pair telephone line.



The 2000 volt supply for the final amplifier and the modulator is obtained from a 3 phase full wave rectifier using six 866 mercury vapour valves. A system of relays is built into the cathode circuit of the final amplifier to provide for keying, for change over from CW to phone and to ensure that the modulator is not switched on before the final amplifier.

The aerials in use at the time of writing consist of "Lazy H" types, one being directed to N. and S. America; the other to S. Africa. The station was put on the air for the first time on February 22nd, '47, and within a week, 130 amateur phone contacts in the Americas had been made. Since then, contacts with almost every part of the world have been made.

The transmitter is located on the local 10 kW broadcasting station site three miles away from the town. This was done with a view to eliminating interference to local broadcast listeners. As we have said, complete control is effected over a pair of telephone wires, which carry the speech, switch on the plate voltages, change from CW to phone, etc. With the transmitter situated so

far from the receiver, "break-in" operation works perfectly.

Our illustrations show the RF chassis and the power pack. The RF chassis contains the crystal oscillator and frequency doublers which are placed in the screening box at the rear of the chassis. The 814 intermediate amplifier projects horizontally from one end of the box as shown. The final amplifier occupies the centre of the chassis. The perforated metal covers house the auxiliary rectifiers and relays. Similar construction is used for the modulator and rectifier units, all three being mounted one above the other in an open wooden rack.

The transmitter was designed by Mr. K. S. Sainio ("Charles") OH2NM, who also is the operator whose voice is most frequently heard when OIX-7 is on the air. A most interesting feature of OIX-7 is the descriptive pamphlet sent with the station's QSL card giving complete details of the transmitter including circuit diagrams—a unique and most interesting type of QSL and a real souvenir for those who have enjoyed a QSO with this station.

# The Klipheuvcl Short Wave Station

## Station Description No. 15

**S**OUTH AFRICA is a country with two official languages, English and Afrikaans so that, soon after the South African Broadcasting Corporation began to operate as a public utility company in 1936, the Board of Governors decided to inaugurate a separate programme for Afrikaans-speaking listeners. The first difficulty to be overcome at that time was the finding of a suitable transmitter at short notice. It was preferable that the station should operate on short waves, for Afrikaans-speaking people live mostly in country districts where they cannot be reached by the medium wave services.

It was fortunate for the S.A.B.C. that Cable and Wireless of South Africa, Ltd. had just been installing new transmitters for their commercial telephone and telegraph services to England. They thus had available a surplus 5 kilowatt short wave set in their station at Klipheuvcl, a small village near Cape Town. While negotiations were proceeding for the hire of this transmitter, the S.A.B.C. studios in Cape Town were being reorganised to handle two entirely separate programmes. New control desks, amplifiers and speech equipment were installed. Meanwhile aerial systems for 31 and 49 metres were being tested by Cable and Wireless engineers at Klipheuvcl. Post Office engineers checked the special broadcast line between Cape Town studio and the new transmitter.

October 25th, 1937 was a day that will long be remembered in the annals of broadcasting in the Union, for Klipheuvcl then went on the air with the first separate Afrikaans or "B" programme. The "B" programme for the Johannesburg group was radiated on short waves soon afterwards on December 1st, 1937. Listeners all over the Union began to tune in to Klipheuvcl, on 31 metres daytime and 49 metres at night. For the first time their own radio programme could be enjoyed by families on lonely farms for whom, indeed, the programme soon became a source of entertainment, education and, perhaps most important of all, market information.

But before long it became evident that this station, designed for national coverage, was reaching out to unexpected places, and reception reports began to flow in from all over the world. The clearest and most reliable reception seemed to be obtained on the Western coast of North America. There, listeners on the point of retiring for the night, listened in to physical culture exercises, broadcast on the following morning! The bugle call even intrigued listeners

in Latin America who wrote remarking upon the "toque de clarin." One aged gentleman in California complimented the S.A.B.C. on the excellent "setting-up" exercises, which enabled him to tone his system up just before going to bed.

Listeners on the Western seaboard of the U.S.A. heard the station in the early evening, but reports also came from enthusiastic operators on the Eastern coast who had to sit up to a quarter of an hour before midnight E.S.T. in order to hear the opening call.

During the war the volume of letters from overseas listeners declined to a mere trickle, but from 1945 numerous requests for QSL cards began again. Although most of the letters now come from within the Empire and in particular from England and Australasia, listeners in Scandinavia are also well represented.

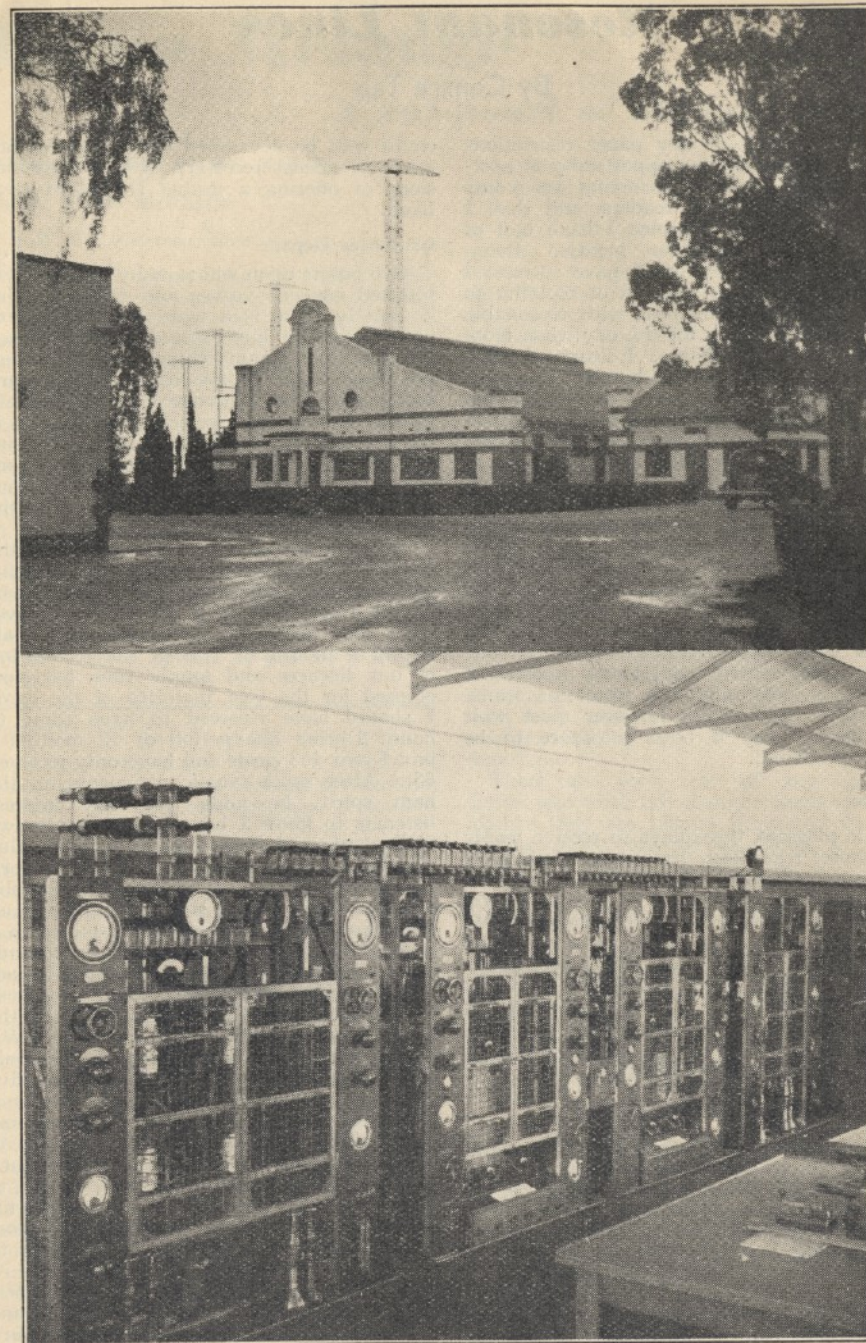
Within the Union the Klipheuvcl station still gives excellent service and on October 25th this year it will celebrate the end of its first decade as a broadcaster. When it is considered that before this the transmitter had completed nearly a decade on commercial traffic, we may indeed pay tribute to it for the outstanding work it has done for listeners in the Union of South Africa.

The transmitter normally allocated by Cable and Wireless to the Cape Town short wave service of the S.A.B.C., is a standard Marconi SWB.1 Telephone Transmitter, primarily intended for short wave commercial traffic. High power choke modulation is used and the final modulated amplifier has an input power of 7 kilowatts. A power of 5 kilowatts is delivered to the aerial circuit.

The programme arriving over the G.P.O. line is taken to Speech Input and Monitoring equipment. After that it is dealt with by Sub-Modulator stages and finally by a high-power Modulator using two CAM.3 oil-cooled valves.

The constant-frequency drive circuit is followed by three R.F. amplifiers and the complete circuit is duplicated for the two station frequencies of 9606 and 5882 kilocycles. The final modulated R.F. amplifier uses two CAT.2 oil-cooled valves.

The transmitter output travels along a copper concentric feeder and through impedance transformers to one or other of the two aeriels. Both aeriels are five-eighth-wave vertical cage systems, with their lower ends a quarter-wave above ground. Radiation is strong at low angles above the ground.



(Above)—The station building at Klipheuvcl, with the 300 ft. towers which support the beam aeriels. On the right is the valve store and in the centre the power house. (Below)—A front view of the 5000-watt station.





## STATION DESCRIPTION

No. 16

# LH2A

TECHNICAL UNIVERSITY  
TRONDHEIM  
NORWAY

**L**AST autumn, the Students' Society at the Technical University, Trondheim, Norway, went on the air with their own short wave broadcasting station LH2A. The occasion was the "Student-uka" or Students' Week, though the actual celebrations spread over several weeks. During this period, the Students' Society Club House is transformed into a great entertainment centre, with "bodega"—dance halls each with their own bars.

Permission was given by the Norwegian G.P.O. for the students to run their own broadcasts from their own short wave transmitter. Two transmitters were used, both of the same type, each putting about 600 watts into the aerial. They could be tuned to any wavelength between 17 and 55 metres. One of the transmitters was owned by the Norwegian Technical University and was located at the University. The other belonged to the Norwegian G.P.O. and was installed at the regional broadcasting station in a suburb of Trondheim. The frequencies 6130, 9540, 11735 and 15175 kcs. were allocated to these transmissions.

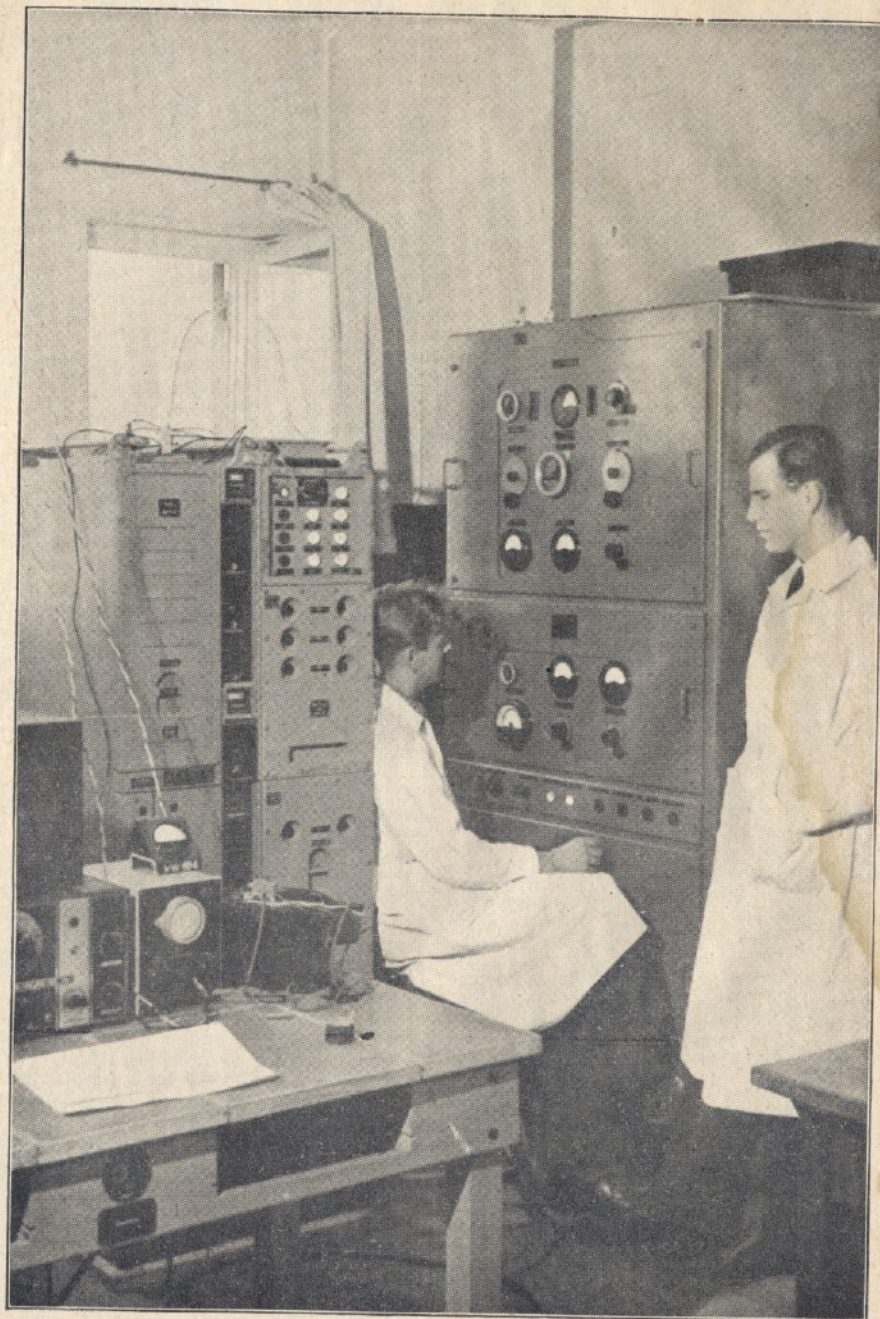
Two different studios were used for the programmes, each working in co-operation with

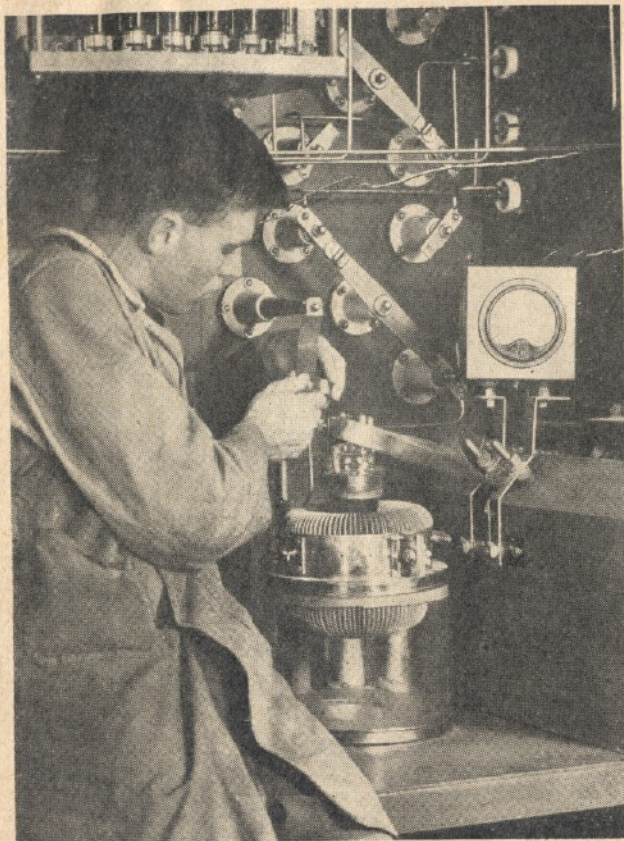
the other. Each could be connected to both or either transmitter and a comprehensive system of interstudio and studio/transmitter inter-communication channels was installed. Among the technicians in charge were LA9J, LA1VA, LA3UA, LA3ZA and LA9QA. LA9J is the director of the regional broadcasting station LKT, the others being students at the University.

A separate monitor station was set up in the Club House and the studio equipment included a tape recorder and a disc recorder. The programmes radiated were acted or performed by students from the University.

LH2A had to close down at the end of the "Student-uka," but it is hoped to obtain Government permission to recommence transmissions at a later date. In the event of permission being given and broadcasts being radiated, reports on them would be greatly appreciated and should be sent to: The Students' Society, Norwegian Technical University, Trondheim, Norway.

The photograph opposite shows one of the transmitters used, together with its associated equipment.





STATION  
DESCRIPTION  
No. 19

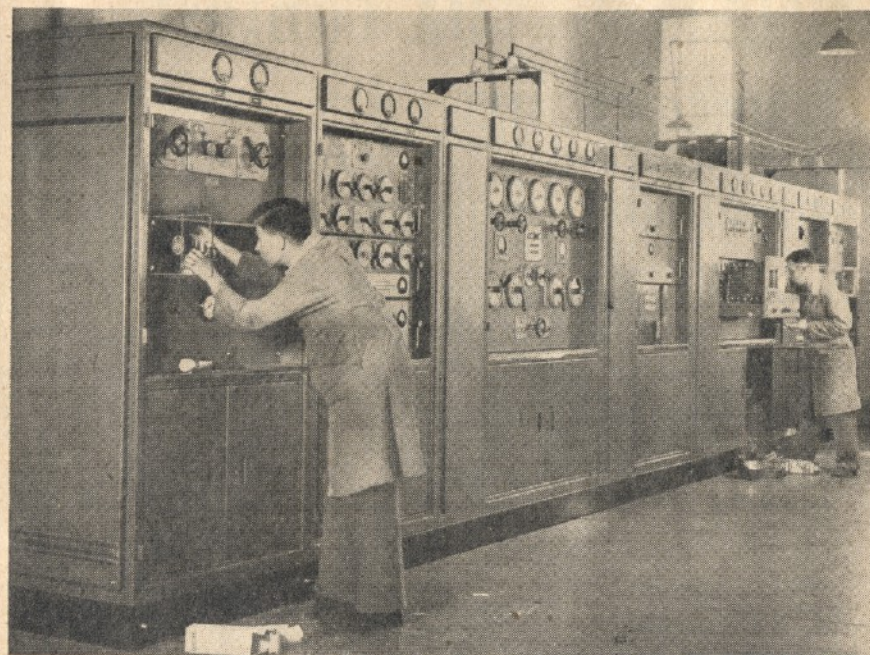
# RADIO NEW ZEALAND

(Left: One of the large air-cooled valves)

ON the 27th September, 1948, New Zealand's Dominion Day, Radio New Zealand, the Short Wave Division of the New Zealand Broadcasting Service, began an overseas short-wave service. The aims of Radio New Zealand were to provide a programme for the New Zealand Dependencies in the Pacific and for the Trust Territory of Western Samoa, and at the same time to offer a programme of interest to listeners in other parts of the world. Early tests indicated that Radio New Zealand would be received with good strength in the Pacific Islands to the North of New Zealand, and in Australia, and to a lesser degree in New Guinea, the Netherlands East Indies, Malay and India. Subsequent reports have confirmed these early tests, and whilst Radio New Zealand does not put a strong signal into this country, it can be heard here. In a letter from the Director, James Shelley, we learn that quite a number of letters and reports have been received from Great Britain and the Continent, particularly from Sweden, where Dx'ers seem particularly keen.

The policy of Radio New Zealand is to provide a programme with the maximum entertainment value. Approximately three-quarters of the time on the air is given to musical programmes: talks and news sessions are brief, and are made as interesting and entertaining as possible. Most visitors to New Zealand find the music of the Maori people, with its strong melodic character, of particular interest and unusually pleasant to listen to, so the songs and stories of the Maori race are featured in the programmes.

In one of our recent editorials we expressed the hope that those who planned short-wave programmes would do so with an eye to presenting a picture of their country, its ways and ideas, thus ensuring that short-wave broadcasting would be a means of spreading knowledge and culture around the world. It is good to read that one of the objects of the planners of the programmes from New Zealand is "with modesty... to project the pleasant New Zealand way of life." Broadcasting in New Zealand is a State function, and the programmes for Radio New Zealand are



One of Radio New Zealand's Transmitters at the new Shortwave Station at Titali Bay, Wellington

prepared by the Short Wave Division of the New Zealand Broadcasting Service.

Radio New Zealand studios are located at 38 The Terrace, Wellington—the capital of New Zealand. They can be linked with all the medium-wave broadcasting stations in New Zealand, so that their programmes may be available to overseas listeners.

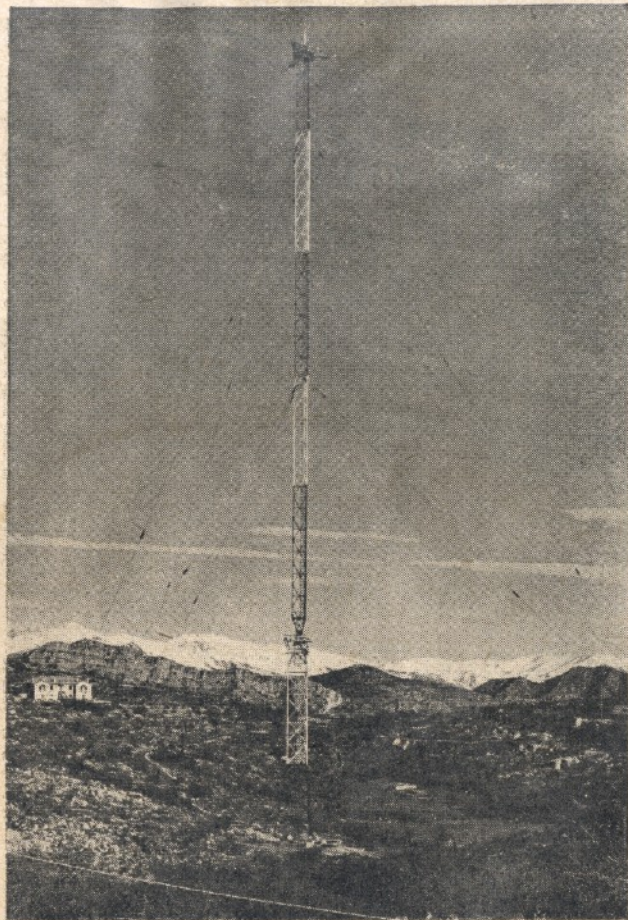
The two transmitters are at Titalu Bay, some 17 miles from Wellington. Each transmitter has a radiated energy of 7.5 kW. They employ high-level modulation, using two 889R type valves as Class B modulators and similar valves in the final modulated RF stage. They cover a frequency range of 6 to 22 Mcs., and a change in frequency can be made in less than two minutes.

As the programme service was primarily intended for Australia and the Pacific in the first instance, all the present aerials are designed for a beam width of 68 degrees. The majority of the

aerials consist of two-tier, two-bay, half-wave horizontal radiating elements with reflectors. The earlier aerials have the radiating elements spaced half-wave length in the vertical plane, while the later slewable beams for the Pacific Service are designed with a vertical spacing of seven-tenths wave length. All radiating elements consist of a three-wire centre-fed Kraus structure.

The call signs and frequencies used are as follows:—ZL2 on 9.45 Mcs. in the 31 metre band. ZL3 on 11.78 Mcs. in the 25 metre band. ZL4 on 15.28 Mcs. in the 19 metre band.

Daily transmissions are from 0700 to 0900 G.M.T. The tuning signal is the song of the native bird, the Tui, and can be heard from 0658 to 0700 GMT. The station signs off with the Maori Song of Farewell "Now is the Hour" (Po Ata Ran), which is sung by a Maori choir. All correct reception reports are QSL'd. Address: The Director, Radio New Zealand, Box 3045, Wellington, New Zealand.



**STATION  
DESCRIPTION  
No. 20**

**RADIO  
MONTE-  
CARLO**

**T**HE broadcasts of Radio Monte-Carlo on 6035 and 9490 kes. need no introduction to our SW BC fans, as they are well received in this country, and the programmes are of good entertainment value. There is also, as many readers will know, a medium wave channel allocated to this station, viz., 959 kes. The three channels radiate a total transmitter power of 170 kW—120 on the medium wave, and 25 each from the short wave transmitters.

Radio Monte-Carlo is a commercial station owned by the Pan American Broadcasting Company, and every facility is provided at the studios for presenting advertising material in as attractive a manner as possible. The general standard of the programmes is on a high level, facilities being available for accommodating first-class orchestras; dramatic and light theatrical

shows; pre-release movie reviews; on-the-spot interviews, and outside reporting of social, cultural and sporting events. A huge library of the world's best recorded music is maintained, and turntables are available for 33 1/3 and 78 rpm. vertical and lateral cut electrical transcriptions and recordings. It is reckoned that the three stations cover a population of some 250 million persons in possession of 25 million radio sets, so Radio Monte-Carlo can justly claim a gigantic "selling potential."

The complete station is accommodated in two groups of buildings: the studios, offices and administrative building being in Monte Carlo itself, whilst the transmitters are situated on a plateau 2,500 feet up on Mont Agel. The studios are connected with the transmitting station via underground cables. Special attention has been

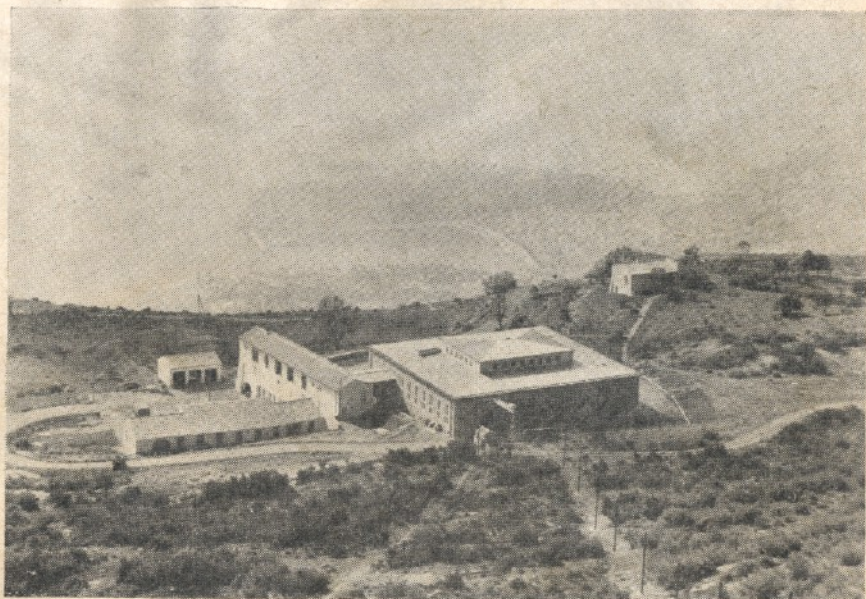


**The Administrative Buildings and Studios**

paid to the acoustic properties of the studios, of which there are seven, and at the same time the comfort and appearance of each has been kept in mind, so that in spite of exacting technical requirements the studios present an agreeable interior.

The electro-acoustic equipment was supplied by the Societe Francaise Radio Electrique, and the very latest ideas have been incorporated.

An outstanding example is the replacement of the usual programme control equipment cubicle by three small rooms for each programme. These rooms constitute a small control centre, into which all the various programme level controls, playing desks, magnetic tape recorders, etc., are placed. Thus the technician responsible for the programme has everything he needs to hand. He can listen to the programme on a loudspeaker,



### The Transmitting Station on Mont Agel

and thus accurately adjust the levels of the various microphones or pick-ups. As these control rooms are completely sound-proof, he is untroubled by any other programmes being performed elsewhere.

The equipment at the transmitting station consists of four transmitters, viz., the 120 kW medium wave transmitter, and the two 25 kW short wave transmitters. The transmitters were supplied by the Compagnie Francaise Thomson-Houston, and work on the push-push principle.

Tremendous difficulties were encountered in building the station because of the mountainous nature of the country, particularly when it came to providing the power supplies and means of connection with the studios. In effect, the underground cables practically traverse the mountain itself. A 30,000 volt cable supplies power from the Houte-Bordina power station situated in Monaco. Both the power and the telephone cables follow the same course and are run through the same underground tunnel. It was feared that there might be considerable induced hum produced by the power cable in the telephone cables, but preliminary tests and subsequent results showed such fears were quite unfounded.

In spite of the difficulties encountered in its design and construction the final appearance of

the transmitting station has proved to be extremely pleasing.

The two short wave transmitters feed aerials designed to cover a maximum distance of 3000 kilometres. They consist of groups of horizontal and verticle dipoles, and a great number of short wave listener reports have confirmed that this radius of audibility is being maintained both by day and night.

The Director of Programmes is required to maintain the station's slogan, viz., "Radio Monte-Carlo, le poste de la qualite." Thus we find such musical features as "Romeo and Juliette" by Berlioz, "Fidelio" by Beethoven, Humperdinck's "Hansel and Gretel," and so on, included in the programmes. The station orchestra has been under the direction of such eminent conductors as Archambaud, Toni Aubin, Hans Hang, H. Tornasi, G. Sebastian, etc. In the realm of Dramatic Art, an equally high standard is maintained and variety enthusiasts are also well catered for. Comprehensive News Bulletins are broadcast throughout the day.

To sum up, this station is run on the lines of the great chains of American stations such as A.B.C., etc., as a commercial venture, but at the same time maintaining a high-class, cultured style of programme presentation.

# Switzerland's SW Broadcast System



General view of S.B.C. transmitting station at Schwarzenburg, Berne

FROM its studios in Neugasse 28, Berne, the Swiss Shortwave Service directs twelve separate transmissions daily on short waves to most parts of the world. There are nine daily transmissions in English, beamed as follows: one to Great Britain and Eire; three to North America; one to Australia and the Far East. Other transmissions are beamed separately to S.E. Asia, India and Pakistan, and the Middle East. Broadcasts in Spanish and Portuguese are transmitted to listeners in Spain and Portugal and South America.

The times, call signs, and frequencies used are as follows:

The transmissions of the Swiss Shortwave Service are broadcast at the following times and on the following wavelengths:

EUROPE—		Kc.	m.
throughout the day:	HER 3	6,165	48.66
	HER 4	9,535	31.46
AFRICA—			
05.15-06.40 GMT	HER 5	11,865	25.28
10.00-12.30 GMT	HER 8	21,520	19.94
(daily)			
15.30-22.00 GMT	HEU 5	11,815	25.39

Australia, New Zealand and Far East—			
07.15-09.45 GMT	HEI 5	11,715	25.61
	HER 5	11,865	25.28
	HER 6	15,305	19.60
Southeast Asia—			
12.45-14.30 GMT	HER 5	11,865	25.28
	HER 6	15,305	19.60
India and Pakistan—			
14.45-16.30 GMT	HER 5	11,865	25.28
	HER 7	17,784	16.87
Middle East—			
16.45-16.30 GMT	HEU 3	9,665	31.04
	HER 5	11,865	25.28
United Kingdom and Republic of Ireland—			
18.45-20.30 GMT	HEU 3	9,665	31.04
	HER 5	11,865	25.28
Spain and Portugal, South America I—			
20.45-22.15 GMT	HEU 3	9,665	31.04
	HER 5	11,865	25.28
North America I—			
		Kc.	m.
22.30-23.15 GMT	HER 4	9,535	31.46
	HEU 5	11,815	25.39
	HEI 7	15,320	19.58
South America II—			
23.30-01.00 GMT	HER 4	9,535	31.46
	HEU 5	11,815	25.39

## SHORT WAVE NEWS

	HER 7	15,120	19.84
	HER 3	6,165	48.66
North America II—			
01.30-04.00 GMT	HER 4	9,535	31.46
	HEU 5	11,815	25.39

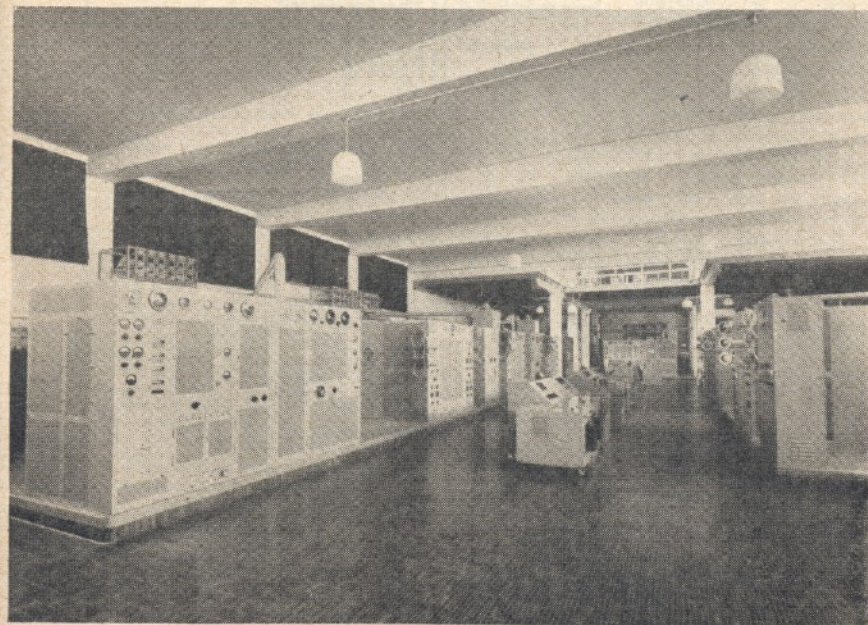
Interesting features of the present programmes are first a series of broadcasts planned to show Europe's contribution to classical music through the centuries. These performances will be by outstanding Swiss and European orchestras. Further programme high-lights for music lovers are broadcasts devoted to the works of Swiss composers, and the "Symphony Hour" programme, Swiss folk music, is, as usual, given a prominent place in the programme schedule.

On each of three nights every week, the larger cultural groups of Switzerland are represented in hour-long programmes; the Alemanic Swiss, with their gay laendlers, their yodels and other mountain music; the French-speaking Swiss with their music and songs based on the culture of their neighbour, France; and the Italian-speaking Swiss, from the Ticino, whose music reflects the sunshine of the little country bordering Northern Italy.

Prominence is given in the present programmes to portraying Swiss daily life. The friendly and easy-going sessions of the "Swiss Curiosity Shop,"

presented every night; the fifteen-minute programmes in words and music, "Switzerland at Work and Play,"; "The Shopkeepers," a programme in which the staff of the Curiosity Shop present their adventures; "Amongst us Girls," a programme mainly for womenfolk, all give the listener a vivid picture of Swiss national life. In the wider sphere of public affairs, "We Record for You," "You Asked for It," "Home News from Switzerland" and "Swiss Viewpoint" all give the listener an insight into Switzerland's internal affairs, and the series "Towards a Better World" represents the constructive background of the Swiss Shortwave Service. These programmes appear to adequately fit the suggestion we made in an editorial some time back, that a country's short-wave broadcasts should be devoted to portraying that country, and should not be used for political propaganda or other schemes for plugging a country's political views.

The transmissions beamed to this country are well received here, and those readers who listen to SW broadcasts regularly report that Switzerland's programmes are well worth listening to. These transmissions are in fact amongst the most popular of SW broadcasts. Advanced programme schedules are available free to readers by simply addressing a post card to the Swiss Shortwave Service, Berne, Switzerland.



Transmitting Hall at Schwarzenburg, Berne

# The Swiss Shortwave Service's Daily Transmissions to the United Kingdom and Ireland

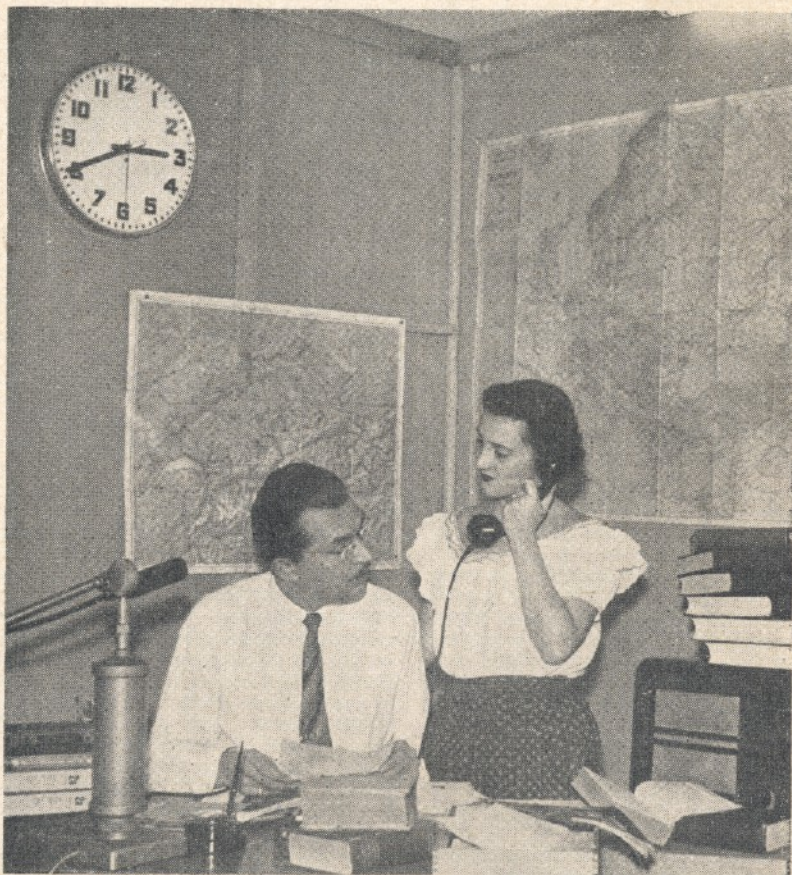
GMT	SUNDAYS	MONDAYS	TUESDAYS	WEDNESDAYS
18:45	Disc of the Day	Disc of the Day	Disc of the Day	Disc of the Day
18:50	Home News	Home News	Home News	Home News
	<b>Facts in the Foreground</b>	<b>Facts in the Foreground</b>	<b>Facts in the Foreground</b>	<b>Facts in the Foreground</b>
	Europe Builds (Carl Doka)	Common Ground (Chopard)	Foreign Affairs (Pierre Cordey)	Home Affairs (Pierre Beguin)
	Press Cuttings	Swiss Sports Roundup	Press Cuttings	Press Cuttings
19:05	<b>Bells of Switzerland</b>	<b>Music from All Over</b>	<b>Light and Likeable</b>	<b>Music from All Over</b>
	HIS WISDOM	Eastern Switzerland	(Music for Relaxing)	Northern Switzerland
19:15	<b>On the Spot</b>			<b>Information Desk</b>
19:20				
		Our Foreign Correspondents (London-Paris-Rome-Berlin)	(First Tuesday of Month replaced by DX-Programme)	
19:25		A Nation's Business	Guests of Switzerland	<b>Serata ticinese</b>
19:30	<b>Concert Hour</b>	<b>Soiree romande</b>	Cultural Crossroads (Olivier Reverdin)	
19:35			<b>The Swiss in Music</b>	
19:40				
19:45				
20:25				
20:30	Close Down	Close Down	Close Down	Close Down

GMT	THURSDAYS	FRIDAYS	SATURDAYS	Station	Mc	Metres
18:45	Disc of the Day	Disc of the Day	Disc of the Day			
18:50	Home News	Home News	Home News			
	<b>Facts in the Foreground</b>	<b>Facts in the Foreground</b>	<b>Facts in the Foreground</b>			
	Foreign Affairs (Jean Seitz)	Struggle for Peace (P. Ladame)	Home Affairs (Max Nef)			
	Press Cuttings	Press Cuttings	Press Cuttings			
19:05	<b>Dancing in Switzerland</b>	<b>Music from All Over</b>	<b>Music from All Over</b>			
	(Lance Tschannen)	Southern Switzerland	Western Switzerland			
		<b>Animal Scrap Book of Lucas</b>	<b>World Youth Magazine</b>			
		<b>Schwizerdutsche Heimatobe</b>	<b>Requestfully Yours</b>			
19:30	<b>Women's Week</b>		(Lance and Isabel)			
19:45	<b>Music for the Connoisseur</b>					
20:30	Close Down	Close Down	All-Time Highlights			
			Close Down			

1st November 1951 to 30th April 1952

HEU 3 9.665 31.04  
HER 2 6.055 49.55

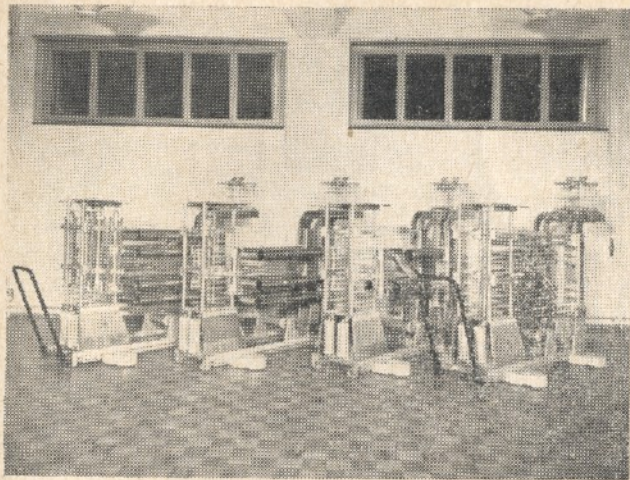
Illustrated program schedule available post-free upon request. Write to: Swiss Shortwave Service, Neugasse 23, Berne, Switzerland.



CECILIA WITH LANCE TSCHANNEN AT "INFORMATION DESK". YOU WILL ALSO HEAR HIM IN "DANCING IN SWITZERLAND" AND "REQUESTFULLY YOURS".



RUSSELL HENDERSON, CHIEF OF THE ENGLISH LANGUAGE SECTION AND COMPERE OF "WORLD YOUTH MAGAZINE", "ON THE SPOT", "LIGHT AND LIKEABLE" AND DX PROGRAMME TOGETHER WITH JOAN ROSSELET, WHO IS PRESENTING HER WEEKLY PROGRAMME "WOMEN'S WEEK".



THE  
SWISS  
SHORTWAVE  
SERVICE

*Different coils mounted on trolleys for the final circuits of one of the 100 kw transmitters at S.S.S., made by Hasler A. G., Berne.*

**I**N its 15 years of existence, the Swiss Shortwave Service's transmitting centre at Schwarzenburg, near Berne, has changed a farmer's field into an immense network of 10 rhombic aerials surrounding an ultra-modern station with 10 transmitters.

But even before Schwarzenburg was constructed in 1937, the Swiss Shortwave Service was on the air, using the League of Nations' transmitter at Prangins near Geneva.

Now, the Swiss Shortwave Service has daily programmes in 9 languages beamed to all corners of the world. For Europe, two dipole antennas relay the home programmes in the four national languages of Switzerland (Schwizerdütsch, French, Italian and Romanche) as well as High German and Esperanto to the continent. In addition, special features of international interest are added from the studios of the Shortwave Service situated in Berne.

The exact location of the transmitting centre of Schwarzenburg is 46° 49' 2" North latitude and 5° 2' 20" East longitude; it is 2,600 feet above sea-level. In the transmitting shack, which is L-shaped, there are two main halls. The ten transmitters are located on the ground floor, five of which are in use for shortwave broadcast and five for the outgoing telephone channels of the Swiss Postmaster General's Department. Below are the machine rooms, including those for filament heating as well as the high-tension rectifiers for grid bias and for anode voltages for the transmitters, as well as the water cooling system which uses the rain water caught by the roof. On the first floor is the

antenna podium, where the lines from the transmitters below are switched to the feeder lines. All antenna and transmitter lines are interchangeable, so that any transmitter can be switched to any antenna. The power of the transmitters is as follows :

- 3 transmitters of 100 kW high frequency power.
- 2 transmitters of 25 kW high frequency power.
- 1 transmitter of 10 kW high frequency power.
- 4 single sideband transmitters for telephone Service, of 2½ and 4 kW.

The 100 kW transmitter is in three units, two of which contain the high frequency stages and one the modulator. In the higher stages, wire cannot be used for the coils, because of the skin effect of the high frequency current. Copper tubing is, therefore, used to reduce coil heating. Nevertheless, frequency changes have to be made swiftly because sometimes only five minutes are available. Therefore, in the higher stages, before the final amplifiers, the coils and condensers for the final circuits are mounted on trolleys which run on rails and can be smoothly pushed into place in a minimum of time.

The ten rhombic antennas beam the overseas programmes of the Swiss Shortwave Service to distant countries. These antennas can be reversed, so that, for example, the beam fixed on Sydney can be reversed to cover South America; one on Winnipeg can also be used for North-East Africa; the antennas are beamed as follows :

- 1 on Winnipeg ;
- 3 on New York ;
- 2 on South America ;
- 1 on Melbourne ;
- 1 on Tokyo ;
- 1 on Sydney.

Beam direction can be very simply changed by bringing the feeder line to one or other of the opposite points on the longer axis of the rhomboid. The average height of the antenna masts is 25 m, which provides the required 10-20° angle for the field. If the mast is shorter, the angle is proportionally greater, while if the mast is higher, the angle decreases. Antennas of the new stacked dipole system are now in construction and are expected to be in operation in Spring of next year.

It may be wondered why Switzerland, a country of only 4½ million people in the middle of Europe, with no colonies and with what is sometimes considered a passive international role, should broadcast to the Pacific and South America; why this tiny country, with no raw materials, should wish to explain its policy to Canada and the United States; why it is glad to have an increasing number of listeners in Japan; or why appreciative letters from listeners in India and Pakistan are so welcome.

One reason for the foundation of the Swiss Shortwave Service was to act as a link between the 7.7% of its population living abroad and their homeland. Another and very important reason is the fact that a shortwave service with an enlightened policy can do much to break down the isolation of distance. Further, this tiny country has, because of its very economy based on free trade, contacts with all corners of the world—not to mention those created by such organisations as the Red Cross and other similar societies.

However, Switzerland has something of far greater importance to offer to the whole world. For Switzerland is part of Europe, surrounded by France, Germany, Austria and Italy; its four languages and nearness to its neighbours make it not only capable of understanding them, but of explaining their differences and doing something towards a rapprochement. And understanding is already a step towards peace. That is what Switzerland can express about Europe.

About itself, there is a good deal to say. Politically, neutrality permits a certain objectivity in news comment and this neutrality normally applied only to international affairs even plays its part also in home affairs, in that objective news writing and comment can be found in the 3,000 newspapers and periodicals flourishing in Switzerland, even when dealing with home affairs.

This is reflected in the talks by Switzerland's most capable home and foreign news commentators over the Swiss Shortwave Service.

Neutrality itself, often abused, is therefore often misunderstood and one of the tasks of the Shortwave Service is to explain the positive, constructive and active side of Swiss neutrality, not only as exemplified by the Red Cross which originated in Geneva, but as a political force.

Democracy, too, in these days seems to require a great deal of explanation in some quarters and from this oldest democracy in the world where, in some parts, the direct democracy of the parliament of citizens voting on affairs of local importance is still alive and where on a federal level the citizens can call for a general referendum on any federal law which they do not approve of—this country is surely one of those most indicated to fulfil the task of explaining democracy.

Then again, Switzerland is the most advanced country, sociologically speaking, of Europe. Thus, its way of life can be used as an indication of what can be done by hard work and humanity. That is why the Swiss Shortwave Service has set about reflecting daily life in Switzerland, talking of its industries, its sports, its mountains and its politics—not in a bombastic "I told you so" manner, but coolly, calmly and objectively.

To do this, a programme layout has been designed which keeps a balance as even as possible between spoken word and music. Request programmes, classical concerts, gay mountain melodies and radio games with music are presented in addition to vivid outside broadcasts, interviews with home and visiting experts on various matters of Swiss activities, studio programmes dealing with current aspects of Swiss life. Up-to-date news commentaries complete the mosaic of the Swiss Shortwave Service's programmes.

#### ECONOMY.

The present high cost of publishing is in part due to the price of paper. Some of the circuits in this issue are not as large as we should have liked, but they are big enough to serve their purpose. In order to give our readers as good value for money as possible, we have, too, restricted our page margins and we use a medium size type. The paper thus saved goes to provide more space for reading matter.



# Technical Details on OTC

from ROY PATRICK G699



The Belgian National Broadcasting Service in Leopoldville, brought into being by the war and inaugurated in May, 1943, uses a 50 kilowatt transmitter of R.C.A. manufacture. All the High Frequency stages of the transmitter are in duplicate, thus allowing among other things, for an almost instantaneous change of wavelength. The filaments of all the valves are fed by alternating current, and the grid and anode voltages are supplied by four rectifiers; thus all motor generators are eliminated. The cooling of all the stages preceding the last one is done by air. The cooling of the anodes of the last stages is done by the circulation of distilled water. The secondary cooling of the water is done by air. The Low Frequency stages include feed-back. The transmitter's control system is completely automatic. All switches for relays are gathered at a central desk.

The chief characteristics of the transmitter are as follows:

Frequency range: from 6 to 22 megacycles.

Stability of frequency: 10 parts in 1,000,000.

Non-linear distortion: less than 4 per cent. at 1,000 cycles, with 90 per cent. modulation.

Linear distortion: 1.5 (one point five) decibels between 30 and 10,000 cycles with 60 per cent. modulation.

Ground Hum: Less than 60 decibels at 100 per cent. modulation.

H.F. Harmonics: In conformity with CCIR.

Power consumed: 135 kilowatts for an output on the antennae of 50 kilowatts and average modulation.

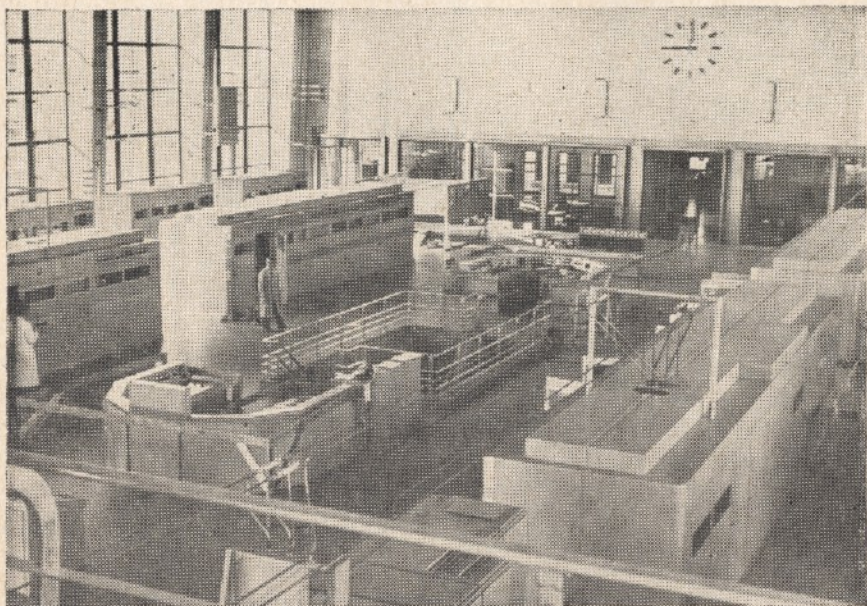
The transmitter is used in conjunction with rhombic aerials whose performance does not depend directly on the frequency. To beam broadcasts in several directions simultaneously, these aerials are connected in series. Excellent results have been obtained from this method.

The complete set-up of the Leopoldville station consists of three units: the broadcasting studios and offices, which are in the center of the city; the Reception Center, about five miles outside; and the Transmitting Station, about two miles outside. Programmes from the studios are sent by line to the Transmitting Station. Relays picked up by the Receiving Center can either be fed to the Studios, to be mixed with the rest of the programmes, or sent direct to the Transmitting Station.

# OTC to ORU

by Roy Savill

## A Story of Goodwill



View of the transmitting hall

When a few months ago the Belgian National Broadcasting Service opened up the broadcasts from the new ORU transmitters at Wavre they were making history with the first international shortwave transmissions in the country. For despite the fact that OTC, Leopoldville, in the Belgian Congo, had, as the official world-wide voice of Belgium, become one of the most popular of the international shortwave stations, no such transmissions had hitherto emanated from the mother country itself.

It is worthy of reflection, too, that this latest service has sprung from seeds actually sown here in Britain in the early war years. When Belgium was overrun, one of the two transmitters of the INR was voluntarily destroyed, the other was dismantled for use elsewhere. The only Belgian shortwave transmitter, situated at Ruisseledé, was also destroyed. When France and Belgium capitulated, nobody could tell when or where the Belgian radio would start again. The BBC, however, made room in its European Service for Radio-Belgique and Radio-Belgé, which rapidly became very popular.

Then came OTC. It had been felt that free Belgium should have a world voice of its own—a voice with which to broadcast to its own occupied peoples, to its servicemen, then scattered in war theatres all round the world, and to every country with ears to listen. The Belgian Congo, in darkest Africa, had everything to commend it. Not only was it far away from the threat of bombs and invasion, but it was also an ideal spot for siting a world broadcasting station. There on the Equator it was possible to send out signals which, as we all know, would be heard at utmost strength and consistency in practically every country.

The task of building up this new Belgian broadcasting service was given to one of the directors of Radiodiffusion Nationale Belge, who had escaped to London, and who was joined by Mr. Frans Zoete, now Director of the Overseas Service of RNB.

As I have said, the primary object was to provide a voice for free Belgium; but very soon the Goodwill idea set in, and OTC became a voice of friendship. In addition to the broadcasts in French and Flemish (actually these were and still are in non-dialect Dutch),

## THE RADIO AMATEUR

English programmes were instituted, to be followed by Portuguese and Spanish. More recently, Swedish has also been added to the list.

OTC had its own staff and was a self-contained station in every way. From the end of the war an English staff, including ex-BBC man Bill Ashley as announcer, was established there, and from that time most of the programme material, other than news and music, was tape-recorded in Brussels and flown to Leopoldville. Anything else could be taken from agency reports or transmitted from Brussels and monitored by OTC.

As the years passed, however, work was going on at Wavre, about 15 miles from Brussels, on new and powerful transmitters to carry both the two medium wave home services and the world shortwave service. In Brussels itself there was already one of the finest broadcasting houses in Europe, in the Place Eugene Flagey. This had been built just before the war, and as the latest of any on the Continent it incorporated all the best features of the others.

It was into this building that I walked one Saturday afternoon. I was greeted by one of the English editors, John Johnson, formerly of commercial radio and the Forces Broadcasting service. He told me all about the new set-up and showed me round the studios, including the great concert hall, where I sat for

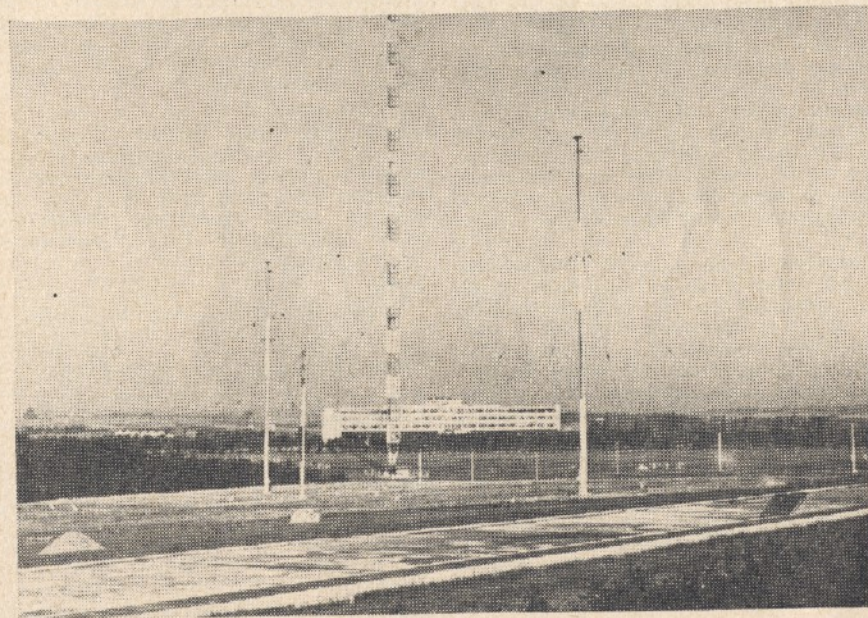
a short time during a broadcast by a French girls' choir.

So far as the shortwave transmissions are concerned they are split into two parts, John explained: the International service and the Colonial service; the latter including the broadcasts to men at sea, missionaries and Belgians abroad. OTC is still in use, as a relay station from 2315 GMT, when the beam is mainly to North America. The power there is 50 kW, compared with ORU's 100 kW and 20 kW.

Apart from the French and Flemish home-service studios, there is a separate studio for both the International and Colonial services, each with its own control room. In the International studio are two American "Presto" tape-recorders and three German "Magnetophone" recorders; also three play-back turntables equipped with normal and slow-speed mechanism. The Colonial studio is very much the same, but smaller.

Each studio can, by means of a telephone-type dial, bring in any other studio in Broadcasting House, putting the programme over on its own circuit or recording it for future transmission. The Colonial service quite frequently relays a home programme completely; the International service, on the other hand, usually records the programme then

(Contd. on p. 183)



General view of station buildings and aerial masts

## OTC to ORU (*Contd. from p. 173*)

edits out the announcements in French or Flemish and substitutes any other language required.

So far as news is concerned, the source is the normal agency services—including Reuter from our own Fleet Street.

There is a staff of four on the English service, including Bill Ashley and John Johnson. The other two are Andre Charlier, formerly with the BBC Belgian Service, and Joseph Kadijk, a Belgian educated in England.

Most popular programme for a long time has been "Amongst Friends," broadcast in English, French and Dutch. The very title of this programme is an expression of the nature

of that which was OTC and which now is ORU. This programme is associated with the ORU Club (formerly OTC Club), which acts as an international friendship club, fostering such things as stamp collecting and amateur photography. It also exchanges correspondence between pen-pals.

This is a story of Goodwill. As with OTC, the newer ORU has nothing to do with propaganda as it is generally understood. It seeks to give news—unbiased news—entertainment and an idea of the cultural, social and economic life of Belgium. It is a great supporter of international tourism and understanding—in short, of international Goodwill.

# BEHIND THE MICROPHONE

by

TOMAS MONAGHAN

Editor-in-Chief and Chief Announcer of  
"THE VOICE OF SPAIN"

## *How a Short-Wave Radio Programme is Produced*

IF I were asked to define my job in a sentence, I think I would say that it consists in producing a magazine in sound which aims at having 'something for everybody'. This is an aim which can never be completely achieved, but judging from the vast amount of correspondence I get from listeners (on an average some 3,000 letters a month) the formula of "The Voice of Spain" seems to be generally popular, and I feel that a brief account of how such a programme is devised and produced may be of interest to short-wave listeners.

Producing a short-wave English programme in a non-English speaking country presents a number of problems which never arise in organisations like the BBC, which has an enormous number of programme-hours at its disposal and an almost limitless variety of talent. But I have only forty minutes every day—and generally only two or three voices at my disposal, and so I have to think and work on a very miniature scale.

The general composition of a typical programme of "The Voice of Spain" consists of a news bulletin, an interview with some outstanding personality, a feature article or feature programme in miniature, and Spanish music, and I propose to analyse these components briefly to give you an idea of the work and organisation involved.

The main source of news is EFE, the Spanish news-agency, and though we do not try to compete with other countries in the speed of presentation, yet we can do so when the occasion warrants it. For instance, when the General Assembly of UNO recently voted in favour of allowing member-nations to send ambassadors to Spain, the news was ready to be broadcast within two minutes of the result of the voting.

As a general rule, however, I do not try to give an international news service which is up-to-the-minute in every way: the news bulletins of "The Voice of Spain" are designed to give an accurate picture of what is happening in Spain, and to interpret Spain to the outside world. As most of the raw material reaches me in a form designed for Spanish consumption, a considerable amount of re-writing has to be done to explain the background to a non-Spanish audience. For example, every Spaniard will get a clear and accurate mental image from the sentence "Ortega cut two ears

and a tail in Madrid last Sunday", but this statement has to be amplified and explained to convey to my listeners the fact that Ortega the bullfighter was outstandingly good on that occasion.

One of the aspects of my work that I find most interesting is the interview. The majority of these are recorded, and I have been lucky enough to have such headline names as Rita Hayworth, Ava Gardner, Mr. James A. Farley, Prince Ali Khan, and a host of scientists, writers and world famous figures on my programme from time to time. I have evolved a technique for the radio interview which has the merit of making it sound quite spontaneous, and not a wooden scripted conversation, and so far it has produced excellent results in every case. I take along a portable sound-recording apparatus and sit down with the "interviewee" and spend half-an-hour or so in a perfectly natural and normal conversation. Of course a lot of "off-the-record" material creeps into this, and the result is hardly ever suitable for broadcasting. But I have the conversation transcribed verbatim, and then edit it, keeping all the special turns of phrase and little idiosyncrasies of speech quite unchanged.

Then the edited conversation is rehearsed, just to make sure that it sounds quite natural, and finally a recording for broadcasting is made. Of all the interviews I have done, I think that the one which leaves the most charming memory in my mind was that with Rita Hayworth. She was just like a little girl—completely unaffected and natural, and just as excited about the result as though it was the first time she had ever heard her own voice.

Now for the feature articles. These are planned to give a picture of some aspect of Spanish life or history, and are generally written in Spanish by some expert on the spot. The task of translating these into radiophonic English is no easy one, and very often I make last-minute changes in a phrase or a sentence while I am actually sitting in front of the microphone itself. In my opinion, the ideal radio script is one which presents a logical series of visual images to the listener, and every word must be made to work like a brush-stroke in painting. There is absolutely no place for "fine writing" or purple patches, nor for loose or indefinite statements. "Veronica Wallace", who writes the bull-fighting feature which is broadcast every Tuesday, has succeeded in the



SHOWING THE AUTHOR ON EXTREME LEFT TOGETHER WITH AVA GARDNER AND MARIO CABRE (STARS OF THE FILM 'PANDORA AND THE FLYING DUTCHMAN'), DURING A RECENT BROADCAST FROM THE SPANISH NATIONAL RADIO, MADRID ON 9368 KCS, 32.02 METRES.

art of creating visual images to such an extent that quite a few listeners have taken to practising the more difficult passes in their back-gardens!

One of the most popular ingredients of "The Voice of Spain" is Spanish music—and nearly all the music played is Spanish, because this is a field in which no other country can compete. The first musical item is always a pasadoble, of which there are an infinite number, and the remaining numbers give a glimpse at the regional music of Spain, which is as rich and varied as the country itself.

On Sundays I have a mail-bag programme which is called "Post Exchange: or Round the World in Forty Minutes." This is completely unscripted, and I sit down before the microphone with a pile of listener's letters, a hand-picked selection of records, and a stop-watch. I talk to my correspondents just as I would do if they were in the studio with me, and this programme has proved to be one of the most popular features of "The Voice of Spain"—just

because it is natural, spontaneous and without any trace of artificiality.

What I try to achieve in these programmes is "infinite richness in a little room." I know that they fall very far short of this ideal, but I am always on the alert for new ideas and suggestions which will make this programme reach a wider audience—and hold the attention of listeners from China to Peru seven nights a week.

So the next time you tune in to 32.02 metres at 11 p.m. GMT, you'll have some idea of the work that goes on behind the scenes—and when you remember that every minute of programme time represents practically half-an-hour's work on somebody's part, I think you'll agree that short-wave editors do something to justify their existence!

For myself I think that it's the most fascinating job in the world, and I can't imagine any other way of earning a living which affords such variety, interest and insight into human nature.

# **Radio Nacional Rio de Janeiro**

—: by :—

ROY PATRICK



*ESTHER de ABREU, one of Radio Nacional's vivacious singers.*

**R**adio Nacional was founded in 1936 and was, at that time, a private enterprise. There is a man we must mention in that period, Mr. ALMERIO RAMOS, who idealised Radio Nacional and fought for its foundation.

Early in 1936, great interest was aroused in all parts of Brazil when Radio Nacional first started broadcasting a daily transmission, and the equipment in those early days consisted of one 20 k.w. Phillip Transmitter, which was used for medium wave transmission until 1942, and two small studios, one for recorded music programmes and the other one, a little bigger, which was used for small musical outfits, and one single control room for both studios.

In 1942, Radio Nacional extended its operations with two new R.C.A. transmitters, one for S.W. transmissions, and the other for M.W. transmissions. The old 20 k.w. transmitter was then kept as a standby, and is ready to be used, at any moment if necessary.

New studios have been built and now consist of two medium studios, one large studio for large orchestras, a small studio for S.W. ordinary transmissions, a great studio for plays etc., and a large auditorium. Control rooms A, B, C, this last one is the main control room for all Radio Nacional transmissions.

Next in importance to the technical operation of Radio Nacional is the recording room, for here there are two Ace tape recording equipments, three thread recording outfits of Webster's make, one Soundmirror tape recorder, one two REVER tape recording machines.

For all special occasions, all recorders can record the same programme simultaneously, also Radio Nacional have portable recording equipment as well as a FM transmitter, mounted in a truck for outdoor events and other functions taking place outside the studios.

Radio Nacional employ about twenty  
*(Concluded on previous page)*

## RADIO RIO de JANEIRO

*(Concluded from Page 67)*

producers for musical programmes, ten producers for radio plays and five for humouristic programmes and on the artistical staff, approximately 150 musicians, 35 singers, chorus and 65 radio-theatre artists, Radio Nacional are heard throughout the whole country, beside other important regions in South America, Central America, North America, Europe, Australia, Hawaii, and Middle East. This may be proved through the large correspondence received monthly, concerning the short wave transmissions.

Radio Nacional used to maintain a regular schedule beamed to Europe and North America, due to some difficulties, they were obliged to cancel those broadcasts. Radio Nacional are intending to restore them at a very early date.

Any other information concerning Radio Nacional transmissions, may be obtained from:—

Mr. MARIO NEIUA,  
ADMINISTRATIVE DIRECTOR,  
RADIO NACIONAL,  
RIO DE JANEIRO,  
BRAZIL.

Radio Nacional use the following frequencies, and times of transmissions are as follows:—

PRL9 6147 kc/s 17.00—20.15, 22.00—04.45.  
PRL7 9720 kc/s 09.00—17.00 and 20.15—22.00

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# RADIO CANADA

## New Radio Centre

by ROY PATRICK

The new home of the International Service of the Canadian Broadcasting Corporation was officially opened in May, 1951. For in the course of little more than two years the Ford Hotel has been converted into the World's biggest and best equipped broadcasting headquarters. By mid-May the C.B.C. had taken the last wraps off. Thirty bathtubs, 700 wash-basins, several walls and umpteen miles of pipes and wiring together with 54,450,000 of public money.

This building is the latest link in the development of radio in Canada, it provides for all the operations of the C.B.C. in Montreal, including facilities for broadcasting to Canadians in English and French as well as the International service, the "Voice of Canada" which broadcasts in fourteen languages. The latest addition being that of a Russian who offers straight newscast and press comments to any listener in the Soviet caring to listen.

In the building, facilities are provided for programmes to be fed from any part of the Continent. A direct landline is maintained for constant communication with the United Nations in New York and with the American networks of N.B.C., A.B.C., and C.B.S.

This twelve-storey building is equipped with 29 studios of different shapes and sizes and each decorated in a different pastel shade, contain modern devices like muffled air-conditioners and acoustically designed to provide the best possible sound reproduction.

At the back of the main building, C.B.C. have planned a five-storey television building with three studios. Television for three hours nightly will begin in the Spring or Summer of 1952 and will be broadcast in English and French for residents of the Montreal area. Centre of all broadcasting operations is a bright mechanical child of this scientific age, the master control room which can be handled in all its activities by one man. The Control board handles five transmitters, eight outgoing networks, seven incoming networks and 29 studios. Announcements in several different languages can be combined with the same musical programme, so that listeners, say, in England, Brazil and France will hear a standard broadcast with announcements in their own language.

Next in importance in the technical operation of this radio world is the recording room—one of the busiest in North America,

for here there are twenty machines both disc and tape recorders. For all special occasions all twenty recorders can record the same programme simultaneously.

Among new developments designed to save equipment and personnel is a "delay operation" system. If a programme comes in at 5 p.m. and is to be broadcast at 6 p.m., the operator records it on tape, winds the tape back to the starting point, and connects his machine to the studio from which the programme announcements will come. Then at 6 p.m. the Operator in the studio needs only to push the "tape start" button at his elbow and the programme will be played back automatically in the recording room. The programme then goes through Master Control panel to a transmitter.

More than 1,000 valves are used in the electronic equipment of the building. Five hundred of these are in Master Control, 200 in the recording room and 900 in studio equipment.

Six years ago (in 1945) the late Prime Minister, Mr. Mackenzie King, inaugurated the C.B.C. International Service. From morning till midnight every day, Canada broadcasts in fourteen languages to Europe and Latin America. Twice weekly a special programme is beamed to Australia and New Zealand. All this done through the medium of the International Service of the C.B.C., the Voice of Canada being carried forward to the World audience over two powerful transmitters at SACKVILLE, N.B. Radio Canada has received more than 150,000 letters from listeners the World over since the service began, and the letters arrive regularly now at a rate of between three and four thousand a month.

Each month Radio Canada publishes a free programme schedule—one for European listeners in English, French, Dutch, Danish, Norwegian, Swedish, Finnish, German, Italian, Czech and Russian; the other for Latin-America in Spanish, English, Portuguese. The combined circulation of this free booklet is nearing the hundred thousand mark and is still growing.

The Canadian Broadcasting Corporation regards this new building as an instrument to help to promote the interest of the nation within Canada and the Canadian nation's interest in promoting international goodwill in the distant countries of the World.

OUR FRONT COVER shows the compact Master Control Room of the Radio Canada building. One man can keep track of everything coming in and going out of the studios. The Master Control can handle 27 individual programmes simultaneously.

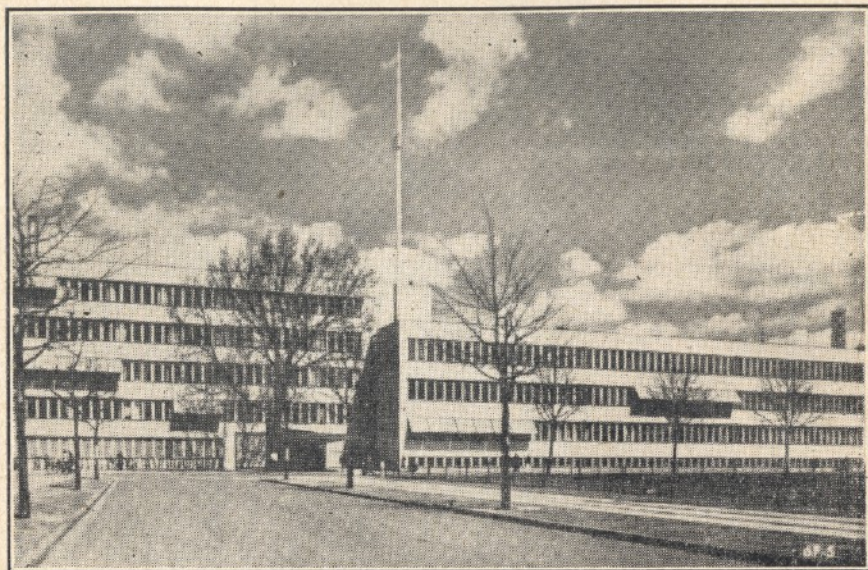
## Next Month

As mentioned in our editorial, next month we shall come out under the title **THE RADIO AMATEUR**. We shall continue the style and subject matter which we have adopted since the beginning of this volume and in order to stress that this magazine is still the SWN in an expanded form we shall include in our title a note to the effect that the new presentation incorporates the Short Wave News. It may take a little time however, for retailers to appreciate that **THE RADIO AMATEUR** is in fact the old SWN in new form, so we ask those who buy from bookstalls etc., to make this clear when asking for their copy.

Next month's issue will contain articles prepared with the interests of the newcomer specifically in mind, as well as articles primarily for the transmitting enthusiast. The former will consist of a number of letters which we have received during the preceeding month from 'raw recruits' asking for solutions to problems which have worried them. Each letter will be followed by an answer. We feel this method will prove a very interesting way of helping the real beginner over some of his teething troubles. For the transmitting enthusiast there will be the first part of an article describing a complete 'top band' phone transmitter; constructional details of two really good V.F.O.'s—by J. N. Walker G5JU—as well as our usual Amateur Band and V.H.F. news commentaries. A new series of articles for those interested in the theoretical aspect of S.W. receivers will start with an article on "Frequency Changers" by H. E. Smith G6UH. S.W. Broadcast enthusiasts will find their needs satisfied by "Onda Corta's" "Broadcast Bands Review"; a further contribution from Roy Patrick and other material of a topical nature. We think you will like the next number—so order it now.

# THE VOICE OF DENMARK

Compiled by ROY PATRICK



**T**HE little Kingdom of Denmark has obtained a significance throughout the world out of all proportion to its size, due primarily to the fact, it practically leads the world in agriculture and that many Danes abroad have made a mark in science, art and inventions.

The Danish State Radio's International service, now in its 23rd year of operation, is the short wave voice of Denmark. Through it, Denmark can maintain contacts with 10,000 Danish sailors and Danes living abroad and also tell the peoples of other nations about life in Denmark. Since its inauguration in 1929 the "Voice of Denmark" has steadily expanded its service to include European, N. American and S. American areas. Three times a week a special programme is beamed to Australia and New Zealand area.

From studios in Radio House in the heart of Copenhagen, programmes in English, Spanish, Danish, Greenlandic and Faroese are channelled daily to powerful short wave transmitters at Herstedvester, which is on the outskirts of Copenhagen.

The "Voice of Denmark" operates on the following frequencies and power :-

15320 kc/s.	19.58 m.	50 kw.
15180 kc/s.	19.76 m.	50 kw.
9520 kc/s.	31.51 m.	50 kw.
7260 kc/s.	41.32 m.	50 kw.

The transmitters are in operation for seven hours twenty minutes daily, which includes four hours fifty minutes of relays of Home Service. These programmes are broadcast especially for Danish sailors and Danes living abroad.

I think it is important to stress the fact that "Voice of Denmark" is not concerned with propaganda, official or otherwise. It offers its listeners musical programmes, items of a purely entertainment value alternate with popular educative programmes, reportage and items of topical interest. A special Dx bulletin is broadcast on Tuesdays at the end of the two North American programmes.

Though Denmark "aims" her short wave broadcasts primarily at certain countries or areas, the mail regularly received by the short wave service is clear indication that these programmes are not only listened to widely, but also appreciatively. The Danish State Radio are anxious to hear from listeners in all parts of the world about reception conditions and comments on its transmissions. All correct reception reports are confirmed by QSL card. Return postage is not necessary.

All reports and letters should be sent to "Voice of Denmark", Radio House, Copenhagen, v.



“ICI PARIS . . . . .”

by ROY SAVILL.



“Pauline” (Helene Battui), “Jacques” (Jean Bacque) and “Bob” (Alan Adair) rehearsing “The French have a Word for It.” Here “Bob” is learning how to pronounce the French “U.”

This month marks the passing of eight years in the life of the English Service of Radiodiffusion Francaise, for it was in March, 1945, that the then British Ambassador in France, Mr. Duff Cooper, took part in the opening broadcast of this new venture designed at bringing about a better understanding between the people of the two countries.

Now the English broadcasts extend over 1½ hours each day, and the number of listeners in this country can be judged from the fact that in the offices in the Champs-Elysees there are over 7,000 indexed cards from British people who have taken the trouble to write to those running the service. Perhaps an even greater indication is the fact that in nine months over 20,000 copies of “The French Have a Word for It” were sold over here. This book was an aid to the progressive French lessons broadcast regularly.

Recently I paid a visit to the small group of English and French people who run the English Service. I made my way along the Champs-Elysees towards the Arc de Triomph and found No. 118 without difficulty.

This building, I found, was before the war the studios of the old Poste Parisienne. It is typically old French, with high rooms and equally high doors; and, to the average English eye, over-ornamented. I asked the porter where I could find M. Gromaire, the Assistant Director of the English Service. He told me the room number and I took to the lift (sorry, l’ascenseur).

I knocked on the door and admitted myself. In the large room—efficiently untidy like any newspaper office—I was greeted by a member of the staff who asked me if I had an appointment with M. Gromaire. I said I had and he went next door to make an inquiry.

So far I had struggled along in French, and was quite relieved when he came back and asked very ordinarily: “You English?” I said I was. “So am I,” he replied.

He went on to say that M. Gromaire had, unfortunately, been called away, but that in a moment the Director himself would be free. The moment was spent chatting very lightly about this and that. I had been scared stiff by Paris traffic, and was relieved when my companion said he had lived in Paris for years and it still made his hair stand on end. While talking I looked from the window and saw a procession of representatives from the various provinces all dressed in national costume making their way to the Arc de Triomph.

Then I was shown in to meet the Director—that sounds horribly formal, but believe me it was as far from that as can be imagined. With the Director, Jaques Legris, was the English Editor, D. Sturge Moore, sincere, friendly and utterly Bohemian. Between them they told me all about their work, about the English Service of Radiodiffusion Francaise.

Here were eight Englishmen and women and seven French—none of them overpaid—dedicated to the cause of understanding and friendship between the people of Britain and France. The term has a hollow, platitudinous ring these days, but here one felt was an instance that was different.

Together with the French Government (whose employees they are) and their French colleagues, these English people are doing a great job. They see France and the French daily, nightly; they see them with English eyes and are able to speak of what they see in English words, to give us an honest picture of that country.

There is no political propaganda attached to these English Service broadcasts. There are discussions once a week, and the news broadcasts are confined to points of interest about people and things in the country, in Paris in particular, with background information on what is reported.

In the programme “Land of France,” a recording van visits various parts of the country for “live” features, with commentaries, interviews and so on. Concerts, music halls and other entertainments are visited, and the listener is, in fact, taken every evening on a sound journey to France.

A further feature is an annual competition, the first prize in which is a fortnight in France as a guest of Radiodiffusion Francaise. Second prize is a week in Paris and the Ile-de-France, again as a guest of R.D.F.

To ensure constant reception over here, the English service alternates between medium

and short wave transmissions, the former being used in winter over the nearest station to the English coast, Lille, which runs 100 kW. The short-wave transmissions during the summer come, of course, from Allois, in the centre of France.

There are no independent broadcast stations in France now. In addition to Poste Parisienne, pre-war listeners will remember Radio Normandie, Juan-les-Pins and so on. To-day there is just the one state-run broadcasting organisation with three networks: Programme National, the equivalent of our Home Service; Programme Parisienne, like our Light Programme; Paris Inter, which broadcasts more or less continuous light music with occasional short news bulletins.

NEW RADIO TRANSMITTING AERIAL BUILT AT ACCRA

The engineers of the Broadcasting Department have been able to help the Broadcasting Commission by building at Broadcasting House, Accra—in record time—an elaborate radio broadcasting aerial of novel design, believed to be the biggest of its kind anywhere in the world.

The aerial, which is supported on 20 steel poles each about 30 ft. high, covers an area of approximately 300 ft. by 250 ft. It is connected to the one-and-a-half kilowatt transmitter at Broadcasting House and it is designed to fire a narrow beam of radio power straight upwards into the air to a height of about 250 miles where a reflecting layer in the upper atmosphere turns the energy back downwards to the earth.

In this way, a powerful signal is expected to reach all parts of the Gold Coast lying within 100 miles of Accra—or perhaps rather more—and is expected to be much stronger than is at present received from the high-power transmitter at Accra.

First reports on the test transmissions which have been radiated in the 41-metre band indicate that the expected result is being obtained. All receiving stations within the 100-mile radius are reporting a greatly improved signal, and some are reporting a better signal than has ever been received from Accra before. The tests are continuing.

The aerial was designed by Mr. W. A. Roberts, of the Broadcasting Commission, and put up by the Broadcasting House engineers in four days, in order that tests might be carried out during the visit of the Commission of the Gold Coast. The time normally necessary to erect such an aerial is, in the opinion of Mr. Roberts, who is a Senior Engineer in the B.B.C., some two or three weeks.