

World-Radio April 8, 1932

THE STORY OF BROADCASTING HOUSE

*M. Jones & Co.*



# WORLD-RADIO

## DOMINION & FOREIGN PROGRAMMES

The Official Foreign & Technical  
Journal of the B.B.C.

Vol. XIV No. 350 Registered at the G.P.O.  
as a Newspaper.

FRIDAY, APRIL 8, 1932

Three Pence

CARTOON (MARCHESE MARCONI)

WILHELM BUSCH CENTENARY

GERMANY'S PRESIDENTIAL ELECTION

ELEMENTS OF WIRELESS (PART 9)

A NIGHT IN A WIRELESS STATION

THE RANGE OF ULTRA-SHORT WAVES



Vienna State Opera House (see "Broadcasting to the Rescue," page 683)

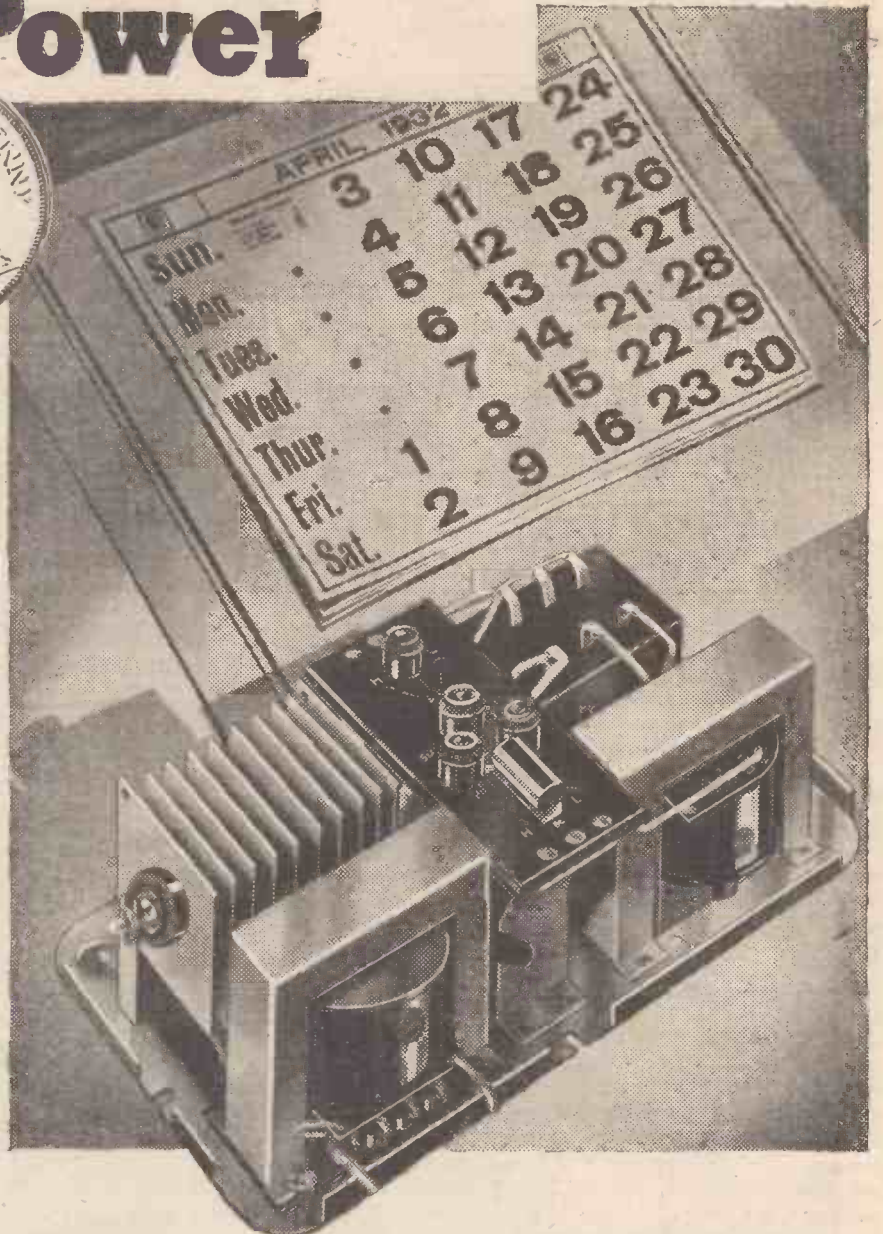
# Constant Power for 1<sup>a</sup> a month



Constant and high voltage—always. Ample and silent current—always. Complete reliability—always. All for a penny a month. No battery can give you such service at so low a cost as an EKCO Unit.

There is an EKCO Unit for every size and type of set. Just connect the appropriate model in place of your usual battery, then plug into the electric supply and switch on—that's all. No alterations to your set, valves or wiring.

End all battery worries and expense for ever. Go to your radio dealer to-day and ask him to show you the EKCO Unit suitable for your set, or post coupon now for full details.



Prices from 39/6

Or by Easy Payments  
from 3/8 per month



**INPUT**

A.C. supplies of 200/250 volts, 40/80 cycles and 100/125 volts, 40/80 cycles. Also 25 cycle models. D.C. supplies of 200/250 volts.

**OUTPUT**

H.T. units (A.C.) 12, 18 or 25 milliamps with alternative voltage tapings up to 120/150. (D.C. Unit 15/25 M/a.)

**Combined H.T. and L.T. Charger Units (A.C.)**

H.T.: 12, 18 or 25 milliamps, with alternative voltage tapings up to 120/150. L.T.: Charges 2, 4 or 6 volt accumulators at .5 amp.

*External view: all models are similar in appearance. Housed in solid drawn steel case, oxidised copper finish. Connecting plugs recessed below surface of case. Size, 9 in. by 5 in. by 3 1/2 in. (K.25 and 25-cycle models, 9 1/2 in. by 5 1/2 in. by 3 1/2 in.).*



To E. K. COLE, LTD., Dept. W.R.7, Ekco Works, Southend-on-Sea.  
Please send me particulars of EKCO Units.

Name.....  
Address.....  
.....

Woburn

# WORLD-RADIO

Vol. XIV No. 350

Registered at the G.P.O.  
as a Newspaper.

FRIDAY, APRIL 8, 1932

THREE PENCE



Letters should be addressed to The Editor,  
"WORLD-RADIO," Savoy Hill, London, W.C.2.

RATES OF SUBSCRIPTION to "World-Radio" (including postage). Twelve months: Inland, 17s. 4d.; Canadian, 17s. 4d.; Foreign, 19s. 6d. Six months: Inland, 9s. 8d.; Canadian, 8s. 8d.; Foreign, 9s. 9d. Address: "World-Radio," 8-11, Southampton Street, Strand, London, W.C.2.

## Broadcasting House

IT was to be expected that the process of building a new central home of broadcasting in London would be followed with great public interest, not only in this country, but abroad. Accordingly, the story of Broadcasting House, from its inception to the present day, is likely to be welcomed by all to whom broadcasting makes a daily appeal. It is our intention to publish this story, week by week, and the first instalment of it appears in our Technical Section to-day. The articles in the series are contributed by those members of the B.B.C. Engineering staff who were primarily responsible for the equipment of the new building.

It will be seen that so far back as six years ago the B.B.C. were convinced of the necessity of finding suitable accommodation for their rapidly expanding activities, and two years later the Portland Place site was chosen as the subject of negotiations. The necessity for erecting on this site a building which had to conform to so many varied requirements as Broadcasting House presented to Lieut. Col. Val Myer, the architect, a problem of extraordinary complexity. It will probably be agreed that the manner in which it was solved reflects great credit on all concerned.

Following the description of the structure itself, with its unique ventilating system, is the consideration of the electric supply, including the installation of an emergency plant for use in case of any interruption in the supply from the mains.

Perhaps the part of the story with the widest appeal is that which deals with the new studios. The number of these which it has been necessary to build may cause some surprise. Whereas at Savoy Hill there were twelve, including "No. 10," the temporary large studio across the river, in Broadcasting House itself there are no fewer than twenty-two. The purposes and functions of these studios, as well as their dimensions and equipment, will be found fully set forth in the articles.

Finally, there will be described in detail the complete chain of transmission from the microphone in the studio to the lines which leave the building for the various transmitters and a detailed description of the pieces of apparatus—the links—in the chain.

These articles will be fully illustrated with

pictures, and will form a comprehensive and interesting account of the story of the most modern and, we believe, best equipped broadcasting house in Europe.

## Vi<sup>a</sup> Ether

April the First—

ON April 1 certain Continental broadcasting authorities usually endeavour to pull the public's leg in some way or other. Last year, if I remember rightly—or was it the year before?—they gave a running commentary on the flight of a couple of Swiss airmen who were making a dramatic endeavour to cross the Atlantic from Lake Geneva to New York in record time. Needless to say, the flight, the aeroplane and the aviators themselves existed only in the vivid imagination of the gentleman at the microphone. This year, however, the Swiss humorists' thoughts ran in another direction. A correspondent writes to tell me that on Friday, April 1, when he switched on his set at 12.30 noon to hear the usual news bulletin from Radio-Swiss Romande, he noticed that a different announcer was on duty. After wishing listeners the usual "Bon jour, Mesdames et Messieurs, et bon appétit," the gentleman at the microphone proceeded to inform his listeners that in future the weather forecast would be relayed direct from a new meteorological tower erected specially for the use of certain professors who would thus be able to give first-hand information on the spot. This the listener found quite sensible, but the "Prévision météorologique" which followed—presumably direct from the new observatory—struck him as being rather queer. The announcer spoke of rain, showers, snow and hail, and depressions all over Europe, with, perhaps, a slight improvement—if matters did not get worse.

—and "All Fools' "News

THE voice went on to give out local news. He stated that trials with a new radio receiving apparatus at two selected hotels in Lausanne and Geneva had been completely successful, and invited all interested listeners to call that afternoon at the hotels mentioned, where they could inspect the marvels contained in these machines—marvels too great to enumerate at that moment. These sets, incidentally, were apparently so cheap that they were almost being given away. The calm voice next issued some strange information concerning two local celebrities, after which he gave interesting details on the exceedingly popular Geneva announcer, with reference to this gentleman's thousands of lady admirers all over Switzerland. The announcer finally mentioned that, owing to the embargo on foreign artists in France, Mistinguett was coming to settle down in German Switzerland, while Maurice Chevalier was expected at any day and would be driving a Swiss taxi-cab for a livelihood. And then my correspondent realised that the whole business had been an enormous "leg-pull." A few more highly-

imaginative details followed, and this remarkable series of "news" items was at an end. There came a short silence, then a deep sigh, and almost immediately he heard the well-known voice of the Geneva announcer: ". . . and now we have had our little joke, we will get on with the regular News Bulletin!" The real news was then given. My correspondent concludes by remarking: "I wondered how many listeners had been taken in by this 'Poisson d'Avril' and how far the announcer had gone with his joke before it had dawned upon his audience that it was merely an 'All-Fools' Day' joke!"

\* \* \*  
Broadcasting to the Rescue

THE difficulties in connexion with the Vienna State Opera seem to have been dispelled for the present, though Director Clemens Krauss has a tremendous task before him in trying to make the opera pay its way, which no Grand Opera has ever yet done. The Austrian Government has met the deficit year by year, but I learn that the edict has gone forth that this deficit must be reduced to vanishing-point, or the Opera can have only two or three performances weekly, or even, in the last resort, must close altogether. The recent performances of the *Ring* have been sold out. Other less popular operas have had poor audiences, though prices all over the great house have been reduced since the autumn. I am informed that there are fewer well-to-do foreign visitors in Vienna this year. The free list and the *claque* have been abolished, and the problem now is to select from the repertoire the operas which will bring adequate audiences. Co-operation with Ravag is of the friendliest, and Ravag pays about £300 for each relay, of which there are two monthly. In some form or other it seems likely that broadcasting will save the Vienna Opera, perhaps, by relaying more performances.

\* \* \*  
A Relay of *Das Herz*

THE Opera House is, at present, open seven nights a week from September to June, with, generally, a matinée on Sunday. The only nights on which it is closed are Christmas Eve, Good Friday, and Labour Day (May 1), when nobody works except Ravag, the police, the milkman, and a proportion of public servants, chiefly transport workers; theatres and places of amusement of all kinds remain closed by law. On MONDAY evening, the opera *Das Herz* (The Heart), by Hans Pfitzner, is to be relayed. The composer is acclaimed, throughout his own country, as the standard-bearer of the traditional German art which follows faithfully in the footsteps of Schumann and Brahms; he is a relentless opponent of the newer tendencies proclaimed by Busoni, Schönberg, and their disciples. His music is frankly romantic, and the subjects he chooses often have that element of the supernatural which Weber loved to exploit. *Das Herz* is a story of black magic in a mediæval setting, and the name means that a human heart was the price demanded by the Evil One for the restoration to life of a young prince who had died.

ETHERVIATOR

## German Presidential Election

### Procedure for Broadcasting Results

The procedure (described in the accompanying article) which was adopted on Sunday, March 13, for broadcasting the election results will be followed in connexion with the ballot on Sunday next, April 10.

All German stations, and during the latter part of the evening all the Austrian stations, stood by for the election results on Sunday, March 13. The election booths closed at 6 p.m. and at 7 p.m. early results were broadcast from Berlin—actually the very first were those from the election booths on Germany's highest mountain, the Zugspitze, which broadcast yet earlier. From then until 2 a.m. next morning the tireless announcers in the German Haus des Rundfunks at Berlin broadcast the results. One hundred and fifteen separate bulletins were broadcast and over a thousand separate news bulletins were received from the four sources supplying the Dradag (the Drahtloser Dienst A.G.) in Berlin with news from which to compile these. This organisation is a limited liability company owning shares in nearly all the German broadcasting companies. The majority of the shares of the Dradag, however, are in the hands of the Reichsinnenministerium, Berlin. The Dradag is the sole collector and supplier of all news broadcast by the German stations, including Munich. The Director and Managing Editor, Dr. Josef Rauscher, is therefore the person solely responsible for the German news bulletins.

In order to accelerate the broadcasting of the election results, the Dradag, with a staff of sixteen, had removed for the night to five rooms in the Haus des Rundfunks. Seven direct telephones ran from there to Dradag staff men on duty on this occasion at Wolff's Telegraphen Büro at the Telegraphen-Union, at the Reichs-pressestelle for the official figures, and at

Ullsteins. These Dradag staff men collected the news in the offices and telephoned it over the direct lines to their colleagues at the other end of the special lines in the Haus des Rundfunks. Here each result was written on a separate piece of paper, each paper having a distinctive colour for each source of information. Two lines were constantly in use on each of the three main news exchanges and only one line on Ullsteins. As the news agencies had a busy time that day they were glad to have the Dradag work taken off their hands by the presence of Dradag men in their offices. On other occasions the news people do the telephoning themselves.

At the Haus des Rundfunks, the moment the bulletins were received they were passed on by hand to Dr. Rauscher's office. Here two assistants sub-edited the results and handed them to Dr. Rauscher, who dictated them straight on to a typewriter, two typists being kept busy the whole time. The moment one had to change a page the second took up. Then only did the finished bulletin pass out to the Funkstunde announcers for broadcasting. Complicated as this sounds, listeners were impressed with the smooth working of the special service. The high degree of efficiency achieved is due to Dr. Rauscher, who himself issued all the 115 bulletins broadcast. A. A. G.

### Reception of Former Results

(By an English Girl Listener)

SUNDAY, March 13, was to me, a girl and superstitious, a day of portent for Germany and her four million unemployed. I confess to impatience when the other members of our family circle insisted on listening to Henry Ainley, Peggy Ashcroft and company, while my fingers were itching to tune in to Heilsberg, whose signals are always intelligibly audible in the afternoon. However, that wonderful performance of *Othello*, the force and balance of it, and the splendid English and diction of Henry Ainley himself made me

pride myself, temporarily, on my British nationality.

Then . . . Heilsberg, the voice of the Berlin announcer "Hier ist Berlin," and then, excitement as he announces that "es liegt noch ein amtliches Ergebnis vor" ("another official result is to hand"). Hindenburg had polled 5,000 votes to 2,000 by Hitler, with Duesterberg, Thaelmann and Winter far behind. Other results followed in quick succession, still with Hindenburg well in front. Then: "Das Funkorchester spielt die Ouvertüre zu der Oper 'Die lustigen Weiber von Windsor' von Nikolai"—("the station orchestra will play the overture to 'The Merry Wives of Windsor' by Nikolai").

Impatient fingers wandering for a brief spell to other stations, then back again to Heilsberg or Stuttgart (relaying Berlin), and the disjointed words "fünf Splitterstimmen" ("five split votes"), whatever they might be! Followed a further "amtlich unbestätigtes Endergebnis" (officially unconfirmed final result), with Reichspräsident von Hindenburg topping the poll, and "Winter, eine Stimme; Hitler zwei\* Stimmen (Winter one vote, Hitler two votes). Here, at any rate, Herr Hitler had been swamped, while Herr Winter's single vote was worse than anything that had befallen any of the Mosley candidates in our election.

As time went on, I found, to my surprise, that Germany's war veteran had gained "die absolute Mehrheit" (an absolute majority) in various constituencies. Then more little bits by the Funkorchester, and a somewhat excited and breathless announcer telling us "Es liegt das Ergebnis eines ganzen Wahlkreises (Düsseldorf) vor" ("Here is the result for an entire constituency"). A little argument in our living room spoilt reception of the figures.

How fine it was to think of the old man of 85 beating his opponent of 43, despite all the

(Continued in col. 3, p. 695).

\* Apparently, the Germans always use "zwei" instead of correctly "zwei\*" (two) when quoting figures, presumably to avoid confusion with "drei" (three).

## Wilhelm Busch

### Centenary of a Great German Caricaturist



THE centenary of the birth of Wilhelm Busch will be commemorated by many European stations. There are few parts of the world where the delightful adventures of Max and Moritz are not read and enjoyed, though the author's name

may not perhaps be quite so well known. Born on April 15, 1832, in a small village in Westphalia, and educated from his ninth year by a clergyman uncle, Wilhelm Busch took up the career of a painter after having first of all spent a few years at the Technical High School at Hanover. He soon discovered his special talent as a caricaturist, and it is in this connexion that he became most famous. But his writings—both in prose and verse, have also earned him lasting fame. It is not possible in a short review to deal with his works in any detail. But two little books of his should be mentioned, *Edwards Traum* and *Der Schmetterling*.

Wilhelm Busch can, perhaps, be best described as an amalgam of W. S. Gilbert, Edward Lear, and Lewis Carroll; his work was, and still is, a

perennial delight to the youth, not only of Germany, but of the world. In addition, he was a painter of no mean attainments, as well as a philosopher.

The illustrations are taken from the *Neues Wilhelm Busch Album*, published by the Verlagsanstalt Herrmann Klemm, Berlin.



So ist nun mal die Zeit allhle,  
Erst trägt, sie dich,

— Dann trägst du sie;

Und wann's vorüber, weißt du nie.

The drawing reproduced is a characteristic example of Busch's art. It is entitled "Die Zeit" (Time) :—

"Such is the way of 'Time'—first it carries you—then you carry it—and when it has passed by, you never know."

## Marchese Marconi

Beginning in this issue, we are publishing a series of autographed cartoons of prominent persons connected with broadcasting. The subject of the first cartoon is Marchese Marconi.

**M**ARCHESE GUGLIELMO MARCONI is assuredly one of those wireless pioneers without whose work broadcasting would never have been. Although at the time that he was conducting experiments in Bologna, in the course of which he succeeded in transmitting electric signals over short distances without physical connexion, Sir Oliver Lodge and Alexander Muirhead were making similar experiments in this country, it is on record that Sir Oliver acknowledged if such experiments had been left to Muirhead and himself they would never have got beyond the laboratory stage. "The practical development," he said, "is due to the energy, enterprise, ability, and enthusiasm of Mr. Marconi."

It was in 1896 that Mr. Marconi came to England and took out the first patent ever granted for a practical system of wireless telegraphy. In 1897 Marconi demonstrated his invention to the officials of the Italian Admiralty at Rome and before King Humbert at the Quirinal Palace, and in the following year he conducted that very interesting experiment of establishing wireless telegraphic communication between the Royal yacht *Osborne*, off the Isle of Wight, and Ladywood Cottage, Osborne, in order that Queen Victoria might communicate by telegraph with the Prince of Wales, afterwards King Edward VII.

Mr. Marconi's efforts were now constantly directed towards increasing the range of transmission, and in 1899 he succeeded in bridging the English Channel, but the great achievement of signalling across the Atlantic was reserved for 1901, the thirtieth anniversary of which was celebrated last year. It was undoubtedly the feat of spanning the Atlantic which appealed to the general imagination and proved beyond doubt the great commercial possibilities of this new form of communication.

Among the many honours of which Mr. Marconi was the recipient was the honorary knighthood of the Grand Cross of the Victorian Order bestowed on him in 1914 by King George. In the same year he was elected a Senator in the Italian Parliament, and in 1929 he was created an hereditary Marquis of the Kingdom of Italy.



Guglielmo Marconi

### Night in a Wireless Station

**T**HE whine, musical in its way, dinned in my ears so persistently that it seemed to fill the universe. Outside the heavens were rent in torment. Heavy bolts of lightning shot across the sky. Hail beat a devil's tattoo on the roof, but once the whine monopolised my ears the mighty elements outside were of no account.

The sound began as a gentle buzz, and rose rapidly under the hand of the operator to a screech that set every nerve jarring. Before the shirt-sleeved man lay switches innumerable, black instruments, and mysterious levers. The earphones clamped over his head cut him off from my eager questions; the intent look in his eye forbade interruption.

Suddenly he reached out a hand, pulled down a lever. Energetically the other hand tapped, tapped at a little key. In the great glass valves dazzling lights flashed. The whine fell to an irritating cackle. I thought of the message speeding over hundreds of miles to the mail boat sailing south from England, that week after week the operator in the wireless hut in this isolated station in the wastes of South-West Africa regularly established communication with the mail boat and received the trite and important messages of its passengers.

"Book accommodation for two on Union Express..." scribbled the operator to the accompaniment of the cackle and whine of the instruments. "Congratulations to the happy couple. May their troubles..." The pencil worked rapidly, jotting down message after message. When the liner had said its part in full, the operator automatically severed his connexion with it and reached over to another instrument.

A few brisk movements and the Central Telegraph Office in Capetown had been called up. The black pointer swung over, but not by the movement of a muscle did the operator betray that he was beginning to transmit his messages over 1,500 miles of land.

Having sent Capetown all he had for that locality, he turned to the Johannesburg section. Stock exchange quotations; important speculations sped over the wires. Many South African financiers keep the operators on board the liners busy most of the time they are travelling to or from South Africa. A message from London or Johannesburg may alter an opinion regarding certain shares. The instruments in the Walvis Bay cabin will work quickly, and fresh stock will be bought or other shares disposed of. Should this nonchalant man at the tapper fall from grace and efficiency, financiers on mail boats would suffer many anxious moments. Valuable racing time also pass before

the knowledge of this operator, but all of it is privileged matter.

The operator lit a cigarette. "One gets used to letting all these fortunes slip through one's fingers," he said to me, smiling. "Believe me, they aren't always dead certs—not even when some of our leading racing men wire through for hundreds of pounds to be put on. I remember one operator—"

I never heard the awful story of this operator. Another ship sailing through the night was calling. Again a long string of messages was jotted down and transmitted to various parts of the Union. As this duty was completed, several long news notes were telegraphed to the station, and from there my friend the operator sent them to all ships within hearing.

Even this did not seem to satisfy the skipper of a little whaler rolling many leagues south of Cape Agulhas. He reported that he had just repaired his wireless installation and missed the main part of the news. He wanted to know the latest rugby scores from England.

"And now, would you like some music?"

A few deft movements, and we sat back and enjoyed the Gilbert and Sullivan selections with which the Johannesburg station was entertaining its subscribers. And outside the wind howled and the rain poured. The night passed quickly as we smoked innumerable cigarettes.

W. L. S.

# Dominion and Foreign Broadcasting Intelligence

## An Australian Broadcasting Commission

(From our Australian Correspondent)

The change in the Federal Government from a Labour to a United Australia (or Liberal) Administration has led to changes in the plans for the control of broadcasting which will follow upon the termination of the Australian Broadcasting Company's contract for programmes on June 30 next. The Scullin (Labour) Government had decided to set up a Commission upon which, it was understood, Government officials would have a controlling influence. It is now announced that the new Government has decided to appoint a Commission (constitution unspecified) whose powers for the present will be confined to controlling the programmes. Control of the technical side of broadcasting is to be left with the Postmaster-General's Department. The Commission, when appointed, is to be charged with the responsibility of reporting to the Government as to the best method of controlling both the programme and technical sides.

The Prime Minister (Mr. Lyons, who, before leaving the Labour Party, was Postmaster-General and had charge of wireless administration) explains that at present the Postal Department's activities cover administration, finance, provision of buildings for studio and station purposes and engineering. The Australian Broadcasting Company is responsible to the Department for the provision of the programme service, including the arrangements to be made for the use of copyright.

The main competitor of the Post Office for the control of the technical side of broadcasting is Amalgamated Wireless (Australasia), Ltd., which is a company with a capital of £1,000,000, half the shares plus one being held by the Commonwealth Government. A. W. A. owns and operates the Beam telegraph system, the commercial wireless stations on ships, the coast stations of Australia and the Pacific Islands, the transmitting and receiving equipment of the radiotelephone services between Australia and England, and some of the broadcasting stations.

## The NBC'S Year of Prosperity

(From our New York Correspondent)

There would seem ample cause for optimism in the report of the National Broadcasting Company for the past year. In spite of the depression the gross revenue was \$29,000,000 (£5,800,000 at par) as compared with \$22,000,000 (£4,400,000) in 1930. The number of clients sponsoring programmes increased to 231; and 261 employées were added. Twelve stations were added to the WEAJ-WJZ networks during the year, involving an increase of 2,000 miles in broadcast circuits; and the growth of radio audiences may be estimated by the larger number of listeners' letters, 5,000,000 having been received as against 2,000,000 during the previous year.

In a review of the programmes, the President of the National Broadcasting Company places the round-the-world broadcast and tribute to Marchese Marconi as the outstanding event. Fourteen nations on four Continents participated in this broadcast. Other broadcasts of historic significance were the first address by Pope Pius XI; the first American re-broadcast of an address by Premier Mussolini; the trans-Atlantic debate between Harvard and Oxford, and the first broadcast by President von Hindenburg.

The pinnacle of achievement in U.S.A. musical broadcasts was represented by the relay on Christmas Day of the opera *Hänsel und Gretel*

from the Metropolitan Opera House, marking the hard-won victory of those who had fought so long to overcome opposition in that direction.

In the sphere of religious activities there is no less cause for encouragement. Thousands of letters received during the year show a revival of interest in Church services on the part of people who have not attended church for many years because of their unwillingness to affiliate themselves with denominational restrictions. Added to these are many more who have been prevented by illness or distance from personal attendance. Two hundred and sixty clergymen officiated at the morning services—representing fifty-two towns and cities in nine States, as well as England and Canada. Every effort is made at these services to omit material likely to provoke theological controversy.

## CANADA

Receiving Sets Sales

(From our Montreal correspondent)

Radio sales in Canada during the months of July, August, and September, 1931, by manufacturers and authorised importers, just announced, totalled 76,809 receiving sets valued at \$4,641,237 (£928,247 at par) factory selling prices. The sale of 76,907 sets during this period more than doubled the figures for the preceding quarter when only 28,092 sets were sold, and marked an advance of 60 per cent. over the 47,653 machines sold in the first three months of the year. Included in the third quarter sales were 71,083 A.C. receiving sets at £811,131; 4,123 A.C. combination sets at £97,578; 1,541 battery operated sets at £17,173 and 161 miscellaneous sets worth £1,196. During the first nine months of 1931 a total of 151,735 receiving sets was produced in Canada; over one-half of these, or 81,197 machines, were made in the third quarter. In the calendar year 1930, output was reported at 170,082 sets. The principal production gain over the preceding quarter was in the A.C. receiving sets; this type of machine advanced to 77,085 from 29,638. Output of A.C. combinations was also higher at 2,608 as against 1,945, and battery sets increased to 1,394 from 1,148, while the miscellaneous sets intended for use in motor-boats, motor-cars, etc., dropped to 110 from 188.

## FRANCE

(From our Paris Correspondent)

Successors of General Ferrié

General Appiano has been appointed to succeed the late General Ferrié as the chief officer of the military wireless services and he has also succeeded him as a member of the Technical Council of the Corps of Engineers. Professor Paul Janet, Director of the Ecole Supérieure d'Electricité has been elected by the Academy of Sciences as its representative on the Conseil Supérieur of the National Laboratory of Broadcasting in succession to General Ferrié. Meanwhile, in addition to the proposition to name a street of Paris after the late general, an annuity of Frs. 20,000 per annum has been voted by Parliament for his widow and a plaque is being placed on his house at 25, Square Latour Maubourg, Paris, by the Federation of Societies of Savoyards in Paris.

"Avenue General Ferrié"

A resolution that a street in Paris should be named to commemorate the memory of General Ferrié will shortly be discussed. It is thought most appropriate that the street should be one of the avenues of the Champs-de-Mars leading to the Eiffel Tower, whose wireless activities have been so closely linked with the name of the deceased general.

## Right of Reply

Although as mentioned in *World-Radio* of March 4, a person attacked in a broadcast talk has not the right of reply that he would possess if the attack had been printed in a newspaper, yet this right has been practically allowed in a recent case where the author of a play took exception to criticisms levelled against his work in a broadcast review. The matter was brought before the attention of the director of the station, and, as a result, the author was allowed to appear before the microphone himself and to read another review selected by him from the most favourable articles that had appeared in the press.

## Wireless and the Budget

The Budget which has just been voted by Parliament includes a provision of Frs. 5,000,000 for buildings and Frs. 5,000,000 for electrical material, in pursuance of the General Ferrié plan for constructing new powerful stations all over France. It also includes a sum of Frs. 2,000,000, increased to the amount of the annual subsidy granted to associations formed for the purpose of arranging artistic programmes, and provision is made for the upkeep of the stations already in existence.

## POLAND

International Music Competition

(From our Warsaw Correspondent)

The result of the International Chopin's Music Competition, which lasted a fortnight and terminated on March 23, was a disappointment to the Polish musicians, since none of them won a prize of importance. The laureates were M. Alexander Uninski, a Russian emigrant, of Paris, who was awarded the President's Grand Prix of 5,000 zlotys, the second prize of 3,000 zlotys going to a young blind Hungarian musician, M. Imre Ungar. The jury declared them to be equal, and the Grand Prix problem was solved by the artists themselves, who drew lots. There were public demands that the two prizes be amalgamated and divided in order to manifest equality of the artists; but owing to the regulation this could not have been done. It has been proposed by "Polskie Radio" Warsaw station that the winners of the two first prizes would reproduce some nocturnes by Chopin on his original Pleyel's pianoforte—a hundred years old and preserved with great care by the Polish National Museum in Warsaw. This will probably take place at 7.15 p.m. on April 9, and if so, the rare opportunity would be taken advantage of by the Warsaw transmitter.

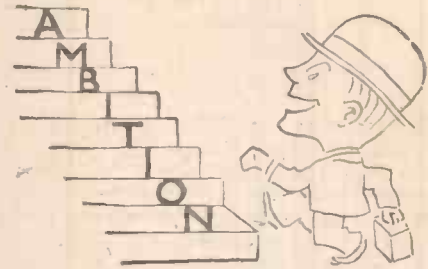
## U.S.A.

Educational Broadcasts

(From our New York Correspondent)

The idea, borrowed from England, of providing special printed material for reading and study in connexion with broadcasts has met with enthusiastic approval, according to the Director of the National Advisory Council on Radio in Education. Nearly 200,000 copies of the printed lectures and reading guides published in connexion with the series of Saturday night broadcasts on economics and psychology have been distributed to broadcast listeners. Letters have been received from all parts of the United States and Canada, and industrial concerns and chain-stores have asked for the material for employees. Vocational guidance lectures are increasingly popular as the time for graduation approaches, and listeners' guides have been prepared for parents and children trying to decide on an occupation.

# HAPPINESS ALL THE WAY THROUGH LIFE

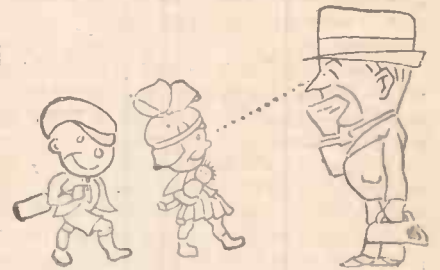


Happiness even when boyhood and youth are passed and the responsibilities of life are upon you. Some people are weighed down by such responsibilities. They are in constant dread of what may happen. If they die what will become of their dependents? And their own later years—what financial troubles will old age bring? Not you! Like a wise man you will settle these problems in the only way they can be satisfactorily settled. Then you will have no reason for worry or anxiety.

## FIRST YOUR FAMILY—BLESS THEM

**£2,000**  
PLUS PROFITS  
should you not  
Live

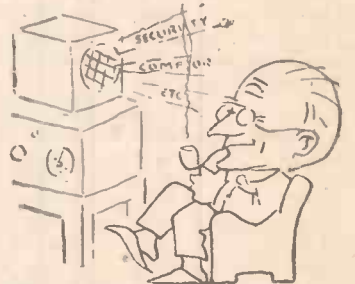
The first deposit made to the Sun Life of Canada under this Company's Pension-Protection Plan ensures a large Capital Sum for your family, even should you not live to make another deposit. Each annual deposit you make increases the sum which your family (or you) will receive. That money will be a godsend to them if anything should happen to you. Maybe it will be the only provision you have had time and means to make for them. What a relief to your mind to know that you have given them this financial protection.



## THEN YOUR OWN LATER YEARS

**£3,000**  
FOR YOU AT  
AGE 60

The same Plan, while protecting your family, provides for your own later years. Your deposits accumulate, to them are added generous bonuses (the Company's record in this respect is remarkable), and at age 60 a cheque will be sent to you which will provide you with either a lump sum or a comfortable income for the rest of your life, whichever you prefer. The money you will receive will amount to very much more than the deposits you have made. The figures quoted are based on actual bonuses already paid on this plan, and assume your age at commencement to be 35.



The Sun Life of Canada has assets exceeding £128,000,000 invested under supervision of the Canadian Government. The Canadian Insurance Law is the most exacting in the World. The Company operates under this law and also under the Insurance Law of Great Britain. Thus Policy-holders are doubly protected.

### OTHER GREAT ADVANTAGES

Every deposit earns you rebate of Income Tax. This is additional profit. After three annual deposits have been made, there is money available for you in case of emergency. You can obtain a loan without any trouble. Should circumstances make it impossible to continue the contract, a high surrender value guaranteed in the Contract will complete your satisfaction.

**ALLOW US TO SHOW YOU, WITHOUT ANY OBLIGATION WHATSOEVER, EXACTLY HOW THIS PLAN COULD BE APPLIED TO YOUR OWN AGE AND CIRCUMSTANCES.**

**CUT THIS OUT  
NOW, AND POST  
TO-DAY**



To H. O. LEACH (General Manager),  
SUN LIFE ASSURANCE CO. OF CANADA,  
(Incorporated in Canada in 1865 as a limited Company),  
111, Sun of Canada House, Cockspur Street,  
Trafalgar Square, LONDON, S.W.1.

Please furnish further details of your Pension-Protection Plan.

NAME .....  
(Mr., Mrs. or Miss)

ADDRESS .....

OCCUPATION .....

Exact Date of Birth.....

# TECHNICAL SECTION

## Broadcasting House

*The first of a series of authoritative articles describing the building, studios and technical equipment of the new B.B.C. Headquarters*

### 1.—The Site and the Structure

SOME six years ago the B.B.C. (then the British Broadcasting Company) were keenly alive to the necessity of finding suitable accommodation for their rapidly expanding activities, and ordered investigations to be carried out as to the possibility of securing a suitable building in the West End that could be reconstructed to accommodate a sufficient number of studios, and house the whole of the headquarter administrative and executive staffs at reasonable cost. They found that the expansion of the B.B.C. was proceeding so rapidly that in a very few years Savoy Hill would be wholly inadequate for the service which it was their duty to the public to provide.

It was decided that any new premises for the B.B.C. should be in the West End of London, where it would be most suitably placed for the convenience of artists, to whom the position of the Broadcasting centre might be regarded as of first importance.

Protracted enquiries and the consideration of many likely properties (notable among which was Dorchester House, previous to its rebuilding as a hotel) then ensued, but the experience gained at Savoy Hill of adapting an existing building to accommodate the large number of studios, variously used, and sufficiently segregated to ensure them being proof against mutual interference, rendered the problem of finding a building that would lend itself to reconstruction for the purpose, at reasonable cost, extremely difficult. Eventually, after exhaustive enquiries and the preparation and presentation of innumerable schemes, the B.B.C. reluctantly came to the decision that, costly as it must be, a new building would need to be provided.

The consideration of various sites upon which new premises might be erected was then undertaken, and of the many score suggested, each that had any prospect of being satisfactory was carefully investigated. Indeed, preliminary plans were actually prepared for the development of quite a number of attractive sites, notable amongst which were the Aldwych site now occupied in part by India House, the Adelphi site, a portion of the Grosvenor House site, and the site recently developed as shops in Portman Square.

As early as the spring of 1927, the site now occupied by Broadcasting House, Portland Place, was brought to the notice of the B.B.C. At that time, however, there was, as stated, no intention to build new headquarters.

On February 2, 1928, when the B.B.C. had definitely taken the decision to build new premises, the Portland Place site was reconsidered. At this juncture the B.B.C. was informed that the site was in the possession of a syndicate who were contemplating developing it for high-class residential flats. The syndicate offered, nevertheless, to build instead new headquarters for the B.B.C. to suit the especial and very exacting requirements of the B.B.C.'s activities on the terms desired by the B.B.C., i.e., on a basis of a long-term lease with an option to purchase—now exercised.

#### Design to Suit Portland Place Site

The site, occupying an area of some 20,000 square feet, was regarded by the B.B.C. as eminently

suitable for their premises, and negotiations were thereupon opened with the syndicate. The syndicate's architect was invited to put before the B.B.C. a perspective drawing of a building for that site; the building to be specially designed to meet the needs of an up-to-date broadcasting centre. This drawing, with explanatory report on floor-areas available was received on February 26, 1928. The B.B.C. expressed keen interest in the proposed architectural treatment and accommodation available to their purposes and thereupon decided that the scheme should be developed in greater detail, the architect working in close collaboration with the B.B.C.'s own experts. On July 3, 1928, a joint report accompanied by descriptive plans was duly presented.

The site was described as being in the form of a peninsula, facing south, and visible from



Broadcasting House (Architect: Lt.-Col. G. Val Myer, F.R.I.B.A.)

Representing the most modern development in the technique of broadcasting, the new B.B.C. Headquarters stands practically on the spot where, in 1879, Professor Hughes first transmitted "spark signals" and received them on a microphonic detector which he carried along the street in the vicinity of Langham Place.

Oxford Circus; the western façade would dominate the widest and best part of Portland Place, whilst the eastern front would face Langham Street. In planning the scheme, the guiding principle adopted was to exploit to the utmost the peculiar conditions of shape and size of the site, and with this objective, the offices and similar departments for which daylight was essential would be ranged around the whole of the exterior of the building; on the other hand, the studios and their suites, to which insulation from external noise was necessarily the first need, would be grouped in a vast central tower of heavy brickwork, ventilated by artificial means and protected from street noises by a complete outer layer of offices, and insulated from the offices themselves by wide corridors and thick brick walls.

Appreciating the nature of the B.B.C. activities, the design made provision for such structural alterations as might be required in course of time, as circumstances of the B.B.C.'s expan-

sion and development might, later, necessitate re-modelling some part of the interior of the premises.

The B.B.C. came to the decision that the proposals contained in the report and plans could be accepted as the basis for a formal agreement with the syndicate. The agreement between the syndicate and the B.B.C. was signed and exchanged between the parties on November 21, 1928. The public authorities were then approached with regard to an easement in connection with the building line, and, as the result of negotiations with various interested parties, a concession was obtained which added much to the amenities of the site, and enabled profitable changes to be introduced in the planning and elevation.

#### Notable Constructional Features

The principle of the planning of Broadcasting House is, as already mentioned, the accommodation of the studios and their suites suitably grouped in a vast central tower, arranged so that artists are segregated on all floors from the administrative and executive departments, which are accommodated in the well-lighted offices encircling the tower. Hence there may be said to be a building within a building, the brick tower being definitely distinct, both as regards construction and occupation, from the steel-frame building that surrounds it. The building has three floors below pavement level, the usual ground floor, and eight stories above.

Entering Broadcasting House from the main entrance in Langham Place, one comes into a spacious semi-circular entrance-hall. Arranged at the back of the hall, facing the entrance, are two large lifts that serve the office accommodation on all floors. At one side of these lifts is a pair of large bronze doors, through which all artists entering the building pass into a large foyer, beyond, where two lifts serve all floors of the studio tower.

The walls of this central tower are constructed of brick, without the steel framework usual to modern buildings. An important factor that influenced the decision to build the studio tower in brickwork only was, partly to eliminate the risk of sound-transference from studio to studio, through a rigid-jointed steel frame, and partly because the mass of the brickwork would still further cut out external noises. The decision nevertheless had its own problem, in that, owing to the enormous weight of the brickwork, with studio-floors supported by it, ordinary Fletton bricks could not be used in the greater part of its construction, as they would be overstressed. Consequently Blue Staffordshire bricks had to be employed to a very large extent.

Around the tower, in the sub-basement, are arranged the ventilating equipment, the heating boilers, the oil-fuel storage tanks, lift machinery, emergency generating plant, and the electrical transformers and main switchboard, particulars of which installations will be given later.



With three floors below pavement level, the excavations (some 43,000 cubic yards of clay, sand and gravel were removed) and task of constructing the retaining walls introduced problems of considerable engineering interest. To construct these retaining walls, an excavation some 20 feet wide was made around the entire site, and steel frames were then set up at frequent intervals, the vertical member being built into the brickwork of the permanent retaining wall as that wall was constructed, the struts being removed so soon as the thrust from the retaining wall could safely be transferred to the main frame of the building.

service this stand-by supply. Meantime, the building is supplied from the Metropolitan Water Board's mains.

**Lifts.**

In the lift installation, there are four passenger lifts—two for staff and two for artists—arranged as already described: and two goods lifts, one communicating with all floors up to fifth-floor level, and the second giving a service from fifth-floor level to the eighth floor. The passenger lifts have a capacity of twenty-four persons each, and travel at 400 ft. per minute. Automatic levelling is provided to all floors, so as to eliminate the tripping hazard of passengers entering or leaving the car.

Two-speed doors are provided on all landings, in lieu of collapsible gates, so as to ensure silence in operation, and at the same time obtain a maximum degree of speed.

**Ventilation and Air Conditioning Equipment**

It is impossible to exaggerate the magnitude of the problem of ventilating the twenty-two studios in the tower, which range in size from a small talks studio to a large concert hall. Earnest and unsparing attention was devoted to this unprecedented problem in ventilation, upon the satisfactory result of which would depend, to so large an extent, the success of the whole undertaking.

After long and detailed consideration of the problem, a comprehensive specification was prepared by the B.B.C., indicating the essential features of the installation, and the conditions required as regards temperature, humidity, silence, etc. The specification left to the specialist firm entrusted with the contract the duty of suggesting, for the B.B.C.'s approval, a suitable arrangement of plant, ducts, fans, etc., to achieve the result called for.

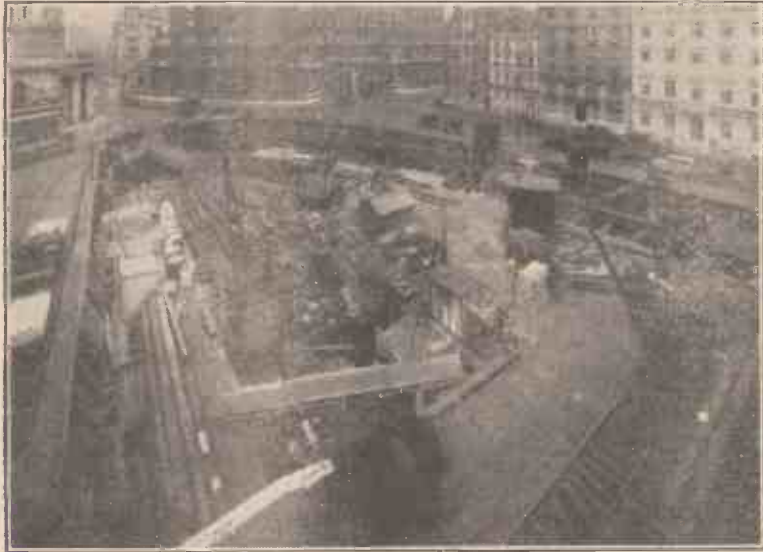
Whilst the ventilation of the studios was the most vital feature of the required installation, suitable provision had also to be made for ventilating the three large floors below pavement level, including the plant spaces and boiler-house in the sub-basement, besides other apartments in the studio tower.

A broadcasting studio is essentially a sound-proof room so constructed and treated that it has the required acoustic properties for the particular type of broadcasting for which it is intended. Since it has to be almost perfectly proofed against interference from extraneous noise, the studio is constructed with very heavy walls, double doors, and no windows. For other reasons, internal surfaces are often treated with sound-absorbing materials or draped with heavy fabrics. It will be seen, therefore, that in order to perform its function properly the broadcast studio is in effect airtight and, owing to the heavy construction and acoustic treatment, heat insulated.

It will be readily understood that in rooms of such construction, where comparatively large numbers of people may have to remain for an hour or two continuously, the provision of complete artificial ventilation is essential. In fact, although many of the studios are lofty and the cubic space per person occupying them relatively large, it would be physically impossible, without grave danger to health, for the anticipated number of artists to occupy such a room for any considerable time if the ventilating plant were not in action.

Apart, however, from the provision of sufficient air to keep a standard of purity consistent with healthy conditions, there are other factors which necessitate such an air supply. In the first place, it is a matter of common experience that when a comparatively large number of people occupy even an un-heated, but inadequately ventilated room, the temperature soon begins to rise and the atmosphere becomes oppressive. This rise in temperature and oppressiveness is due to the heat and moisture given off by the occupants. In a broadcast studio, since there are no windows, artificial light always has to be used, and in general the power required for illumination is considerable.

*(To be continued)*



Portland Place site, November, 1929, soon after excavation work began.

Another notable feature in connexion with the main structure is the arrangement of the concert hall which occupies three floors of the studio tower above and below ground-floor level. In order to have a hall of the greatest possible dimensions, within the limitations imposed by the size of the site and the general scheme of planning, it was decided that this hall should project beyond the north wall of the studio tower, right back to the party wall. The north wall of the studio tower is, accordingly, carried at second-floor level and above, by twin plate girders, each 10ft. 6ins. in depth.

At eighth-floor level it was found impracticable to continue the studio tower upwards, owing to the mansard roof which, on account of certain rights-of-light on the Langham Street side of the building, had to be provided. Accordingly, the uppermost double-storey studio was placed over towards the western side of the building. To do this, considerable engineering difficulties were encountered, owing to it being necessary to avoid connecting this studio with the steel frame-work of the building on which it rests. It may be observed that a large and well-lighted control room is accommodated in the space beneath the mansard roof at this level.

**Water Supply.**

Whilst the construction of the steel frame was proceeding, the opportunity was taken to sink an artesian well in the north-west corner of the site. A bore-hole 7½ in. in diameter was sunk to a depth of 65ft. below sub-basement floor-level. The water obtained gave the satisfactory yield of about 1,000 gallons per hour, and analysis showed it to be of a high degree of organic quality, and of a satisfactory standard of bacteriological purity. The rising mains in the building have been so arranged that pumping equipment can quickly be provided for this bore-hole, and a supply taken therefrom, by air-lift pumps, in the event of circumstances making it desirable, in future, to bring into



The skeleton building in November, 1930.

# The Effect of the Rectifier on Interference

By F. M. COLEBROOK, B.Sc., D.I.C., A.C.G.I.

(Continued from page 639, April 1)

WE can now consider the rectification process in relation to the amplitude-modulated wave, mentioned at the conclusion of the previous article, and, in order to cover the field as simply as possible, we will consider the extreme cases of very small amplitude rectification, which will be square law in character, and relatively large amplitude rectification, which, by suitable design, can be made "linear" in character.

Square-law rectification is characterised by the fact that the response (current or voltage) is proportional to the square of the amplitude of the radio-frequency signal, and as this has been expressed as the square root of  $(W^2 + U^2 + 2WU \cos. 2\pi bt)^*$ , the response will be proportional to this quantity itself. Now  $W$  is the sum of a constant quantity and of an alternating quantity with frequency  $p$ . The square of  $W$  will, therefore, contain a term of modulation frequency  $p$ , which is the wanted response, and a much smaller term of double modulation frequency. The latter is extraneous in the sense that it is not present in the original modulation, and therefore represents a form of frequency distortion. This is well known to occur in square-law rectification.

Similarly, terms of frequency  $q$  and  $2q$  are derived from  $U^2$ . All these components would be produced, and to the same degree, by the separate rectification of  $w$  and  $u$ . The third term, however, is due to the interaction of the separate voltages, and is of more complex wave form. The product of the constant components of  $W$  and  $U$  with  $\cos. 2\pi bt$  clearly gives the simple heterodyne note of frequency  $b$ , but the full product of the  $p$  and  $q$  frequency components of  $W$  and  $U$  with each other and with the  $b$  frequency term gives rise to terms of frequency  $p \pm b$ ,  $q \pm b$ , and  $p \pm q \pm b$ . Thus there are thirteen frequencies in all, of which nine are due to the interaction of the two voltages, and of which only one, the wanted modulation frequency  $p$ , is intended to be reproduced.

It is necessary to note the nature of these various frequency components. The  $2p$  term is a rectifier frequency distortion, as already stated. The  $q$  term represents the actual reproduced modulation of the interfering transmission, and, in the general case of, say, speech modulation waves, typifies the reproduction of all the true modulation frequencies of the interfering transmission. Aiken points out that this part of the interference should be, so to speak, psychologically weighted in estimating its importance, for its intelligibility will give it an added power of distracting attention from the desired modulation.

Now consider the term of frequency  $p \pm b$ . Similar terms will be produced by all the frequency components of the modulation spectrum of the wanted transmission, and the totality of these components therefore produces what may be described as a displaced modulation spectrum of the wanted transmission. Similarly for the  $p - b$  terms, and in the same way the  $q \pm b$  terms produce two displaced modulation spectra of the modulation of the unwanted transmission. Generally speaking, they will not be intelligible, the effect being that of a gramophone record run much too fast or much too slow. (The analogy is not quite exact, but it will serve.)

Finally, there are the  $p \pm q \pm b$  terms which clearly arise from the mutual heterodyning of

the separate side bands, and which will be even more confused and unintelligible. All these combination tones produce a twittering and a rustling and a sh-sh-sh effect with which readers are probably familiar. The writer has recently heard it described as "side-band splash," and the term is descriptive enough; but it should be noted that it is not only the side bands of the interfering transmission which are responsible—the side bands of the wanted transmission join in the chorus with equal effectiveness.

Across this sound picture, in which the modulation of the wanted transmission asserts itself more or less successfully against a background of sibilant whisperings, the carrier heterodyne note is drawn as, so to speak, a clear-cut straight line of practically unvarying frequency and intensity, for it is proportional to the constant components of the separate voltages, and is practically unaffected by variation of the respective modulations.

The extent to which the wanted modulation can be extricated out of this welter of extraneous frequencies is, of course, entirely a matter of relative intensities. The significant factors are, therefore, the ratios of the amplitudes of the various components to that of the wanted modulation frequency. These are easily calculated from the formula for the combined amplitude, the desired response being proportional to  $E^2 M$ . The following table shows these relative amplitudes in terms of the separate signal voltages and modulation percentages, and in order to get a clearer idea of actual magnitudes, the values of the ratios are shown in the fourth and fifth columns, calculated on the basis of a ten to one ratio of  $E$  to  $e$ , and with fifty per-cent modulation in each case. (A factor of 1,000 has been introduced in order to avoid small fractions or decimals.)

| Component              | Frequency       | Ratio to $E^2 M$ | Numerical Values  |                  |
|------------------------|-----------------|------------------|-------------------|------------------|
|                        |                 |                  | Sq. Law Rectifier | Linear Rectifier |
| Wanted mod. freq.      | $p$             | 1                | 1,000             | 1,000            |
| Carrier beat freq.     | $b$             | $e/EM$           | 200               | 200              |
| Double mod. freq.      | $2p$            | $M/4$            | 125               | 0                |
| Displaced mod. spectra | $p \pm b$       | $e/2E$           | 50                | 5.5              |
|                        | $q \pm b$       | $em/2EM$         | 50                | 50               |
| Side band het.         | $p \pm q \pm b$ | $em/4E$          | 12.5              | —                |
| Unwanted modulation    | $q$             | $me^2/ME^2$      | 10                | 3                |
|                        | $2q$            | $me^2/4ME^2$     | 2.5               | —                |

Relative amplitudes of various frequency components

It will be seen that the actual modulation of the interfering transmission is the smallest component of all (neglecting the double frequency terms which represent a small degree of frequency distortion rather than an actual interference). As pointed out above, however, its coherence and intelligibility will give it an importance out of proportion to its intensity. The mutual heterodyning of the side bands results in a comparatively small intensity, and that unintelligible. The two double sets of displaced modulation spectra are next in importance, and it is interesting to note that they are of equal magnitude; but this arises from the assumption of equal modulation percentages. The largest individual interference component is the carrier heterodyne note, and unless this is of very high frequency it will cause very troublesome interference.

The small intensity of the interfering modulation is due to the square-law operation of the detector, which exercises a marked discrimination against the weaker signal in virtue of

the factor  $e^2/E^2$ . It might be inferred from this that square-law rectification would be more favourable to selectivity than linear rectification, but, as will be seen later, there is a so-called demodulation effect associated with linear rectification which actually gives it an advantage in this respect as compared with square-law rectification.

The above analysis for square-law rectification is comparatively simple. The like proceeding for linear rectification, on the other hand, is exceedingly difficult and laborious. By linear rectification is meant an arrangement such that the response of the rectifier is proportional to the amplitude of the applied radio-frequency voltage, i.e., in the present case, to the square root of  $(W^2 + U^2 + 2WU \cos. 2\pi bt)$ . This case, therefore, requires a complete frequency analysis of this square-root expression, which is clearly not a simple matter. It can, however, be carried out, and Aiken gives the results in considerable detail. It will not be attempted to describe this rather intricate analysis here, but the more important conclusions can be stated in plain language.

In the first place, there is a slight difference in the range of frequencies present, as compared with square-law rectification. The principal frequencies present are  $p$ ,  $q$  (the true modulation frequencies),  $p \pm b$  and  $q \pm b$  (the displaced modulation spectra), and  $b$  (the beat frequency), with a relatively small component of frequency  $2b$ . The side-band heterodyne frequencies  $p \pm q \pm b$  are also present, but to a very small extent.

The statement of the interference ratios in general terms is rather complicated, but the end column in the above table gives the numerical values for the particular case already specified, and affords a means of comparing the two systems.

The most noticeable and the most important feature of the response is the very small intensity of the reproduced interfering modulation, as compared with the intensity it would have if acting alone. If the transmissions were rectified separately the ratio of the interfering modulation

frequency component to that of the wanted modulation frequency would be very approximately  $me/ME$ , which would be 0.1 for the case considered. In simultaneous rectification it is reduced to 0.003, or about  $\frac{1}{30}$  of its former value. The effect is now quite well known, and is referred to as a "demodulation effect"

on the weaker transmission. It is not a very accurate or descriptive name, and cannot even be said to be better than no name at all. It only means that the interfering modulation frequency response is not the same as it would be if the wanted transmission were not also present, and as there was never any real reason for supposing that it would be the same, no special name for the effect is really required.

It may be pointed out, incidentally, that certain earlier analyses of the so-called demodulation effect, including some articles by the present writer, have implied that a supersonic beat frequency was an essential condition for this reduction in the interfering modulation, but a further examination of the matter in the light of Aiken's work has shown that this is not actually required. For given rectifier voltages the relative intensities as deduced above will be independent of the beat frequency. (It is of course assumed throughout that the rectifier is such as to give a uniform audio-frequency

(Continued on page 693)

\*The penultimate term of this expression,  $b$ , is erroneously printed as  $p$  on page 639 of last week's issue.



## Ultra Short-Wave Communication

By R. L. SMITH-ROSE, D.Sc., Ph.D., A.M.I.E.E.

### 4.—Range of Ultra-Short Waves

**D**URING the past few years considerable progress has been made in the technique of radio transmission and reception on ultra short wave-lengths (below 10 metres), and although such wave-lengths have scarcely yet been applied to practical communication, readers of *World-Radio* will be acquainted with the proposal to use such wave-lengths for the relaying of broadcasting programmes.

While radio transmission to long distances depends upon the propagation facilities provided by the upper regions of the atmosphere, transmission over the earth's surface depends rather upon the scattering and absorption effect of obstacles on or near the earth's surface, and upon the absorption of energy in the earth. On the first point it is easily understood that such objects as buildings, hills, trees, etc., whose dimensions are negligible compared with the longer wave-lengths, may become serious obstacles in the path of ultra-short waves, whose wave-length is comparable with or smaller than the principal dimensions of the obstacles. On the matter of the attenuation of radio waves due to the finite conductivity of the earth, a certain amount of data has been made available during the past few years as a result of experiments carried out on longer wave-lengths.

This data has been used, on the one hand, to compare the experimental results with the various theoretical formulæ which have been suggested to account for the effect of the earth's resistance, and on the other hand to deduce values for the conductivity and dielectric constant of the earth. Even were complete agreement reached on the theoretical side, it is still desirable to ascertain to what extent these electrical constants of the earth vary with the frequency of the oscillations employed. The following brief account of some experimental measurements made on the effect of the resistance of the earth on the transmission

of ultra-short waves will be found interesting in throwing some light on the range possibilities of the wave-lengths in question.

#### Experimental Method Employed

The experimental work was carried out by measuring at various distances the relative field strength obtained from a transmitter which could be adjusted accurately to any required wave-length and output. No automatic control of these factors was possible, but no difficulty was experienced in constructing and operating the transmitting apparatus to give such constancy as the accuracy of the investigation required. Illustrated descriptions of the transmitters employed in these experiments have been given in a previous article.

At the receiving end the observations of field intensity were obtained by measuring the audio-frequency voltage obtained across

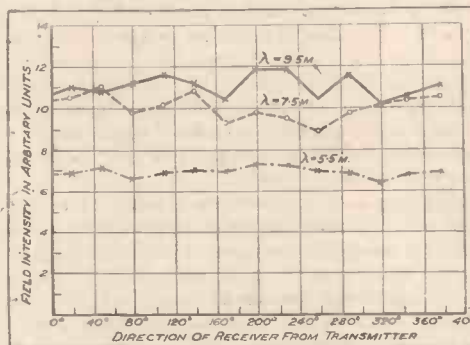


Fig. 2.—Field intensity in different directions at constant distance of 30 metres

the telephone terminals of a self-contained, two-valve loop receiver, which was also described in a previous article. Calibration was carried out direct by varying the output of the transmitter. A general view of the loop receiver, with telephones and valve-voltmeter all mounted on a small truck ready for field measurements, is shown in Fig. 1.

In each series of experiments measurements of the field intensity were carried out first at a constant distance and in various directions around the transmitter, and secondly, at various distances in a fixed direction from the transmitter. The results of the first measurements gave a kind of polar diagram of the radiation from the transmitter and illustrated the extent to which this was uniform in all directions or modified by the presence of surrounding obstacles.

#### Results Obtained

The first series of measurements taken at short distances around the fixed transmitter, showed that the radiated field was seriously modified by the surrounding trees, buildings, and even the power cable supplying the transmitting hut. By careful experiment a much more satisfactory site was found for the smaller transmitter, and the results of the polar diagram measurements are illustrated in Fig. 2. These show that in this case the radiation around the transmitter was sensibly uniform and free from any disturbing conditions due to the site or the presence of the observers and their apparatus. Under these conditions field strength measurements were

made at ranges up to about 100 metres (i.e., about ten to twenty wavelengths), and the results obtained on the three wave-lengths of 5.5, 7.5 and 9.5 metres, are shown in the graphs in Fig. 3.

It will be noticed that in Figs. 3 and 4, the ordinate scale is given as the product of field strength times the distance. This is a convenient way of representing the experimental results, since on such a scale the graphs would be

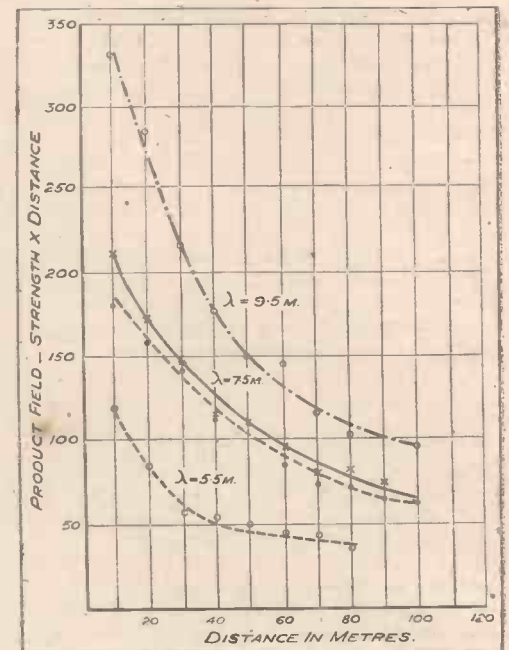


Fig. 3.—Field intensity at distances up to 100 metres

horizontal straight lines if the earth were a perfect conductor at these very high frequencies. The slope of the curves, in Fig. 3, thus represents the decay in the field strength with increasing distance arising from energy loss in the earth itself. For example, on a wave-length of 7.5 metres, the field strength at a distance of 100 metres is only about 30 per cent. of what it would be if the earth were a perfect conductor, assuming equal field intensities in the two cases at 10 metres from the transmitter.

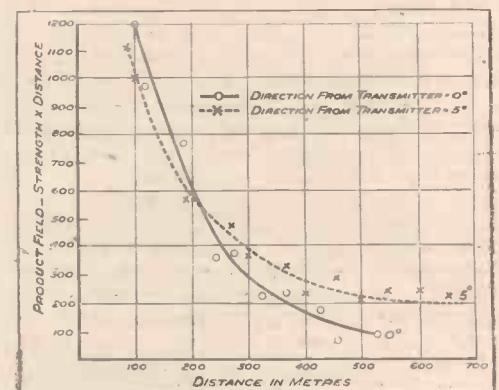


Fig. 4.—Field strengths at distances of 100 to 700 metres—wavelength 7.9 metres

Returning to the site of the larger transmitter, it was found that more satisfactory results were obtainable at greater distances and the results of a series of measurements made at distances of from 100 to nearly 700 metres is shown in the next diagram, Fig. 4. At such distances the measurements show that the field strength is decreasing approximately inversely as the square of the distance, so long as the transmission is directly along the ground.

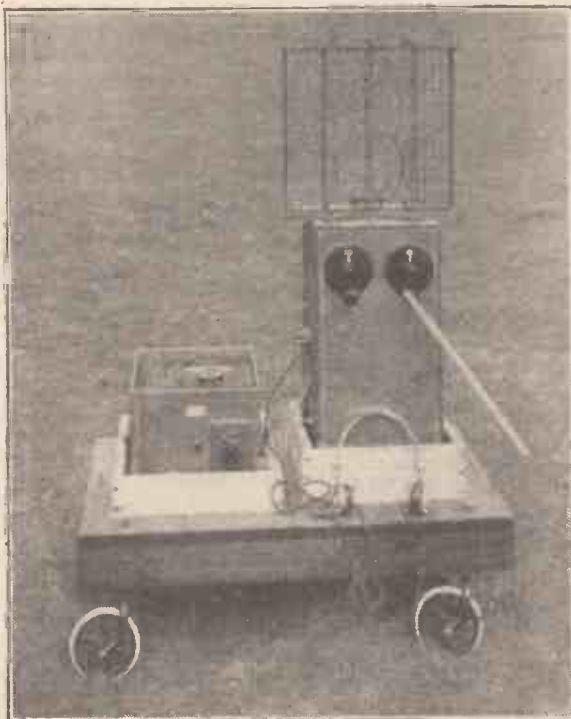


Fig. 1.—Loop receiver and valve voltmeter used for measuring field strength

Beyond this range of half a mile or so, it became increasingly difficult to make exact quantitative measurements of the field intensity. Observations at greater distances, however, showed that the signal intensity decreased steadily until the signals became inaudible at a distance of about eight miles from the transmitter, with a current of about half an ampere in its half-wave aerial.

**Effect of Elevating the Receiver**

The above results refer to the propagation of ultra-short waves over sensibly flat ground with such normal obstacles as trees, houses and telephone wires in the path of transmission.

this case the field intensity at three miles will be of the same order as that at nine miles where a clear air-line exists between transmitter and receiver.

Where, as is the case in large cities, massive buildings intervene between transmitter and receiver, the waves may be subject to severe local absorption, reflection and scattering effects, and it is to be expected that the field strength will vary very considerably within the same building, or even in different parts of the same room. The best position for the receiving aerial must be found by trial, and may often be found to be outside the building, and even on the roof.

Although in the above experiments the trans-

**THE EFFECT OF THE RECTIFIER ON INTERFERENCE**

(Continued from page 690)

response over the range of frequencies involved.) The attention that has been focused on the linear rectifier and its demodulation effect has probably given rise to the impression that it is very superior to square-law rectification in the matter of interference, but in actual fact there is very little difference between the two types in this respect. The example quoted shows an advantage of about three to one in favour of the linear rectifier in relation to the unwanted modulation, but in general the disparity will be less than this. In fact, as Aiken points out, "probably the most noticeable feature to be observed in comparing the two cases is the similarity of the results." It is to be emphasised, of course, that this statement refers to the selectivity standpoint; for, from the quality of reproduction point of view, the linear rectifier is definitely superior. (Note the value of the term  $2p$  in each case.)

From the selectivity point of view, however, there is an important practical point to be considered. In order to produce the relatively large voltages required for linear rectification, it may be necessary to make use of considerable radio-frequency amplification, and this may in itself be a cause of increased interference on account of irreducible non-linearity in the amplifying characteristics, leading to what is known as cross-modulation.

As already stated, the above discussion of rectification is really only half the story of selective reception. The relative interference factors are expressed in terms of the amplitudes and modulation percentages at the rectifier. Both of these quantities depend on receiving circuit selectivity, and a full understanding of the matter therefore requires an investigation which is carried right back to the incident electric waves. The writer hopes to be able to complete the study in this respect at some future date.

**Interference with Aircraft Wreckage  
Air Ministry's Appeal**

THE Air Ministry desires to call the attention of the general public to the great difficulties which have sometimes been caused by private persons thoughtlessly removing parts of damaged aircraft.

It is of the greatest importance that the causes of accidents to aircraft should be ascertained. Whenever a serious accident is reported, the Air Ministry Inspector of Accidents proceeds with the least possible delay to the scene of the accident to examine the crashed machine, and it is essential for his purposes that the wreckage should not have been disturbed more than is necessary to set the occupants free and to prevent any immediate risks of damage to persons or property. During the interval, therefore, before the arrival of the inspector, members of the public are earnestly requested to abstain from any interference with a wrecked aircraft, except for these emergency purposes. The police already have instructions on the whole matter, and interference with wreckage is definitely prohibited by law.

A further point of great importance is that broken pieces of the aircraft (for example, a part of a propeller) may be found some distance away. It will be of the utmost assistance if the finding of such pieces is immediately reported to the police or to the Inspector of Accidents.

Although breaches of the law have occurred, the Air Ministry feels sure that no one would wish to retain a broken part of an aircraft in these circumstances for whatever purpose, even though it is an apparently insignificant item, once it has been pointed out that it may be essential to the authorities for tracing the cause of the accident. In a recent case a broadcast appeal for missing parts was made, and three members of the public went to much trouble in reporting the finding of certain bits of metal. This enabled the Air Ministry to establish the cause of the accident in question beyond doubt.

**ELEMENTS OF WIRELESS PROGRESS**

Competition No. 2

The Test-paper for the second competition will be published in next week's issue.

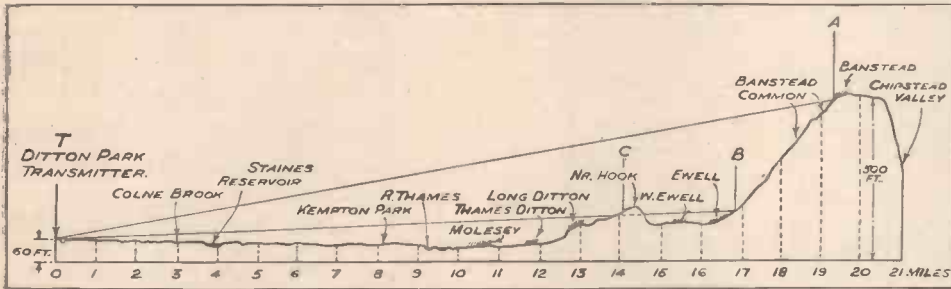


Fig. 5.—Contour map of path from transmitter at T to receiver at A, B or C

Although many tests were made in various directions over the flat country around the transmitting station, no position was found at which satisfactory reception was possible with the simple two-valve receiver employed, at a distance exceeding about eight miles. When, however, the receiver was taken to a point nearly twenty miles distant from the transmitter, and at an elevation of over 500 feet, the signal intensity was of the same order as that formerly obtained at only four miles from the transmitter. This point is marked as A in the sectional contour of the path of transmission, Fig. 5, from which it can be seen that there is a clear air line or optical path from the receiver at A to the transmitter at T. Under these conditions the radiated waves become free from the attenuating effect of the ground and the intensity is sustained to much greater distances, exactly as if the waves were propagated in free space or over a perfect conductor.

Returning to the experiment illustrated by Fig. 5, it was found that as the receiver was brought towards the transmitter the signals became inaudible at the point B, seventeen miles distant, and at point C, fourteen miles from the transmitter, the signals were audible but much weaker than at the more distant point A. It is thus evident from such tests that even at distances of several miles the field intensity at a receiving point is to a great extent dependent upon the topography of the ground along the line of transmission.

**General Summary**

It was pointed out in the preliminary article in this series that there is as yet no evidence that ultra-short waves below about eight metres in wave-length can be propagated through the ionised regions of the atmosphere, as is the case with longer waves. Our attention may, therefore, be confined to the direct transmission of waves between the transmitter and receiver.

The experiments described above showed very clearly that in order to obtain the best results for the transmission of ultra-short waves it is desirable to provide a clear air-line between transmitter and receiver. In this case it may be anticipated that the field intensity will vary inversely as the distance of transmission. At appreciable distances from the transmitter where the waves are propagated approximately horizontally along the earth's surface, considerable energy loss will take place in the earth, and the field intensity will fall off approximately inversely as the square of the distance. Thus in

mitter was at ground level and the receiver was elevated, it is obvious that the position may be reversed without change of result. Consequently, it is natural to expect that the ultra-short wave transmitter of the future will be erected at a high point, so that its radiated waves will be showered down, so to speak, upon the receivers in the area to be covered.

Finally, in case it might be thought that the distances dealt with in these experiments were somewhat small, it must be remembered, first, that only a low-power transmitter was employed; and secondly, that the simplest type of portable two-valve receiver was used for the observations in the field. As was pointed out in a former article, a simple supersonic heterodyne attachment to an ordinary broadcast receiver can easily be made which will result in an ultra-short wave receiver having a sensitivity of hundreds and even thousands of times that of the two-valve set. There should, therefore, be no difficulty in obtaining adequate reception over a considerable area around the transmitter, within the limitations imposed by the presence of the earth and the various obstacles already in existence in a town or city.

(To be continued)

**THE ELEMENTS OF WIRELESS**

(Continued from page 691)

resistances) to obtain a total conductance, and the reversing the figures again to re-convert into resistance. The formula is as follows:—

$$R(\text{EFFECTIVE}) = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} \text{ etc.}}$$

An example will, no doubt, make the application of the rule clear. Suppose that, instead of the two resistances connected in parallel as shown in Fig. 27, there are three, with values of 9, 36 and 120 ohms respectively, and it is required to find the total effective resistance.

Then

$$R(\text{EFFECTIVE}) = \frac{1}{\frac{1}{9} + \frac{1}{36} + \frac{1}{120}} = \frac{1}{\frac{40}{360} + \frac{10}{360} + \frac{3}{360}} = \frac{1}{\frac{53}{360}} = 1 \div \frac{53}{360} = \frac{360}{53} \text{ or } 6.8 \text{ ohms.}$$

It is to be noted, as a useful check when making calculations of this kind, that the total effective resistance of several resistances in parallel is always less than the smallest individual resistance.

(To be continued)

## Short-Wave Reports

To the Editor of WORLD-RADIO

SIR—I have seen in *World-Radio* short-wave reports from 0-v-2 sets, etc. It may interest listeners to learn that I have received good results from an 0-v-1 battery-operated receiver with the usual outdoor aerial. My log is as follows:—

March 15—23.00—23.45, CTIAA (31.35), Tel. R6 F/N. Station call and dance music.  
 March 16—23.30 W2XAF (31.48) Tel. R6/F/N. Station call and programme.  
 March 16—23.40 WIXAZ (31.35) Tel. R5/FFS/N. Station call and programme.  
 March 16—23.45 W3XAL (49.18) Tel. R6-R7 F/X. Station call and programme.  
 March 14—20.00—21.15 Moscow (50) L.S. R5 F/N. Station call and talk.  
 March 18—22.00—23.30 CTIAA (42.9) Tel. R6 F/N. Station call and dance music.  
 March 18—24.00 G5SW (25.53) Tel. R5/N/X. Station call and news.  
 March 20—15.30 Zeesen (31.38) L.S. R5/N/N. Concert.

Yours faithfully,

London, N.16

L. F. R.

To the Editor of WORLD-RADIO

SIR,—I should like to report my day's log of Sunday, March 27:

07.00—08.00 VK2ME 31.28 LS R6/FS/X. Call and concert.  
 10.15—Vatican 50.26 LS R8/N/N. Service.  
 12.40—Rabat 23.8 LS R7/FR/N. Call and Orchestra.  
 12.50—W2XAF 31.48 LS R4/FR/X. Service.  
 13.00—W2XAD 19.56 LS R6/FS/N. Service.  
 15.15—Moscow 50.0 LS R8/FS/N. Call and talk.  
 15.40—VK2ME 31.28 Tel. R4/FR/X. Kookaburra.  
 17.50—W2XBJ 20.49 LS R8/N/N. Call and Concert.  
 18.45—Zeesen 31.38 LS R6/FS/N. Call and talk.  
 18.50—Rome 25.4 LS R7/FR/X. Call.  
 19.00—W2XAD 19.56 LS R5/FR/N. Call, etc.  
 21.40—W2XAF 31.48 LS R5/FR/X. Call, etc.  
 22.30—00.00—W3XAL 49.18 LS R5-8/FS/X. Call, etc.

00.00—VE9DR 49.96 LS R6/FS/X. Call.  
 This log, as the entries show, is not continuous, the set being used at intervals during the day. The Schenectady stations had a special religious service at midday, closing down at 13.30.

Regarding W2XBJ, this concert is similar to the one "Microm" mentions in *World-Radio* (March 25) and is by far the best reception I have had from any American station. The Canadian station I have never heard before. An S.G.V.2 receiver was used with an outside aerial.

Yours faithfully,

Virginia Water, Surrey.

W. E. G.

To the Editor of WORLD-RADIO

SIR,—I write to report reception of the under-mentioned stations:

26/3/32 13.30—W2XBJ (Rocky Pt.) (20.9) Tel. R6/FFS. Records for observation purposes.  
 26/3/32 16.25—Rome (25.4) Tel. R9/N. Musical.  
 27/3/32 18.15—Moscow (50) L.S. R6/N/X. Talk.  
 27/3/32 18.16—Moscow (45.38) L.S. R4/N. Same programme.  
 27/3/32 18.20—Zeesen (31.38) Tel. R6/N. Talk.  
 27/3/32 18.46—W2XAD (19.56) Tel. R4/FR. Station call.  
 27/3/32 18.55—R.C. Paris (25.2), Tel. R2/N. Talk.  
 27/3/32 18.56—Rome (25.4) L.S. R6/N. Records.  
 27/3/32 19.6—W8XK (25.25) Tel. R3/FS. Quintet.  
 27/3/32 19.57—Paris (32.5) L.S. R1/F. Talk.  
 27/3/32 21.20 to 21.30—Buenos Aires (28.98) Tel. R2/FFS. Choral.  
 27/3/32 21.35—W2XAF (31.48) Tel. R4/FR. Choral.

The set used is a battery-operated 0-v-1, using an output filter, and indoor aerial. Conditions have improved wonderfully during the past few weeks as the above log shows. Zeesen, Moscow (50) and Rome are always reliable at loud-speaker strength. I find the American stations, particularly W2XAD and W2XAF, not as loud as they were last year at this time. Wishing the enlarged *World-Radio* every success.

Yours faithfully,

Halifax.

L. P.

## Below 100 Metres

By "MICROM"

I AM able to confirm "Verner's" reception of the Buenos Aires station, which usually corresponds with GAA, but occasionally relays the Buenos Aires broadcasting system programme. The call sign of this station is LSL, and the frequency is announced as 21,160 kc/s (14.27 metres). This station is situated at Hurlingham, Buenos Aires, and at 18.30 G.M.T. is frequently heard here at excellent loud-speaker strength.

An interesting point worth observing on the very short waves—in this case 10 to 15 metres—is that rapid fading on long-distance transmissions is hardly ever encountered, the fading generally being of the very slow or slow (broadcast) variety, whilst selective fading is hardly ever met with on these frequencies.

Selective fading may be defined as fading which is confined to a very narrow frequency band in such a manner that, when present in a broadcast transmission, it practically eliminates the carrier-wave, leaving both the sidebands at full strength, with the result that their "heterodyne" produces an awful noise in the telephones. In some cases one sideband and the carrier may be removed, leaving what is, in fact, a single-sideband transmission.

A good example of selective fading occurred on Tuesday afternoon, when PLE and PLV, the 15.93 and 31.86-metre transmitters at Bandoeng were giving their usual concert. This programme, as received from PLE on 15.93, was nearly perfect, the signal being very powerful with 100 per-cent. modulation on peaks, and only slow fading, but the 31.86-metre transmitter, PLV, though averaging a signal as high as that of PLE, was definitely of inferior quality, owing to deep spasmodic selective fading, which at times appeared to completely eliminate the carrier, giving a terrible roar in the loud-speaker, but no visible simultaneous rectified current indication on the detector anode meter. The English announcements by the lady announcer at Bandoeng were very good and clear.

Conditions generally were good up to Wednesday, March 30, and on Sunday, March 27, W2XAF and W2XAD were heard at 1.30 p.m., relaying a special Easter programme. In the evening W2XAD, W2XAF, and W3XAL were all heard, W2XAD being a fair signal at 6.30 p.m.; and W8XK, on 25.25 metres, being 50 per cent. intelligible at 9.30 p.m. At 10.30 p.m. both W2XAF and W3XAL were reasonably good loud-speaker signals, but little else was heard.

The 19.68-metre Pontoise transmitter has been heard every afternoon this week at fair loud-speaker strength, and the 25-metre harmonic of Moscow (the programme is always identical with Moscow T.U. on 50 metres) has been a good loud-speaker signal on several occasions, generally about 4 p.m.

The transmission from the Technical College at Bucharest (45.5 metres) was heard at 4 p.m., on Wednesday, March 30. The speech was very powerful, but a fair amount of noise was present.

That very useful observation station WOO on 62.5 metres has again been heard every night from Wednesday, and was exceedingly strong early on Sunday morning, April 3, at about 00.45 a.m. The appearance of this station, sometimes as early as 10.45 p.m., generally indicates bad conditions on all waves below 50 metres, excepting South American circuits at night.

VK2ME, Sydney, was only a fair signal on the 6 to 8 a.m. transmission on Sunday morning, April 3, and reception was best at 7.30 a.m. Although a fairly strong carrier was received, the modulation depth never appeared to exceed 50 per cent.

## SHORT-WAVE STATIONS

The times quoted are reduced to G.M.T.

| M.    | Kc/s   | Station   | Time   |
|-------|--------|---|--|
| 80    | 3750   | Rome (Italy) 2RO, 9 kW.   |  |
| 70.2  | 4273   | Khabarovsk (U.S.S.R.), 20 kW.   | 9 a.m. to 12 p.m.  |
| 62.5  | 4500   | Long Island, W2XV, Fri., 11 p.m.  | 1.30 a.m.  |
| 58    | 5172   | Prague, TUES. and FRI., 7.30—9.30 p.m.  |  |
| 54.52 | 5502   | Brooklyn (N.Y.) W2XBI, Relays WCGU.   |  |
| 51.22 | 5857   | Chapultepec (Mexico) XDA, 20 kW.  | Daily 3—4 p.m.   |
| 50.26 | 5969   | Station du Vatican (Italy) HVJ, 10 kW.  | D'ly 8.0—8.15 p.m. SUN. 11—11.30 a.m. also.  |
| 50    | 6000   | Barcelona Radio Club EAJ25, SAT. 8—9 p.m.   |  |
| 50    | 6000   | Bucharest (Romania), 0.3 kW.  |  |
| 50    | 6000   | Moscow (Relays Moscow T.U.), 8.0 p.m.   |  |
| 49.96 | 6005   | Drummondville, Quebec VE9DR, 4 kW.  |  |
| 49.96 | 6005   | Tegucigalpa (Honduras) HRB, 2.5 kW.   | Daily (except SUN.), 12 m't.—5 a.m.  |
| 49.83 | 6020   | Chicago (Ill.) W9XF, 5 kW. Relays WENR.   | SUN., 8—7 a.m., 1—5.30 p.m., 8.30—11 p.m., and 1—6 a.m. (MON.). Weekdays, 3.15—4.45 p.m., 8.30 p.m.—12 m't. and (ex. SAT.) 1.30—6 a.m. |
| 49.59 | 6050   | Halifax, N.S. Relays CHNS.  |  |
| 49.5  | 6060   | Cincinnati, W8XAL, 10 kW. Relays WLW.   |  |
| 49.5  | 6060   | Nairobi (Kenya), 7LO.   |  |
| 49.5  | 6060   | Philadelphia (Pa.) W3XAU, 0.5 kW. Relays WCAU.  | Daily 2—9 p.m. THURS. and FRI., 2 p.m.—8 a.m.  |
| 49.43 | 6069   | Vancouver (B.C.) VE9CS.   |  |
| 49.4  | 6072   | Johannesburg (S. Africa), D'ly 3.30—8.30 p.m.   |  |
| 49.4  | 6072   | UORZ, Vienna Experimental.  |  |
| 49.34 | 6080   | Chicago (Ill.) W9XAA, 0.5 kW. Relays WCFI.  | Daily 2—5 a.m.   |
| 49.22 | 6095   | Bowmanville (Canada) VE9GW, 0.028 kW.   | Weekdays, 11.45 a.m.—3 p.m. and 8 p.m.—3 a.m. SUNDAYS, 5.30 p.m.—4.15 a.m.   |
| 49.18 | 6100   | Bound Brook (N.J.) W3XAL, 12 kW.  | Daily 10 p.m.—6 a.m.   |
| 49.05 | 6116   | Saigon (French Indo-China) F3ICD, 12 kW.  | Daily 12 noon—3.45 p.m.  |
| 49.02 | 6120   | Richmond Hill (N.Y.) W2XE, 0.5 kW.  | Relays WABC, D'ly 1 p.m.—5 a.m. next day.  |
| 48.86 | 6140   | Pittsburgh East (W8XK), Relays KDKA.  | WED. and SAT., 10 p.m.—5 a.m.  |
| 48.8  | 6147   | Winnipeg (Canada) VE9CL, 2 kW.  | Daily (except SUN.) from 12.30—2.30 a.m.   |
| 48.65 | 6167   | Mexico City X1F.  |  |
| 48.35 | 6205   | Bogotá (Colombia) HKC, Daily, 3 p.m.  |  |
| 48.05 | 6243   | Barranquilla (Colombia), HKD.   |  |
| 48    | 6250   | Casablanca (N. Africa) CN8MC, Relays Rabat, MON., 8—9 p.m. TUES., 12 noon—1 p.m. and 8—9 p.m.   |  |
| 46.69 | 6425   | Bound Brook (N.J.) W3XL, FRI. 10—11.45 p.m. and 4—6 a.m. SAT. 6.30—11.45 p.m. and 4—6 a.m.  |  |
| 45.38 | 6611   | Moscow, REN (Russia).   |  |
| 45    | 6667   | Constantine (Algeria) 8KR, 0.2 kW. MON. and FRI., 11 p.m.   |  |
| 43    | 6976   | Madrid (EAR 110), TUES. & SAT., 10.30 p.m.  |  |
| 42.9  | 6991   | Lisbon, CTIAA, 2 kW. FRI., 10 p.m.  |  |
| 41.7  | 7195   | Singapore VSIAB, SUN. & WED. 2.30—4 p.m.  |  |
| 41.6  | 7211   | Tenerife Radio Club EAR8, 0.05 kW.  |  |
| 41    | 7213   | Bangkok HSP2, 2.5 kW. (Testing). MON. only 1—4 p.m.   |  |
| 39.7  | 7556   | Bogotá (Colombia) HKF.  |  |
| 39.4  | 7612   | Nuevo Laredo (Mex.) X26A, THUR., 4—5 p.m.   |  |
| 34.68 | 8650   | Long Island W2XV, FRI. 11 p.m.—1.30 a.m.  |  |
| 33    | 9090   | Radio LL (France), 0.5 kW. Daily 12.30—1 p.m. and 6—6.30 p.m. SUN., MON., WED. and FRI., 8—10 p.m. SAT., 7—8.30 p.m. SUN., 10 a.m.—12.30 p.m. and 2.30—4 p.m. |  |
| 32.5  | 9230   | Paris (FLI), Time Sigs. 3.56 a.m. and p.m.  |  |
| 32.26 | 9300   | Rabat (Radio Maroc), 6 kW. SUN. 7—9 p.m.  |  |
| 31.86 | 9416   | Bandoeng (PLE) 80 kW. TUES. 1.40—3.40 p.m.  |  |
| 31.75 | 9450   | Rio de Janeiro (Brazil), 9.30—11.30 p.m.  |  |
| 31.55 | 9510   | Melbourne (Australia) VK3ME, 5 kW. WED. and SAT., 10 a.m.—11.30 a.m.  |  |
| 31.51 | 9520   | Skamlebek (Denmark) OXY, 0.5 kW. Relays Copenhagen. Daily from 6 p.m.   |  |
| 31.48 | 9530   | Schenectady, N.Y. (W2XAF), 10 kW. (Aer.) Relays WGY. Weekdays 10.30 p.m.—4 a.m. SAT. and SUN., 9 p.m.—4 a.m.  |  |
| 31.38 | 9560   | Zeesen (Germany), 8 kW. Relays various stations, generally 1 p.m.—12.30 a.m.  |  |
| 31.35 | 9570   | Poznań (Poland), SR1, 1 kW. TUES. 6.45—9.45 p.m. THURS., 6.30 p.m.—1 a.m.   |  |
| 31.35 | 9570   | Springfield (Mass.) WIXAZ.  |  |
| 31.3  | 9582   | Philadelphia (Pa.) W3XAU, 0.5 kW. Daily (except THURS. and FRI.), 9 p.m.—6 a.m.   |  |
| 31.28 | 9590   | Melbourne (Australia) VK3ME, 20 kW. WED. and SAT., 10 a.m.—11.30 a.m.   |  |
| 31.28 | 9590   | Sydney (Australia) VK2ME, 20 kW. SUN., 6—8 a.m. and 2.30—4.30 p.m.  |  |
| 31.28 | 9590   | Eindhoven (Holland) PCJ, 25 kW. (Closed.)   |  |
| 30.75 | 9756   | Agén, TUES. and FRI., 9—10.15 p.m.  |  |
| 30    | 10,000 | Belgrade, MON. only 8—9 p.m.  |  |
| 29.3  | 10,238 | Heredia (Costa Rica) NRH, 7.5 watts. Daily 10—11 p.m. and 2—3 a.m.  |  |
| 28.88 | 10,350 | Buenos Aires LSX, 20 kW. 8.30 p.m.—12.30.   |  |
| 25.63 | 11,705 | Radio-Colonial (Paris), D'ly 9 p.m.—12 m't.   |  |
| 25.53 | 11,750 | Cheimsford (G5SW), 12 kW. 12.30—1.30 p.m. & 6.45 p.m.—12 m't. News Bulletins at 12.30 p.m. (SAT. 12.45) 6.15 p.m., & 12 m'dn't.                               |  |
| 25.5  | 11,763 | Chapultepec XDA, 20 kW. Daily, 8—9 p.m.   |  |
| 25.46 | 11,777 | Saigon (French Indo-China) F3ICD, 12 kW.  |  |
| 25.4  | 11,810 | Bowmanville (Canada) VE9GW. (Exptl.)  |  |
| 25.4  | 11,810 | Rome (Italy) 2RO, 9 kW.   |  |
| 25.34 | 11,840 | Chicago (Ill.) W9XAA, Relays WC FL.   |  |
| 25.25 | 11,880 | Pittsburgh East (W8XK), 5 p.m.—3 a.m.   |  |
| 25.2  | 11,905 | Radio-Colonial (Paris), Daily 4.30—7.30 p.m.  |  |
| 24    | 12,500 | Funchal (Madeira) CT3AQ, 0.05 kW. TUES. and THURS. 9.30—11.30 p.m. SUN. 3.30—5 p.m.   |  |
| 23.8  | 12,605 | Rabat (Radio Maroc), 6 kW. SUN. 11.30 a.m.  |  |
| 21.5  | 13,950 | Bucharest, 0.3 kW. WED. and SAT. 7.10 p.m.  |  |
| 20.5  | 14,630 | Chapultepec XDA, 20 kW. D'ly 7.30—8 p.m.  |  |
| 19.84 | 15,123 | Station du Vatican (Italy) HVJ, 10 kW. Daily 11—11.20 a.m.  |  |
| 19.72 | 15,210 | Pittsburgh East (W8XK), Relays KDKA WED. and SAT., 12 noon—4 p.m.   |  |
| 19.68 | 15,234 | Radio-Colonial (Paris), Daily 1—4 p.m.  |  |
| 19.56 | 15,340 | Schenectady (W2XAD), 20 kW. Weekdays, 6—8 p.m. SAT. and SUN., 6—9 p.m.  |  |
| 16.57 | 18,105 | Chicago (Ill.) W9XAA, Relays WCFI.  |  |
| 15.93 | 18,830 | Bandoeng (PLE) 80 kW. TUES. 1.40—3.40 p.m.  |  |

For Long and Medium Wave Stations see page 698

## FOREIGN LANGUAGES SECTION

### GERMAN

#### DAS WUNDER DER SIEBENTEN STRASSE

Eine Grotteske

Von Friedrich Michael

IN der Nacht zum 10. Februar brannte das Garagen-Hochhaus des zwölften Bezirks. Das Feuer, dessen Ursache unbekannt blieb, brach im dritten Stockwerk aus. Trotz aller Sicherheitsmassregeln überwand die Glut den Widerstand von Beton und Eisen. Brennendes Oel trug die Flammen vom Brandherd in die unteren Teile des Hauses hinab.

Beim Alarm befand sich Mariana in der Diele des benachbarten Grand-Hotel. Der Aero-Club feierte den Sieg Cranleys, der beim Flug um die Erde die besten Zeiten hatte. Mariana lief aus dem Arm ihres Tänzers an den Lift, kam auf die Strasse und erreichte die Hoch-Garage, als die Portale für die Feuerwehr aufgerissen wurden. Sie kletterte, im schillernen Abendkleid, die eiserne Leiter empor, die vom Hof an der Aussenseite des Garagen-Gebäudes über acht Stockwerk-Podeste bis zum Dach führte, schlug im vierten Stock, wo ihr Wagen stand, die Scheibe der Tür ein, öffnete und gelangte in den Hauptgang für die Wagen der siebenten Strasse des zwölften Bezirks. Die Lichtleitung versagte bereits. Die Notlampen brannten.

Sekunden später flammten die Scheinwerfer ihres Wagens auf. Sie liess den Motor anspringen, stülpte sich die Lederkappe mit dem Augenschutz über und packte Steuer und Hebel.

Der Wagen glitt in den Gang, der zur Spiralbahn führte. Im Augenblick, ehe er einbog, sah Mariana vor sich den Feuerschein, der von unten heraufleuchtete. Dann frass das hellere Licht ihres Wagens den roten Schein, doch sah man nun um so deutlicher die aufsteigenden Qualmwolken in der Spiralbahn.

Mariana gab Signal. Denn es war unwahrscheinlich, dass jetzt, in der Stunde der Katastrophe, die Männer vom Dienst das Zeichen beachteten, das der Wagen beim Verlassen des Stockwerks automatisch einschaltete—wenn überhaupt diese Signalleitung noch nicht zerstört war.

Dicker Qualm und Gestank brennenden Oeles schlug Mariana entgegen, als sie in die Rundbahn einlenkte. Zwei, drei Explosionen warfen Flammen in den Lichthof. Dazwischen hörte sie, nur schwach durch den Lärm der eigenen Maschine, die Signale der Wagen, die aus den unteren Stockwerken gerettet wurden. Die Bahn war also unten fahrbar. Herauf zu ihr kam niemand. War die Passage nicht mehr möglich? Gleichviel. Mariana gab Vollgas, fuhr los. Ihr Signal brüllte durch den roten Schacht.

Einer der Wächter hatte, wider Erwarten, das grüne Lampenzeichen von Marianas Abfahrt bemerkt. Er schrie es dem nächsten zu. Keiner glaubte. Aber da sah man, trotz der Flammen im dritten Stock, hoch oben die Scheinwerferstrahlen eines Wagens in kreisender Bewegung. Das war Tollkühnheit. Wahnsinn!

“Bahn frei!”

Alle vergassen in dieser Minute den Brand.

Die Feuerwehrleute, die in Masken mit den Löschapparaten nach oben liefen, sahen plötzlich durch die Galerie des Lichthofs einen Wagen in voller Fahrt vom dritten Stock herabkommen. Sie sprangen zur Seite—im nächsten Augenblick jagte der Wagen an ihnen vorbei, überspritzt mit brennendem Oel, wie auf glühenden Pneus.

Gellender Schrei der Gaffer empfing den brennenden Wagen am Portal des Hochhauses. Beherzte warfen sich gegen die Karosserie, um Mariana herauszureissen. Aber der Wagen hielt nicht.

“Platz! Zurück! Ein Wahnsinniger!”—denn dass eine Frau am Steuer sitzen könnte, fiel keinem ein

“Zurück! Strassen frei!”

Und da jagte der Wagen die endlose siebente Strasse hinab, hell brennend nun, Flammenfahne, rasende Fackel, flog um die Runde am vierzigsten Platz, kam zurück, stand vor dem Portal des Grand-Hotel und explodierte, drei Sekunden, nachdem Mariana ihren Sitz am Steuer verlassen hatte.

“Wie lange?” fragte sie.

“4 Minuten, 19,5 Sekunden.”

Es war die beste Zeit, die jemals auf der siebenten Strasse gefahren worden ist.

### SPANISH

#### Una consulta

UN lector me pregunta si para usted es buena traducción de *for you* en la frase: “Si le gusta este reloj, lo compraré para usted”; pareciéndole que para usted da a la frase un énfasis que en inglés no tiene.

No anda desacertado (no está equivocado) mi corresponsal. Estaría perfectamente bien decir *para usted y no para él*, pero tratándose de un solo individuo, como en el ejemplo citado, no hay énfasis sobre el pronombre, y por consiguiente (por lo tanto) debe evitarse la forma preposicional. Ejemplos:—

“Si le gusta a usted este reloj, se (*for you*) lo compraré para su cumpleaños.”

“¡Qué bonita es esa sortija! ¿Quieres comprarla?”

Pero conviene (*it is well*) notar que en *comprar a* hay una pequeña ambigüedad, pues también significa *to buy from*, así como *quitar a* significa *to take from*. Ejemplos:—

“He visto al fabricante y le (*from him*) he comprado las piezas que le quedaban de este artículo. Se las he comprado todas.”

“El maestro le quitó el libro al alumno. Se lo quitó.”

\* \* \*

*Lectura (continuación).* Mi compañero muy amablemente me ayudó con una maleta y con otros bultos pequeños (*light luggage*) que yo llevaba y que él colocó con el mayor cuidado en la rejilla (*red—rack*) arriba de mi asiento.

—“Muchas gracias”—fué lo único que se me ocurrió decirle para expresar mi agradecimiento.

—“¡Las que usted tiene!”—me contestó sonriendo e inclinándose muy cortemente (note el lector el doble sentido de la palabra *gracias*).

Así—pues sigue mi corresponsal—me inicié muy pronto en la galantería española. El joven se sorprendió mucho al saber (*on learning*) que yo iba sola a España, sin conocer allí a nadie más que a una señorita a quien nunca había visto. Con los esfuerzos que yo hacía para explicarme de un modo inteligible y su manera tan graciosa (*amusing*) de expresarse en lenguaje sencillo para que yo le entendiera a él, pasamos un rato (tiempo) muy divertido (*enjoyable*). El tren corrió con una velocidad tremenda durante toda la noche, y al amanecer (*at dawn*) nos encontramos cerca de Biarritz. A ratos (*at times*) pudimos contemplar hermosas vistas de la costa, y cuando llegamos a la frontera, mi compañero me gritó desde el pasillo (*corridor*): “Ya está Vd. en España, señorita. ¡Cuidado con los españoles!”

Bajamos en la estación fronteriza de Irún, donde el joven me ayudó mucho con mi equipaje, y suplicó al oficial de aduanas (*Customs*) que no se tomase la molestia de revolver (*upset*) mis maletas. Luego, después de haber dado mil instrucciones a un mozo para que me buscara el mejor asiento en el rápido de Madrid, se despidió de mí cordialmente.

(continuará)

W. F. BLETCHER.

### Esperanto Transmissions (April 10—16)

Sunday.—Langenberg, 7.30 a.m. Course (W. Wingen).

Ljubljana, 8.0 a.m., Talk.

Hilversum, 8.10 a.m., Course.

Tuesday.—Tallinn, 7.0 p.m., News.

Leningrad, 9.5 p.m., News.

Wednesday.—Stuttgart, 5.40 p.m., “El originala Verkaro” (Dr. Vogt).

Thursday.—Radio Suisse-Romande, 6.10 p.m., Course (P. Bouvier).

Breslau-Gleiwitz, 9.35 p.m., “La siliciaj junul-hejmoj” (E. Koschate).

Friday.—Stuttgart, 6.30 p.m., Week’s Programme (Prof. Crisaller).

Radio-Cote d’Azur, 8.10 p.m., Talk.

Radio-Normandie, 9.0 p.m., Information about the 24th Universal Esperanto Congress.

C’YAA (42.9 m.), 10.30 p.m., Talk.

Leningrad, 9.5 p.m., News.

Saturday.—Heilsberg, 5.10 p.m., Week’s Programme.

Huizen, 6.20 p.m., Course.

Lyon-la-Doua, 8.15 p.m., “Al bela celo”—sekvo (M. Brel).

Lisbon (243 m.), 10.30 p.m., Course.

## Letters to the Editor

### Broadcasting and World Unity

*To the Editor of WORLD-RADIO*

SIR,—The article under the above heading in *World-Radio* makes interesting reading.

In your leading article you say, “The function of broadcasting in world unity is plain; it is to spread abroad a knowledge of the best of the culture of each country by means of music, plays, and talks—principally talks.” I would add that its chief aim in bringing about world unity should be the spreading of a feeling of peace, in a manner hitherto unknown until the advent of wireless. Those of us with even a very small experience of correspondence with foreign broadcasting stations must surely have noticed the ready response with which our letters have been received.

The author of the article in question points out that the language difficulty is the greatest drawback. This may be true; but it must not be overlooked that broadcasting reception is a certain incentive to learn foreign languages. More than this, it must be remembered that it is not in the nature of an isolated exception for a Continental station to broadcast an interesting talk in a language other than its own. It is in these non-national languages that the seeds of peace should be sown. It has been said that “The pen is mightier than the sword”; is it beyond the bounds of possibility to hope that in the not far distant future radio will be mightier even than the pen? The ether knows no frontiers; it is international. The Hertzian wave does not stop at one country’s boundary; it goes on. Surely such a possibility should be a medium for all seeking after the abolition of war? I am quite aware of the fact that *World-Radio* is non-political, so that perhaps I ought to hesitate before asking why is it that the ideals of the League of Nations are not widely broadcast from all nations in that League?

The motto on the cover of *World-Radio*—“Nation shall speak peace unto nation”—should be more than a pretty figure of speech. It should be—even in our time—an accomplished fact.

Yours truly, GLEN PEEK GRAY.

“Clonsilla,” Reigate Road, West Worthing,  
April 3, 1932.

### GERMAN PRESIDENTIAL ELECTION

#### Reception of Former Results

(Continued from page 684)

persuasive arguments and rhetoric of the latter. (I had listened to a speech of Hitler’s once, and couldn’t get any clear idea of what he was talking about!) A little later in the evening came “das Gesamt-Wahlergebnis” (total polling results, or position of the parties), showing that Reichspräsident von Hindenburg was leading with 2,500,000 votes polled against 1,250,000 by Herr Hitler. Duesterberg was well down the list, and Winter (the Independent) . . . well, he’ll be hibernating for a long time!

For me, the German election was over. S. S.

## Last Week's Log

(March 27-April 2)

By "NORTHERNER"

THE long run of good weeks for distant reception was again maintained during the period March 27 to April 2, and, although we have experienced abnormal changes in the weather, atmospheric conditions were almost absent on the greater number of evenings, while daylight reception was quite unchanged. The freedom from really bad atmospheric interference is most welcome at this time of the year, for during past seasons we have usually had many bad nights during March and April.

On the long wave band there was little change, and the only time interference was at all notable was on the Thursday. Huizen has not been heterodyned nearly so badly as during the period of my previous report, and his strength was quite up to normal at all times. Radio-Paris gave an excellent record for the week both during the daylight and the evening hours, while Königs Wusterhausen is showing very good strength, but, with a set of average selectivity, offers a little more difficulty in complete separation from his high-powered neighbours. Warsaw's daylight strength has, I believe, fallen slightly—at least, I am unable to obtain the same result during his morning transmissions now as I could a few months ago under precisely the same conditions; but his evening signals are still heard at very great strength. Motala was good, and Kalundborg provided very satisfactory results throughout the week; Oslo, although quite up to normal as regards strength, seems again to be suffering from very frequent interference, which is sufficiently bad as almost completely to spoil reception at times.

On the medium-wave band signals are now varying a little more, which, of course, is only to be expected with the approaching summer months. Budapest shows the same record in the North as observed by my Southern colleague, "The Searcher," and while on occasion his transmission comes through as well as ever, there are evenings when one can make nothing of him. Vienna, who has never quite reached the same strength as Budapest, has, on the whole, served us better.

Brussels No. 1 is completely reliable; Florence shows a much-varied record with a fair mixture of interference, but an occasional very good mark. Langenberg at the moment is as good as I have ever heard him—in fact, his evening strength seems to have increased slightly, while Prague romps through with all the evidence of his giant power. I do not find Radio-Toulouse anything like so good a signal as he was a few weeks ago; nor has Bordeaux been quite up to his usual form. Rome, on the whole, could be relied upon to give very good results, and Katowice has a fine record for the reviewed period. Lwów was again almost a "star" station, and on every occasion when tuned in gave results second to none, including a fairly good performance during the late afternoon. Hörby is still to be heard at excellent strength on the greater number of evenings, and Göteborg, too, is coming through very well just now. It is rather unfortunate that Turin suffers from so much jamming, as otherwise he would be a really good station.

Trieste has given a very good all-round result, while Barcelona gave on the Tuesday and the Friday a much better signal than for some time past. Heilsberg, Sottens, Beromünster and Strasbourg were all well received; Frankfurt shows a fair amount of variation from day to day, and was very poor on the Wednesday and the Friday evenings; Hamburg lacks a little in volume, but is more or less steady; Stuttgart is very powerful, with a slight tendency to fade at regular intervals. Brussels No. 2 is a first-rate station at the moment.

## Heard on the Continent

By "CENTRAL EUROPEAN"

THE past three weeks have brought a great change in the reception conditions of distant stations. For atmospheric conditions have greatly increased since about the middle of March, and slowly, but perceptibly, we are moving towards summer reception. In spite of that, however, it is interesting to note that powerful stations and those which are always well heard have been but little effected by static. That we are not far from summer conditions is also shown by the fact that stations such as Istanbul, Tiflis, and Radio-Maroc are no longer—or only very rarely—audible.

On the long-wave band I now search for Kaunas in vain and Huizen and Lahti, too, were audible signals on only a few occasions. Radio-Paris could not be heard once during the period under review. The audibility of Daventry National, on the other hand, has been quite good, except that its reception was frequently interfered with in the evening hours by a new and powerful Danish telegraphy transmitter. Warsaw has again been the best-heard station on all wave-bands. Reception of Motala has not been very satisfactory—indeed, the Swedish programmes were better heard through Hörby or Göteborg. Kalundborg has been a comparatively weak signal. It is difficult properly to judge the quality of this station, since a German police transmitter operates day and night on the same wavelength. The signal strength of all Russian transmitters has considerably decreased and in order to hear them well it is necessary to turn the volume full on.

Reception of Budapest was excellent, its strength constant. The same applies to Brussels No. 1 and Vienna. They are followed by the best-heard station on the medium band—Prague. Its strength seems to grow from day to day despite the increase in atmospheric disturbances. Reception of Langenberg was quite good, but the strong fading to which it has been subject for some time still persists. Lyons-la-Doua, which had been heterodyned by Tartu, has become quite a good signal ever since it has used the frequency of 675 kc/s. Schweizerischer Landessender has not been as loud as usual. It seemed to be interfered with by two unidentified transmitters using a common frequency of 662 kc/s. Rome and Stockholm have been rather weak signals, while Radio-Suisse Romande, Midland Regional and Bucharest were, as usual, fairly good and constant signals. Katowice has again been received with great strength. Radio-Toulouse disappeared entirely on several evenings. This transmitter has made a great and quick descent; only a year ago it was one of the best-heard in Europe.

Reception of London Regional and Stuttgart has been excellent and both stations could be heard well at any time of the day. Strasbourg and Brno have latterly been subject to a good deal of mutual interference, Brno being the louder of the two, and, like all Czechoslovak stations, it drowns its neighbours. Brussels No. 2 is a reliable signal which can always be heard at good strength. Reception of Milan has been very poor. It is subject to much interference by one of the two neighbouring stations—Grenoble or Poste Parisien. Breslau was only occasionally audible, while its neighbour, Göteborg, has been a very strong signal, in fact, at the moment it is the best heard Swedish station. Reception of Bordeaux-Lafayette has not been very satisfactory. As always, during the period under review, North National was the only British station from which we could hear the National programme clearly and fairly free from fading. Heilsberg and Bratislava were both very strong and constant signals. The North Italian

(Continued in next column)

## Interference between Stations

(March 25-31)

KALUNDBORG, which is still interfered with by a telegraphic station using 267 kc/s, is also heterodyned occasionally by a Russian station working on 256 kc/s, which transmits principally exotic music, resembling Arabian music. This is very probably Tashkent, a station in Russian Turkestan. This station, the power of which would be 25 kW., closes down rather early.

Radio LL, which has increased its power, has been heard on several occasions much more strongly than hitherto, and the interference caused to Hamburg has been extremely noticeable, particularly on March 30.

Poste Parisien, still using the old transmitter at night, was on 917 kc/s on March 30, and was thus heterodyning Breslau (923 kc/s).

Lyons-la-Doua is still being interfered with, sometimes severely by the Norwegian relay using 642 kc/s. Lyons is also interfered with, but only slightly, by a station using 650 kc/s, believed to be Krasnodar, a Russian station. Krasnodar interferes thus also slightly with Beromünster (653 kc/s).

Another very unpleasant interference is that between Radio-Lyons and Montpellier PTT, which share the wave of 1,049 kc/s. Radio-Lyons by not using it exactly causes an extremely loud heterodyne whistle on both stations, which was particularly remarkable on March 30.

L. B.

(Continued from previous column)

programme is best heard from Turin, which is still the best of all Italian signals.

In the region of the shorter waves, Moravská-Ostrava is probably still the best-heard station, much to the detriment of London National, just as Leipzig is spoiled by Hörby, another very strong signal.

**CLIX**  
**NEW**  
**Chassis Mounting**  
**VALVEHOLDER**  
*with Terminals*



**The Perfect Valveholder**  
**for Short Wave working**

**Low loss. Highest efficiency.**  
Sturdily built, skeleton type for mounting on metal, wood or ebonite. Terminals allow speedy and secure connections.  
Turned Resilient Sockets provide maximum surface contact with every type of valve pin, solid or otherwise. Insertion is easy as the crescent shaped slots in the plate allow the sockets to move laterally and centre themselves to the valve pins. Centre socket of the 5-pin type is made 1/16 in. longer to facilitate connection.

4-pin, 8d.

5-pin, 9d.

Ten of these valveholders are specified for the "Wireless World" Monodial A.C. Super Receiver and Eliminator.  
From all Dealers. Clix Folder "W" on request.

**Cheapest PERFECT Contact**

Lectro Linx, Ltd., 254 Vauxhall Bridge Road, London, S.W.1



## Which Station Was That? Answers to Correspondents

**BEGINNING** (Hounslow): British amateur transmitter; cannot be identified without call-sign. **ACHTUNG** (Huddersfield): Private call-letters of a commercial wireless company. **ALMA** (Scaford): Algiers (call: "Radio-Alger"). **JUNKSET** (Ramsgate): Radio Maroc, Rabat (see short-wave list). **LONG WAVE** (Mold): A test; possibly from an aerodrome. **REM** (Birmingham): Rennes PTT. **BAFFLED** (Loughborough): Katowice. **MOBY DICK** (Warwick): (1) HVJ, Vatican, relaying service from St. Peter's, Rome; (2) Hungarian National Anthem. **MOGRIDGE** (Melton Mowbray): Proprietary names must not be used as *noms-de-plume*. Lyons PTT. **OIDAR** (Glasgow): Regret, cannot trace. **STUCK** (Glasgow): Lille PTT. **IOLANTHE** (Strathaven): Radio Maroc (Rabat). **FOUR VALVER** (Hythe): Rennes PTT. relaying Ecole Supérieure, Paris; Radio Colonial (short-wave transmitter), took same programme. **RADIO FAN** (N.W.3.): Too vague to identify, but either Kiev or Tiflis. **NIGHTINGALE** (Crewe): Kiev. **INQUIRER** (Halifax): Lahti relaying Easter service from Helsinki; (2) Florence; (3) Radio Normandie (Fécamp). **CHOLMLEIAN** (Lowestoft): Amateur experimental transmitter. **MALOUIN** (N.I.): Please number your queries. (1) Trieste (news); (2) Leningrad. **A.P.H.** (North Berwick): This was Langenberg; relay of gramophone records from Cologne studio. **PINKLE** (Hull): Amateur transmitter in your district. **DIMIT** (Bradford): Heston Airport (London). J. L. S. (Dundee): Please number your queries. (1) too vague; regret, cannot trace. (2) Radio Normandie (Fécamp). **INTERESTED** (Fife): (1) Lille PTT.; (2) Moscow-Stalin. K. K. K. (Glydebank): Radio Maroc (Rabat). **DON TRESAC** (Doncaster): Yes, Reykjavik. K. G. S. (Kingswood): (1) LR3, Radio National; (2) LR6, Radio Mitre; (3) possibly LR9, Radio Fenix; (4) Buenos Aires; (4) cannot trace. **IRISHMAN** (Woodford Green): (1) Eiffel Tower; (2) San Sebastian (E.A.J. 8). R. H. R. F. (Liverpool): Reykjavik. Local time is one hour behind G.M.T. **DAWN** (Newport): Moscow (Old Komintern); early-morning physical exercises. **QUOI** (N.W.6.): (1) details too vague to confirm, but no doubt Kiev (1034.5 m.); (2) Leningrad; interference from direction-finders and fog beacons; (3) Moscow (Old Komintern). **NOORT** (Glasgow): (1) Cologne; since closed down; (2) no German station on 310 m.; possibly Falun relaying Berlin; (3) Breslau; (4) Stockholm, which relayed election results from Berlin. **EDGAR REWM** (Birmingham): Moscow (T.U.). **NUNKUM** (Teddington): Nice-Cannes-Juan-les-Pins. **NIGHTJAR** (Bolton): Moscow (Old Komintern); **JONNY SPIELT AUF** (Ashorne): Tallinn. **MICKEY THE MOUSE** (Dublin): Kharkov. **SEATOWN** (Newbiggin-by-the-Sea): Regret, cannot trace; apparently, amateur transmission. **SCHOOLBOY** (Aberdeen): Florence. Interval signal, nightingale, from Turin. **BLAND** (Bow): Heston Airport. **TIDDLES** (Dover): Helsinki; relay of Easter sacred service. **SELM** (Reading): ZLO, Nairobi (Kenya Colony). **GRID BIAS** (Thornton Heath): EAR 104, Barcelona; (2) British amateur experimental transmitter. Write Radio Society of Great Britain, 53, Victoria St., S.W.1.; (3) apparently mutilated call; cannot trace in French list. **BAT** (Bruton, Wedgwood Binge, Torquay): Lahti relaying service from Helsinki. **RECALL-BRATING** (Liverpool): (1) Radio Toulouse; (2) Barcelona (E.A.J. 1); (3) no station between Eiffel Tower and Warsaw; if not latter, cannot trace. **WALTER GEOFFREY** (E.1.): Regret, cannot trace. - So far as we know, Madrid (E.A.J. 7) was not working at that time. **PUZZLED** (Northampton): Cuxhaven (coastal station) working with shipping. **NOSEY** (Tottenham): British amateur transmitter. See reply to **SELM** (Reading). O. D. (Surrey): No date or time stated; cannot trace. **CAMPER** (Leytonstone): (1) Moscow-Stalin; (2) Moscow (T.U.). **PIERRE** (Old Coulsdon): Gleiwitz relaying Breslau. **WANDERER** (Bucksburn): (12) Marseilles PTT.; (11) Radio Lyons; (10) Not Comel, but possibly Sebastopol, which has been heard by listeners in the British Isles. (13) Juan-les-Pins. **STRAINED EARS** (Worley Woods): Istanbul. (Local time is two hours ahead of G.M.T.) Oriental and European concert. E. J. W. (Purbrook): Yes, W2XAF, Schenectady (N.Y.); NBC programme. **FORESTER** (Mansfield): (1) San Sebastian; (2) this was Langenberg. **JOKE** (Dagenham): (1) LR 3 Radio National, Buenos Aires; (2) cannot confirm, but possibly Cracow relaying Warsaw; (3) Moscow-Stalin. **CONDOR** (Ilkley): Cannot understand your wavelength; this was a broadcast from Prague taken by other Czech stations. **DURNGEUIS** (Wareham): Lille PTT. **NOVICE** (Manchester): Helsinki and relays; Easter service broadcast from Helsinki. **BOY AMATEUR** (Newcastle-on-Tyne): Apparently local amateur transmitter. **OSMUMA** (Grangemouth): Algiers. **MACEY** (Southgate): Proprietary names must not be used as *noms-de-plume*. Not a broadcasting station. Regret, cannot trace. **GANDHI'S GOAT** (Waterford): San Sebastian. **IGNORANT** (Upper Parkstone): Possibly Bordeaux-Lafayette. E. M. S. (Kent): (1) Marseilles relaying PTT. Paris; the broadcast was also taken by Radio Colonial (Pontoise short-wave transmitter); (2) Radio Vitus (Paris); (3) Reykjavik; (4) May Island (Firth of Forth); (5) presumably G.G.K. Skerries (Anglesey); cannot trace G.G.J. **PORTABLE** (Dundee): (1) might tally with WHAM, Rochester (N.Y.); (2) possibly Sebastopol (473.2 m.). **CHURKEY** (Ringwood): Warsaw; an English talk on the Polish Coal industry. **BLIND ALLEY** (Pontypool): No doubt a U.S.A. transmission, but your estimate of wavelength is too vague for identification. **DEAN** (Catefiffe): If call-letters correct, ships of the British Royal Navy. **ISAVILLE** (Derry): Not advertised but probably a talk from Stockholm heard through Falun. **POSSIBLY MISTAKEN** (N.7): (1) Copenhagen (Radio Ball); extended transmission; (2) PLV, Bandoeng; a relay of the Holland v. Belgium Football Match played at Antwerp. **M.R.W. (Forrean)**: Warsaw; International Chopin Concert. **BM/GNSV** (Enfield): If Russian, apparently Sebastopol (473.2 m.). **PARKLAND** (Leeds): Regret, cannot trace in any European programme. **SCHULJUNGE** (Witham): (1) Lodz relaying Warsaw. Metres not kilocycles; (2) all Czech stations closed down on that evening at about 10.0 p.m.; San Sebastian (E.A.J. 8). **AUTHENTIC** (Roath): (1) Moscow (T.U.); (2) Moscow (Old Komintern); (3) Moscow-Stalin. **WHOWASIT** (Isleworth): You do not state whether a.m. or p.m.; regret, cannot trace. **W.F.T.** (Tibury): (1) Barcelona (E.A.J. 1); (2) possibly Seville; (3) Tampere relaying sacred service from Helsinki. **ONE-THREE-HILL** (Torquay): (1) Kharkov (RV 20); (2) possibly Radio Sonora, Oporto (Portugal), on 243.5 m. **WOTWOZIT** (Purley): Yes, about 5 kW. You would receive the transmissions at good volume in your district. **LONG WAVE** (W.12): Beromünster; gramophone records. **A.E.Q.** (Aylesford): Cannot confirm but reported to be Nijini-Novgorod on 1685.3 m. **SUPER-HET** (N.16): (1) regret, cannot trace; (2) Radio Normandie (Fécamp). **WHAR-WAZ** (Rotherham): Tampere relaying sacred service from Helsinki; Lahti also broadcast this transmission. **BUNFACE** (Aberdeen): Barcelona (E.A.J. 1). **IGNOTUS** (Prestwich): French experimental station; cannot trace as call-sign is in-

complete. **COMOB** (Lee-on-Solent): Yes, F31CD, Chi-Hoa-Saigon. **WAIT AND SEE** (Lincoln): NBC programme relayed by W3XAU, Philadelphia. **PLUMBER** (Walkergate): Barcelona (E.A.J. 1); Midnight Mass (Easter). **LUCRETIVS** (Birmingham): Zeesen (10.737 m.); experimental channel. **BOY ETHER SEARCHER** (Luton): (1) regret, cannot trace; (2) G6RX, Rugby, on various wavelengths. **KANGAROO** (Mill Hill): Nauen in communication with W2XBJ, Deal Beach (N.J.) preparatory to a relay of the Berlin programme to New York; (2) possibly VK2ME, Sydney, but cannot confirm. **SHORT-WAVE** (Glasgow): PLV, Bandoeng relaying Holland v. Belgium Football Match played at Antwerp. **RUYSSELEDE** (Belgium) working with OQH, Elisabethville (Belgian Congo). **PALM** (Guernsey): G6RX, Rugby on various wavelengths. **NIMROD** (Brentford): (1) W2XBJ, Deal Beach (N.J.); (2) EAO, Aranjuez (Madrid); public telephony service. **MAC** (Southampton): VE9DR, Drummondville (Quebec) relaying CFCF, Montreal. **KNOB TWISTER** (Dublin): (1) EAM, Aranjuez (Madrid) on 30.77 m.; (2) Nauen (Germany) on 28.0 m. working with W2XBJ, Deal Beach (N.J.). **XXX** (Limerick): Ruysselede (Belgium) calling OQH, Elisabethville (Congo). **SEARCHER** (Reading): W9XAA (Leigh-on-Sea): If call correct, HKD, Baranquilla (Colombia) on 48.05 m. **WELSHMAN** (Bacup): (1) W8XK, relaying KDKA, East Pittsburgh (Pa.); (2) Bell Telephone Laboratory, Deal Beach (N.J.). **WATER JUG** (Ivybridge): Might tally with Ruysselede (Belgium) on 29.04 m. which was testing on that date. **G.G.** (Bournemouth): We do not know any Belgian station with call-letters, W.L., the call sign appears to have been misread. **CURIO** (Bishopston): (1) regret, cannot trace. **XXXXXXX** (Oxford): Regret, cannot trace call-sign. **OUI** (Castleford): Cannot confirm but possibly EAR 100, Madrid on 43 m. **BARDSEY** (Arthor); **R.S.V.P.** (Dublin); **METROE** (Weymouth); **SHORT WAVE** (Prittlewell): French experimental transmitter at Puteaux (Seine). B.R.S. (KIXR, Manila, Philippines). **JUNKSET** (Ramsgate): (1) HVJ, Vatican (Rome); (2) yes, Radio Maroc (Rabat); short-wave transmission. Answers to correspondents; (3) too vague, regret, cannot trace; (4) Zeesen relaying Berlin (31.33 m.). **C.A.W.** (Chatham): KIXR, Manila (9110 kcs.); (2) PLV, Bandoeng. **NEMO** (Halifax): W3XAL, Boundbrook (N.J.) relaying NBC programme; (2) would tally with Moscow (45.38 m.). **NIBBO** (Gillingham): Regret, cannot trace; possibly local amateur. **ETHERPILE** (Chesterfield): (1) EAM, Aranjuez (Madrid) on 30.77 m.; (2) OCNG, Nogent-le-Rotrou (France) on 29 m.; (3) too vague; regret, cannot trace; (4) ditto. **ALPHA** (Dublin): Radio Strasbourg. **SIDDO** (Swindon): Regret, cannot trace. **SHORTWAVE** (Nuneaton): (1) IAC, Coltano (Italy); (2) Poznań (Poland); (3) regret cannot trace, but probably a French amateur transmitter; (4) Ruysselede (Belgium) calling Elisabethville (Congo). **MOVING COIL** (Fulham): (1) Königsberg; (2) British amateur transmitter. **JONNY SPIELT AUF** (Ashorne): Post Office trans-Atlantic telephony through Rugby. **CHELT** (Cheltenham): Moscow-Stalin (news bulletin). **CONOB** (Lee-on-the-Solent): French experimental transmitter. **ALI BABA'S CAMEL** (London-derry): (1) Helsinki; sacred service; (2) regret, cannot trace; (3) possibly WHAM, Rochester (N.Y.), but cannot confirm; details too vague. Please number your queries. **IT'S RAINING HERE** (Manchester): No B.B.C. stations working between 1.45 and 3.0 a.m. on that date. **TAZ** (N. 22): (5) Scheveningen-Haven (Holland); commercial reports, etc., only; (6) Lille PTT, gramophone records. **HOMER** (Inverness): LR3, Radio National, Buenos Aires (315.8 m.). **DARKY** (Woodbridge): Königs Wusterhausen; advanced English lesson. **SHANDY** (Monkstown): Brussels (No. 2); an English talk by Mr. Lloyd Jones. **EASTER SAT.** (Bristol): Radio Lyon; relay of foreign stations. **FILS** (Greenwich): Toulouse PTT. **TELLUS** (West Hartlepool): Harmonic of North National. **TYRES** (Kingstanding): G6RX, Rugby, on low wavelength as announced. **JANDIANTE** (Alexandria, Egypt): (1) W2XAF, Schenectady, relaying WEAF, New York; (2) apparently French amateur transmitter, but call-sign has been misunderstood; cannot trace. **A.P.H.** (North Berwick): This was Langenberg; a relay of gramophone records from Cologne studio. **GRID LEAK** (S.W.1): Rennes PTT. **SHORT WAVE** (Little Hulton): ZLO, Nairobi. **NO NAME** (Derby): G6RX, Rugby, on wavelength announced, but, owing to high power, direct "pick-up."

### The Alternative Postal Service

In addition to the free service of "Which Station was That?" printed in these columns, replies to queries can be obtained within forty-eight hours of receipt of details, on payment of 6d. per query, in stamps or P.O., accompanied by stamped addressed envelope (marked in left hand top corner "Postal Query Service"), and coupon as per conditions for "Free Queries."

#### IDENTIFICATION COUPON (No. 167)

This coupon is valid for ONE QUESTION only, and should be cut out and attached to a separate sheet, upon which the following questions should be answered in the order shown, and, in the case of FREE queries, a copy of the answers should be enclosed. No coupon more than one month old is valid.

1. Time and Date of reception.
2. Approximate frequency in kilocycles per sec. (or wavelength in metres).
3. Nearest known stations, above and below.
4. Call or interval signal, if heard.
5. Language.
6. Type of receiver in use and strength of signal.
7. Details of programme or signal received.
8. Name and address.
9. Nom de plume. (Proprietary names must not be used.)

"MADE BY CRAFTSMEN FOR PARTICULAR PEOPLE"

OSBORN



Model No. 218.

Send 3d. in stamps for new 1932 Beautifully illustrated Catalogue.

A Queen Anne Radio or Radio-Gramophone Cabinet. 3ft. 10ins. high, 2ft. 2ins. wide, 1ft. 6ins. deep. Size of baffle board behind fret, 24ins. x 24ins. Metallic fabric for fret front included. Opening at top and back. Cabinet takes panel 2ft. x 9ins. or smaller. Complete with Motor Board.

PRICES:  
Machine Ready to Assemble: Oak, £3 10s.; Mahogany, £3 15s.; Walnut, £4 10s.  
Assembled Ready to Polish: Oak, £4 10s.; Mahogany, £4 15s.; Walnut, £5 10s.  
Assembled and Polished: Oak, £5 10s.; Mahogany, £5 5s.; Walnut, £7 5s.  
All Models Carriage Paid.

### CHAS. A. OSBORN

DEPT. W.E., THE REGENT WORKS, ARLINGTON ST., LONDON, N.1. Telephone: Clerkenwell 5005.  
And at 21, ESSEX RD., ISLINGTON, N.1 (1 minute from the Agricultural Hall) Telephone: Clerkenwell 5634.

## RADIO CABINETS

## SEYMOUR'S All-English Six-Valve SUPERHETERODYNES



Last word in Quality, Selectivity and Range. PUSH-PULL OUTPUT.

Tunes out "Local" in 1/2 inch. Fully wired, tested and adjusted.

Band pass input. Band pass 210 K/c. I.F. Transformers Provision for gramophone pick-up with separate volume control. (Unused valves automatically switched out.) Super-power push-pull output for quality. P.M. Moving Coil Loud Speaker. (Even response from below 50 to above 7,000 cycles.) B.V.A. Valves (2 S.G's, 4 Triodes). Total H.T. Consumption less than 15 m.A. at 120 volts. 200 to 2000 metres.

For either Battery or Eliminator. Indoor or Outdoor Aerial. PRICES, INCLUDING VALVES AND ROYALTIES PAID.

- |             |  |         |
|-------------|--|---------|
| Model SS 16 | Chassis, as illustrated, and including M.C. speaker . . . . .                        | 17 GNS. |
| " SS 15     | As above, but with plain super-power output (5 valves, takes only 11 m.A.) . . . . . | 16 GNS. |
| " SS 25     | do. do. without speaker. (Output Filter instead of Output Transformer)               | 13 GNS. |

Supplied in a variety of Pedestal Cabinets at from £3 10s. to £6 extra.

For All Electric A.C. Models ask for separate List. Write for illustrated list to—  
**SEYMOUR'S, 28, Highgate Hill, London, N.19.**  
Telephone No.: Archway 1702.

# Stations in Order of Frequencies and Wavelengths

Corrected in accordance with the latest official information available at the time of going to press

The figures in black type represent the power according to the Copenhagen Power-Rating, but carrier-wave power only is shown

| Kc/s  | M.     | KW.  | Station  | Dial Readings | Kc/s  | M.    | KW.  | Station   | Dial Readings |
|-------|--------|------|--|---------------|-------|-------|------|---|---------------|
| 155   | 1935   | 7    | Kaunas (Lithuania)   |               | 689   | 436   | 0.25 | Malmberget (relays Boden) (Sweden)                                  |               |
| 160   | 1875   | 8.5  | Huizen (Holland)   |               |       |       | 55   | Stockholm (Sweden)  |               |
| 167   | 1796   | 54   | Lahti (Finland) (relays Helsinki)  |               | 697   | 430.4 | 2.5  | Belgrade (Yugoslavia)   |               |
| 174   | 1725   | 13.5 | Radio Paris (CFR)  |               |       |       | 2    | Madrid (Union Radio) (EAJ7) (Spain)                                 |               |
| 183.5 | 1635   | 75   |  |               |       |       |      | 7-8.30 p.m. and (except Monday)                                     |               |
|       |        | 60   | Königs Wusterhausen (Zeeseen) (Germany) Relays Berlin.                               |               | 707   | 424.3 |      | 10 p.m. to 12 midnight.   |               |
| 193   | 1554.4 | 30   | Daventry National (Great Britain)  |               |       |       |      | Madrid (Radio España) (Spain) 5-7 p.m. (Mon. 5 p.m. to 12 midnight) |               |
| 195   | 1538   | 7    | Ankara (Turkey)  |               | 715   | 419.5 | 1.5  | Moscow-Stalin (Russia)  |               |
| 202.6 | 1481   | 100  | Moscow (Old Komintern) (RV1) (Russia)  |               | 721.1 | 416   | 6    | Berlin (Witzleben)  |               |
|       |        | 13   | Eiffel Tower (FLE)   |               | 725   | 413   | 1.2  | Rabat (Morocco)   |               |
| 207.5 | 1445.7 |      |  |               | 734   | 408   | 16   | Dublin (2RN) (Ireland)  |               |
| 212.5 | 1411   | 120  | Warsaw No. 1 (Poland)  |               | 743   | 403   | 25   | Katowice (Poland)   |               |
| 222.2 | 1350   | 0.5  | Kasbah (Tunis)   |               |       |       |      | Radio Suisse Romande (Sottens) (Switzerland)                        |               |
| 222.5 | 1348   | 30   | Motala (Sweden) (relays Stockholm)   |               | 752   | 398.9 | 25   | Midland Regional (Great Britain)                                    |               |
| 230.1 | 1304   | 100  | Moscow (Trades Union)  |               | 761   | 394   | 12   | Bucharest (Romania)   |               |
| 238.1 | 1260   | 4    | Novosibirsk (Russia)   |               | 770   | 390   | 10   | Archangel (Russia)  |               |
| 242.5 | 1237   |      | Vienna Experimental (Austria)  |               |       |       | 1.5  | Frankfurt (Germany)   |               |
| 244   | 1229.5 | 0.6  | Boden (Sweden)   |               | 779   | 385   | 8    | Toulouse (Radio) (France)   |               |
|       |        | 5    | Istanbul (Turkey)  |               | 788   | 381   | 16   | Lwów (Poland)   |               |
| 250   | 1200   | 21   | Reykjavik (Iceland)  |               | 797   | 376.4 | 1    | Glasgow (5SC) (Great Britain)                                       |               |
|       |        | 7.5  | Kalundborg (Denmark) (relays Copenhagen)   |               | 806   | 372   | 1.5  | Hamburg (Germany)   |               |
| 260   | 1153   |      |  |               | 810   | 370.4 | 0.5  | Radio LL (France)   |               |
|       |        | 40   | Moscow, Popoff   |               |       |       | 1    | Bolzano (Italy) (1BZ)   |               |
| 268.5 | 1116   | 60   | Oslo (Norway)  |               | 815   | 368.1 | 13.2 | Helsinki (Finland)  |               |
| 277   | 1083   | 10   | Tiflis (Russia)  |               |       |       | 1.5  | Seville (Union Radio) (EAJ5) (Spain)                                |               |
| 284.9 | 1053   | 100  | Leningrad (Russia)   |               | 816   | 367.6 | 0.7  | Fredriksstad (Norway) (relays Oslo)                                 |               |
| 300   | 1000   | 20   | Kharkov (Russia) RV20  |               | 824   | 364   | 1    | Bergen (Norway)   |               |
| 320   | 937.5  | 4    | Rostov-Don (Russia)  |               | 825.3 | 363.3 | 13   | Algiers (N. Africa)   |               |
| 353.5 | 848.7  | 20   | Kiev (Russia)  |               | 832   | 360.5 | 60   | Stuttgart (Mühlacker) (Germany)                                     |               |
| 368.1 | 815    | 2    | Petrozavodsk (Russia)  |               | 843   | 356   | 50   | London Regional (Great Britain)                                     |               |
| 385   | 778    | 0.6  | Östersund (Sweden) (relays Sundsvall)  |               | 852   | 352.1 | 7    | Graz (Austria) (usually relays Vienna)                              |               |
| 389   | 770    | 1.8  | Nijni Novgorod (Russia)  |               | 855.5 | 351   | 1.2  | Leningrad (Russia)  |               |
| 394   | 761.4  | 1.5  | Geneva (Switzerland)   |               | 860   | 349   | 8    | Barcelona (Radio Barcelona) (EAJ1) (Spain)                          |               |
| 395   | 760    | 20   | Moscow (Experimental)  |               |       |       | 11.5 | Strasbourg (Brumath) (France)                                       |               |
| 416.7 | 720    | 4    | Minsk (Russia)   |               | 869   | 345   | 35   | Brno (Czechoslovakia)   |               |
| 428.6 | 700    | 0.6  | Lausanne (Switzerland)   |               | 878   | 342   | 15   | Brussels No. 2 (Belgium) (Flemish programme).                       |               |
| 442   | 680    | 2.5  | Ljubljana (Yugoslavia)   |               | 887   | 338.2 | 5.5  | Cadiz (Spain)   |               |
| 522   | 574.7  | 0.25 | Freiburg-im-Breisgau (Germany) (relays Stuttgart).                                   |               |       |       | 1.9  | Poznań (Poland)   |               |
| 527   | 570    |      |  |               | 896   | 335   | 7    | Milan (Italy)   |               |
| 530   | 566    | 2    | Hanover (Germany) (relays Hamburg)   |               | 905   | 331.5 | 2    | Grenoble (PTT) (France)   |               |
| 531   | 565    | 16   | Smolensk (Russia)  |               | 914   | 328.2 | 1.2  | Poste Parisien (Paris)  |               |
| 533   | 563    |      | Wilno (Poland)   |               | 923   | 325   | 1.5  | Breslau (Germany)   |               |
|       |        | 0.7  | Augsburg (Germany) (relays Munich)   |               | 932   | 322   | 10   | Göteborg (Sweden) (relays Stockholm)                                |               |
| 536   | 560    | 18.5 | Kaiserslautern (Germany) (relays Munich).  |               |       |       | 0.25 | Dresden (Germany) (relays Leipzig)                                  |               |
|       |        | 3    | Hamar (Norway) (relays Oslo)   |               | 941   | 319   | 1.5  | Naples (1NA) (Italy)  |               |
| 545   | 550    | 10   | Budapest (Hungary)   |               |       |       | 1    | Sofia (Rodno-Radio) (Bulgaria)                                      |               |
| 554   | 542    | 1.5  | Palermo (Italy)  |               | 950   | 315   | 1.6  | Marseilles (PTT) (France)   |               |
| 563   | 533    | 15   | Sundsvall (Sweden)   |               |       |       | 1.5  | Cracow (Poland)   |               |
| 572   | 525    | 15   | Munich (Germany)   |               | 959   | 312.8 | 10   | Genoa (1GE) (Italy)   |               |
| 581   | 517    | 15   | Riga (Latvia)  |               |       |       | 1    | Radio-Vitus (France)  |               |
| 590   | 509    | 15   | Vienna (Rosenhügel) (Austria)  |               | 968   | 309.9 | 0.5  | Cardiff (5WA) (Great Britain)                                       |               |
| 599   | 500.8  | 20   | Brussels No. 1 (Belgium)   |               | 977   | 307   | 0.75 | Falun (Sweden)  |               |
| 603.6 | 497    | 1.2  | Florence (1FI) (Italy)   |               | 986   | 304   | 13   | Zagreb (Yugoslavia)   |               |
| 608   | 493.4  | 1.2  | Moscow (Russia)  |               | 995   | 301.5 | 50   | Bordeaux-Lafayette (PTT) (France)                                   |               |
| 614   | 488.6  | 120  | Trondheim (Norway)   |               |       |       | 8.5  | North National (Manchester) (Great Britain)                         |               |
| 625   | 480    | 50   | Prague (Czechoslovakia)  |               | 1004  | 298.8 | 11   | Hilversum (Holland)   |               |
|       |        | 0.5  | North Regional (Manchester) (Great Britain)  |               | 1013  | 296.1 | 2.5  | Tallinn (Estonia)   |               |
| 630.2 | 476    | 60   | Sebastopol (Russia)  |               |       |       | 0.7  | Kosice (Czechoslovakia)   |               |
| 635   | 473    | 1.5  | Langenberg (Germany)   |               | 1022  | 293   | 0.25 | Limoges (PTT) (France)  |               |
|       |        | 0.5  | Lyons (La Doua) (France) (relays PTT).   |               |       |       | 1    | Pietarsaari (Jacobstad) (Finland) (relays Helsinki)                 |               |
| 644   | 465.8  | 60   | Tartu (Estonia)  |               | 1031  | 291   | 13.2 | Tampere (Finland) (relays Helsinki)                                 |               |
| 653   | 459    |      | Schweizerischer Landessender (Bernmünster) (Switzerland)                             |               |       |       |      | Viipuri (Viborg) (Finland) (relays Helsinki)                        |               |
|       |        | 0.5  | Bödo (Norway)  |               |       |       |      | <b>British Relay Stations</b>                                       |               |
|       |        | 0.5  | Danzig (Free City) (relays Königsberg).  |               |       |       | 1    | Aberdeen (2BD)  |               |
|       |        | 0.5  | Klagenfurt (Austria) (relays Vienna)   |               |       |       | 1    | Bournemouth (6BM)   |               |
| 662   | 453.2  | 0.7  | Porsgrund (Norway) (relays Oslo)   |               |       |       | 0.12 | Dundee (2DE)  |               |
|       |        | 1    | Salamanca (Spain) (EAJ22)  |               | 1040  | 288.5 | 0.3  | Edinburgh (2EH)   |               |
|       |        | 0.6  | San Sebastian (Spain) (Mon., Wed. Fri. 7.30-9 p.m., other days 10 p.m. to midnight). |               |       |       | 1    | Newcastle (2NO)   |               |
|       |        | 0.1  | Tromsø (Norway)  |               |       |       | 0.12 | Plymouth (5PY)  |               |
|       |        | 0.15 | Uppsala (Sweden) (relays Stockholm)  |               | 1043  | 287.6 | 0.12 | *Sheffield (6FL)  |               |
| 666   | 450.4  | 4    | Odessa (Russia)  |               | 1049  | 286   | 0.12 | Swansea (5SX)   |               |
|       |        | 0.35 | Aalesund (Norway)  |               |       |       | 0.7  | Lyons (Radio) (France)  |               |
|       |        | 0.08 | Notodden (Norway)  |               | 1058  | 283   | 0.8  | Montpellier (France)  |               |
| 671   | 447.1  | 0.7  | Paris (PTT) (Ecole Supérieure) (France)  |               |       |       | 0.5  | Berlin Relay (Germany)  |               |
|       |        | 0.15 | Rjukan (relays Oslo) (Norway)  |               |       |       | 0.5  | Magdeburg (Germany)   |               |
| 680   | 441    | 50   | Rome (1RO) (Italy)   |               |       |       | 0.5  | Stettin (Germany) (relays Berlin)                                   |               |
|       |        |      |  |               |       |       | 0.5  | Innsbruck (Austria) (relays Vienna)                                 |               |

\* Not radiating.

STATIONS IN ORDER OF FREQUENCIES AND WAVELENGTHS (Continued)

| Kc/s | M.    | kW.  | Station                                  | Dial Readings | Kc/s | M.    | kW.  | Station                                       | Dial Readings |
|------|-------|------|--|---------------|------|-------|------|---|---------------|
| 1063 | 282.2 | 2    | Lisbon, Portugal                         | .....         | 1283 | 235   | 2    | Lodz (Poland) (Experimental)                  | .....         |
| 1067 | 281   | 0.75 | Copenhagen (Denmark)                     | .....         | 1292 | 232.2 | 0.25 | Kiel (Germany) (relays Hamburg)               | .....         |
| 1071 | 280   |      | Radio Liège (Belgium)                    | .....         |      |       | 0.25 | Norrköping (Sweden)                           | .....         |
| 1076 | 279   | 1.4  | Bratislava (Czechoslovakia)              | .....         |      |       | 0.2  | Hälsingborg (Sweden)                          | .....         |
| 1085 | 276.5 | 60   | Heilsberg (Germany) (rel. Königsberg)    | .....         | 1301 | 231   | 1.25 | Malmö (Sweden) (relays Stockholm)             | .....         |
| 1096 | 273.7 | 7    | Turin (Italy)                            | .....         |      |       | 0.2  | Umea (Sweden)                                 | .....         |
| 1103 | 272   | 1.3  | Rennes (France)                          | .....         | 1310 | 229   | 0.05 | Uddevalla (Sweden)                            | .....         |
| 1112 | 270   | 0.25 | Bremen (Germany) (relays Hamburg)        | .....         | 1328 | 226   | 0.15 | Hudiksvall (Sweden)                           | .....         |
| 1121 | 267.6 | 0.7  | Oviedo (Spain)                           | .....         | 1337 | 224.4 | 1    | Cork (6CK) (Ireland)                          | .....         |
|      |       | 1.5  | Radio Valencia (Spain)                   | .....         | 1364 | 219.9 | 1    | Fécamp (Radio Normandie) (France)             | .....         |
| 1130 | 265.4 | 1.3  | Lille (PTT) (France)                     | .....         |      |       | 0.5  | Flensburg (Germany) (relays Hamburg)          | .....         |
| 1137 | 263.9 | 11   | Moravská-Ostrava (Czechoslovakia)        | .....         | 1373 | 218   | 0.7  | Pori (Björneborg) (Finland) (relays Helsinki) | .....         |
| 1147 | 261.6 | 50   | London National (Great Britain)          | .....         |      |       | 0.5  | Salzburg (relays Vienna)                      | .....         |
| 1157 | 259   | 2    | Leipzig (Germany)                        | .....         | 1382 | 217   | 0.25 | Karlstad (Sweden)                             | .....         |
| 1166 | 257   | 10   | Hörby (Sweden) (relays Stockholm)        | .....         |      |       | 0.5  | Königsberg (Germany)                          | .....         |
| 1175 | 255   | 0.7  | Toulouse (PTT) (France)                  | .....         |      |       | 0.2  | Halmstad (Sweden)                             | .....         |
| 1184 | 253   | 5    | Gleiwitz (Germany) (relays Breslau)      | .....         | 1391 | 216   |      | Radio Chatelneau (Belgium)                    | .....         |
|      |       | 1    | Almeria (Spain) (EAJ18)                  | .....         | 1400 | 214.2 | 1.9  | Warsaw, No. 2 (Poland) (Experimental)         | .....         |
| 1193 | 252   | 1    | Barcelona (Association National) (EAJ15) | .....         | 1450 | 207   | 0.15 | Borås (Sweden)                                | .....         |
|      |       | 0.25 | Trollhättan (Sweden)                     | .....         | 1460 | 206   | 0.2  | Ornsköldsvik (Sweden)                         | .....         |
| 1202 | 249.6 | 0.3  | Varberg (Sweden)                         | .....         | 1470 | 204   | 0.2  | Gävle (Sweden) (relays Stockholm)             | .....         |
| 1205 | 249   |      | Juan-les-Pins (Nice) (France)            | .....         | 1480 | 203   | 0.25 | Kristinehamn (Sweden)                         | .....         |
| 1211 | 247.7 | 0.2  | Kalmar (relays Stockholm)                | .....         | 1490 | 202   | 0.25 | Jönköping (Sweden) (relays Stockholm)         | .....         |
|      |       | 10   | Trieste (Italy)                          | .....         | 1530 | 196   | 0.2  | Karlskrona (Sweden) (relays Stockholm)        | .....         |
|      |       | 0.5  | Berne (Switzerland)                      | .....         | 1714 | 175   |      | St. Quentin (France)                          | .....         |
|      |       | 0.4  | Cartagena (Spain)                        | .....         |      |       |      |   |               |
|      |       | 0.25 | Cassel (Germany) (relays Frankfurt)      | .....         |      |       |      |   |               |
|      |       | 0.2  | Eskilstuna (Sweden) (relays Stockholm)   | .....         |      |       |      |   |               |
| 1220 | 246   | 0.25 | Kiruna (Sweden) (relays Boden)           | .....         |      |       |      |   |               |
|      |       | 0.5  | Linz (Austria) (relays Vienna)           | .....         |      |       |      |   |               |
|      |       | 0.4  | Säffle (Sweden) (relays Stockholm)       | .....         |      |       |      |   |               |
|      |       | 0.6  | Turku (Åbo) (Finland) (relays Helsinki)  | .....         |      |       |      |   |               |
| 1229 | 244.1 | 0.5  | Basle (Switzerland)                      | .....         |      |       |      |   |               |
| 1238 | 242   | 1    | Belfast (2BE) (Ireland)                  | .....         |      |       |      |   |               |
| 1247 | 240.6 | 0.5  | Stavanger (Norway)                       | .....         |      |       |      |   |               |
| 1250 | 240   | 1.5  | Radio Beziers (France)                   | .....         |      |       |      |   |               |
| 1256 | 239   | 2    | Nürnberg (Germany) (relays Munich)       | .....         |      |       |      |   |               |
|      |       | 2    | Bordeaux Sud-Ouest (France)              | .....         |      |       |      |   |               |
| 1265 | 237.2 | 1    | Radio-Nîmes (France)                     | .....         |      |       |      |   |               |
|      |       | 0.2  | Örebro (Sweden) (relays Stockholm)       | .....         |      |       |      |   |               |
| 1274 | 235.5 | 0.5  | Christiansand (Norway)                   | .....         |      |       |      |   |               |

DEVIATIONS

The following are the actual deviations from the official frequencies, as noted during measurements made at the Tatsfield Checking Station. All differences of 1.9 kc/s and over are shown.

|        |       |   |                                   |       |
|--------|-------|---|-----------------------------------|-------|
| 529.6  | 566.5 | — | Wilno (Poland)                    | ..... |
| 535.5  | 560.2 | — | Hamar (Norway)                    | ..... |
| 570.8  | 525.6 | — | Palermo (Italy)                   | ..... |
| 916.4  | 327.4 | — | Poste Parisian (France)           | ..... |
| 971.4  | 308.8 | — | Radio Vitus (France)              | ..... |
| 1006.1 | 298.2 | — | Hilversum (Holland)               | ..... |
| 1045.2 | 287   | — | Lyons (France)                    | ..... |
| 1197.5 | 250.5 | — | Juan les Pins (France)            | ..... |
| 1262.6 | 237.6 | — | Örebro (Sweden)                   | ..... |
| 1352.4 | 221.8 | — | Fécamp (Radio Normandie) (France) | ..... |
| 1496.6 | 200.4 | — | Jönköping (Sweden)                | ..... |

(For List of Short-Wave Stations see page 694.)

Schedule of Advance Programmes

(STRICTLY COPYRIGHT)

For the benefit of readers who may wish to make arrangements for demonstrating, we are printing each week a schedule of the programmes to be transmitted by the National and Regional stations. It will be noticed that these schedules concern programmes to be transmitted a fortnight hence, and it is felt that they will also be of particular service to those of our readers living abroad who will be able to use them in connexion with the reception of the Experimental Short Wave Station, G5SW, which relays either the National (5XX) or London Regional programmes from 7 p.m.

News Bulletins are transmitted daily (except on Sunday) at 12.30 p.m. (Saturdays, 12.45), 6.15 p.m., and midnight.

SUNDAY, APRIL 24

|                   | NATIONAL                                      | LONDON REG.     | MIDLAND REG.   | NORTH REG.       |
|-------------------|---|-----------------|----------------|------------------|
| AFTERNOON         | Concert from the New Shakespeare Mem. Theatre | As National     | Military Band  | As National      |
|                   | Oratorio Prog. Pfte. Recital by Borovsky      | Military Band   | Pfte. Recital  | Studio Orchestra |
| EVENING PROGRAMME | Hotel Orchestra                               | Orchestral Con. | As London Reg. | As London Reg.   |

MONDAY, APRIL 25

|                       | NATIONAL                                    | LONDON REG.                               | MIDLAND REG.                   | NORTH REG.                               |
|-----------------------|---|---|--------------------------------|--|
| MORNING               | Studio Concert                              | As Midland Reg.                           | Cinema Orch.                   | As Midland Reg.                          |
| AFTERNOON             | Cinema Orch. Sonata Recital Hotel Orchestra | As North Reg. As Midland Reg. As National | As North Reg. Studio Orchestra | Cinema Organ As Midland Reg. As National |
| 1ST EVENING PROGRAMME | Talks Vaudeville                            | Tango Orchestra Chamber Music             | Dance Band "Rhythm" (gram.)    | Hotel Orchestra As London Reg.           |
| 2ND EVENING PROGRAMME | Play Dance Music                            | Jean Gilbert prog. Dance Music            | As London Reg. As London Reg.  | Dance Band As London Reg.                |

TUESDAY, APRIL 26

|                       | NATIONAL   | LONDON REG.                               | MIDLAND REG.                   | NORTH REG.                                |
|-----------------------|--|---|--------------------------------|---|
| MORNING               | Cinema Organ                                     | As Midland Reg.                           | Ballad Concert                 | As Midland Reg.                           |
| AFTERNOON             | Hotel Orchestra Studio Orchestra Hotel Orchestra | As North Reg. As Midland Reg. As National | As North Reg. Studio Orchestra | Pianfte. Recital As Midland Reg. Evensong |
| 1ST EVENING PROGRAMME | French Talk Operatic Prog.                       | Military Band Cinema Orch.                | Studio Orchestra Chamber Music | Studio Orchestra Band Concert             |
| 2ND EVENING PROGRAMME | "Serenade" Dance Music                           | Play Dance Music                          | As London Reg. As London Reg.  | As London Reg. As London Reg.             |

WEDNESDAY, APRIL 27

|                       | NATIONAL                                    | LONDON REG.                               | MIDLAND REG.                    | NORTH REG.                                   |
|-----------------------|---|---|---------------------------------|--|
| MORNING               | Cinema Organ                                | As Midland Reg.                           | Studio Orchestra                | As Midland Reg.                              |
| AFTERNOON             | Gram. Records Hotel Orchestra Symphony Con. | As Midland Reg. As North Reg. As National | Organ Recital As North Reg.     | As Midland Reg. Studio Orchestra As National |
| 1ST EVENING PROGRAMME | Symphony Con.                               | B.B.C. Theatre Orchestra Vaudeville       | Band Concert As London Reg.     | Choral and Instrumental As London Reg.       |
| 2ND EVENING PROGRAMME | Symph. Con. ctd. Dance Music                | Light Music Dance Music                   | Studio Orchestra As London Reg. | Studio Orchestra As London Reg.              |

THURSDAY, APRIL 28

|                       | NATIONAL                                     | LONDON REG.                             | MIDLAND REG.                    | NORTH REG.  |
|-----------------------|--|---|---------------------------------|---|
| MORNING               | Studio Orchestra                             | Cinema Organ                            | As London Reg.                  | As London Reg.  |
| AFTERNOON             | Cinema Orch. Abbey Evensong Studio Orchestra | As North Reg. As North Reg. As National | As North Reg. As North Reg.     | Studio Orchestra As Midland Reg. Studio Orchestra As National |
| 1ST EVENING PROGRAMME | German Talk Military Band                    | Light Music "New Songs for Old"         | Light Music As London Reg.      | Theatre Relay As London Reg.                                  |
| 2ND EVENING PROGRAMME | The Wireless Singers Dance Music             | Orchestral Con. Dance Music             | Studio Orchestra As London Reg. | Studio Orchestra As London Reg.                               |

FRIDAY, APRIL 29

|                       | NATIONAL                                     | LONDON REG.                             | MIDLAND REG.                                 | NORTH REG.                                  |
|-----------------------|--|---|--|---|
| MORNING               | Cinema Orch.                                 | As Midland Reg.                         | Cinema Organ                                 | As Midland Reg.                             |
| AFTERNOON             | Organ Recital Gram. Records Studio Orchestra | As North Reg. As North Reg. As National | As North Reg. As North Reg.                  | Cinema Orches. Studio Orchestra As National |
| 1ST EVENING PROGRAMME | Talks "New Songs for Old"                    | Light Music Community Singing           | Studio Orchestra Midland Competition Fest'vl | Studio Orchestra As London Reg.             |
| 2ND EVENING PROGRAMME | Chamber Music Dance Music                    | Orchestral Con. Dance Music             | Light Music As London Reg.                   | Play As London Reg.                         |

SATURDAY, APRIL 30

|                       | NATIONAL                              | LONDON REG.                               | MIDLAND REG.                        | NORTH REG.                    |
|-----------------------|---------------------------------------|---|-------------------------------------|-------------------------------|
| MORNING               | Studio Orchestra                      | As National                               |                                     | As National                   |
| AFTERNOON             | Cinema Organ Cinema Orch. Light Music | As National                               | Dance Music                         | As National                   |
| 1ST EVENING PROGRAMME | Welsh Prog. Revue                     | As North Reg. Essex Music Festival        | Music from a Church Orchestral Con. | Band Concert                  |
| 2ND EVENING PROGRAMME | Orchestral Con. Dance Music           | R.I. Academy Banquet Speeches Dance Music | As London Reg. As London Reg.       | As London Reg. As London Reg. |

# PROGRAMMES FOR SUNDAY (April 10)

## PRINCIPAL EVENTS

- CHURCH SERVICES AND SACRED MUSIC**  
 8.55 a.m. Italian Stations (Northern Group): Missa Cantata, from San Giusto Cathedral.  
 9.0 " Warsaw: High Mass from Lwów.  
 10.30 " Leipzig and all German Stations: Church Cantata, No. 112 (Bach).  
 5.0 p.m. Stuttgart: Mariazeller Mass (Haydn).  
 7.55 " Huizen: " King David " (Honegger).  
**SYMPHONY CONCERTS**  
 2.10 p.m. Hilversum: from the Concert-gebouw.  
 4.15 " Radio-Paris: Colonne Concert.  
 7.45 " Rome: Haydn programme.  
 8.0 " Brussels, No. 1 and No. 2: Brahms festival.  
**CONCERTS (Vocal and Instrumental)**  
 11.15 a.m. Warsaw: Philharmonic Orchestra.  
 6.45 p.m. Schweizerischer Landessender: Short relay from New York.  
 9.0 " Warsaw: The Choir of the " Duda " Rowing Club.  
**OPERAS AND OPERETTAS**  
 7.30 p.m. Prague: " La finta giardiniera " (Mozart).  
 8.0 " Italian Stations (Northern Group): Opera relay.  
**PLAYS AND TALKS**  
 4.0 p.m. Leipzig: " Turandot " (Carl Hagemann).  
 8.30 " (app.) Rome: " Il piccolo Haydn. "  
**MISCELLANEOUS**  
 2.0 p.m. (app.) Radio-Paris: France v. Italy.  
 9.0 " " Berlin and most German Stations: The Presidential Election.  
**DANCE MUSIC**  
 10.0 p.m. Copenhagen (till- 11.30).  
 10.30 " Strasbourg.



Wide World Photos.

The Colombes Stadium, from which Radio-Paris will relay a running commentary on the Football Match, France v. Italy

| NATIONAL  |       |            |
|-----------|-------|------------|
|           | kc/s. | m. kW.     |
| London:   | 1,148 | 261.3 50   |
| Daventry: | 193   | 1,554.4 30 |
| Northern: | 995   | 301.5 50   |

| REGIONAL  |      |          |
|-----------|------|----------|
|           | kc/s | m. kW.   |
| London:   | 842  | 356.3 50 |
| Midland:  | 752  | 398.9 25 |
| Northern: | 626  | 479.2 50 |

10.30-10.45 a.m.—Time Signal (Greenwich); Shipping Forecast.  
 3.0 p.m.—Time Signal (Greenwich).  
 3.0—The Leslie Bridgewater Quintet. Eric Greene (Tenor).  
 4.0—"What is a Saint?"—XI. St. Vincent de Paul. By the Rev. Father C. C. Martindale.  
 4.15—An Orchestral Concert. The B.B.C. Orchestra (Section D), conducted by Percy Pitt. Overture, Britannia (Mackenzie); Andante (String Quartet, Op. 30) (Tchaikovsky, arr. Glazounov). Gladys Cole (Soprano) and Orchestra: Ave Maria (Bruch). Orchestra: Symphony No. 5, in B Flat Schubert). Gladys Cole: Die Allmacht (Schubert); Ein Schwan and A Dream (Grieg); Spring Waters (Rachmaninov). Orchestra: Rigaudon (Raff).  
 5.30—A Pianoforte Recital by Jan Smetzerlin.  
 6.0-6.20—For the Children.  
 6.30-7.45—Gwasanaeth Cymraeg.  
 7.55—St. Martin-in-the-Fields.  
 8.15—The Week's Good Cause. Appeal on behalf of The Lincoln County Hospital by Mr. Robert Purves, D.S.O., F.R.C.S.  
 8.50—"The News."  
 9.0—Time Signal (Greenwich).  
 9.5—W. B. Yeats reading his own Poems.  
 9.30—Tom Jones and The Grand Hotel, Eastbourne, Orchestra. John Morel (Baritone). Orchestra: Malaguena (Mozzkovsky); The Voice of the Bells (Luigini). John Morel: Elegy (Massenet); The Bonnie Banks o' Loch Lomond (Traditional); Trees (Rasbnet). Orchestra: The Sleeping Beauty Waltz (Tchaikovsky). Tom Jones: Violin Solos—Rose softly blooming (Spohr); Pale Moon (Logan, arr. Kreisler). John Morel: The Arrow and the Song (Balfé); And yet I love her (Parry); Vision Fugitive (Massenet). Orchestra: Fantasy, Rigoletto (Verdi). (At the Pianoforte, Sydney Ffoulkes.)  
 10.30—Epilogue.

3.0 p.m. (London)—The Leslie Bridgewater Quintet. Eric Greene (Tenor). Quintet: Czardas, Country Wedding in Hungary (Por); Dance of the Butterflies (Gretchaninov); Song, An old Violin (Fisher). Eric Greene: Songs. Quintet: Caprice de Ninon (Edwin Grey); Old Irish (selected and arr. by Leslie Bridgewater). Selection of Irish Tunes; Alice Blue (Grofé). Eric Greene: Songs. Quintet: Second Movement, Violin Concerto (Bruch); Loin du Bal (Away from the Ball) (Gillet); Manhattan Moonlight (Alter).  
 3.0 (Midland)—Organ Recital by Dr. Harold Rhodes.  
 3.0 (Northern)—The Studio Orchestra. Lillian Cooper (Soprano). Lupton Whitecock (Flute).  
 4.0 (London and Midland)—The Wireless Military Band, Conductor, B. Walton O'Donnell. Robert Easton (Bass).  
 4.30 (Northern)—A Pianoforte Recital by Dorothy Manley.  
 5.0-5.30—The Wireless Singers. Conductor, Stanford Robinson.  
 7.55—St. Martin-in-the-Fields.  
 8.45 (London)—The Week's Good Cause.  
 8.45 (Midland)—The Week's Good Cause.  
 8.45 (Northern)—The Week's Good Cause (From Newcastle).  
 8.50—"The News."  
 9.5—Sunday Orchestral Concert—XXIV (Second Season). (Franz Joseph Haydn)(1732-1809). Arthur Catterall (Violin). Lauri Kennedy (Violoncello). Alec Whittaker (Oboe). Richard Newton (Bassoon). The B.B.C. Orchestra (Section E). Conductor, Adrian Boult. Orchestra: Symphony No. 97 in C (No. 1 of the London Symphonies). Arthur Catterall, Lauri Kennedy, Alec Whittaker, Richard Newton and Orchestra: Sinfonie Concertante. Orchestra: Symphony No. 100 in G (Military).  
 10.30—Epilogue.

The Frequencies and Wavelengths given in the following programmes are those published by the stations in question. For more accurate measurements, readers are referred to our Table of Frequencies and Wavelengths.

### NOTE: THE HOURS OF TRANSMISSION ARE REDUCED TO GREENWICH MEAN TIME

**ALGIERS (N. Africa)**  
 825.3 kc/s (363.3 m.); 13 kW. Transmits at intervals from 11.30 a.m. 7.0 p.m.—Concert of Dance Music. 7.25—Forgotten Song Successes. 7.40—Military Music. 7.50—Provincial Songs. 8.0—Request Concert of Orchestral Music. 9.0—Instrumental Concert.  
**BELGRADE (Yugoslavia)**  
 697 kc/s (430.4 m.); 2.5 kW. Transmits at intervals from 7.55 a.m. 11.30 a.m.—Orchestral Concert of Yugoslavian Music. 12.30 p.m.—Film Notes and News Bulletin. 3.0—Programme for Workers. 4.0—Medical Talk. 4.30—Concert by the Ivacenko Jazz Balalaika Orchestra. 6.5—Time and Programme Announcements. 6.10—Pianoforte Recital by Paul Weingartner. 7.20—Recital of Songs. 7.50—Talk. 8.20—Popular Concert by the Royal Guards Band. In an interval at 9.0—News and Sports Notes. 10.0—Dance Music, relayed from the Ruski Car Restaurant.  
**BERLIN (Germany)**  
 Königs Wusterhausen. 183.5 kc/s (1,635 m.); 60 kW. Transmits at intervals from 5.45 a.m. (Gymnastics and Hamburg Relay). 10.30 a.m.—See Leipzig. 11.10—Chinese Lyrics by Henny Herz. 11.20-2.0 p.m.—See Berlin (Witzleben). 2.0—Roda Roda reads from his own Works, on his Sixtieth Birthday. 2.30—See Berlin (Witzleben). 4.25—Talk by Hermann Schwab. 4.45 The young Generation speaks: How do we stand with regard to present-day Forms of Political Controversy? 5.25 till Close Down—See Berlin (Witzleben).  
**BERLIN (Germany)**  
 Witzleben. 715 kc/s (419.5 m.); 1.5 kW. Transmits at intervals from 5.45 a.m. (Gymnastics). 10.30 a.m.—See Leipzig. 11.10—Tony van Eyck reads from his own

Works. 11.20—Dresden Philharmonic Orchestra, relayed from Dresden. 11.30—See Leipzig. 1.0 p.m.—Talk for Parents: Our Daughters' Careers. 1.30—Mozart's Sonatas by Käthe Heinemann (Pianoforte). 2.0—Otto Zoff reads from his own Works. 2.30—Popular Orchestral Concert, conducted by Eugen Sonntag. 4.25—From A to Z (Dr. Alfred Plötzer). 4.55—Walter Eidlitz reads from his own Works. 5.25—Quartet in G Major for Flute, Guitar, Viola and Cello (Schubert). 5.40—Recital of German Folk Songs by the Berlin Radio Choir and Soloists. 6.0—Concert by the Berlin Wireless Orchestra, conducted by Bruno Seidler-Winkler. Soloist: Käthe Heidersbach (Soprano). Overture, "The Hebrides" (Mendelssohn). Serenade No. 5 (Fuchs). German Dances (Hermann Unger). Waldwanderung (Leo Blech). Aria from "Der Freischütz" (Weber). Selections from "Die Königskinder" (Humperdinck). Overture, "Undine" (Lortzing). Selection from "Der Evangelimann" (Kienzl). Aria from "Lohengrin" (Wagner). Overture, "Donna Diana" (Reznicek). Tarantella, Venezia e Napoli (Liszt). Two Songs (Richard Strauss): (a) Morgen, (b) Ständchen. Suite from "Der Rosenkavalier" (Richard Strauss). 9.0—News Bulletin, followed by Concert of Light Music by the Steiner Brothers' Orchestra. During the intervals—Election Results.

### BORDEAUX-LAFAYETTE (France)

(PTT): 986 kc/s (304 m.); 13 kW. 11.0 a.m.—Relay from Paris (Ecole Supérieure) 671 kc/s (447.1 m.). 1.0 p.m.—Relay from Paris or Relay of a Local Festival. 3.30—Pacheloup Symphony Concert relayed from the Théâtre des Champs Elysées, Paris. 5.20—Sports Report. 5.30—Radio Journal. 7.0—Boxing Report. 7.10—Lottery Results. 7.30—Light Music on Gramophone Records. 8.0—Popular Music on Gramophone Records. After the Programme—Amusement Guide and Time Signal.

**BRATISLAVA (Czechoslovakia)**  
 1,076 kc/s (279 m.); 14 kW. Transmits at intervals from 6.30 a.m. 6.0-9.20 p.m.—See Prague. 9.20—Programme Announcements.

**BRESLAU (Germany)**  
 923 kc/s (325 m.); 1.5 kW. Relay by Gleiwitz, 1,184 kc/s (253 m.). Transmits at intervals from 6.0 a.m. 10.30 a.m.—See Leipzig. 11.20—See Berlin (Witzleben). 11.30—See Leipzig. 1.0 p.m.—News Bulletin. 1.10—Radio Guessing Competition. 1.20—Lesson in Chess. 1.35—Gardening Talk. 1.50—Agricultural Talk. 2.5—Talk by Paul Eckert. 2.50—Sports Talk. 3.0—Concert by the "Wiener Stimmings Duo," with Zither and Guitar Solos. 4.0—Two Stories (Josef Buchhorn). 4.30—Flute Recital. 5.0—Talk on Unemployment. 5.20—Talk: Haydn's Art and Austria. 5.45—Weather for Farmers, followed by Sports Notes. 6.0 till Close Down—See Berlin (Witzleben).

**BRNO (Czechoslovakia)**  
 878 kc/s (342 m.); 35 kW. Transmits at intervals from 6.30 a.m. 5.45 p.m.—See Prague. 5.50—Talk: Forms of Religion To-day. 6.0—See Prague. 9.15—News Bulletin.

**BRUSSELS (Belgium) (No. 1)**  
 I.N.R. 590 kc/s (509 m.); 15 kW. 6.0 a.m. and at hourly intervals throughout the day—Pigeon-flying Report. 11.15-12.45 p.m.—Weather Forecast and Popular Music on Gramophone Records. 4.0—Orchestral Concert, conducted by M. Poppelsdorf. 5.15—Programme for Children. 5.30—Concert of Chamber Music by M. Bouquet (Violin), M. Broos (Viola), M. Ad. Frezin (Cello). Trio (Beethoven). Trio (Jean Cras). 6.15—Religious Talk. 6.30—Journal Parlé. 7.0—Brahms Festival. The Station Orchestra, conducted by Desiré Defaux. Soloist: Mlle. Tambusser (Pianoforte). Talk by Ernest Closson. Academic Overture.

SUNDAY continued

Concerto for Piano and Orchestra. Second Symphony. In the interval at 7.45—Gramophone Records of Poems by Miguel Zamacois and André Rivoire, read by the Authors. After the programme—Concert relayed from the Atlanta Hotel. 9.0—Journal Parlé and Close Down.

BRUSSELS (Belgium) (No. 2) N.I.R. 887 kc/s (338.2 m.); 15 kW. Programme in Flemish.

11.15 a.m.—12.45 p.m.—Weather Forecast and Popular Music on Gramophone Records. Unfinished Symphony (Schubert). Romance in F (Saint-Saëns). Selection from "The Fair at Sorochinsk" (Moussorgsky). The Flight of the Bumble Bee (Rimsky-Korsakov). Fêtes (Debussy). Nocturne (Borodin). Sevilla (Albeniz). Cadiz (Albeniz). Tremolo Study (Tarrega). Fandanguillo (Turina). Study in F Minor (Liszt). An der Quelle (Liszt). Ballet Music from "Marouf" (Rabaud). 4.0—Relay of a Concert from Antwerp.

5.15—Popular Music on Gramophone Records. Overture, "The Armourer" (Lortzing). Selection from "Der liebe Augustin" (Fall). Waltz, Saffa (Bloesch). Aubade printanière (Lacombe). Bolero in C, Op. 19 (Chopin). Prélude, 3 l'après-midi d'un Faune (Debussy). Song from "The Valkyries" (Wagner). Scènes pittoresques (Massenet). 6.15—Religious Talk. 6.30—Journal Parlé. 6.35—Talk on Music. 7.0—See Brussels, No. 1. 7.45—Recitations from the Works of C. Buyse, followed by Concert relayed from the Atlanta Hotel. 9.0—Journal Parlé and Close Down.

BUCHAREST (Romania) Radio-Bucarest. 761 kc/s (394 m.); 12 kW.

9.15 a.m.—Programme for Children. 9.30—Religious Reading. 9.45—Sacred Music by a Choir. 10.0—Concert by the Station Orchestra. 11.0—Light Music on Gramophone Records. 11.45—News Bulletin and Time Signal. 12 noon—Popular Music on Gramophone Records. 2.0 p.m.—Agricultural Talk. 4.0—Light Music and Romanian Music by the Marco Orchestra. 5.0—News and Time Signal. 5.10—Concert (contd.). 6.0—Educational

Talk. 6.40—Light Music on Gramophone Records. 6.40—"Crai Nou"—Comic Opera in Three Acts (Cyprian Porumbescu). News in the intervals.

BUDAPEST (Hungary) 545 kc/s (550 m.); 18.5 kW. Also relayed on 210 metres from 2.0—2.45 p.m. and 3.45—11.0 p.m.

8.0 a.m.—Divine Service from the Cathedral, Eger. 10.15—Evangelical Service from the Deák Platz Church. 11.25—Concert by the Keeskemeter Choir. 12.30 p.m.—Variety Music on Gramophone Records. 2.0—Agricultural Talk. 2.45—Clarinet and Pianoforte Recital. Soloists: Johann Váczí (Clarinet) and Otto Herz (Pianoforte). Talks in the intervals. 3.45—The Microphone visits Mikolfalva. 4.30—Concert by the Choir and Orchestra of the Coronation Church, conducted by Viktor Sugár, relayed from the High School for Music. 6.0—Light Music, conducted by Polgár. 7.15—Dramatic Programme, followed by Dance Music from the Hotel Royal. 11.0 (approx.)—Close Down.

COPENHAGEN (Denmark) 1,067 kc/s (281 m.); 0.75 kW. Relayed by Kalundborg, 260 kc/s (1,153 m.).

7.30 a.m.—Morning Gymnastics. 9.0—Divine Service from Odense Cathedral. 10.30—Weather Forecast. 10.45—News Bulletin. 11.0—Time and Chimes from the Town Hall.

11.2 (from the Axelborg Studio)—Orchestral Concert, conducted by Launy Gröndahl. Overture, "The Daughter of the Regiment" (Donizetti). Suite, A Country Wedding (Leopold Mozart). Invitation to the Dance (Weber, arr. Weingartner). Tambourin (Grétry). Overture, "Tannhäuser" (Wagner).

12 noon—Talk in English; Gladstone. 12.20 p.m.—Talk in German: The German Reich from 1871-1878. 12.40—French Lesson. 1.0—Gramophone Records of Light Music. 1.30—Programme for Children. 2.0—Interval. 2.25—Twenty-fifth Popular Concert from the Axelborg Studio. Conductor: Emil Reesen. Soloist: Albert Hoeberg (Vocalist). 4.0—Divine Service from the Cathedral.

5.20—Talk: Goethe and Women. 5.50—Weather Forecast. 6.0—News Bulletin. 6.15—Time Signal. 6.17—Sports Notes. 6.30—Talk: The Relations between East and West. 7.0—Town Hall Chimes. 7.2—Orchestral Concert, conducted by Launy Gröndahl. Turkish March from "The Ruins of Athens" (Beethoven). The Danish Guards' Waltz (Bruun). "Annen-Polka No. 3 (Joh. Strauss, Sen.). Selection from "I Pagliacci" (Leoncavallo). Bayadere. Dance (Rubinstein). March, Kaiser Friedrich (Friedmann). 7.40—"The Hansen Family"—Sketch (Locher). 7.55—Concert (continued). March, With Kettledrums and Trumpets (Arensberg). Selection from "Les Cloches de Corneville" (Planquette). Selection from "Macbeth" (Weyse). Waltz (Waldteufel). Waltz (Lumbye). Gallop, Steeple Chase (Lanzky). 8.35—Reading. 8.55—Sonata for Violin and Pianoforte in F Major (Haydn).

9.15—News Bulletin. 9.25—Concert (continued). Florentine March (Fucik). Overture, "Flotte Bursche" (Suppé). Fantasia on Swedish Melodies (Fr. Nielsen). March and Chorus from "Judas Maccabaeus" (Händel). Wedding March from "A Midsummer Night's Dream" (Mendelssohn). 10.0—Dance Music from the Wivex Restaurant. In the interval at 11.0—Time and Chimes from the Town Hall. 11.30 (approx.)—Close Down.

CRACOW (Poland) 959 kc/s (312.8 m.); 1.5 kW. Transmits at intervals from 9.0 a.m. 6.0 p.m.—Miscellaneous Items and Announcements. 6.10—Talk by Dr. Laser. 6.25—Light Music on Gramophone Records. 6.40—Programme Announcements. 6.45—Talk: The Power of a Child. 7.15—9.50—See Warsaw. 9.50—Announcements. 10.5—See Warsaw. 11.0 (approx.)—Close Down.

DUBLIN (Ireland) (2RN). 725 kc/s (413 m.); 1.2 kW. Relayed by Cork, 1,337 kc/s (224.4 m.).

8.30 p.m.—Time Signal. 8.31—Lily Pagan's Instrumental Trio. 8.45—Soprano. Solos by Letitia Ennis. 9.0—Pipes by Leo Rowsome. 9.15—Baritone Solos by Frank Gallagher. 9.30—"Ahasuerus Repentant"—by Paul Ryland and Company. 10.5—Instrumental Trio. 10.20—Contralto—Solos by Nora Finn. 10.35—Light Music on Gramophone Records. 11.0—Time Signal, News, Weather Report and Close Down.

FÉCAMP (France) Radio Normandie. 1,364 kc/s (219.9 m.); 1 kW.

Transmits at intervals from 11.0 a.m. 5.0 p.m.—Variety Programme. 7.0—Announcements. 7.15—Concert of Music from Films. Chanson de Poupée (Heymann). Quand je suis loin de toi (Sylviano). Mon Coeur attend (Cazaux). Le Coeur et la Raison (Abraham). Si l'on ne s'était pas connu (Parès). Un mot d'Amour (Heymann). Puisque je t'aime (Sylviano). Malgré moi (Link). C'est vous (Künneke). Avoir un bon Copain (Heymann).

8.0—Concert of Variety Music. 11.30 a.m. (Monday)—Dance Music. 3.0 (approx.)—Close Down.

FRANKFURT-am-MAIN (Germany)

770 kc/s (390 m.); 1.5 kW. Relayed by Cassel, 1,220 kc/s (246 m.). Transmits at intervals from 6.0 a.m. (Hamburg Harbour Concert). 9.0 a.m.—Reading from an unpublished Book (Haas Joachim). 9.30—Haydn Concert. Trio for two Flutes and Cello in C Major. Pieces for Pianoforte from "Flötenuhr." Das Echo—Suite for Four Violins and Two Cellos. Sonata for Pianoforte and Violin. Diverissement in E Flat Major for Strings.

10.30 a.m.—See Leipzig. 11.10—Concert from Munich. 12 noon—Concert from Langenberg. 1.0 p.m.—Talks arranged by the Wiesbaden Board of Agriculture. 1.10—Rural Programme. 2.0—Programme for Young People. 3.0—See Stuttgart. 3.30—Concert from Munich. 5.0—Nature in Spring—A Meditation. 5.25—Thirty Minutes' Variety Programme. 5.55—Weather for Farmers,

followed by Sports Notes. 6.0 till Close Down—See Berlin (Witzleben).

HAMBURG (Germany)

Norag (ha, in Morse). 806 kc/s (372 m.); 1.5 kW. Relayed by Bremen, 1,112 kc/s (270 m.); Flensburg, 1,373 kc/s (218 m.); Hanover, 530 kc/s (566 m.); and Kiel, 1,292 kc/s (232.2 m.).

Transmits at intervals from 6.0 a.m. (Harbour Concert). 10.30 a.m.—See Leipzig. 11.10—Time and Weather. 11.15 (from Flensburg)—Concert from the Deutsch Haus. Conductor: Kurt Barth. 1.0 p.m. (from Bremen)—Talk and Recitations. 1.45 (from Hanover)—North Saxon Miniatures—The Works of Friedrich von Bodenstedt, by Alice Corona Schöne-Blank (Vocalist), Carl Schmidt (Recitations), and Otto Ebel von Sosen (Pianist). 2.15—Orchestral Concert, conducted by Horst Platen.

3.0—The Work of the Theatre in the Norag District. Schwerin in Literature and Music, by the Cast of the State Theatre at Schwerin, with Introductory Talk by Werner Ladwig. Two Arias and Duet from "Il Mondo della Luna" (Haydn). Champagne Aria and Sextet Selection from "Don Giovanni" (Mozart). Scene from "Faust" (Goethe). Trio Selection from "Alessandro Stradella" (Flotow). Monologue from "The Mastersingers" (Wagner). Selection from "Christelfein" (Pfitzner). Selection from "Egmont" (Goethe). Aria from "Cardillac" (Hindemith). Aria and Quartet Selection from "Friedemann Bach" (Graener).

5.0 (from Hanover)—Dialogue with Karl Jatho, the German Aviator. 5.30—Sports Talk. 5.40—Weather Forecast. 5.45—Sports Notes. 6.0—See Berlin (Witzleben). 9.0—News Bulletin. 9.20—Concert from Berlin (Witzleben). In an interval:—Results of the Election of the Reichspräsident.

HEILSBURG (Germany)

1,085 kc/s (276.5 m.); 60 kW. Relayed by Danzig, 662 kc/s (453.2 m.). Transmits at intervals from 6.0 a.m. 10.30 a.m.—See Leipzig. 11.10—Concert by the Königsberg Opera House Orchestra, conducted by Werner Franz. In the interval:—Radio Report from the Schwenzaitsee.

WESTINGHOUSE

A CONSTANT H.T. SUPPLY

H.T. 6 METAL RECTIFIER



OUTPUT 175 v. 25 mA.

PRICE 15/-

Your radio set demands current—ample, steady, and silent. Without it, reception and reproduction are bound to suffer. Give it what it wants by using an eliminator incorporating

THE WESTINGHOUSE METAL RECTIFIER

which ensures a permanent and adequate H.T. supply.

All the best eliminators are fitted with Westinghouse Metal Rectifiers. Our booklet, "The All-Metal Way," contains full particulars, together with circuits and details for building eliminators. The attached coupon and 3d. in stamps will bring you a copy.

COUPON

Westinghouse Publicity, 82, York Road, King's Cross, London, N.1. Please send me a copy of your booklet, "The All-Metal Way," for which I enclose 3d. in stamps.

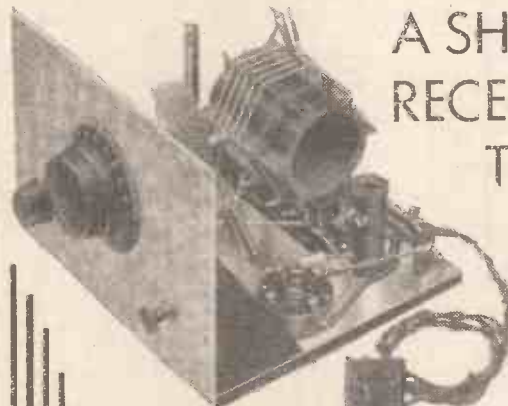
Name .....

Address .....

W.R., 9/4/32.

The WESTINGHOUSE BRAKE & SAXBY SIGNAL Co.Ld. 82, YORK Rd., KING'S CROSS, LONDON, N.1

CONVERT YOUR SET INTO A SHORT WAVE RECEIVER WITH THE KELSEY SUPER-HET



SUPER-HET

SHORT WAVE ADAPTOR

HERE is a unit that adds the short wave stations to your present radio set without alteration or trouble. For use with all mains sets of all types and battery sets with one stage or more of H.F. amplification. Connected in two seconds without alteration to your present set, this unit gives every listener the long-awaited opportunity to hear transmissions from all over the world. Ordinary broadcasts are still available when desired. It is sent complete, ready assembled with plug-in coils for tuning 16 to 52 metres, and full instructions. Any standard detector valve is suitable for this unit. Extra plug-in coil, if desired, for tuning-in 40-120 metres ... .. 4/6

CASH or C.O.D.

44'6

or 10/- deposit and 7 monthly payments of 5/6 Ready for immediate use with Dial Calibration Chart. Also simple tuning notes, "How to Hear the Short Wave Stations," specially compiled by a Short Wave expert.

PETO-SCOTT CO. LTD.

FOR EVERYTHING RADIO. ESTABLISHED SINCE 1919.

77, CITY RD., LONDON, E.C.1.

'Phone: Clerkenwell 9406/7/8.

62, HIGH HOLBORN, LONDON, W.C.1.

'Phone: Chancery 8266.

Please send me, C.O.D., CASH or H.P., Kelsey Super Het Short Wave Adaptor with/without extra coil, for which I enclose £..... s..... d..... cash/deposit.

NAME .....

ADDRESS .....

My set is.....

W.R.9/4/32.

SUNDAY continued

Angerburg of the Finals of the Four German Sail Planing Week. 1.0 p.m. (from Danzig)—Talk for Young People: A Visit to a North Sea Aquarium in Heligoland. 1.30—Talk: The Food of Insects. 2.0—See Leipzig. 2.40—"Brüderchen und Schwesterchen"—Fairy Play for Radio (arranged by Margarete Dietrich). 3.15—Edmund Eysler and Oscar Straus Concert by the Orag Orchestra, conducted by Eugen Wilken. March, Servus Wien (Eysler). Overture, "Das Tal der Liebe" (Oscar Straus). Waltz, Junge Mädchen tanzen gern (Eysler). Selection from "A Waltz Dream" (Oscar Straus). Two Selections (Eysler): (a) Derby Twostep, (b) Fein schmekt uns der Wein. Waltz from "Die kleine Freundin" (Oscar Straus). Selection from "A Day in Paradise" (Eysler). 4.0 (in an interval)—Sports Notes. 5.0—Cossack Songs by Friedrich von Bodenstedt. 5.30—Recital of Songs to the Lute. 6.0 till Close Down—See Berlin (Witzleben).

HILVERSUM (Holland) 1,004 kc/s (298.8 m.); 8.5 kW. 7.55—11.40 a.m.—Programme of the Workers' Radio Society (V.A.R.A.). 7.55—Gymnastics. 8.10—Españero Lesson. 8.35—Football Notes. 8.40—Horticultural Talk. 9.10—Concert by the V.A.R.A. Philharmonic Orchestra, conducted by Hugo de Groot. Soloist: Sonja ten Kate-Kovalefska (Vocalist). In the intervals—Recitations and Gramophone Records of Variety Music. 11.40—4.40 p.m.—Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 11.40—Concert by the Wireless Chamber Orchestra, conducted by Louis Schmidt. Overture, "La Reine d'un Jour" (Adam). Suite, Miniatures (Coates). Serenade (Mozzkovsky). Czardas, Magyar Dalck (Lehar). Potpourri of the Works of Weber (Urbach). Barcarola veneziana (Leoncavallo). Entry March of the Boyards (Halvorsen). 12.40 p.m.—Talk: 1.10—Concert (continued). Overture (Kéler Béla). Waltz, Delirien (Joseph Strauss). Selection from "The Bird Fancier" (Zeller). 1.40—Weekly Book Talk.

2.10—Concert relayed from the Concertgebouw, Amsterdam. 3.40—Scenes from Shakespeare. 4.25—Sports Notes and Gramophone Records of Variety Music. 4.40—5.40—(V.A.R.A. Programme). Programme for Children. 5.40—7.40—Programme of the Liberal Protestant Radio Society (V.P.R.O.). 5.40—Literary Talk. 6.25—Divine Service from Weesp. 7.40 (till Close Down)—A.V.R.O. Programme. 7.40—Time and News. 7.55—Vocal and Instrumental Concert. 9.20—Relay of a Cycle Race from Paris. 9.40—Concert of Light Music by Kovacs Lajos and his Orchestra, with Songs by Bob Scholte. 10.40—Gramophone Concert of Variety Music. 11.40 (approx.)—Close Down.

HUIZEN (Holland) 160 kc/s (1,875 m.); 8.5 kW. 8.10—9.10 a.m.—Programme of the Catholic Radio Society (K.R.O.). Religious Programme. 9.10—11.55—Programme of the Christian Radio Society (N.C.R.V.). 9.10—Organ Recital. 9.30—Divine Service from Utrecht, followed by Organ Recital. 11.55—4.40 p.m.—Programme of the Catholic Radio Society (K.R.O.). 11.55 a.m.—Sextet Concert, conducted by Lustenhouwer. 1.25 p.m.—Talk. 1.50—Literary Talk. 2.10—Orchestral Concert, conducted by Johan Gerritsen. Soloist: Mlle. Carolina Castelijck (Soprano). 3.55—Service for Hospitals. 4.40—7.25—N.C.R.V. Programme. 4.40—Sacred Music on Gramophone Records. 5.30—Divine Service from Doesburg, followed by Sacred Music on Gramophone Records. 7.25 till Close Down—K.R.O. Programme. 7.25—Talk on Ireland. 7.50—Football Results. 7.55—Concert from the Concert Hall at Bois-le-Duc. The Bois-le-Duc Mixed Choir, and the Municipal Orchestra of Maastricht. Soloists: Marcus Plooyer (Tenor), Mlle. José Candel (Soprano), Mlle. Smits (Contralto), Jean Kohben (Recitations), and Mlle. Mille Bouman (Pianoforte). "King David"—Symphonic Psalm for Soloists, Speaker, Mixed Choir and Orchestra (Honegger). Concerto in E Flat Major for Pianoforte and Orchestra (Mozart). Psalmus Hungaricus—for Mixed Choir and Orchestra (Zoltan Kodaly). 9.10 (in an interval)—News Bulletin. 10.20—Choral Epilogue. 10.40 (approx.)—Close Down.

KALUNDBORG (Denmark) Kalundborg Radio. 260 kc/s (1,153 m.); 7.5 kW. See Copenhagen.

LAHTI (Finland) 167 kc/s (1,796 m.); 54 kW. Relayed by Helsinki, 815 kc/s (368.1 m.). Transmits at intervals from 6.45 a.m. (Gymnastics). 10.0 a.m.—Violin and Pianoforte Recital. Trio in G Major (Haydn). Variations on "Ich bin der Schneider Kakadu" (Beethoven). 10.45—Press Review. 10.50—Agricultural Report. 10.59—Time Signal and Weather Forecast. 11.0—Divine Service in Swedish. 12.30 p.m.—Popular Concert by the Helsinki Municipal Orchestra. 3.0—Gramophone Records of Variety Music. 4.10—Talk. 4.35—Recital of Songs. 5.10—Violin Recital. 5.35—Talk on History. 6.5—Quartet Music. 6.25—Talk, followed by Orchestral Selections. 7.45—News in Finnish and Swedish.

LANGENBERG (Germany) Westdeutscher Rundfunk. 635 kc/s (473 m.); 50 kW. Transmits at intervals from 6.0 a.m. (Hamburg Relay). 10.30 a.m.—See Leipzig. 11.10—Talk: The Moslems of Bosnia and Herzegovina. 11.35—Talk: The Soul. 12 noon—Orchestral Concert, conducted by Kuhn. Soloist: Bronislav Mittmann (Violin). Overture, Im Frühling (Goldmark). Albumblatt for Violin and Orchestra (Wagner). Ballet Music from "Hérodiade" (Massenet). Waltz from the Serenade for String Orchestra (Tchaikovsky). Selection from "Madame Butterfly" (Puccini). Overture, "Indigo" (Johann Strauss). Ländler, Um die Linde geht der Tanz (Oscar Straus). Selection from "Der liebe Augustin" (Fall). March, Venezia (Fabiani).

1.30 p.m.—Shorthand Dictation. 1.50—Talk: Breslau—The Frontier Town of East Germany. 2.20—Reading: Der Kürassierhelm (Georg von der Vring). 2.40—Talk: Methods of retaining Heat and deadening Sound. in Modern House Building. 3.0—Talk: Towns of the Rhineland and Westphalia—Rheine. 3.30—Concert conducted by Wolf. 5.0—Gymnastics Contest, Holland v. Germany, relayed from the Town Hall, Mülheim-an-der-Ruhr. 5.30—An Entertainment. 6.20—Sports Notes. 6.30—See Berlin (Witzleben). In an interval at 9.5—News. 11.30 (approx.)—Close Down.

LEIPZIG (Germany) 1,157 kc/s (259 m.); 2 kW. Relayed by Dresden, 941 kc/s (319 m.). Transmits at intervals from 5.45 a.m. 7.30 a.m.—Organ Recital by Joseph Messner (Organist of Salzberg Cathedral). Prelude and Fugue (Frescobaldi). Largo (Bassani). Venetian Pastorale (Carazzato). Adagio molto (Martini). Nattale (Bossi). 8.0—"Goethe's Suleika"—A Radio Sequence (Dr. Karl Wolff) with Songs by Martha Fuchs. 9.0—Talk on the Cantata to be Broadcast at 10.30. 9.10—10.0—Interval. 10.0—Talk: Off the Beaten Tracks in the Harz Mountains. 10.30—National Transmission. Church Cantata, No. 112 (Bach), by the Municipal and Gewandhaus Orchestra, the Choir of St. Thomas' and Soloists. 11.0—Talk on Ernst Barlach and Selections from his Works. 11.30—Concert by the Dresden Philharmonic Orchestra, conducted by Bernhard Seidmann. 1.0 p.m.—Weather, Time and Talk. 1.20—Agricultural Notes. 1.30—Chamber Music. Quartet for Pianoforte, Violin, Viola and Cello in G Minor, Op. 25 (Brahms). 2.0—Second Half of the International Hockey Match—Germany v. Austria (on Gramophone Records). 2.40—Concert by a Boys' Choir. 3.25—Topical Report. 3.35—Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumner. 4.8—"Turandot"—A Radio Play (Carl Hagemann). 5.0—Choral Concert with Organ Selections, relayed from the Cathedral Bautaen. 6.0 (till Close Down)—See Berlin (Witzleben).

LJUBLJANA (Yugoslavia) 522 kc/s (574.7 m.); 2.5 kW. Transmits at intervals from 8.0 a.m. 4.0 p.m.—Dramatic Programme. 7.0—Relay of a Concert from Koedje. 9.0—Time and News. 9.15—Concert of Light Music.

LWÓW (Poland) 788 kc/s (381 m.); 16 kW. Transmits at intervals from 9.0 a.m.

4.15 p.m.—Talk: Amusements and the Art of Enjoying Oneself. 4.30—Talk: The Development of National Art. 4.45—See Warsaw. 6.0—Miscellaneous Items. 6.25—Talk by Mariusz Nowina. 6.40—Sports Report. 6.45—Talk from Cracow, 959 kc/s (312.8 m.). 7.15—See Warsaw. 10.5—Concert by a Mandolin Orchestra. 11.0 (approx.)—Close Down.

LYONS (France) La Doua (P.T.T.). 644 kc/s (465.8 m.); 1.5 kW. 7.0 a.m.—Review of the Paris Morning Press, relayed from Paris (Ecole Supérieure), 671 kc/s (447.1 m.). 11.0—Relay from Paris (Ecole Supérieure). 1.30 p.m.—Orchestral Concert. 3.30—Paderloup Concert. 7.0—Concert relayed from Paris (Ecole Supérieure).

MADRID (Spain) Union Radio (E.A.J.T.). 707 kc/s (424.3 m.); 2 kW. 8.0—9.30 a.m.—Topical Review. 2.0 p.m.—Chimes, Time Signal, Theatre Guide and Sextet Concert. 3.30—Interval. 7.0—Chimes and Request Concert of Gramophone Records. 8.30—Interval. 9.30—Chimes, Time Signal and Song Recital by Carmen Fernandez de Toro, followed by Pianoforte Recital from the Works of Chopin by Elena Romero. 11.30—Dance Music. 12 midnight (approx.)—Chimes and Close Down.

MILAN (Italy) Ente Italiano Audizioni Radiofoniche. 905 kc/s (331.5 m.); 7 kW. See Turin.

MORAVSKÁ-OSTRAVA (Czechoslovakia) 1,137 kc/s (263.8 m.); 11 kW. Transmits at intervals from 6.30 a.m. 6.0 p.m.—See Prague. 9.15—Announcements. 9.20—See Prague.

MOSCOW (Russia) Trades Union. 230.1 kc/s (1,304 m.); 100 kW. Transmits at intervals from 4.0 a.m. 9.0 a.m.—Midday Concert for Workers. 10.0—Peasant's Radio Journal. 11.0—Literary Programme. 11.30—Spring Programme: Literary and Musical Selections. 12 noon—Educational Programme. 1.0 p.m.—Programme (to be announced). 1.30—Recreative Programme for Schools. 1.45—Weather Forecast. 2.0—Agricultural Report. 2.30—Talk (to be announced). 2.55—Time Signal. 3.0—Proletariat Radio Journal. 4.0—Peasant's Radio Journal. 5.0—Appeal. 7.0—Talk in German and English: The Tactics of the Bolsheviks before they came into power. 8.55—Time Signal. 9.0 (approx.)—Close Down.

MÜNICH (Germany) 563 kc/s (533 m.); 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s (560 m.), and Nürnberg, 1,256 kc/s (239 m.). 9.0 a.m.—Organ Recital with Violin and Soprano Solos. 9.45—Chimes from Our Lady's Church. 10.5 (from Nürnberg)—Wind Instrument Concert. 10.40—Reading: Die Reise (Jakob Dolata). 11.0—Orchestral Concert, conducted by Erich Klösa. Romantic Overture (Kéler-Béla). Gondellied (Scharwenka). Selection from "The Merry Wives of Windsor" (Nicolai). Waltz, Wo die Zitronen blühen (Johann Strauss). Eislumen—Russian Dances and Melodies (Leuschner). Syncopation (Kreisler). 12.5 p.m.—Time, Weather and Programme Announcements. 12.15 (from Nürnberg)—Agricultural Talk. 12.35—Wine, Woman and Song—A Gramophone Record Sequence. 1.30—Dialogue—Young Chess Players. 2.15—"Der Feigling"—Radio Play for Children (Josef Steck). 1.0—Talk by Herr Schauer. 3.30—Orchestral Concert, conducted by Hans Winter. 5.0—Talk: Stunt Flying. 5.20—Gramophone Records of Variety Music. 5.55—Weather and Sports Notes. 6.0—See Berlin (Wetzleben).

OSLO (Norway) Kringkastingsselskapet, 277 kc/s (1,083 m.); 60 kW. Relayed by Fredrikstad, 816 kc/s (367.6 m.); Hamar, 536 kc/s (560 m.); Notodden, 671 kc/s (447.1 m.); Porsgrund, 662 kc/s (453.2 m.); and Rjukan, 671 kc/s (447.1 m.).

10.0 a.m.—Divine Service. 3.30 p.m.—Concert by the Orchestra of the Cecil Restaurant, conducted by Hans Bacile. Overture, Le Maschere (Mascagni). Waltzes (Brahms). Selection from "Mignon" (Thomas). Selection from "King Manfred" (Reinecke). Selection (Leoncavallo). Væringetog (Olsen).

4.30—Talk in French: The Life and Death of Marie Bartkireff. 4.50—Chimes. 5.0—Divine Service. 6.15—Weather and Press Review. 6.30—Sports Notes. 7.0—Time. 7.1—Talk: The Life of the Beaver in the Canadian Forests. 7.30—Concert by the Station Orchestra, conducted by Hugo Kramm. 8.40—Weather and News Bulletin. 9.0—Topical Talk. 9.15—Recitation. 9.45—Concert and Dance Music on Gramophone Records. 11.0 (approx.)—Close Down.

PALERMO (Italy) Ente Italiano Audizioni Radiofoniche. 554 kc/s (542 m.); 3 kW. Transmits at intervals from 9.40 a.m. 4.30 p.m.—Light Music and Dance Music from the Olympia Tea Rooms. Sports Notes in the Interval. 7.0—Announcements and Giornale Radio. 7.20—Sports Notes. 7.25—Variety Music on Gramophone Records. 7.30—Time and Announcements. 7.45—Symphony Concert, conducted by La Rosa Parodi. Italian Symphony (Mendelssohn). Symphony for an Opera-bouffe (Pastura). Iberia (Debussy). Overture, "Der Freischütz" (Weber). In the interval, Talk: Gabriele d'Annunzio and Sicily. After the Concert, Songs, and Theatre Notes. 9.55 (approx.)—News Bulletin.

PARIS (France) Eiffel Tower (F.L.E.). 207.5 kc/s (1,445.7 m.); 13 kW. Time Signals (on 2,650 m.) at 9.26 a.m. and 10.26 p.m. (preliminary and 6-dot signals).

11.30 a.m.—Symphony Concert, conducted by Edouard Flament. Soloist: M. Charon (Violin). Bourrée fantasque (Chabrier). Slavonic Dances (Dvorák). Hommage à Rameau (Debussy). Violin Solos: (a) Rolla (Flament), (b) Scherzino (Akimzenko), (c) Kamarinskaja (Glinka). In the interval at 12.5 p.m.—News and Weather. 5.45—Le Journal Parlé. 6.45—Programme for Children. 7.20—Weather Report. 7.30—Gramophone Concert. Part I. Russian Music. Part II. Popular Music.

PARIS (France) Poste Parisien. 914 kc/s (328.2 m.); 1.2 kW.

11.0 a.m.—Gramophone Records, News and Announcements. 11.15—Concert of Light Music on Gramophone Records. 12.45 p.m.—News and Announcements. 1.0—5.45—Interval. 5.45—News and Announcements. 6.0—Light Music on Gramophone Records, Talks and News. 6.30—Variety Music on Gramophone Records. 7.30—Gramophone Records, Talk and News. 7.45—Vocal and Orchestral Concert. Overture, "Raymond" (Thomas). Réverie-Caprice for Violin and Orchestra (Berlioz). Waltz, No. 1 (Dvorak). Rapsodie norvégienne (Lalo). The Nutcracker Ballet (Tchaikovsky). Dances from "The Tempest" (Chausson). 9.45—News Bulletin. 9.50 (approx.)—Close Down.

PARIS (France) Radio-Paris (C.F.R.). 174 kc/s (1,725 m.); 75 kW. 6.45 a.m.—Variety Music on Gramophone Records. 7.0—News, Weather and Press Review. 7.30—Physical Culture Lesson. 9.20—Bookkeeping Lesson. 9.40—Spanish Lesson. 10.0—Variety Music on Gramophone Records. 10.30—Popular Gramophone Music. 11.0—Religious Address. 11.20—Sacred Concert on Gramophone Records. 11.30—Billboard as an Accountant. 11.45—Press Review, News and Weather. 12 noon—Popular Gramophone Records. 1.30 p.m.—Variety Music on Gramophone Records. 2.0—Concert of Decca Records. In the interval—Running Commentary on the Football Match, France v. Italy. 3.0—Popular Music on Gramophone Records. 3.30—Musical Programme. 4.15—Concert arranged by the Association des Concerts Colonne, relayed from the Théâtre Châtelet. 6.0—Variety Concert on Gramophone Records. 6.30—Musical Programme. 7.0—Radio Paris Music Hall. The Orchestra, conducted by Maurice

André. Soloists: Pierre Bayle and Mme. Caro Martel (Songs). In the intervals at 7.30—News, Sports Notes and Weather, and at 8.15—Press Review and News. 9.30—Dance Music.

PITTSBURG (U.S.A.) Westinghouse-Electric (KDKA). 980 kc/s (306 m.); 25 kW. Transmits at intervals from 3.15 p.m. 7.0—Allegheny County Memorial Park Concert. 7.30—Yeast Foamers from New York. 8.0—National Youth Conference. 8.30—Swift Garden Party, from New York. 9.0—Orchestral Concert. 9.30—The Lifetime Parade from New York. 10.0—Shady-side Presbyterian Church Services. 11.0—Time Signal. 11.1—Temperature Report. 11.2—Weather Report. 11.5—Sports Review. 11.10—Press News Bulletin. 11.15—Westinghouse Personalities. 11.45—Meistersingers, from New York. 11.59—Time Signal. 12 midnight—Acidinaires. 12.15—3.45 a.m. (Monday)—New York Relay. Major Icequick and his Frigidarians. 12.30—Three Bakers. 1.0—Enna Jettick Melodies. 1.15—Collier's Hour. 2.15—Bayuk Stag Party. 2.45—Making the Movies. 3.15—The Old Singing Master. 3.45—War Stories. 4.0—Time Signal. 4.1—Sports Review. 4.11—Temperature Report. 4.12—Weather Report. 4.15—Last Minute Press News. 4.20—Nocturnal Choir. 4.45—Sanella and Herman, from New York. 5.0—Time and Close Down.

POZNAŃ (Poland) 896 kc/s (335 m.); 1.9 kW. Transmits at intervals from 9.0 a.m. 9.0 a.m.—Divine Service from Lwów. 11.0—Time and Chimes from the Town Hall. 11.45—Talk for Housewives. 12.35 p.m.—Variety Music on Gramophone Records. 1.0—See Warsaw. 3.20—Choral Concert. 3.40—See Warsaw. 3.55—Popular Gramophone Music. 4.15—Talk from Lwów. 4.30—Programme for Boy Scouts. 5.0—Concert from the Works of an Unknown Poznań Composer. 5.30—Tenor Song Recital by Radziślaw Peter. Aria from "Luiza Miller" (Verdi). Aria from "Carmen" (Bizet). Aria from "La Bohème" (Puccini). Songs by Curtis, Cardillo, Leoncavallo, Lalle and Wielhorski. 6.0—Miscellaneous Items and Announcements. 6.25—Light Music on Gramophone Records. 6.45—9.50—See Warsaw. 9.50—Time Signal, Sports Notes and Police Report. 10.0—Dance Music from the Esplanade Café. 11.0 (approx.)—Close Down.

PRAGUE (Czechoslovakia) 614 kc/s (488.6 m.); 120 kW. Transmits at intervals from 6.30 a.m. 11.0 a.m.—Chimes. 11.5—Musical Programme. 12.30 p.m.—Agricultural Report. 1.0—Agricultural Talk. 1.15—Social Report. 3.0—Concert from Brno. 4.30—Variety Music on Gramophone Records. 4.45—Talk: The Eskimos. 5.0—German Transmission. Popular Songs and Duets. News in the interval. 5.45—Sports Notes. 6.0—Brass Band Concert, conducted by Novotny. 7.0—"The Lute Guest" Play. 7.30—"La finta Giardiniera"—Opera (Mozart), arranged by J. Odchal. 8.0 (in the interval)—Time and News. 9.0—Miscellaneous Notes. 9.20—Relay from a Café.

RABAT (Morocco) 721.1 kc/s (416 m.); 6 kW. 12.30 p.m. (also on 23.8 m.)—Programme of Light Classical Music. Waltz, Flattergeister (Josef Strauss). Selection from "Der Schauspielerdirektor" (Mozart-Salabert). Chant Hindou (Rimsky-Korsakov). Selection from "The Merry Widow" (Lehar). Minuet (Bocherini). Oboe Solo, Après la Gavotte (Weingartner). Ballet Music from "Lakmé" (Delibes). Song from "La belle Héloïse" (Offenbach). Selection (Kalmán-Letortey). You (Jeff). Suite gaie (Marie). News in the Interval. 2.0—Concert of Light and Operatic Music. 4.0—Popular Music on Gramophone Records. 5.0—7.30—Interval. 7.30—Light Music on Gramophone Records. 7.45—Journal Parlé, Weather Report and News Bulletin. 8.0—Concert by Rabat and the Amis de Radio-Maroc (also relayed on 32.26 m.). March from "The Czardas Princess" (Kalmán-Salabert). Waltz, Perlenwalzer (Gungl). Overture, Le Roi l'a dit (Delibes-Mouton). Selection from "Mireille" (Gounod). Reverie (Hahn). Selection from "The Magic Flute" (Mozart-Tavan). Air from "Le

# CHRISTOPHER STONE'S new booklet—

## "How to Choose a Radio-gramophone"

### Just Published



# FREE

# COPY FOR YOU

When you've read it you'll want to hear a really good

## RADIO-GRAMPHONE

# Columbia

make one you can afford



Model 602

£2. 14s.

monthly

deposit £3. 9. 6 and 12 payments of £2.14.

32 gns.

cash

**USE  
THIS  
COUPON**

A modest price for an instrument that is a revolution in home entertainment—The instant choice of 40 or more of Europe's best radio programmes, clear and sharp from the ultra selective set with its two screen-grid valves and band pass tuning—Again the instant choice of your own favourite music from your records, reproduced with superb tone through the moving-coil speaker—

And all so simply achieved—the turn of a knob does it all. The cost of power from the electric light socket is less than 1/2d. per hour.

Or for £3 8s. a month (40 gns. cash, Model 603) an even more impressive model of exceptional power is yours to enjoy. The automatic record-changing Radio-Graphophone (Model 604) costs but 47 gns.

The coupon below brings the instrument on trial to your home—FREE.

In this—specially written—Christopher Stone, familiar to every listener, gives you the full benefit of his vast experience of radio and electrical gramophone reproduction, traces the development of the radio-gramophone, discusses frankly all the points of a reliable instrument, and, in his friendliest style helps you to a complete understanding of "this modern miracle."

\* Please send me a free copy of Mr. Stone's Booklet  
\* I should like to hear Model.....playing in my home without cost or obligation to myself

\* Cross out if not required

NAME .....

ADDRESS .....

Cut this out and post in an unsealed envelope bearing a 1/2d. stamp to Columbia, 106a, Clerkenwell Road, London, E.C.1.





PRINCIPAL EVENTS

MONDAY (April 11)

SYMPHONY CONCERTS

- 7.5 p.m. Frankfurt, Stuttgart: Ninth Symphony (Beethoven).
7.15 ,, Budapest: The Philharmonic Society, conducted by Dohnanyi.
7.30 ,, Leipzig: The Dresden Philharmonic Orchestra, conducted by Buschkötter.
8.0 ,, Italian Stations (all): The "Standard" Orchestra; singer, Tito Schipa.
8.20 ,, Berlin (Witzleben): Liszt programme conducted by Scherchen.

CONCERTS (Vocal and Instrumental)

- 7.0 p.m. Langenberg: from Düsseldorf.
8.10 ,, Prague: The music of Dusik.
9.15 ,, Warsaw: The Railway Orchestra.
9.45 ,, Munich, Frankfurt: Late Concert.

OPERAS AND OPERETTAS

- 6.40 p.m. Vienna: "Das Herz" (Pfitzner) from the State Opera.
7.0 ,, Königs Wusterhausen: "Cavalleria Rusticana" and "I Pagliacci" from the State Opera, Berlin.
7.0 ,, Schweizerischer Landessender: Le Violonnewx (Offenbach).

CHAMBER MUSIC

- 7.15 p.m. Bucharest: The Theodoresco Quartet.
8.30 ,, Munich: Trios (Franck and Cassado).
9.0 ,, Stockholm: Old French programme.

PLAYS AND TALKS

- 7.0 ,, Radio-Paris: "Peer Gynt" (Ibsen) with Grieg's music.
7.15 p.m. Berlin (Witzleben), Breslau: "St. Joan of the Slaughter-Houses" (Brecht).
8.10 ,, Hamburg: "Strassenmann" (Kesser).
8.30 ,, Frankfurt, Stuttgart: "Sturm auf Poljana" (Otto Violan).
8.45 ,, Brussels No. 1: "Le Cavalier bizarre" (M. de Ghelderode).

DANCE MUSIC

After the Concert: Budapest.

Ibsen's Peer Gynt

This evening at seven, RADIO-PARIS is giving a French version of Ibsen's great play, with the whole of the Grieg music from which the composer afterwards made the two popular suites. Conceived, as the author himself tells us, in the mood of "A Crusader's Song of Triumph," Peer Gynt is a work of almost audacious high spirits. Much of the



Ibsen

[Photo: L. E. A.]

story, as we know from his letters, is actual reminiscence of his own experience, and Aase, Peer Gynt's mother, is, in the main, a portrait. Fancy sweeps through the poem, mingled with laughter, tenderness, and not a little irony, but if it is a satire upon the Norwegians of his own day, as many of them apparently thought, such was not Ibsen's intention. Grieg furnished a short summary for the first performance of the second Suite of his music. It is as follows: "Peer Gynt, the only son of poor peasants, is drawn by the poet as a character of a morbidly developed fancy and a prey to megalomania. In his youth he has many wild adventures; he comes, for instance, to a peasant's wedding, where he carries off the bride up to the mountain peaks. Here he leaves her." The music known as Ingrid's Lament illustrates this episode. "He then enters the kingdom of the mountain king, whose daughter falls in love with him and dances to him." The music for this dance is best known to listeners as the last piece in the first of the Peer Gynt Suites. "But Peer Gynt laughs at the dance and the droll music, whereupon the enraged mountain-folk wish to kill him. He succeeds in escaping, and, now outlawed for his wild conduct, makes his way home to find his mother dying." The music for that episode is the second of the four pieces in the first Suite. "He wanders to foreign countries, among others to Morocco, where he appears as a prophet, and is greeted by Arab girls." There are three pieces of music for this part of his wanderings—that called "Morning," which illustrates his awaking on the shore, and the two dances, "Anitra's Dance" from the first Suite and the "Arabic Dance" from the second. "After many wonderful guidings of Fate, he at last returns as an old man, after suffering shipwreck on his way, to his home as poor as he left it." Grieg wrote for this part of the story the number known as "Peer Gynt's Return." "The sweetheart of his Youth, Solvejg, who has stayed true to him all these years, meets him; and his weary head at last finds rest in her lap." She sings what is possibly the best-known number of all the incidental music which Grieg wrote for the drama—"Solvejg's Song."

Table with 4 columns: Station, kc/s, m, kW. Includes London, Daventry, Northern, and various time slots with program details.

Table with 4 columns: Station, kc/s, m, kW. Includes London, Midland, Northern, and various time slots with program details.

NOTE: THE HOURS OF TRANSMISSION ARE REDUCED TO GREENWICH MEAN TIME

ALGIERS (N. Africa) 825.3 kc/s (363.3 m.); 13 kW. Transmits at intervals from 12.30 p.m. to 7.0 p.m.
BERLIN (Germany) 715 kc/s (419.5 m.); 1.5 kW. Transmits at intervals from 5.30 a.m. to 3.30 p.m.
BRATISLAVA (Czechoslovakia) 1,076 kc/s (279 m.); 14 kW. Transmits at intervals from 10.0 a.m. to 3.0 p.m.

Witzleben. 4.30—Review of Books. 5.0—Talk: What is German? 5.30—Elementary Spanish Lesson. 5.55—Weather for Farmers. 6.0—Topical Talk. 6.30—Agricultural Talk, followed by Weather for Farmers. 7.0—"Cavalleria Rusticana"—Opera in One Act (Mascagni), followed by "I Pagliacci"—Opera in Two Acts and a Prologue (Leoncavallo), relayed from the Opera House, Unter den Linden. 9.40—News Bulletin. 10.0 (approx.)—Concert from Leipzig. 11.0 (approx.)—Close Down.

brecht. Soloist: Joseph Schmidt (Tenor). Toten-Tanz—Paraphrase on "Dies Irae"—for Pianoforte and Orchestra. A Faust Symphony. 9.50—News Bulletin, followed by Dance Music from the Eden Hotel. 11.30 (approx.)—Close Down.
BORDEAUX-LAFAYETTE (France) (PTT) 986 kc/s (304 m.); 13 kW. Transmits at intervals from 11.45 a.m. to 5.0 p.m.
BRATISLAVA (Czechoslovakia) 1,076 kc/s (279 m.); 14 kW. Transmits at intervals from 10.0 a.m. to 3.0 p.m.



**MONDAY**  
continued

(Weber). Scherzo from the Second Quartet (Tchaikovsky). 9.10—Talk. 9.30—Chamber Music. 10.0 (approx.)—Close Down.

**LAHTI (Finland)**  
167 kc/s (1,796 m.); 54 kW. Relayed by Helsinki, 815 kc/s (368.1 m.).  
Transmits at intervals from 6.10 a.m. (Service in Swedish).  
6.10 p.m.—Orchestral Selections. 6.20—Talk. 6.45—Recital of Songs. 7.5—Recitations. 7.25—Choral Recital of Estonian Songs. 7.45—News in Finnish and Swedish.

**LANGENBERG (Germany)**  
Westdeutscher Rundfunk. 635 kc/s (473 m.); 60 kW.  
Transmits at intervals from 5.45 a.m. (Exercises, Weather, Time and Gramophone Concert).  
10.20 a.m.—Gramophone Concert of Light Music. 11.0—Concert relayed from Stuttgart. 11.50—Weather, Announcements and Time Signal.  
12 noon—Concert, conducted by Wolf. Selection and Coronation March from "Die Folkunger" (Kretschmar). Waltz, Frühlingsstimmen (Johann Strauss). Overture, "Das Nachtlager in Granada" (Kreutzer). Potpourri, Im Rosengarten Mendelssohns (Urbach). A Norwegian Bridal Procession (Grieg). Spring Suite (Nevin). Die Post im Walde (Schäffer). Potpourri, Lehariana (Geiger).  
1.30 p.m.—Meat Market Prices. 2.30—Economic Notes and Time Signal. 2.50—Programme for Children. 3.20—Programme for Young People. 4.0—Concert, relayed from Munich. 5.15—Talk for Women: The Woman Student. 5.40—Dialogue for Parents; The Child with no Self-Confidence. 6.0—Weather, Time, Announcements and Sports Notes. 6.15—Topical Talk. 6.30—Technical Talk. 6.55—First General News.  
7.0—"The Melody"—Concert from Dusseldorf. The Dusseldorf Chamber Orchestra, conducted by Dr. Alfred Fröhlich, with Anna Marie Lenzberg (Soprano) and Isabella Schmitz (Violin). Second Suite in G Minor from the Six Overtures (Telemann, arranged by Schering). Concert Aria for Soprano with Orchestral accompaniment: Un-

glücksel'ge! Er ist auf immer mir entflohn (Mendelssohn). Concerto for Violin and Orchestra (Mendelssohn). Symphony in F Minor (Richard Strauss).  
9.0—News, followed by Concert and Dance Music, conducted by Eysoldt. 11.0 (approx.)—Close Down.

**LEIPZIG (Germany)**  
1,157 kc/s (259 m.); 2 kW. Relayed by Dresden, 941 kc/s (319 m.).  
Transmits at intervals from 5.30 a.m. 6.0 p.m.—Talk; Art and Work. 6.20—Mandoline Recital. Overtures (Angelo Liprandi). Die Spieldose (Kollmanek). Mazurka (Repke). Serenade, Abendmusik auf dem Wasser (Fahr). Waltz, Fiore alpino (Sartori). Potpourri, Am Ufer der Volga (Schau). 7.0—Ernst Blass reads from his own Poems.  
7.30—Concert by the Dresden Philharmonic Orchestra, conducted by Dr. Wilhelm Buschkötter. Soloist: Maria Koerfer (Pianoforte). Overture to "As You Like It," Op. 7 (Hans Hermann Wetzler). Pianoforte Concerto in E Flat Major, Op. 37 (Pfitzner). Symphony No. 1 in D Major, Op. 60 (Dvorak). 9.5—News Bulletin, followed by Concert by the Leipzig Symphony Orchestra conducted by Hilmar Weber. Overture, "Simplicius" (Johann Strauss). Schmetterlings Schicksal (Jessel). Selection from "The Yellow Jacket" (Lehar). Flower Waltz, Op. 190 (Waldteufel). Hearts and Flowers (Czibulka). Potpourri, Verdi's Triumphs (Weninger). Selection from "La Vita d'una Marionetta" (Leoncavallo). Salut d'amour (Elgar). Oriental Ballet Suite (Krüger). Potpourri, Verdi's Triumphs (Alois Kutschera). 11.0 (approx.)—Close Down.

**LJUBLJANA (Yugoslavia)**  
522 kc/s (574.7 m.); 2.5 kW.  
Transmits at intervals from 11.15 a.m. 6.0 p.m.—Czech Lesson. 6.30—Talk on Hygiene. 7.0—Light Music on Gramophone Records. 8.0—Quintet Concert. 9.0—Time and News.  
**LWÓW (Poland)**  
788 kc/s (381 m.); 16 kW.  
Transmits at intervals from 10.45 a.m. 5.55 p.m.—Talk on Palestine. 6.10—Recital of Popular Jewish Songs. 6.30—See Warsaw. 10.5—Dance

Music from the Szkocka Café. 11.0 (approx.)—Close Down.

**LYONS (France)**  
La Doua (PTT). 644 kc/s (465.8 m.); 1.5 kW.  
Transmits at intervals from 7.0 a.m. 6.0 p.m.—Light Music on Gramophone Records. 6.30—Radio Gazette for Lyons and the South-East. 7.30—Concert of Classical Music conducted by Charles Strony.

**MADRID (Spain)**  
Union Radio (EAJ7). 707 kc/s (424.3 m.); 2 kW.  
Transmits at intervals from 11.45 a.m. 7.0 p.m.—Chimes, Exchange Quotations, Market Prices and Request Programme of Gramophone Records. 8.15—Notices and News Bulletin. 8.30—Close Down.

**MILAN (Italy)**  
Ente Italiano Audizioni Radiofoniche. 905 kc/s (331.5 m.); 7 kW.  
See Turin.

**MORAVSKÁ-OSTRAVA (Czechoslovakia)**  
1,137 kc/s (263.8 m.); 11 kW.  
Transmits at intervals from 10 a.m. 6.0 p.m.—See Prague. 6.20—See Brno Programme. 7.20—Concert for String Orchestra. 8.0—See Prague. 9.15—Miscellaneous Notes. 9.20—See Prague.

**MOSCOW (Russia)**  
Trades Union. 230.1 kc/s (1,304 m.); 100 kW.  
Transmits at intervals from 4.0 a.m. 9.0 a.m.—Concert from the Works of Schubert and Liszt. 10.0—Agricultural Talk. 11.0—Literary Programme. 12 noon—Educational Programme. 1.0 p.m.—Programme for Children. 1.45—Weather Forecast. 4.0—Agricultural Report. 5.0—Programme (to be announced). 5.30—Talk (to be announced). 6.0—Trade Report. 6.30—Programme (to be announced). 7.0—Talk in German and English: Ten Years after Rapello. 8.55—Time Signal. 9.0 (approx.)—Close Down.

**MUNICH (Germany)**  
563 kc/s (533 m.); 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s (560 m.) and Nürnberg, 1,256 kc/s (239 m.).  
Transmits at intervals from 5.45 a.m. 6.5 p.m.—Talk for Workers. 6.25—Italian Arias Old and New—Gramophone Record Recital. 6.55—Talk: Herr Maxe in St. Moritz.  
7.5—Old Munich Evening—Programme for the Unemployed relayed from the Tonhalle.  
8.30 (from Nürnberg)—Concert of Chamber Music by the New Munich Trio. Trio for Pianoforte, Violin and Cello in A Minor, Op. 50 (Tchaikovsky). 9.20—Time, Weather, News and Sports Notes. 9.45—Concert of Waltzes and Marches, by the Radio Orchestra conducted by Karl List. 11.0 (approx.)—Close Down.

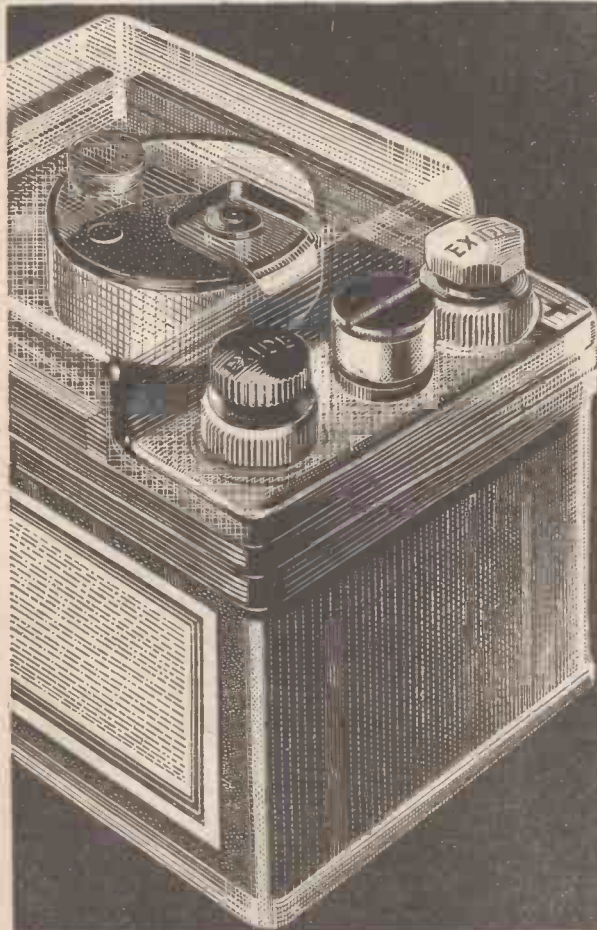
**OSLO (Norway)**  
Kringkastingselskapet. 277 kc/s (1,083 m.); 60 kW. Relayed by Fredrikstad, 816 kc/s (367.6 m.); Hamar, 536 kc/s (560 m.); Notodden, 671 kc/s (447.1 m.); Porsgrund, 662 kc/s (453.2 m.); and Rjukan, 671 kc/s (447.1 m.).  
Transmits at intervals from 10.10 a.m. 4.0 p.m.—Chamber Music by the Wireless Ensemble. 5.0—German Lesson. 5.30—Theatre Announcements. 6.0—Announcements, News and Weather Forecast. 6.30—Talk (to be announced). 7.0—Time Signal. 7.1—Song and Violin Recital. 7.45—Political Talk. 8.15—Piano Recital of Beethoven Sonatas. 8.40—Weather and News Bulletin. 9.0—Topical Talk.  
9.15—Variety Programme. Recitations by Amund Rydland. Concert by the "España" Mandolin Quartet: March (Oscheit). Waltz from "Les Millions d'Arlequin" (Drigo). Old Norwegian Dances. Gavotte, Sleeping Beauty (Von Wolden). Foxtrot (Paul Abraham), 10.15—(approx.)—Close Down.

**PALERMO (Italy)**  
Ente Italiano Audizioni Radiofoniche. 554 kc/s (542 m.); 3 kW.  
Transmits at intervals from 11.45 a.m. 4.30 p.m.—Light Music and Dance Music from the Olympia Tea Rooms. 7.0—News and Report of the Royal Geographical Society. 7.20—Popular Gramophone Music. 7.30—Time and Announcements.

7.50—Chamber Music Concert. Concerto in A Minor for Pianoforte (Vivaldi-Philips). Violin Solos: (a) Le Déluge (Saint-Saens), (b) Jota Navarra (Sarasate). Two Etudes for Pianoforte, Op. 1 (Chopin). "I civitali in pretura"—Comedy (Martoglio). Ballad in G Minor for Pianoforte (Chopin). Cello Solos: (a) Sonata No. 5 (Vivaldi), (b) Pavane (Ravel), (c) Fileuse (Dakler). Trio in C Minor (Mendelssohn). 9.55—News Bulletin.

**PARIS (France)**  
Eiffel Tower (FLE) 207.5 kc/s (1,445.7 m.); 13 kW.  
Time Signals (on 2,650 m.) at 9.26 a.m. and 10.26 p.m. (preliminary and 6-dot signals).  
5.45 p.m.—Cinema Review. 6.0—Le Journal Parlé. 7.20—Weather Forecast. 7.30—Gramophone Concert of Newly-released Records. 8.0—Variety Programme.  
9.0—Concert. Soloists: M. A. Pradier (Pianoforte), Jan Merry (Flute) and Jules Lemaire (Cello). Piece en Trio (Rameau). Pianoforte Solos: (a) Toccata on the Cuckoo's Song (Pasquini), (b) La Princesse royale (Carolan), (c) L'Alouette dans le ciel clair (Carolan), (d) Rondo (Rust), (e) Minuet (Arne), (f) Prestissimo (J. C. Bach). Concerts royaux (Couperin).

**PARIS (France)**  
Poste Parisien. 914 kc/s (328.2 m.); 1.2 kW.  
Transmits at intervals from 11.0 a.m. 5.45 p.m.—News and Announcements. 6.0—Light Music on Gramophone Records, Talks and News. 6.30—Variety Music on Gramophone Records. 7.30—Gramophone Records, Talks and News.  
7.45—Vocal and Orchestral Concert. Overture, "Les Cent Vierges" (Lecocq). Waltz from "Les Millions d'Arlequin" (Drigo). Selection from "Les Brigands" (Offenbach). Canzonetta (Donneddu) Selection from "Boccaccio" (Suppé). Maud (Massenet). Selection from "Monsieur Beaucaire" (Messager). Three Negro Melodies (Coleridge-Taylor). Selection from "The Geisha" (Jones). Sérénade (Godard). Marche parisienne (Ganne).



**ACID CANNOT LEAK**

FROM **Exide**  
**UNSPILLABLE**  
**BATTERIES FOR PORTABLES**

You can get them in both free acid and jelly acid types. The latter—the Exide Gel-Cel—is the first really satisfactory battery of this type to be produced. The majority of leading portable set makers now fit Exide Batteries, and when next you have to replace the battery in your own set you will find it an economy to do the same.

PRICES FROM 9/-. Here are types for some well known sets:

|                          |                 |                      |                 |
|--------------------------|-----------------|----------------------|-----------------|
| Columbia Model 303       | "Gel-Cel" JZ-3  | Marconiphone 55 & 66 | Free Acid LCR 4 |
| Geophone Transportable V | " " JZ-3        | Murphy S.G. IV       | "Gel-Cel" LFJ-5 |
| Kolster Brandes (Kobra)  | Free Acid DO-4  | Pye Model "Q"        | Free Acid LCA-4 |
| McMichael Super Range IV | "Gel-Cel" JWE-7 | Pye Model Twintriple | " " RSZ-4       |

For the complete range send for Leaflet N20

N90

From Exide Service Stations or any reputable dealer. Exide Service Stations give service on every make of battery.

Exide Batteries, Exide Works, Clifton Junction, near Manchester. Branches: London, Manchester, Birmingham, Bristol, Glasgow, Dublin, Belfast



PRINCIPAL EVENTS

TUESDAY (April 12)

SYMPHONY CONCERTS

- 7.0 p.m. Oslo: "Eroica" Symphony (Beethoven), etc.
- 8.10 " Berlin (Witzleben): "Missa Solemnis" (Beethoven) from the Philharmonie, Berlin.

CONCERTS (Vocal and Instrumental)

- 4.35 p.m. Warsaw: The Philharmonic Orchestra, Flemish programme.
- 7.0 " Brussels No. 2: Goethe programme.
- 7.0 " Stockholm: The Swedish Navy Band.

OPERAS AND OPERETTAS

- 6.30 p.m. Budapest: "The Mask" (Hubay) from the Royal Opera.
- 7.45 " Italian stations (Northern Group): "The Black Pierrot."
- 8.0 " Palermo: Relay from the Vittorio Emanuele Theatre.

CHAMBER MUSIC

- 6.40 p.m. Hilversum: Ravel programme.
- 7.20 " Prague: String Quartet in A Flat (Ondricek).
- 8.35 " Vienna: Haydn String Quartets.

RECITALS

- 8.40 " Leipzig: Anneliese Bierey (Violin).
- 8.50 " Stuttgart, Frankfurt: Frieda Jürges (Pianoforte).

PLAYS AND TALKS

- 8.15 p.m. Munich and other German stations: "Gustavus Adolphus" (Julius Schieder).
- 9.0 " (app.) Rome: "The First Adventure" (Poggio).

MISCELLANEOUS

- 7.30 p.m. Hamburg: A contribution to the Goethe year.
- 8.55 " Huizen: Goethe Commemoration.

DANCE MUSIC

- 9.25 p.m. Vienna: David Mathé's Band.
- 9.50 " Copenhagen: (till 11.30) Kai Julian.
- 10.15 " Stuttgart, Frankfurt: The Jazz-Matz Band.

Captain Högberg's Farewell

With the broadcast of the Swedish Navy Band, from STOCKHOLM this evening, at 7 p.m., Captain Erik Högberg bids good-bye to the countless friends whom he and his band have won for themselves throughout the world. He has had an exceptionally long service: fifty-one years of his life have been devoted to the Swedish Navy's music, and he has richly earned a period of leisure. Under his direction the playing of the band has reached a very high level, as listeners in many lands have had chances of hearing for themselves, not merely by wireless; the band

has made tours in England, Germany and America, and our picture shows them at Seattle, in front of the hall in which they played there. The programme begins this evening with the "Swedish Navy March," composed by Captain Högberg, and ends with the "Royal Navy Parade March"; it is made up of the "William Tell Overture," the "Blue Danube Waltz," a "Liszt Hungarian Rhapsody," and excerpts from Boito and Puccini operas—popular throughout. But lighthearted as the music is, it will be touched with regret, as we say farewell to an old friend. On behalf of all our readers we would wish Captain Högberg many years of happy leisure as he looks back on the long career which he has devoted to his country's music.



The Royal Swedish Navy Band, Conductor Captain Erik Högberg

| NATIONAL  |       |            |
|-----------|-------|------------|
|           | kc/s  | m. kW.     |
| London:   | 1,148 | 261.3 50   |
| Daventry: | 193   | 1,554.4 30 |
| Northern: | 995   | 301.5 50   |

10.15 a.m.—The Daily Service.  
10.30—Time Signal (Greenwich); Shipping Forecast.  
10.45—11.0—"New Ways for Hard Times,"—XV.  
12 noon—Edward O'Henry at the Organ.  
1.0 p.m.—Time Signal (Greenwich).  
1.0—Leonardo Kemp and his Piccadilly Hotel Orchestra.  
1.55—Experimental Transmission by the Fultograph Process.  
2.5—2.30—Gramophone Records.  
4.0—A Sonata Recital. Hildegard Arnold (Violoncello), Bernard Crook (Pianoforte).  
4.30—The Grosvenor House Orchestra, directed by Joseph Mecus.  
4.45—Time Signal (Greenwich).  
5.15 (Daventry)—The Children's Hour.  
5.15 (London and Northern)—The B.B.C. Dance Orchestra, directed by Henry Hall.  
6.0—"The First News."  
6.30—Time Signal (Greenwich).  
6.30—The Foundations of Music. Haydn Pianoforte Trios played by the West Regional Trio.  
6.50—French Talk. Monsieur E. M. Stéphan.  
7.20—The Wireless Military Band. Conductor, B. Walton O'Donnell. Patricia Rossborough (Pianoforte).  
8.30—"Artists at Work"—"How to appreciate Art." A Dialogue between Mr. Stanley Casson and a Philistine.  
9.0—Time Signal (Greenwich).  
9.0—"The Second News."  
9.15—Shipping Forecast; New York Stock Market Report.  
9.20—Elsie Randolph in "Merry-go-round." Presented by Rex Evans. Produced by C. Denis Freeman.  
10.5—A Violoncello Recital by Cedric Sharpe. Melody (Rachmaninov, arr. Klengel). Minuet and Musette (Bossi). Serenade, "Hassan" (Delius). Habanera (Ravel). Pavane (Sharpe). Ballade (Anthony Collins) Humoresque (Arensky).  
10.35—12 midnight—Dance Music.  
11.30—Time Signal (Greenwich).

| REGIONAL  |      |          |
|-----------|------|----------|
|           | kc/s | m. kW.   |
| London:   | 842  | 356.3 50 |
| Midland:  | 752  | 398.9 25 |
| Northern: | 626  | 479.2 50 |

10.15 a.m. (London and Northern)—The Daily Service.  
10.30—11.0 (London and Northern)—Daventry National Programme.  
11.30—12 noon (London)—Experimental Television Transmission (Baird Process).  
12 noon—Arthur Spencer (Pianoforte), Beth Bailey (Soprano), Charles Meert (Violoncello).  
1.0 p.m.—Gramophone Records.  
1.15—The Manchester Tuesday Midday Society's Concert. Phyllis Collins (Soprano), Eleanor Heine (Violin).  
4.0 (London and Northern)—Daventry National Programme.  
5.15—The Children's Hour.  
6.0—"The First News."  
6.30—Regional Bulletin for Farmers. 6.35 (London)—The Chelsea Octet. Nellie Sandow (Contralto), James Topping (Tenor).  
6.35 (Midland)—Pattison's Salon Orchestra, under the direction of Norris Stanley. Dennis Goodyear (Tenor).  
6.45 (Northern)—Reginald Dixon at the Organ.  
7.20 (Northern)—Mr. E. Raymond Street: "Problems of Today in Northern Industry and Trade."  
7.30 (Midland)—Chamber Music. The Unity Quartet: Paul Beard (1st Violin), Ernest Element (2nd Violin), Frank Venton (Viola), Johan Hock (Violoncello).  
7.40 (Northern)—Gramophone Records.  
8.0 (London and Northern)—The B.B.C. Dance Orchestra.  
9.0 (London)—An Organ Recital by Walter Vale.  
9.0 (Northern)—A Recital on two Pianofortes by Desmond McCormick and Mrs. Francis Colt.  
9.15 (Midland)—The Coventry Silver Band. Those Three in Syncopated Songs.  
9.30 (London and Northern)—A Discussion.  
10.15—"The Second News."  
10.35—11.0 (Midland)—As London.  
10.35—12 midnight (London and Northern)—Dance Music.

**NOTE: THE HOURS OF TRANSMISSION ARE REDUCED TO GREENWICH MEAN TIME**

**ALGIERS (N. Africa)**  
825.3 kc/s (363.3 m.); 13 kW.  
Transmits at intervals from 12.30 p.m. 7.0 p.m.—Songs from Opera. 7.15—Financial Notes, Exchange and Market Prices. 7.25—Shipping Notes and Weather Forecast. 7.30—Instrumental Concert of Variety Music. 7.55—News and Time. 8.0—Variety Concert (contd.). 8.30—Humorous Gramophone Records. 9.0—Concert of Arab Music and Songs. 9.55—Tourist Talk in English: Algeria. 10.0 (approx.)—Close Down.

**BELGRADE (Yugoslavia)**  
697 kc/s (430.4 m.); 2.5 kW.  
Transmits at intervals from 11.0 a.m. 6.0 p.m.—Czech Lesson. 6.30—Talk. 7.0—Recital of Songs. 7.30—Instrumental Concert from Zagreb. 9.0—News and Sports Notes. 9.30—Concert, relayed from the Sablja Dimiskijae Restaurant.

**BERLIN (Germany)**  
Königs Wusterhausen. 183.5 kc/s (1,635 m.); 60 kW.  
Transmits at intervals from 4.45 (Weather, Gymnastics and Concert). 11.0 a.m.—Weather Report, followed by Gramophone Records of Classical Orchestras. 11.55—Nauen Time Signal. 12.30 p.m.—News Bulletin. 1.0—Gramophone Concert from Berlin (Witzleben). 2.0—Fairy Tales for Children. 2.30—Weather and Exchange. 2.45—Talk for Women: Fashionable Hand-knitted Goods. 3.30—See Leipzig. 4.30—Talk: Pioneers and Adventures of Industry. 5.0—Review of Periodicals. 5.30—Talk: The Great Religions of the East and West. 5.55—Weather for Farmers, followed by *Advanced English Lesson*. 6.15—Talk: Thoughts of the Time—Carrying out Penal Sentences; followed by Weather for Farmers. 7.0—See Breslau. 8.0—News Bulletin. 8.15—See Munich. 9.20—Political Press Review. 9.35—News Bulletin. 9.50—Concert from Hamburg. 11.0 (approx.)—Close Down.

**BERLIN (Germany)**  
Witzleben. 715 kc/s (419.5 m.); 1.5 kW.  
Transmits at intervals from 5.30 a.m. (Gymnastics and Concert). 6.10—Wind Instrument Concert. March, Tradition (Reek). Overture, "Poet and Peasant" (Suppé). The Blue Danube (Johann Strauss). Bassoon Solo: The Lost Chord (Sullivan). Alexander - Marsch (Leonhardt). Victoria March (Neumann). 6.55—Labour Market Report. 7.0—"Tales of the Waterside"—A Variety Programme with Oda Weibrecht. 8.0—News Bulletin.  
8.10—"Sanctus" and "Agnus dei" from the Missa Solemnis (Beethoven) relayed from the Philharmonie, on the Thirtieth Anniversary of the Bruno Kittel Choir. The Berlin Philharmonic Orchestra. The Bruno Kittel Choir, Adelheid Arnold (Soprano), Maria Peschken (Contralto), Robert Bröll (Tenor), and Hans Hermann Nissen (Baritone) and Joseph Alrens (Organ). 9.0—News Bulletin. 9.20—Topical Report: The Disarmament Conference in Geneva.

**BORDEAUX-LAFAYETTE (France)**  
(PTT.) 986 kc/s (304 m.); 13 kW.  
Transmits at intervals from 11.0 a.m. 6.30 p.m.—News and Market Prices. 6.40—Talk: The Corporations of Bordeaux. 6.55—Lottery Results. 7.0—Topical Review. 7.15—News and Weather Forecast. 7.30—Programme organized by the National Wireless Federation. "La Joyeuse Farce des Encore"—Play in One Act (translated from the Old Flemish by Prospère Thuysabert) by the Wichler Company, and "La Farce du Pendu des Pendus." Play in Three Acts (Henri Gheon). After the programme—Amusement Guide and Time Signal.

**BRATISLAVA (Czechoslovakia)**  
1,076 kc/s (279 m.); 14 kW.  
Transmits at intervals from 10.0 a.m. 6.0 p.m.—See Prague. 9.15—Programme Announcements and Theatre Notes. 10.20—See Prague.

**BRESLAU (Germany)**  
923 kc/s (325 m.); 1.5 kW. Relay by Gleiwitz, 1,184 kc/s (253 m.).

Transmits at intervals from 5.30 a.m. 6.5—Weather for Farmers, followed by *Orchestral Concert*. March, Potpourri, Im Tempo der Zeit (Roland). Symphonic Foxtrot, Herbstwinde (Packay). Romanticque (Katzman). Russian Rhapsody (Nussbaum). March Foxtrot, Wenn die Garde aufmarschiert (Kálmán). Foxtrot Potpourri from "The Merry Widow" (Lehár) (Robrecht). By the Waters of Minnetonka (Lierance-Lange). Orpheus Parody (Offenbach-Briegel). Twilight (Hermann Löhr). 6.55 (from Gleiwitz)—Weather Forecast.  
7.0—The Best German Folk Songs—Recital by Käate Hëlbig (Soprano), Gerda Specht (Mezzo-Soprano), Herbert Heidrich (Tenor), Gerhard Bertermann (Baritone). The Wireless Chorus, and the Wireless Orchestra, conducted by Ernst Prade. Programme arranged by Friedrich Wirth. Abschied. Maizenzeit. Schicksale. Spinnstube. Kinderland. Zur guten Nacht.  
8.0—First General News. 8.10—Programme from the German Romantic Period. 9.10—Time, Weather, News, Sports Notes and Programme Announcements. 9.35—Dance Music. 11.0 (approx.)—Close Down.

**BRNO (Czechoslovakia)**  
878 kc/s (342 m.); 35 kW.  
Transmits at intervals from 10.0 a.m. 6.5—Programme by the Huss Choir followed by Talk: The Advantages and Disadvantages of Sports. 7.10—See Prague. 9.15—News Bulletin. 9.20—See Prague.

**BRUSSELS (Belgium) (No. 1)**  
1,198.590 kc/s (509 m.); 15 kW.  
11.15 a.m.—12.45 p.m.—Weather Forecast and *Light Music on Gramophone Records*. Overture, "Die Fledermaus" (Johann Strauss). Quadrille, "Die Fledermaus" (Johann Strauss). Selection from "Eva" (Lehár). Selection from "Frasquita" (Lehár) Rain Drops (de la Rivière). Fairy Ballet (White). The Dancing Tailor (May). The Clatter of the Clogs (Flynn). Comic Polka (Fucik). Rossignols dans les Lilas (Krome). Petite Promenade en Chemin de Fer (Rathke). Matelots amenez les Voiles (Rathke). Waltz, La Belle Meunière (Reinhold). Waltz, Les Cloches du Monastère (Kovarik). Tyrolienne



**TUESDAY**  
continued

8.0—Economic Notes. 8.10—Talk: Contemporary Art.

8.40—Violin Recital by Anneliese Bierey. Duet in A Major, Op. 162 (Schubert). Andantino (Martini-Kreisler). Sicilienne et Rigaudon (Francoeur). Adagio (Corelli). Allegretto (Bocherini-Kreisler). Serenade, Polichinelle (Kreisler). La Gitana (Kreisler).

9.20—News Bulletin, followed by Gramophone Records of Dance Music. 10.30 (approx.)—Close Down.

**LJUBLJANA (Yugoslavia)**

522 kc/s (574.7 m.); 2.5 kW. Transmits at intervals from 11.15 a.m. 6.0 p.m.—German Lesson. 6.30—Talk on History of Art. 7.0—Talk on Electricity. 7.30—Relay from Zagreb. 9.30—Time and News Bulletin.

**LWÓW (Poland)**

788 kc/s (381 m.); 16 kW. Transmits at intervals from 10.45 a.m. 5.50 p.m.—Miscellaneous Items. 6.15—See Warsaw. 6.25—Talk by Stefan Weigel-Mülleret. 6.40—Light Music on Gramophone Records. 6.45—9.55—Programme relayed from Warsaw. In the interval, Answers to Correspondents. 9.55—Revue from Katowice, 734 kc/s (408 m.) 11.0 (approx.)—Close Down.

**LYONS (France)**

La Doua (PTT). 644 kc/s (465.8 m.); 1.5 kW. Transmits at intervals from 7.0 a.m. 6.0 p.m.—Popular Music on Gramophone Records. 6.30—Radio Gazette for Lyons and the South-East. 7.30—Comedy relayed from Paris (Ecole Supérieure), 671 kc/s (447.1 m.).

**MADRID (Spain)**

Union Radio (EAF7). 707 kc/s (424.3 m.); 2 kW. Transmits at intervals from 8 a.m. 7.0 p.m.—Chimes, Exchange Quotations, Market Prices and Request Concert of Gramophone Records. 7.30—Talk by Joaquín España Cantos and Gramophone Concert (continued). 8.15—News and Parliamentary Review. 8.30—Interval. 9.0—French Lesson on Linguaphone Records. 9.30—Chimes, Time Signal, Parliamentary Review, and Selection from "Manon"—Opera (Massenet), on Gramophone Records. 11.45—News

and Announcements. 12 midnight (approx.)—Chimes and Close Down.

**MILAN (Italy)**

Ente Italiano Audizioni Radiofoniche. 905 kc/s (331.5 m.); 7 kW. See Turin.

**MORAVSKÁ-OSTRAVA (Czechoslovakia)**

1,137 kc/s (263.8 m.); 11 kW. Transmits at intervals from 10.0 a.m. 6.0 p.m.—See Prague. 6.20—Relay from the Vitkovic Metal Works. 7.10—See Prague. 9.15—Miscellaneous Notes. 9.20—See Prague.

**MOSCOW (Russia)**

Trades Union. 230.1 kc/s (1,304 m.); 100 kW. Transmits at intervals from 4.0 a.m. 9.0 a.m.—Midday Concert. 10.0—Peasants' Radio Journal. 11.0—Literary Talk. 12 noon—Programme to be announced. 1.0 p.m.—Programme to be announced. 1.45—Weather Forecast. 2.0—Agricultural Report. 2.30—Talk (to be announced). 2.55—Time Signal. 3.0—Proletariat Radio Journal. 4.0—Peasants' Radio Journal. 5.0—Communist Programme. 7.0—Talk in Dutch: Social Insurance in the Soviet Union. Talk in French: Tactics of the Bolsheviks during the Imperialist War. 8.55—Time Signal. 9.0 (approx.)—Close Down.

**MUNICH (Germany)**

563 kc/s (533 m.); 1.5 kW. Relay by Augsburg and Kaiserslautern, 536 kc/s (560 m.) and Nürnberg, 1,256 kc/s (239 m.). Transmits at intervals from 5.45 a.m. 6.5 p.m.—Zither Recital. Aufmarsch der Tempelritter (Schwarz). Concert Overture (Schanne). Waltz, Auf der Liebesinsel (Edmeier). March, Frei weg (Latann). 6.30—English Language Lesson.

7.0 (from Nürnberg)—Popular Concert from the Verkehrsmuseum. The Fränkisch Chamber Orchestra of Nürnberg, conducted by Markus Rümmelein. Soloists: Bettina Frank (Soprano) and Dr. Heinrich Eckert (Pianoforte). Symphony in E Flat Major (Michael Haydn). Two Arias for Soprano (Mozart): (a) Voi avete un cor fedele, (b) Non temer. Concerto for Pianoforte in E Flat Major, Op. 12

(Schober). Aria for Soprano with Double Bass Obligato (Mozart). 8.15 (from Nürnberg)—Gustavus Adolphus—A Play (Julius Schieder). 9.20—Time, Weather, News and Sports Notes.

**OSLO (Norway)**

Kringkastingselskapet. 277 kc/s (1,083 m.); 60 kW. Relay by Fredrikstad, 816 kc/s (367.6 m.); Hamar, 536 kc/s (560 m.); Notodden, 671 kc/s (477.1 m.); Porsgrund, 662 kc/s (453.2 m.), and Rjukan, 671 kc/s (447.1 m.). 10.35 a.m.—Programme for Schools. 11.5—Running Commentary on the Departure of the Steamer "Stavangerfjord" for the United States. 4.0 p.m.—Concert by the Cecil Orchestra. Overture, Gri-gri (Lincke). Waltz (Vercolier). Ballet égyptien (Luigini). Dance (Landeron). Selection from "I promessi Sposi" (Ponchielli). Rakoczy March (Liszt).

5.0—Programme for Housewives. 5.45—Classical Music on Gramophone Records. 6.30—English Lesson. 7.0—Time Signal.

7.1—Symphony Concert, relayed from the Logen Hall. Conductor: Olav Kielland. Third Symphony in E Flat—the Eroica (Beethoven). Scherzo (Mendelssohn). Two Lyric Pieces (Grieg). Selection from "The Marksman" (Weber).

8.40—Weather and News Bulletin. 9.0—Topical Talk. 9.15—Talk: Swedish Educational System. 9.45—Talk in English: The Place of Photography in the Modern World. 10.15 (approx.)—Close Down.

**PALERMO (Italy)**

Ente Italiano Audizioni Radiofoniche. 554 kc/s (542 m.); 3 kW. Transmits at intervals from 11.45 a.m. 4.30 p.m.—Programme for Women. 5.0—5.30—Variety Music on Gramophone Records. 7.0—News Bulletin. 7.20—English Lesson on Gramophone Records. 7.25—A Gramophone Record. 7.30—Time and Announcements. 8.0—An Opera (to be announced), relayed from the Vittorio Emanuele Theatre. In the intervals—Talk and Notes on Art. 9.55 (approx.)—Close Down.

**PARIS (France)**

Eiffel Tower (FLE). 207.5 kc/s (1,445.7 m.); 13 kW. Time Signals. (on 2.550 m.) at 9.26 a.m. and 10.26 p.m. (preliminary and 6-dot Signals).

5.45 p.m.—Dramatic Programme. 6.0—Le Journal Parlé. 7.20—Weather Forecast.

7.30—Concert arranged by the Composers' Society. Soloists: Solange Renaux (Songs), Auguste Huberty (Songs), Renée Froment (Violin), Françoise Doreau (Pianoforte), M. Gautier (Clarinet) and F. Oudabroux (Bassoon). Quintet for Strings and Clarinet (Janin). Three Songs: (a) La Beauté (Baudelaire), (b) Carneval (Carco), (c) Tu Riais (Carco). Bassoon Solo: Concert Solo (Pierné). Two Motets for a Cappella Choir (Pierpont). Pianoforte Solo: Choral and Variations (Maillard-Verger), the Composer at the Pianoforte. Song: L'isolement (Delsarte), the Composer at the Pianoforte. Vocal Quartet for Four Women's Voices (Doyen) Fantasia for Violin (Hüé).

**PARIS (France)**

Poste Parisien. 914 kc/s (328.2 m.); 1.2 kW.

Transmits at intervals from 11.0 a.m. 5.45 p.m.—News and Announcements. 6.0—Light Music on Gramophone Records, Talks and News. 6.30—Variety Music on Gramophone Records. 7.30—Gramophone Records, Talk and News.

7.45—Vocal and Orchestral Concert. Overture, "Martha" (Flotow). Valse-Caprice, Wedding Cake for Pianoforte and Strings (Saint-Saëns). Orchestral Suite, Op. 98 (Dvorak). Hungarian Rhapsody, No. 12 (Liszt). Selection from "His Life for the Czar" (Glinka). Ballet Music from "Le Roi s'amuse" (Delibes). Norwegian Dance, No. 1 (Grieg). Turkish March (Moussorgsky). 9.45—News Bulletin. 9.50 (approx.)—Close Down.

**PARIS (France)**

Radio-Paris (CFR). 174 kc/s (1,725 m.); 75 kW. 5.45 a.m.—Physical Culture Lesson. 6.30—Weather and Physical Culture (continued). 6.45—Variety Music on Gramophone Records. 7.0—

News, Weather and Press Review. 11.30—Gramophone Concert. Part I. Foreign Opera Programme. Overture, "Euryanthe" (Weber). Selection from "Lucrezia Borgia" (Donizetti). Selection from "La Favorita" (Donizetti). Selection from "Il Trovatore" (Verdi). Selection from "La Tosca" (Puccini). March from "Turandot" (Puccini). Part II. French Opera Programme. Aria from "Samson and Delilah" (Saint-Saëns). Selection from "Faust" (Gounod). Entr'acte from "Carmen" (Bizet). Part III. Operetta Programme. Selection from "Rip Van Winkle" (Planquette). Selection from "Hans the Flute Player" (Ganne). In the intervals at 12 noon—Exchange, News and Weather, at 12.30 p.m.—Exchange, and at 1.0—Exchange and Announcements.

2.45—Exchange and Market Prices. 3.20—Elementary English Lesson. 5.30—Market Prices, Weather, Agricultural Report and Racing Results. 6.0—Theatre Review. 6.15—Talk on Art by M. Privat: The Museum at Montpellier. 6.30—Advanced English Lesson. 6.45—English Press Review, Commercial Prices and News. 7.0—Variety Programme—In the Sunny South. 7.30—News and Weather. 7.40—Review by Migue Zamaquis. 7.45—"Rigoletto"—Opera (Verdi), on Gramophone Records by the Cast of the Scala, Milan, conducted by Carlo Sabajno. In the interval at 8.15—Press Review and News.

**PITTSBURGH (U.S.A.)**

Westinghouse Electric (KDKA). 980 kc/s (306 m.); 25 kW. Transmits at intervals from 12 noon. 9.0 p.m.—Business News. 9.10—Stock Exchange Report. 9.35—Weather Report. 9.27—Market Reports. 9.45—KDKA Kiddies' Klub. 10.0—Bisquick. 10.5—David Lawrence Dispatch. 10.15—Programme to be announced. 10.30—The Singing Lady from New York. 10.45—Little Orphan Annie, from New York. 11.0—Time Signal. 11.1—News Report. 11.6—Sports Review. 11.11—Press News. 11.15—Foodtown Kitchen Programme. 11.30—Ray Perkins—The Old Topper. 11.45—Literary Digest Topics in

**a battery for every need**



Careful discrimination in the choice of a Battery should extend not only to the make but also to the capacity. Decide first on one of unquestionable reputation, such as the C.A.V., and then give consideration to the type that will give the longest life and the most complete satisfaction.

The benefit of our experience may be valuable to you. Send us details of your receiver and we will assist you in the choice of one best suited to your requirements.

Have you tried the C.A.V. H.T. Dry Battery yet?

**Free**

FREE. A USEFUL BOOK ON THE MAINTENANCE OF C.A.V. H.T. & L.T. ACCUMULATORS AND HOW THESE CAN BE CHARGED AT HOME FROM D.C. MAINS. A POST-CARD WILL BRING YOU A COPY.

**C.A. Vandervell Ltd.**  
WELL STREET,  
BIRMINGHAM.





PRINCIPAL EVENTS

WEDNESDAY (April 13)

SYMPHONY CONCERTS

- 7.5 p.m. Prague: The Czech Philharmonic Orchestra, relayed from the Smetana Hall.
- 7.15 " Vienna: The Bruckner Symphonies, No. 7, in E.
- 8.15 " Daventry: Conducted by Sir Henry Wood. Prokofiev, Pianoforte.
- 8.30 " Frankfurt, Stuttgart: Symphony, Op. 21 (Anton Webern), etc.

CONCERTS (Vocal and Instrumental)

- 7.30 p.m. Langenberg: The Cologne Society for New Music.
- 7.40 " Hilversum: "Judas Maccabæus" (Händel), relayed from the Concertgebouw.

OPERAS AND OPERETTAS

- 7.0 p.m. Berlin (Witzleben): Excerpts from "Martha," "The Bartered Bride," and "Nadja."
- 7.0 " Heilsberg: "Martha" (Flotow), Acts 1 and 2.
- 7.0 " Leipzig: "The Wily Widow" (Wolf-Ferrari), from Weimar.
- 7.45 " (app.) Rome: Relay from the Teatro Reale.

CHAMBER MUSIC

- 2.40 p.m. Huizen: Trios (Haydn, Brahms, Smetana).
- 7.0 " Brussels No. 2: Pianoforte and Violin.
- 8.20 " Budapest: Haydn String Quartets.
- 9.30 " Copenhagen: Trio, Op. 101 (Brahms).

RECITALS

- 8.45 p.m. Warsaw: Stefan Frenkl (Violin).
- 9.25 " Budapest: Bela Bartok (pianoforte).

MISCELLANEOUS

- 7.0 p.m. Hamburg: (7.45 Heilsberg, Königs Wusterhausen): Wilhelm Busch Commemoration from Hanover.

DANCE MUSIC

- 9.35 p.m. Berlin (Witzleben), Langenberg (till 11): Marek Weber's Band.
- 10.30 " Strasbourg: Pegliero's Argentine Band and the Strasbourg "Savoy."

Oslo's Station Orchestra

This evening OSLO presents an English programme, including music by Holst, Eric Coates, Haydn Wood, and Percy Grainger. The orchestra, of which we give a picture on this page, is made up with a view to economic conditions as well as to the available space in the studio. It comprises twenty-one players in all, and nearly all of them are members also of the Oslo Philharmonic Orchestra, which has been giving regular broadcast concerts since October; the series continues until May. The regular conductor of the Station Orchestra is Mr. Hugo Kramm, a native of Düsseldorf, who studied at the Hochschule in Berlin, and was afterwards a member of the Henri Marteau Quartet. Before coming to Norway he was conductor at the Dortmund opera, and his first post in Oslo was as principal viola and conductor of the Philharmonic. Since 1927 he has been in charge of the music of the



Oslo Station Orchestra

broadcasting station, and is now a Norwegian citizen. Keenly interested in English music, he recently introduced Arnold Bax's Phantasy for Viola and Orchestra to his Norwegian audience, playing the solo part himself along with the Philharmonic Orchestra.

Modern Music from Frankfurt

The programme of new music from FRANKFURT this evening will be devoted to works of the Schönberg school. Besides a new work by Winfried Zillig, one of the younger generation of Schönberg's followers, there are *Lieder* and a *Symphony* by Anton von Webern, who has developed Schönberg's method and ideas to their furthest logical conclusion, his works being consequently of the "difficult" type. This *Symphony*, Opus 21, which had its first performance under Scherchen in London last summer, is related to the conventional symphony only in a very restricted sense—namely, that both of its short movements are in sonata (or variation) form.

NATIONAL

- |           | kc/s. | m.      | kW. |
|-----------|-------|---------|-----|
| London:   | 1,148 | 261.3   | 50  |
| Daventry: | 193   | 1,554.4 | 30  |
| Northern: | 995   | 301.5   | 50  |
- 10.15 a.m.—The Daily Service.
  - 10.30—Time Signal (Greenwich).
  - 10.45—11.0—"Through Foreign Eyes"—XI. Mr. F. B. Czarnomski: "Poland."
  - 12 noon—Quentin Maclean at The Organ.
  - 12.45 p.m.—Gramophone Records.
  - 1.0—Time Signal (Greenwich).
  - 1.30—2.15—Horace Tomblin (Violoncello). James N. Wilkinson (Bass Baritone).
  - 3.30—The Bournemouth Municipal Orchestra. Conductors, Adrian Boulton and Sir Dan Godfrey. Eda Kersey (Violin).
  - 4.45—Time Signal (Greenwich).
  - 4.45—Reginald New at the Organ.
  - 5.15 (Daventry)—The Children's Hour.
  - 5.15 (London and Northern)—The B.B.C. Dance Orchestra.
  - 6.0—"The First News."
  - 6.30—Time Signal (Greenwich).
  - 6.30—The Foundations of Music. Haydn Pianoforte Trios.
  - 6.50—7.20—"The Cinema." Mr. Francis Birrell.
  - 7.30—"Must Britain Starve?"—I Sir John Russell, F.R.S.
  - 8.0—Interval.
  - 8.15—B.B.C. Symphony Concert—XX. Prokofiev. The B.B.C. Symphony Orchestra. (Leader, Arthur Catterall), conducted by Sir Henry Wood. Orchestra: Overture, Oberon (Weber). Symphony No. 1 in A Flat (Elgar); Andante, allegro; Allegro molto; Adagio; Lento, allegro.
  - 9.20—"The Second News."
  - 9.35—Symphony Concert Part II. Prokofiev and Orchestra: Concerto No. 3 in C, Op. 26, for Pianoforte and Orchestra (Prokofiev). Orchestra: Toccata and Fugue in D Minor (Bach, orch. Klenovsky).
  - 10.25—Shipping Forecast.
  - 10.30—Talk.
  - 10.45—12 midnight—Dance Music.
  - 11.30—Time Signal (Greenwich).

REGIONAL

- |           | kc/s. | m.    | kW. |
|-----------|-------|-------|-----|
| London:   | 842   | 356.3 | 50  |
| Midland:  | 752   | 398.9 | 25  |
| Northern: | 626   | 479.2 | 50  |
- 10.15 a.m. (London and Northern)—The Daily Service.
  - 10.30—11.0 (London and Northern)—Daventry National Programme.
  - 11.30—12 noon (London)—Experimental Television Transmission (Baird Process).
  - 12 noon—The Midland Studio Orchestra, Dora Phillips (Pianoforte).
  - 1.15 p.m.—Organ Recital, by G. D. Cunningham.
  - 2.0—3.0—The Northern Studio Orchestra. Katharine Brown (Violin).
  - 3.30 (London and Northern)—Daventry National Programme.
  - 5.15—"The Children's Hour."
  - 6.0—"The First News."
  - 6.30 (London)—The Victor Olof Sextet. Phoebe Thomson (Soprano). Sterling Mackinlay (Baritone).
  - 6.30 (Midland)—The Midland Studio Orchestra. Grace Field (Soprano). Arthur Kennedy (Viola).
  - 6.30 (Northern)—The Northern Studio Orchestra. The Geirg Glee Singers (Wrexham).
  - 8.0—Leonard Henry in "April Foolishness." A Frolic devised by himself.
  - 8.45 (London)—The Luton Band. Conductor, E. S. Carter. Alfredo Campoli (Violin).
  - 8.45 (Midland)—"Saint-Saëns." A Recital for Two Pianofortes, by Joyce Rollitt and George Mantle-Childe.
  - 8.45 (Northern)—The Northern Studio Orchestra.
  - 9.15 (Midland)—The Ross-on-Wye Orpheus Society, conducted by Frederick Parsons. Frank Titterton (Tenor). Frederick Parsons (Pianoforte).
  - 9.15 (Northern)—"Barjona's Downfall." An Episode from W. Riley's famous novel "Windyridge." Adapted for broadcasting by Leslie W. Bailly.
  - 10.15—"The Second News."
  - 10.35 (Midland)—Experimental Transmission (Fultograph Process).
  - 10.40—11.0 (Midland)—As Daventry.
  - 10.35—12 midnight (London and Northern)—Dance Music.

NOTE: THE HOURS OF TRANSMISSION ARE REDUCED TO GREENWICH MEAN TIME

ALGIERS (N. Africa)

825.3 kc/s (363.3 m.); 13 kW. Transmits at intervals from 12.30 p.m.—7.0 p.m.—Tangos and Waltzes. 7.25—Shipping Notes, Weather Forecast and Exchange. 7.30—Solo Selections. 7.40—Talk for Women. 7.55—News and Time. 8.0—Humorous Gramophone Records. 8.15—Romances and Songs. 8.30—Book Review. 8.45—Symphony Concert. Serenade for String Orchestra (Mozart). Suite for Strings. Ballade (Debussy). Sonata for Flute and Piano (Milhaud). Japanese Suite (Holst). 10.0 (approx.)—Close Down.

BELGRADE (Yugoslavia)

697 kc/s (430.4 m.); 2.5 kW. Transmits at intervals from 8.55 a.m.—6.0 p.m.—German Lesson. 6.30—Recital of National Songs. 7.5—See Prague. 9.0—News and Sports Notes.

BERLIN (Germany)

Königs Wusterhausen. 183.5 kc/s (1,635 m.); 60 kW. Transmits at intervals from 4.45 a.m. (Weather, Gymnastics and Concert). 11.0 a.m.—Weather Report, followed by Gramophone Concert of Spring-time Music, and Weather for Farmers. 11.55—Nauen Time Signal. 12.30 p.m.—News Bulletin. 1.0—Gramophone Concert from Berlin (Witzleben). 2.0—Talk for Young People: The Sinking of the Titanic. 2.30—Weather and Exchange. 2.45—Dialogue for Housewives. 3.0—Talk: Voluntary Labour. 3.30—Concert from Hamburg. 4.30—Talk: Practical Questions for Settlers. 5.0—Illustrated Talk: The Orchestra and its Instruments. 5.30—Talk: Wilhelm Busch, the Humorous Poet-Philosopher. 5.55—Weather for Farmers. 6.0—Talk on Economics: The End of Capitalism. 6.30—Talk for Civil Servants, followed by Weather for Farmers. 7.0—See Hamburg. 8.35—11.30—See Berlin (Witzleben). 11.30 (approx.)—Close Down.

BERLIN (Germany)

Witzleben. 715 kc/s (419.5 m.); 1.5 kW.

Transmits at intervals from 5.30 a.m. (Gymnastics and Concert). 3.30 p.m.—Orchestral Concert, conducted by Hans Trinius. Overture, "Romeo and Juliet" (Tchaikovsky). Symphonic Poem, Moldavia (Smetana). Invitation to the Dance. (Weber). Prelude to "Hansel and Gretel" (Humperdinck). Selections from "The Damnation of Faust" (Berlioz): (a) Dance of the Sylphs, (b) Will o' the Wisp Dance, (c) Hungarian March. 4.45—Musical Programme for Children—Talk on Oratorios, with Gramophone Illustrations. 5.5—Joachim Maass reads from his own Works. 5.20—Concert by the Berlin Schubert Choir, conducted by Helmut Koch. Ruhe schönstes Glück der Erde (Schubert). Die Rose stand im Tau (Schumann). Sterbelied (Bach). The Defence of Bergen op. Zoom, 1622 (arr. Röntgen). Arbeiterlied (Pringsheim). Brüder zur Sonne (Hermann Scherchen). 5.40—Technical Talk. 5.55—The Witzleben Station informs its Listeners. . . . 6.0—Topical Talk. 6.10—Dance Music and Light Music from the Café Berlin. 6.50—Talk: Opera in the Provinces. 7.0—"Martha"—Opera (Flotow).—Scenes One and Two relayed from the Landestheater, Schneidmühl. 7.45 (approx.)—Act Two of "The Bartered Bride" Opera (Smetana)—relayed from the Municipal Theatre, Magdeburg. 8.35 (approx.)—Acts Three and Four of "Nadja"—Opera (Künneke), relayed from the Municipal Theatre, Greifswald. 9.30 (approx.)—Weather and News. 9.35 (approx.)—Dance Music. 11.30 (approx.)—Close Down.

BORDEAUX-LAFAYETTE (France)

(PTT) 986 kc/s (304 m.); 13 kW. Transmits at intervals from 11.45 a.m.—4.30 p.m.—Talk on Local History. 6.30—News and Market Prices. 6.40—Dramatic Review. 6.55—Lottery Results. 7.0—Agricultural Talk. 7.15—News and Weather Forecast. 7.30—Festival of Popular Russian Music, organised by Pierre Caujolle. La Nature, by the Orchestra. La Vie Populaire Russe, and The Cossacks, on Gramophone Records. By the Orchestra: Russian Dances. After the Programme, Amusement Guide and Time Signal.

BRATISLAVA

(Czechoslovakia)

1,076 kc/s (279 m.); 14 kW. Transmits at intervals from 10.0 a.m.—3.0 p.m.—Programme for Children. 3.10—Orchestral Concert, relayed from Moravská-Ostrava. 4.10—Programme for Children. 5.0—Concert of Hungarian Music. 6.0—See Prague. 9.50—Programme Announcements and Theatre Notes.

BRESLAU (Germany)

923 kc/s (325 m.); 1.5 kW. Relayed by Gleiwitz, 1,184 kc/s (253 m.). Transmits at intervals from 5.30 a.m.—6.10 p.m.—Weather Forecast. 6.15 (approx.)—Orchestral Concert, conducted by Franz Marszalek. Sonnen-Suite (Homann-Webau). Volga, Volga—Waltz on Russian Motives (Noack). Overture, "Der Erlehnügel" (Kuhlau). 6.55—Weather Forecast.

7.0—Concert by the Silesian Philharmonic Orchestra, conducted by Ernst Prade. Soloist: Josef Wagner (Pianoforte). Pianoforte Concerto, No. 2 in F Minor, Op. 21 (Chopin). Little Comedy Suite (Wiensch). Symphony No. 2 in D Major, Op. 73 (Brahms). 8.35—Authors' Programme by Paul Ernst. 9.15—Time, Weather, News, Sports Notes and Programme Announcements. 9.30—Pianoforte Concerto No. 1, Op. 11 (Dickov), by Josef Wagner (Pianoforte) and the Silesian Philharmonic Orchestra, conducted by the Composer. 10.0—Dance Music. 11.0 (approx.)—Close Down.

BRNO (Czechoslovakia)

878 kc/s (342 m.); 35 kW. Transmits at intervals from 10.0 a.m.—2.30 p.m.—Concert of Opera Music. Selection from "The Marriage of Figaro" (Mozart). Aria from "The Magic Flute" (Mozart). Aria from "Jessonda" (Spohr). Cavatine from "Euryanthe" (Weber). 2.55—Market Prices, relayed from Prague. 3.0—Programme for Children. 3.10—Orchestral Concert from Moravská-Ostrava. 4.10—See Prague. 5.0—Literary Review. 5.15—See Prague. 6.5—Talk. 6.20—See Prague.

BRUSSELS (Belgium) (No. 1)

I.N.R. 500 kc/s (599 m.); 11 kW.; 11.15 a.m.—12.45 p.m.—Weather

Forecast and Concert by the Max Alexys Orchestra. 4.0—Selection from *Carmen*—Opera (Bizet), on Gramophone Records. 5.15—Talk: What the Thermometer and the Barometer can teach us. 5.30—Selection from *Carmen* (cont'd.). 6.30—Journal Parlé. 7.0—Variety Programme. 8.0—Relay of a Concert from La Vieille Alsace. 9.0—Journal Parlé and Close Down.

**BRUSSELS (Belgium) (No. 2)**  
N.I.R. 887 kc/s (338.2 m.); 15 kW. Programme in Flemish.

11.15 a.m.—12.45 p.m.—Weather Forecast and Concert by the Max Alexys Orchestra. 4.0—Concert relayed from the Atlanta Hotel. 5.15—Historical Review of the Month. 5.30—Light Music on Gramophone Records. March, Björneborganes. Polka, Lacht, Polka, Petruschka. Foxtrout Potpourri, Old Berlin Modernised. Selection from "The Czardas Princess" (Kálmán). Pre-somption (Freundorfer). La Voie du Coeur. Wochenend und Sonnenschein (Ager). Paso Doble, Argentina (Allan). Selection from "Tiefeland" (d'Albert-Cairati). Oh, Patrie (Faulwetter). Kreuz Polka. Finnlandischer Reitermarsch. 6.15—Economic Report. 6.30—Journal Parlé. 7.0—Piano and Violin Recital by M. Emil Lauwers (Violin) and Leo Van den Broeck (Pianoforte). Sonata (Debussy). Clair de Lune (Debussy). Tzigane (Ravel). La Fontaine d'Aréthuse (Karol Szymanovsky). 7.45—Talk on Parasites. 8.0—Concert relayed from Antwerp. 9.0—Journal Parlé.

**BUCHAREST (Romania)**  
Radio-Bucarest. 761 kc/s (394 m.); 12 kW.

Transmits at intervals from 11.0 a.m. 4.0 p.m.—Romanian Music and Light Music by the Station Orchestra. 5.0—News and Time Signal. 5.10—Concert (cont'd.). 6.0—Educational Talk. 6.40—*Song Recital* by Mme. Dichter-Prager. Aria (Händel). L'Autonne (Fauré). Notre Amour (Fauré). Eleyg (Achille). Song (David). Romanian Song. 7.0—Cello Recital by M. Seidmann. 7.30—Talk to be announced. 7.45—Pianoforte Recital by Mlle. Madeleine Cocorezo. Second Sonata, Op. 27 (Beethoven). Prelude and Nocturne (Scriabin). Serenade (Schubert - Liszt). Gnomensreigen (Liszt). 8.15—Violin Recital by M. Filip. 8.45—News Bulletin.

**BUDAPEST (Hungary)**  
545 kc/s (550 m.); 18.5 kW. Transmits at intervals from 8.15 a.m. Also relayed on 210 metres from 5.50—11.0 p.m.

3.0 p.m.—*Verdi Opera Concert* on Gramophone Records. Selections from "Attila", "Rigoletto", "Aida", "The Force of Destiny", "Ernani" and "Il Trovatore." 4.0—Topical Review. 4.20—Concert conducted by Otto Berg. Selection from "A Waltz Dream" (O. Strauss). Waltz, Gold and Silver (Lehár). Brautkrieg (Szabados). Waltz, Wiener Blut (Johann Strauss). The Lark (Lehár). 5.20—Italian Lesson. 5.50—Concert by the Karl Bura Cigány Orchestra. 6.50—Talk by Dr. Anton Eber. 7.20—Talk: Humour in Music. 8.20—Haydn Chamber Music Concert by the Waldbauer-Kerpely String Quartet. String Quartet in B Flat, Op. 76, No. 4. String Quartet in D Major, Op. 20, No. 4. 9.25—Béla Bartok Pianoforte Recital, followed by Concert from the Hotel Bellevue: The Malcsiner-Jávör Dance Band and Karl Vajda (Songs).

**COPENHAGEN (Denmark)**  
1,067 kc/s (281 m.); 0.75 kW. Relay by Kalundborg, 260 kc/s (1,153 m.). Transmits at intervals from 6.30 a.m. (Gymnastics). 11.0 a.m.—Time and Town Hall Chimes. 11.2—String Ensemble Concert relayed from the Wivex Restaurant. 1.0—2.30 p.m.—Interval.

2.30—*Orchestral Concert*, conducted by Launy Gröndahl. Crown Prince Frederick March (Borregaard). French Comedy Overture (Kéler-Béla). Selection from "Røverborgen" (Kuhlau). Danish Folk Melody for Strings, Elverhøj (Sandby). Humoresque for Strings, Håtte dich fein (Reinecke). Oriental March from "Aladdin" (Ager-snap). Talk for Women. Overture, "Susanna's Secret" (Wolf-Ferrari). Waltz (Fall). Arabesque (Oldenborg-Poulsen). Serenade (Meinig). Overture, "Vifandaka" (Toft).

4.40—Exchange and Fish Market Prices. 4.50—Talk. 5.20—French Lesson. 5.50—Weather Forecast. 6.0—News and Report of the Non-Political Danish Radio Club. 6.15—Time Signal. 6.30—Agricultural Talk. 7.0—Town Hall Chimes. 7.2—South Jutland Day Programme from the Oddfellows' Hall. 9.15—News Bulletin. 9.30—Pianoforte Trio in C Minor, Op. 101 (Brahms). 10.0—Dance Music from Nimb's Restaurant. In the interval at 11.0—Time and Town Hall Chimes. 11.30 (approx.)—Close Down.

**CRACOW (Poland)**  
959 kc/s (312.8 m.); 1.5 kW. Transmits at intervals from 10.45 a.m. 5.50 p.m.—Miscellaneous Items and Announcements. 6.15—Light Music on Gramophone Records. 6.25—Programme Announcements. 6.30—Answers to Correspondents. 6.45—See Warsaw. 7.0—Talk on Music. 7.15—9.45—See Warsaw. 9.45—Popular Music on Gramophone Records. 10.0—See Warsaw. 11.0 (approx.)—Close Down.

**DUBLIN (Ireland)**  
(2RN). 725 kc/s (413 m.); 1.2 kW. Relay. by Cork, 1,337 kc/s (224.4 m.). 1.30—2.0 p.m.—Time Signal, Weather Forecast, Stock Report and Light Music on Gramophone Records. 6.0—Popular Music on Gramophone Records. 6.15—Programme for Children. 7.0—Light Music on Gramophone Records. 7.20—News Bulletin. 7.30—Time Signal. 7.31—Gaedhlig. 7.45—German Lesson. 8.0—Concert by No. 1 Army Band, conducted by Colonel Fritz Brase. 9.0—Sketch by "The Mummies." 9.30—Sponsored Programme. 10.30—Time Signal, News, Weather Forecast and Close Down.

**FÉCAMP (France)**  
Radio Normandie. 3,364 kc/s (219.9 m.); 1 kW.

11.0 a.m.—Concert of Light Music on Gramophone Records. Le Moulin de Maître Jean (Borel-Clerc). Bonsoir m'amour (Link). Un Bègue qui veut enregistrer (Blot). Si tu passes par la Bourgogne (Cuttinguer). Coquelicot (Borel-Clerc). La Chanson des Rubans (Audier). La Leçon de Conduite (Blot). Sous la Porte Saint-Martin (Cazals). 11.30—News Bulletin.

11.45—Radio-Concert. Selection from "Les Cloches de Corneville" (Planquette). Les Associés (Porto-Riche). Trois Poèmes (Porto Riche). Le Silence (Maeter-linck). Pensées de Courtaline. Selection from "Le Caid" (Thomas). Fin de Réve (Luce). Vos Yeux (Luce). 12.30—6.30 p.m.—Interval. 6.30—Light Music on Gramophone Records. 6.45—Exchange Quotations and Announcements. 7.0—Press News. 7.30—Concert by the Radio-Normandie Listeners' Association, relayed from Le Havre. Havre News in the Interval. After the Concert, Humorous Programme by Max d'Orbec and members of the Théâtre Classique Havrais. 9.45—Television Transmission. 10.15—11.0—Interval. 11.0—Concert of Variety Music. 1.0 a.m. (Thursday)—Close Down.

**FRANKFURT-am-MAIN (Germany)**  
770 kc/s (390 m.); 1.5 kW. Relay by Cassel, 1,220 kc/s (246 m.). Transmits at intervals from 5.0 a.m. 4.0 p.m.—Concert from Munich. 5.15—Economic Notes. 5.25—Dialogue on Apprenticeship. 5.50—See Stuttgart. 6.15—Time and News. 6.30—Talk: The Fundamental Principles of Music. 7.0—See Stuttgart. 8.0—Arno Nadel Programme. 8.30—Vocal and Instrumental Concert. Soloists: Herta Reinecke (Soprano) and Winfried Zillig (Pianoforte). Serenade for Pianoforte (Zillig). Six Songs, Op. 14 for Vocalists, Clarinet, Bass Clarinet, Viola and Cello (Webern). Symphony, Op. 21 (Webern). 9.30—Time and News.

**HAMBURG (Germany)**  
Norag (ha, in Morse), 806 kc/s (372 m.); 1.5 kW. Relay by Bremen, 1,112 kc/s (270 m.); Flensburg, 1,373 kc/s (218 m.); Hanover, 530 kc/s (566 m.); and Kiel, 1,292 kc/s (232.2 m.). Transmits at intervals from 5.25 a.m. 3.0 p.m.—*Orchestral Concert* relayed from the Trades Union Building, Lübeck. March, Unter-lübscher Flagege (Brenner). Overture, "Rosamundo" (Schubert). Waltz, Dreams on the Ocean (Gungl). Selection from "The Flying Dutchman" (Wagner). March (Lumbye). Bugle Solo

**WEDNESDAY**  
continued

Schönau mein Paradies (Kutschera). Toreador et Andalouse from "Bal costumé" (Rubinstein). Selection from "The Merry Widow" (Lehár). March, Under the Flag of Truce (Novovinsky). 4.30—Educational Talk. 4.55—Reading of Ballads from the Works of Albert Petersen. 5.25—Talk. 5.50—Frankfurt Exchange and Hamburg Market Prices. 5.55—Weather Report. 6.0—Topical Talk. 6.15—Popular Concert by a Male Voice Quartet, the Little Norag Orchestra and Soloists. 7.0—Homage to Wilhelm Busch—the Poems of a Painter, set to Music by Siegfried Scheffler, relayed from Hanover. 9.0—Time and News. 9.20—Concert from the Café Wellhof.

**HEILSBURG (Germany)**  
1,085 kc/s (276.5 m.); 60 kW. Relay by Danzig, 662 kc/s (453.2 m.). Transmits at intervals from 5.30 a.m. (Gymnastics and Gramophone Concert). 11.0 a.m.—Concert relayed from Leipzig. 12.5—1.30 p.m.—Concert by the Orag Orchestra, conducted by Eugen Wilcken. Entry March of the Gladiators (Fucik). Two Selections (de Micheli): (a) Serenade from the Third Suite, (b) Valse du bic d'or from the Third Suite. Overture, Fingal's Cave (Mendelssohn). Selection from "La cena delle beffe" (Giordano). Serenata (Tarenghi). Falling Leaves (Carena). Fantasia on the Works of Johann Strauss (Schlögel). Overture (Suppe).

2.30—Programme for Children. 3.0—Talk for Parents. 3.30—Concert from Hamburg. 4.30 (from Danzig)—Catching Dangerous Fish. 4.55—Review of Books. 5.15—Market Prices. 5.30—*Oriental Music* by Eugenie Premyslav (Cello), and Leopold Premyslav (Violin). Fantasia for Violin (Aehron). Old Oriental Melody, Eili, Eili. Dance and Song for Violin and Pianoforte (Zimbalist). Mélodie arabe (Glazounov). M'Chol Kedem—for Cello and Pianoforte (Stutschewsky). 6.0—Concert by the Orag Orchestra, conducted by Eugen Wilcken. Weather Report in the interval.

7.0—See Berlin (Witzleben). 7.45—Part Relay of the Wilhelm Busch Programme from Hamburg. 9.15—News, followed by Dance Music from Berlin (Witzleben). 11.30 (approx.)—Close Down.

**HILVERSUM (Holland)**  
1,004 kc/s (298.8 m.); 8.5 kW. 6.25—9.40 a.m.—Programme of the Workers' Radio Society (V.A.R.A.). 6.25—6.40 and 7.10—7.25—Physical Culture. 7.40—Variety Music on Gramophone Records. 8.40—Concert by the Amsterdam Soloist Quintet, conducted by Loe Cohen. 9.40—Programme of the Liberal Protestant Radio Society (V.P.R.O.). Religious Programme. 9.55 till Close Down—V.A.R.A. Programme. 9.55—Concert by the Amsterdam Soloist Quintet, conducted by Loe Cohen with recitations by Minny Erfmann and Variety Music on Gramophone Records. 11.25—Religious Address: The Struggle against Alcohol.

11.40—*Septet Concert*, conducted by Is. Elyl. March, Fest im Sattel (Oscheit). Waltz (Waldteufel). Spanish Dance, Gitana (Andrien). Variety Music on Gramophone Records. Selection from "The Desert Song" (Romberg). Schenk mir ein en Tango, Manuela (Engelberger). Popular Gramophone Music. Stéphanie Gavotte (Czibulka). Waltz, Potpourri, Walzerflut (Fétras). Variety Gramophone Music. Selection from "Die Faschingsfee" (Kálfman). Waltz, Tell me with a Love Song (Koehler). Variety Music on Gramophone Records. Selection from "Samson and Delilah" (Saint-Saëns). Selection (Grit). 1.55 p.m.—Cookery Notes. 2.40—Programme for Children. 5.10—*Orchestral Concert*, conducted by Hugo de Groot. Overture, "Zampa" (Hérold). Waltz, Donauwällen (Ivanovici). Variety Music on Gramophone Records: (a) Mandolinata (Paladine), (b) The Student passes by (Ibanez). (c) Pas des Fleurs from "Nala" (Delibes). Popular Gramophone Music. Ballet, La Ferie (Lacôme). Popular Gramophone Music. Selection from "The Belle of New York" (Kerker). 6.20—Talk for Workers. 6.40—Concert of Jewish Music by the

V.A.R.A. Orchestra, conducted by Hugo de Groot and H. L. Bornstein (Songs).

1.40—"Judas Maccabaeus"—Oratorio (Handel), relayed from the Concertgebouw, Amsterdam. A Workers' Choir and the Utrecht Municipal Orchestra, conducted by Antoon Krelage. Soloists: To v.d. Sluys (Soprano), Cora de Lange-van Rijn (Contralto), Michel Gobets (Ténor), Hendrik Koning (Bass) and Jan Nieldan (Organ). In the interval, "The Adventures of Messrs. Wakker and Tropenduit"—a Radio Play. 10.40—Press Review. 10.55—Variety Music on Gramophone Records. 11.45 (approx.)—Close Down.

**HUIZEN (Holland)**  
160 kc/s (1,875 m.); 8.5 kW. Programme of the Christian Radio Society (N.C.R.V.). 7.40 a.m.—Reading. 7.55—9.10—Concert. 9.40—Selections by a Ladies' Choir. 10.10—Service for Hospitals. 10.40—Harmonium Recital. 11.40—Police Notes. 11.55—Vocal and Instrumental Concert. Four Sacred Songs for Tenor Voice with Violin, Flute and Harmonium Accompaniment. Trio Sonata in C Minor for Flute, Violin and Pianoforte (Händel). Introduction and Variations—Ihr Blümlein alle (Schubert). Two Dutch Songs. Selections for Violin and Pianoforte: (a) Hymn (Cor Kint), (b) Legend (Kor Kuller). Songs: (a) Recitative and Aria from "Elijah" (Mendelssohn); (b) The Lost Chord (Sullivan). Folk Melodies from many Lands. 1.40—Programme to be announced. 2.10—Reading.

2.40—Concert by the Hendriks Trio. Trio No. 7 (Haydn). Trio Op. 57 in G Major (Brahms). Trio Op. 15 in G Minor (Smetana). 4.40—Programme for Children. 5.40—Agricultural Talk. 6.40—Talk: The Reformation Period and its Music—Heinrich Schütz and Michael Praetorius. 7.10—Police Notes. 7.25—News Bulletin. 7.40—Concert by the N.C.R.V. Symphony Orchestra, conducted by Marinus Adam. Overture, "Le Roi d'Ys" (Lalo). Selection from "La Gioconda" (Ponchielli). Symphony No. 2 in A Minor (Saint-Saëns). Three Sacred Pieces (arr. Jan Poutwils). 8.40—Talk: Missionary Work. 9.10—Concert (cont'd.). Vasantasena—Suite in Four Parts (Halvorsen). Selection from "Lakmé" (Delibes). Cadet March (Souza). 9.40 (in an interval)—News. 10.10—Gramophone Records of Variety Music. 11.10 (approx.)—Close Down.

**KALUNDBORG (Denmark)**  
Kalundborg Radio. 260 kc/s (1,153 m.); 7.5 kW. See Copenhagen.

**KAUNAS (Lithuania)**  
155 kc/s (1,935 m.); 7 kW. Transmits at intervals from 4.0 p.m. 6.0 p.m.—Time Signal, Weather Forecast, News and Exchange Quotations. 6.45—*Orchestral Concert*. Persian Scenes (Rust). English Waltz (Michailov). Spanish Dance (Granados). Moorish Dance Song (Nicodé). Cigány Dance (Heidingsfeld). Russian Dance (Tchajkovsky). 8.0—Programme for Housewives. 8.20—Geographical Talk. 8.40—*Orchestral Concert*. Overture, "Ruslan and Ludmilla" (Glinka). Waltz (Glazounov). Iesginka (Rubinstein). Serenade (Tchajkovsky). Polovtians Dance (Borodin). 10.0 (approx.)—Close Down.

**LAHTI (Finland)**  
167 kc/s (1,796 m.); 54 kW. Relay by Helsinki, 815 kc/s (368.1 m.). Transmits at intervals from 6.10 a.m. (Service in Swedish). 6.0 p.m.—Talk. 6.25—Dance Music by the Dallapé Orchestra. 7.45—News in Finnish and Swedish.

**LANGENBERG (Germany)**  
Westdeutscher Rundfunk. 635 kc/s (473 m.); 60 kW. Transmits at intervals from 5.45 a.m. (Exercises, Weather, Time and Gramophone Concert). 10.20 a.m.—Gramophone Concert of Popular Music. 11.0—Concert, relayed from Munich. 11.50—Weather, Announcements and Time Signal. 12 noon—Concert, conducted by Eysoldt. Concert Overture, Im Herbst (Grieg). Ein Tanz (Dvorak). Ballet Scene, Piazza del Popolo (Frederikzan). Selection from "Lakmé" (Delibes). Bolero from "Don Quixote" (Kiernzi). Two Selections (Gossec): (a) Tambourin, (b) La Chasse. Suite

(Fresco). Marien-Walzer (Lanner). Selection from "Der Opernball" (Heuberger).

1.30 p.m.—Sponsored Gramophone Concert. 2.30—Economic Notes and Time Signal. 2.50—Programme for Children. 3.20—Talk: The Women's Movement. 3.35—Talk: Doctors and Schools. 4.0—Concert, relayed from Munich. 5.15—The World in Books—The Land of the Germans. 5.40—Talk: Jan Thorn-Prikkers. 6.0—Weather, Time, Announcements and Sports Notes. 6.15—Talk: Health before everything. 6.30—Talk for Workers. 6.55—News Bulletin. 7.0—The World on Gramophone Records—Norwegian Melodies. 7.30—Concert by the Society for New Music, relayed from the Hall of the Art Society at Cologne. Olga Schramm-Tschörner (Soprano) Professor Eduard Erdmann (Pianoforte) and Paul Baumgartner (Pianoforte). Durch die Nacht, Op. 67, for Voice and Pianoforte, from the Song Cycle "Versen in Prosa" (Krenek). Toccata and Chaconne, Op. 13 (Krenek). Nuchrigal, Op. 68, for Voice and Pianoforte from the Song Cycle "Versen in Prosa" (Krenek). Songs (Moussorgsky): (a) Children's Song, (b) Night, (c) Down the Don, (d) Hebrew Song, (e) Gopak.

9.0—News Bulletin. 9.35 (approx.) Dance Music, relayed from Berlin (Witzleben). 11.0 (approx.)—Close Down.

**LEIPZIG (Germany)**  
1,157 kc/s (259 m.); 2 kW. Relay by Dresden, 941 kc/s (319 m.). Transmits at intervals from 5.30 a.m. 4.0 p.m.—Concert by the Leipzig Symphony Orchestra conducted by Hilmar Weber. Overture, "La Dame blanche" (Boieldieu). Ballet Suite No. 2 (Gluck-Mottl). Selections from "The Daughter of the Regiment" (Donizetti). Waltz, Märchen aus Alt-Wien (Ziehrer). Selections from "The Girl in the Taxi" (Gilbert). 4.30—Weather and Time. 4.55—Economic Notes. 5.10—Educational Talk. 5.35—Italian Lesson. 5.55—Introduction Talk to the 7 o'clock transmission. 6.5—Talk on Finance. 6.20—"Schiller"—a Discussion between an Author, a Student, a Librarian and a Schoolmistress. 7.0—"The Willy Widow"—Opera (Wolf-Ferrari), relayed from the National Theatre, Weimar. 9.15—News, followed by Dance Music. 10.30 (approx.)—Close Down.

**LJUBLJANA (Yugoslavia)**  
522 kc/s (574.7 m.); 2.5 kW. Transmits at intervals from 11.15 a.m. 6.0 p.m.—Russian Lesson. 6.30—Literary Talk. 7.5—See Prague. 9.0—Time and News Bulletin.

**LWÓW (Poland)**  
788 kc/s (381 m.); 16 kW. Transmits at intervals from 10.45 a.m. 5.50 p.m.—Miscellaneous Items. 6.45—See Warsaw. 6.25—Literary Talk. 6.40—Light Music on Gramophone Records. 6.45—See Warsaw. 9.40—Recitations by Karol Mirek. 9.55—Songs by the "Esben" Choral Society. 10.10—See Warsaw. 11.0 (approx.)—Close Down.

**LYONS (France)**  
La Doua (PTT). 644 kc/s (465.8 m.); 1.5 kW. Transmits at intervals from 7.0 a.m. 6.0 p.m.—Popular Music on Gramophone Records. 6.30—Radio Gazette for Lyons and the South-East. 7.30—See Strasbourg.

**MADRID (Spain)**  
Union Radio (EAJ7). 707 kc/s (424.3 m.); 2 kW. Transmits at intervals from 8.0 a.m. 7.0 p.m.—Chimes, Exchange Quotations, Market Prices and Request Concert of Gramophone Records. 8.15—News and Parliamentary Review. 8.30—Interval. 9.30—Chimes, Time Signal, Parliamentary Review and "La Verdad Sospechosa"—Comedy in Verse in Three Acts (Juan Ruiz de Alarcón, arranged for Wireless by Abraham Polanco). 11.45—News and Announcements. 12 midnight (approx.)—Chimes and Close Down.

**MILAN (Italy)**  
Ente Italiano Audizioni Radiofoniche. 905 kc/s (331.5 m.); 7 kW. See Turin.

**MORAVSKÁ-OSTRAVA (Czechoslovakia)**  
1,137 kc/s (263.8 m.); 11 kW. Transmits at intervals from 10.0 a.m. 6.0 p.m.—See Prague. 9.50—Miscellaneous Notes.

**MOSCOW (Russia)**  
 Trades Union. 230.1 kc/s (1,304 m.); 100 kW.  
 Transmits at intervals from 4.0 a.m. 9.0 a.m.—Spring Programme of Music for Workers. 9.30—Spring Programme (contd.). 10.0—Peasants' Radio Journal. 11.0—Literary Programme. 12 noon—Educational Programme. 1.0 p.m.—Programme for Children. 1.45—Weather Forecast. 2.0—Talk (to be announced). 2.30—Talk (to be announced). 2.55—Time Signal. 3.0—Proletariat Radio Journal. 4.0—Peasants' Radio Journal. 5.0—Appeal. 7.0—Talk in Czech: Tactics of the Bolsheviks during the Imperialist War. Talk in Swedish: Social Assurance in the Soviet Union. Review of the Week and Answers to Correspondents in French. 8.55—Time Signal. 9.0 (approx.)—Close Down.

**MUNICH (Germany)**  
 563 kc/s (533 m.); 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s (560 m.), and Nürnberg, 1,256 kc/s (239 m.).  
 Transmits at intervals from 5.45 a.m. 6.5 p.m.—Talk: The People and the National Troops. 6.30—Variety Programme. The Radio Orchestra, conducted by Kurt Pastor; the Jazz Orchestra, conducted by Frank Reimann, and Soloists. 8.0—Dialogue: Reminiscences of an African. 8.20—Concert of Military Marches of Three Centuries. Talk on the Evolution of the Military March in Bavaria. Intra (1600) (Hassler). March (1704) (Krieger). Fanfare (1722) (Torri). Generalmarsch, Grenadiermarsch, Zapfenstreich (1782). Füsiliers-Feldjäger-Avanciemarsch (1791). Grenadier-Avanciemarsch, Zapfenstreich, Fahnenmarsch (1823). Yorkmarsch (1813) (Beethoven). Fanfare (Wagner). Bayerischer Defiliermarsch (1865) (Scherzer). Taxismarsch (Kolb). Müssinamarsch (Karl). Badonviller-Marsch (Fürst). Neunzehner-Marsch (Fürst).  
 9.20—Time, Weather, News and Sports Notes. 9.45—Dance Music from Berlin (Witzleben).

**OSLO (Norway)**  
 Kringkastingsselskapet. 277 kc/s (1,083 m.); 60 kW. Relayed by

Fredriksstad, 816 kc/s (367.6 m.); Hamar, 536 kc/s (560 m.); Notodden, 671 kc/s (447.1 m.); Porsgründ, 662 kc/s (453.2 m.) and Rjukan, 671 kc/s (447.1 m.).  
 Transmits at intervals from 10.10 a.m. 10.35 a.m.—Programme for Schools. 4.30 p.m.—Light Music on Gramophone Records. 5.0—French Lesson. 5.30—Programme for Girls. 6.0—Announcements, Weather and News Bulletin. 6.30—Educational Talk. 7.0—Time Signal. 7.1—Concert by the Station Orchestra conducted by Hugo Kramm. Overture, "The Flying Dutchman" (Wagner). Selection from "Halka" (Moniuszko). Selection from "The Fair Maid of Perth" (Bizet). Rhapsody on a Theme from the Opera "Prince Igor" (Borodin). Ballet Music from "Giroffé-Giroffé" (Lecocq). Selection from a Burlesque Operetta (Krenek). 8.10—Talk on the Bosphorus. 8.40—Weather and News. 9.0—Topical Talk. 9.15—Song Recital by Mme. Anna Tibell. 10.0—Dance Music. 11.0 (approx.)—Close Down.

**PALERMO (Italy)**  
 Ente Italiano Audizioni Radiofoniche. 554 kc/s (542 m.); 3 kW.  
 Transmits at intervals from 11.45 a.m. 4.30 p.m.—Light Music and Dance Music from the Olympia Tea Room. 7.0—News Bulletin. 7.20—Variety Music on Gramophone Records. 7.30—Time and Announcements. 7.50—Variety Concert. Comedy Overture (Kéler-Bela). Waltz, Wine, Woman and Song (Johann Strauss). Malie di Gitana (Mariotti). Scherzo for Violin (Afontoni). Intermezzo, Moresca (Pretori). Selection (Salabert). Talk by G. Feo. I Bellimbusti (Billi). Intermezzo, Cinema (Gillet). Waltz, Künstlerleben (Johann Strauss). Intermezzo, Ronda orientale (Viama). Dance, Hassan (Mule). Selection from "In Dancingland" (Malberto). Literary Notes. 9.55 (approx.)—News Bulletin.

**PARIS (France)**  
 Eiffel Tower (FLE). 207.5 kc/s (1,445.7 m.); 13 kW. Time Signals (on 2.650 m.) at 9.26 a.m. and 10.26 p.m. (preliminary and 6-dot signals).

**WEDNESDAY continued**

5.45 p.m.—Music Review. 6.0—Le Journal Parlé. 7.20—Weather Forecast. 7.30—Programme for Young People. 8.0—Symphony Concert conducted by Edouard Flament. Soloists: Marchesini ('Cello) and Cantrelle (Violin). Escapes No. 2 (Ibert-Mouton). Pièce en forme de habanera (Ravel-Mouton). Serenade for 'Cello (Borodin). Love Song (Albeniz-Mouton). Violin Solo: Rondo à la Clochette (Paganini). Intermezzo, from "La Cabrera" (Dupont). Minuet (Boccherini). Nocturne (Chausson). Waltz (Strauss).

**PARIS (France)**  
 Poste Parisien. 914 kc/s (328.2 m.); 1.2 kW.  
 Transmits at intervals from 11.0 a.m. 5.45 p.m.—News and Announcements. 6.0—Light Music on Gramophone Records, Talks and News. 6.30—The Four Last Scenes of a "Faust-Parody" by the "Amis de Guignol à Paris." 7.30—Gramophone Records, Talk and News. 7.45—Vocal and Orchestral Concert. Overture, "Marco Spada" (Auber). Waltz Fantasia (Waldteufel). Selection from "Hamlet" (Thomas). Gavotte and Minuet from "Manon" (Massenet). Orchestral Suite, Conte d'Avril (Widor). Selection from "Lakmé" (Delibes). Cavatina (Raff). Ballet Music from "Scaramouche" (Messager). Fêtes romaines (Fourdrain). 9.45—News Bulletin. 9.50 (approx.)—Close Down.

**PARIS (France)**  
 Radio-Paris (CFR). 174 kc/s (1,725 m.); 75 kW.  
 5.45 a.m.—Physical Culture Lesson. 6.30—Weather and Physical Culture (continued). 6.45—Variety Music on Gramophone Records. 7.0—News, Weather and Press Review. 11.0—Talk: Ferdinand Buisson—a Great Educationist. 11.30—Gramophone Concert: The Sea and Sailors. March of the Blue Collars. The Legend of the Blue Waves. Sailors' Waltz (Stange). The Ocean (Spencer). Ondine (Debussy). Waltz of the

Blue Collars (Marafiot). Chanson et Berceuse des Sirènes (Honegger). The Waif (Codini). The Billow. Nuit sur Mer (Valente). The Song of the Old Sailor. The Bells of St. Malo (Rimmer). The Legend of the Little Ship (Missa). La Paimpolaise (Bottrel). Chansons de Bord du Capitaine Hayet. Les Pupilles de la Marine. In the interval at 12 noon—Exchange, News and Weather, and at 12.30— and 1.0 p.m.—Exchange. 2.45—Exchange and Market Prices. 5.30—Market Prices, Weather, Agricultural Report and Racing Results. 6.0—Talk: China To-day. 6.30—Medical Talk: The Onset of Pulmonary Tuberculosis. 6.45—Commercial Prices and News. 7.0—Literary Talk: Frédéric Lemaître. 7.30—News and Weather. 7.40—Fashion Review by Mlle. José. 7.45—Two Plays: (a) "L'Essayeuse" (Weber), (b) "Brune et Blonde" (Lambert). In the interval at 8.15—Press Review and News. 9.0—Gramophone Concert. En revenant de Lyon (Georges). L'ondine (Georges). Pas des Echarpes (Chaminade). Estrellita (Pons). The Nightingale (Alabieff). En relisant vos lettres (Masson-Kiek). Je ne veux des fleurs (Barbieroli). Le Cor (Flégier).

**PITTSBURGH (U.S.A.)**  
 Westinghouse Electric (KDKA). 980 kc/s (306 m.); 25 kW.  
 Transmits at intervals from 12 noon. 9.0 p.m.—Business News. 9.10—Stock Exchange Report. 9.25—Weather Report. 9.27—Johnny Muskrat. 9.28—Market Reports. 9.45—KDKA Kiddies' Klub. 10.0—Bisque Breivittes. 10.5—David Lawrence Dispatch. 10.10—Temperature Report. 10.11—KDKA Artists' Bulletin. 10.15—Programme to be announced. 10.30—The Singing Lady. 10.45—Little Orphan Annie. 11.0—Time Signal. 11.1—News Bulletin. 11.6—Sports Review. 11.11—Press News Report. 11.15—Westinghouse Watchmen. 11.30—The Royal Vagabonds. 11.45—Literary Digest Topics in Brief from New York. 11.59—Time Signal. 12 midnight—Amos 'n Andy, relayed from New York. 12.15 a.m. (Thursday)—Esso Programme—Elsie Janis.

12.30—1.0—New York Relay. 12.30—The Stebbins Boys. 12.45—Billy Jones and Ernie Ilare. 1.0—Programme to be announced. 1.15—Willis Overland, relayed from New York. 1.30—Jack Frost Melodies. 2.0—3.15—Relay from New York. 2.0—Adventures of Sherlock Holmes. 2.30—Major Icequick and his Frigidarians. 2.45—Bob Nolan's San Felicians. 3.0—Happy Rose Dance Orchestra. 3.15—Programme to be announced. 3.30—Hollywood Nights, relayed from New York. 3.45—Around the Cracker Barrel. 4.0—Time Signal. 4.1—Sports Review. 4.11—Temperature and Weather Reports. 4.14—KDKA Artists' Bulletin. 4.15—Last Minute Press News. 11.20—Hal Kemp and his Orchestra. 5.30—Time and Close Down.

**POZNAN (Poland)**  
 896 kc/s (335 m.); 1.0 kW.  
 Transmits at intervals from 10.45 a.m. 5.50 p.m.—Miscellaneous Items and Announcements. 6.15—Educational Talk. 6.30—Literary Talk. 6.45—See Warsaw. 7.0—See Cracow. 7.15—Orchestral Concert. In the interval, Amusement Guide. 9.0—Time Signal, Sports Notes and Police Report. 9.15—Gramophone Records of Light Music. 9.30—See Warsaw. 9.45—Dance Music from the Café Esplanade. 10.0 (approx.)—Close Down.

**PRAGUE (Czechoslovakia)**  
 614 kc/s (488.6 m.); 120 kW.  
 Transmits at intervals from 10.45 a.m. 3.10 p.m.—Orchestral Concert, conducted by Trvdý, from Moravská-Ostrava. 4.10—A Play in Four Acts (Jirasek). 5.0—Variety Music on Gramophone Records. 5.5—Agricultural Report. 5.15—Talk for Workers: Rationalisation. 5.25—German Transmission: News, Programme for Children, Reading and Talk for Workers. 6.0—News Bulletin. 6.5—Talk: Theatre Reminiscences. 6.20—Mandoline and Guitar Concert, conducted by Herman. March, Circolo Fiorente (Frigerio). Waltz Serenade (Belenghi). Polka, Giunchiglia (Sartori). Waltz from "Fatinizia" (Suppé). March (Novák). Songs (Sax). Waltz (Sartori). March, The Soldiers (Benes). 6.55—Introductory Talk to the following Transmission.

**FAMOUS ELECTRIC CLOCKS**

E. J. Heraud offers on easy terms the wonderful All-British SYNCHRONOMAINS Electric Clock made by the famous Synchronome Co.; Ltd.; whose Clocks are used to measure and distribute Greenwich Mean Time by the Royal Observatory, Greenwich, and also by the B.B.C. for giving time signals.

**NO WINDING  
 NO SPRING  
 NO PENDULUM  
 RUNNING COSTS  
 3<sup>d</sup> PER YEAR**

**Never Fast Nor Slow  
 Always "dead right"**

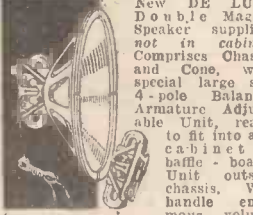


Just plug in to your A.C. Mains and you are guaranteed correct time all the time. For A.C. 50 cycles. The whole mechanism in an extremely pleasing bakelite moulding, mahogany, black or walnut finish, 6 1/2 in. high, 6 1/2 in. wide, 3 1/2 in. dial. Sent on approval for only 2s. 6d. deposit; if satisfied, complete purchase by 7 monthly payments of 5s. 0d. (Cash 33/6). No more wondering if the clock is right—this one can't be wrong! Illustrated Booklet post free on request.

**OUR FAMOUS SUPER-SPEAKER IN A HANDSOME CABINET!**



The latest model of our Super Double Magnet Speaker, complete with 4-pole Balanced Armature Adjustable Unit with bakelite cover, in an extremely handsome Walnut fronted Cabinet. The double magnets of the unit are of specially prepared Tungsten Steel, and the richness of the reproduction on bass as well as high treble is marvellous. Cabinet measures 13 1/2 in. high, 12 in. wide, 7 in. deep, latest pattern fret backed by black and gold gauze, four feet felt based. Wonderful value.



Sent on approval for only 2s. 6d.; if satisfied, complete purchase by seven monthly payments of 5/-. (Cash, 35/-)  
 E. J. KERAUD, Dept. W.R.15, Number One, Edmonton, London, N.18.  
 Branches: 78-82, Fore St., Edmonton; 77, West Green Rd., Tottenham; 34, St. James St., Walthamstow; and 159, Herford Rd., Enfield Wash.

● if you want  
 ● an appointment  
 ● with INTEREST,  
 ● VARIETY, GOOD PAY  
 & BIG PROSPECTS  
**GO INTO ADVERTISING!**

Advertising is a business of unlimited opportunities both for men and women. Over £200,000,000 are spent in Britain alone every year in Advertising. For good and original work the salaries are high and promotion rapid. We can train you for a good position in from six to twelve months.

**SUBJECTS COVERED:**

Introduction and the Power of Advertising—Correct English—Writing Advertising Copy—Printers' Type and Typographical Measurements—Principles of Printing—Preparing Layouts—Engraving and Block-making—Principles of Advertisement Display—Advertisement Illustration—Advertising Mediums—Correction of Proofs—Preparation of Advertising Literature—Retail Advertising—Mail Order and Postal Advertising—Outdoor Advertising—Trade Paper Advertising—Managing Advertising Campaigns—Advertising Agencies—Selling Advertising Space—Important Miscellaneous Advertising Matters—Securing a Position in Advertising.

You can take the Course at home in your spare time wherever you live without interfering with your present employment. Why be content to jog along on small pay with no prospects when such an opportunity is offered to you? Send for full particulars:

**The British College of Advertising, Ltd.,**  
 150, Wheatsheaf House, Carmelite Street, London, E.C.4.

Phone: Central 4809.



# THURSDAY (April 14)

## PRINCIPAL EVENTS

### SYMPHONY CONCERTS

- 7.10 p.m. Copenhagen: Conducted by Professor Georg Széll (Prague), Szigeti (Violin).
- 7.20 „ Bucharest.
- CONCERTS (Vocal and Instrumental)**
- 6.20 p.m. Prague: Jewish Choral Music.
- 6.30 „ Leipzig: Wagner.
- 7.0 „ Hamburg: Choral music.
- 7.25 „ Budapest: Goethe programme.
- 7.30 „ Strasbourg: The Symphony Orchestra of Nancy.
- 8.0 „ Königs Wusterhausen and other German Stations: Relay from the Park of the White House, Washington, Latin-American music.
- 8.0 „ Stuttgart, Frankfurt: The Stuttgart Philharmonic Orchestra.

### OPERAS AND OPERETTAS

- 6.35 p.m. Munich: "Oberon" (Weber) from the National Theatre.
- 7.5 „ Heilsberg; "La Bohème" from the Königsberg Opera.
- 8.0 „ Italian Stations (Northern Group): Opera relay.
- 8.0 „ Palermo: Relay from the Vittorio Emanuele Theatre.
- 9.30 „ Berlin (Witzleben), Vienna: "Call Mr. Plim" (Spoliansky).

### CHAMBER MUSIC

- 4.35 p.m. Warsaw: The Liège String Quartet (Franck, Beethoven).

### PLAYS

- 7.0 p.m. Stuttgart, Frankfurt: "Colonel Chabert."
- 8.30 „ Leipzig: "The Dying Village."

### MISCELLANEOUS

- 5.25 p.m. Berlin (Witzleben): The Wilhelm Busch Centenary.
- 8.0 „ Vienna: William Busch programme.

### DANCE MUSIC

- 6.30 p.m. Berlin (Witzleben), Langenberg: (till 8.0) Anton Goronzy's Band.
- 9.40 „ Langenberg, Frankfurt: (till 11.0).

### Saint-Saëns' Noah's Ark

Saint-Saëns' *Carnival of Animals*, to be broadcast from STRASBOURG this evening, was produced as a surprise at the Annual Mardi-Gras concert (the last day of the Carnival, always a Tuesday) of the cellist, Lebouc, the son-in-law of the famous singer Nourrit. Saint-Saëns had intended first to write the Carnival for his pupils at the Niedermeyer School, where he was pianoforte professor for four years from 1861, but had never found time to do it then. Lebouc



Szigeti

himself took part in the first performance in 1886, along with the composer and other distinguished teachers and performers of the day. A few days later the work was repeated at the Society of "La Trompette" at Lemoine's house, to celebrate Mi-Carême (Thursday in the third week of Lent, always observed as a day of diversion); a report of that performance reached the ears of Liszt, who was passing through Paris. He begged Madame Viardot, one of the select few who had been let into the secret, to arrange for him to hear the work, if it was at all possible, and on the second of April it was performed in the strictest privacy. After having allowed it to be performed once or twice again on special occasions in the next few years, Saint-Saëns eventually forbade its repetition. Only after his death, by a special provision in his will, was it allowed to be made public, and the world has ever since been grateful for the possession of its delicious blend of charming music and good-humoured satire. It was published in 1922, by Messrs. Durand et Fils, Paris, and the score is laid out for two pianofortes, two violins, viola, cello, double-bass, flute and piccolo, clarinets in B Flat and C, harmonica and xylophone. The movements are:— Introduction and royal March of the Lions; Hens and Cocks; Wild Asses; Tortoises; The Elephant; Kangaroos; Aquarium; Long-eared Personages; The Cuckoo in the depths of the wood; Aviary; Pianists; Fossils; The Swan; Finale. One or two of them make use of quotations. In Tortoises for instance, motives from the last ballet, and a few bars of the finale of the first act, of Offenbach's *Orpheus in the Underworld* appear; The Elephant quotes a few bars of the *Ballet of Sylphs* from Berlioz' *Faust*, along with a hint of Mendelssohn's *Midsummer Night's Dream* music. Fossils includes parts of the melodies, "J'ai du bon tabac," "Ah! vous dirai-je Maman," and "Partant pour la Syrie," linked with the composer's own *Danse Macabre* and Rosina's aria from *The Barber of Seville*. Although his music contains but few such examples of humour, Saint-Saëns was always ready to make fun, when opportunity offered. Chabrier, for instance, tells a delightful story of a burlesque performance of Gounod's *Faust* in which the bearded Saint-Saëns took the part of Marguerite.

### NATIONAL

|           | kc/s. | m.      | kW. |
|-----------|-------|---------|-----|
| London:   | 1,148 | 261.3   | 50  |
| Daventry: | 193   | 1,554.4 | 30  |
| Northern: | 995   | 301.5   | 50  |

10.15 a.m.—The Daily Service.  
 10.30—10.45—Time Signal (Greenwich), Shipping Forecast.  
 12 noon—Reginald Foort at the Organ.  
 1.0 p.m.—Time Signal (Greenwich).  
 1.0—The Shepherd's Bush Pavilion Orchestra, directed by Harry Fryer.  
 1.45—"The Problem of the Difficult Child"—IX. Mrs. Lettice Ramsey.  
 2.0—2.30—Gramophone Records.  
 3.0—Evensong from Westminster Abbey.  
 3.45—The B.B.C. Dance Orchestra, directed by Henry Hall.  
 4.30—The Midland Studio Orchestra.  
 4.45—Time Signal (Greenwich).  
 5.15 (Daventry)—The Children's Hour.  
 5.15 (London and Northern)—Dance Music. The Savoy Hotel Orpheans.  
 6.0—"The First News."  
 6.30—Time Signal (Greenwich).  
 6.30—The Foundations of Music. Haydn Pianoforte Trios.  
 6.50—German Talk. Mr. Otto Siepmann.  
 7.20—The Weekly Bulletin of Special Notices.  
 7.30—"The Growth of the Modern World Order"—I. Mr. J. L. Hammond: "The Rise of Great Britain."  
 8.0—An All-Welsh Concert from the Pavilion, Caernarvon.  
 9.0—Time Signal (Greenwich).  
 9.0—"The Second News."  
 9.15—Shipping Forecast; New York Stock Market Report.  
 9.20—"The Way of the World." Mr. Vernon Bartlett.  
 9.35—An Orchestral Concert. Elsie Cochrane (Soprano). The B.B.C. Orchestra (Section E). Conducted by Joseph Lewis.  
 10.30—A Short Service, conducted by the Rev. W. H. Elliott.  
 10.45—12 midnight—Dance Music. The B.B.C. Dance Orchestra, directed by Henry Hall.  
 11.30—Time Signal (Greenwich).  
 12 midnight—12.5 a.m. (Friday)—Experimental Transmission by the Fulctograph Process.

### REGIONAL

|           | kc/s. | m.    | kW. |
|-----------|-------|-------|-----|
| London:   | 842   | 356.3 | 50  |
| Midland:  | 752   | 398.9 | 25  |
| Northern: | 626   | 479.2 | 50  |

10.15 (London and Northern)—The Daily Service.  
 10.30—10.45 (London and Northern)—Daventry National Programme.  
 11.30—12 noon (London)—Experimental Television Transmission (Baird Process).  
 12—Ernest Parsons and his Orchestra.  
 1.0 p.m.—The Northern Studio Orchestra. James Sidwell (Bari-tone).  
 2.0—Laddie Clarke's Imperial Hydro Hotel Orchestra.  
 3.0 (London)—Daventry National Programme.  
 3.0 (Northern)—The Studio Orchestra. A Request Programme.  
 3.30 (Northern)—Short Stories by Northern Authors.  
 3.45 (Northern)—Daventry National Programme.  
 5.15—"The Children's Hour."  
 6.0—"The First News."  
 6.35 (Northern and London)—The Northern Studio Orchestra, Morava (Violin). Walter Whiteway (Bass).  
 6.35 (Midland)—A Military Band Programme. The Birmingham Military Band, conducted by W. A. Clarke. Walter Payne (Baritone).  
 8.0—Vaudeville. Stuart Ross and Joe Sargent (Syncopated Harmony). Colin Wyatt (Swiss Accordion and Yodelling Solos). Frederique (Soprano). George Gee (Comedian). "Plain Jane," or "The Wedding Breakfast." Words by A. P. Herbert. Music by Richard Austin. Conducted by the Composer.  
 9.0 (London)—Chamber Music. Lily Zaehner (Mezzo-Soprano). Edward Robinson (Violoncello). Angus Morrison (Pianoforte).  
 9.0 (Midland)—Dance Music. Marius B. Winter and his Band.  
 9.0 (Northern)—The Band of the 1st Battalion the Durham Light Infantry, conducted by S. F. Fricker.  
 10.15—"The Second News."  
 10.35—11.0 (Midland)—As London.  
 10.35—12 midnight (London and Northern)—Dance Music.

### NOTE: THE HOURS OF TRANSMISSION ARE REDUCED TO GREENWICH MEAN TIME

#### ALGIERS (N. Africa)

825.3 kc/s (363.3 m.); 13 kW.  
 Transmits at intervals from 12.30 p.m. 7.0 p.m.—Song Recital. 7.15—Financial Notes, Exchange and Market Prices. 7.25—Shipping Notes and Weather. 7.30—Talk: Curiosities and Recreations. 7.45—Solo Selections. 7.55—News and Time. 8.0—Songs from Puccini's Operas; Selections from "La Tosca," "Madame Butterfly," and "La Bohème."  
 8.15—Concert of Viennese Music. 8.50—Songs from Sound Films. 9.30—Request Concert of Gramophone Records.

#### BELGRADE (Yugoslavia)

697 kc/s (430.4 m.); 2.5 kW.  
 Transmits at intervals from 10.0 a.m. 6.0 p.m.—French Dialogue. 6.30—Gymnastics. 7.0—Medical Talk. 7.30—Orchestral Concert. Soloist: "Blanka Kóser (Vocalist). Overture, "Dubravka" (Zajc). Three Yugoslavian Songs. La source—Ballet Suite (Delibes). Two Arias from "Madame Butterfly" (Puccini). Aria from "Carmen" (Bizet). Lagunenwalzer (Johann Strauss). 8.30—See Ljubljana. 9.30—News and Sports Notes. 9.50—Gramophone Records of Variety Music.

#### BERLIN (Germany)

Königs Wusterhausen. 183.5 kc/s (1,635 m.); 60 kW.  
 Transmits at intervals from 4.45 a.m. (Weather, Gymnastics and Concert). 11.0 a.m.—Weather for Farmers, followed by Gramophone Records from the Works of Bach and Beethoven, and Second Weather for Farmers. 11.55—Nauen Time Signal. 12.30 p.m.—News Bulletin. 1.0—Gramophone Concert of Russian Music, relayed from Berlin (Witzleben). 2.0—Wilhelm Busch Programme for Children. 2.30—Weather and Exchange. 2.45—Talk for Women: Women in Settlements. 3.0—Educational Talk. 3.30—See Berlin (Witzleben). 4.30—Talk: The Present Legal Position of the War-Disabled and Ex-Servicemen. 5.0—

Talk by Professor Mersmann: We compose Tunes. 5.30—Advanced Spanish Lesson. 5.55—Talk: Pictures of Modern Russia—Man and Machine. 6.20—Agricultural Talk. 6.45—Dance Music from Berlin (Witzleben). 7.30—News Bulletin. 8.0—Pan-America Day. Concert by the Elite Band of the American Army, relayed from the Park in front of the White House in Washington. Overture, "Il Guarany" (Gomez, of Brazil). Yaravi—Songs of the Incas (Bustamante, of Ecuador). Dance from Mañana (Infanta, of Chile). Folk Song, En el fondo de tus ojos (Velasco, of Columbia). March, San Lorenzo (Silva, of the Argentine). Dance Song, Yaqui (Alvarado, of Mexico). Dance, Fuerza y Luz (Galimany, of Panama). Inca Song, El Condor pasa (Robles, of Peru). 8.30—"Indrifter Lesung angenommen"—An Instructive Sketch (Hans Zelten and Max Burg). 9.10—News Bulletin. 9.30—See Berlin (Witzleben).

#### BERLIN (Germany)

Witzleben. 715 kc/s (419.5 m.); 1.5 kW.  
 Transmits at intervals from 5.30 a.m. 1.0 p.m.—Concert of Russian Orchestral Music on Gramophone Records. Classical Symphony in D Major and Scherzo and March from "The Love for Three Oranges" (Prokofiev), by Serge Koussevitzky, with the Boston Symphony Orchestra. Pictures from an Exhibition (Moussorgsky-Ravel) by the Berlin State Opera House Orchestra, conducted by Alois Melichar. "Les Ruses d'amour" (Glazounov), by the Covent Garden Royal Opera House Orchestra, conducted by John Barbiroli. Bacchanale from "The Seasons" (Glazounoff), by the Covent Garden Royal Opera House Orchestra, conducted by John Barbiroli. 2.20—A Radio Report from the "Bärenklau" Garden City. 2.45—Talk: Catching Wild Animals in the Valley of the Amazon. 3.5—Medical Talk: Fever. 3.30—Orchestral Concert conducted by Edward Fendler. Overture, Andante, Larghetto and Allegro from "Esther" (Händel). Pianoforte Concerto in G Major

(Haydn). Symphony in B Flat Major (Cannabich, arr. Heinrich Hofer). 4.30—Talk on Plastic Art. 4.40—Programme for Children. 5.0—Greek Folk Songs. 5.25—Talk: Wilhelm Busch. 5.55—The Witzleben Station informs its Listeners. . . . 6.0—Topical Talk. 6.10—Dance Music. 7.50—News Bulletin. 8.0—See Breslau. 9.15—News Bulletin. 9.30—"Call Me. Plim"—Opera Grotesque (Mische Spoliansky), relayed from the "Kabarett der Komiker," with Introductory Talk by Kurt Robitschek. The Orchestra conducted by the Composer.

#### BORDEAUX-LAFAYETTE

(France)  
 (PTT). 986 kc/s (304 m.); 13 kW.  
 Transmits at intervals from 11.45 a.m. 3.30 p.m.—Programme for Children. 6.30—News and Market Prices. 6.40—Talk: Work and Leisure. 6.55—Lottery Results and Charades Report. 7.0—Request Concert of Gramophone Records. 7.15—News and Weather Forecast. 7.30—Concert on Gramophone Records. La Ronde des Lutins (Bazzini). Variations on a Theme of Corelli's (Tartini-Kreisler). Selection from "Così fan tutte" (Mozart). Selections from "The Czarevitch" (Lehár). 8.0—"Monsieur Chouffeuri"—Operetta (Offenbach). After the Programme, Amusement Guide and Time Signal.

#### BRATISLAVA

(Czechoslovakia)  
 1,076 kc/s (279 m.); 14 kW.  
 Transmits at intervals from 10.0 a.m. 3.10 p.m.—Orchestral Concert conducted by Fr. Dyk. Overture, "Hamlet" (Tchaikovsky). Schemerzade (Rimsky-Korsakov). 4.10—Talk by Josef Cejka. 4.35—See Prague. 5.5—Concert of Light Music, relayed from the Museum Café. 5.40—Serbo-Croatian Report. 6.0—See Prague. 9.30—Programme Announcements and Theatre Notes. 9.35—See Prague.

#### BRESLAU (Germany)

923 kc/s (325 m.); 1.5 kW. Relay by Gleiwitz, 1,184 kc/s (253 m.).  
 Transmits at intervals from 5.30 a.m.

6.0 p.m.—Weather for Farmers.  
6.5 (approx.)—Concert of *New Popular Music*, conducted by Franz Marszalek. Foxtro, Ein bisschen Liebe für mich (Abraham). Tango, Ich hab' so ein Krug zum grünen Kranz (German). Slow Waltz, Wenn wir uns später einst wiedersehen (Ralton). Tango, Für dich, mein Baby (Rubens and Grothe). Tango, Kleine Elisabeth (Rosen). Tango, Ich hab' so ein Gefühl als ob (Katt and Meisel). Foxtro, Mach dein Fenster auf (Egen, Joachim and Marbot).  
6.30—Weather for Farmers, followed by Topical Talk. 7.0—Dance Music from Berlin (Witalben). 7.50—News Bulletin. 8.0—Der letzte Zeuge—Play (Hermann Burger). 9.10—Time Weather, News, Sports Notes and Programme Announcements. 9.40—Talk in Esperanto. 9.50—Talk: The Workers' Sports Movement in Other Lands. 10.0 (approx.)—Close Down.

**BRNO (Czechoslovakia)**  
878 kc/s (342 m.); 35 kW.  
Transmits at intervals from 10.0 a.m. to 2.30 p.m.—Pianoforte Recital by Miroslav Vetrý. The Legend of St. Francis of Assisi (Liszt). Polkas in A Minor and E Major (Smetana). Waltz, in E Major, Op. 39 (Brahms). 2.55—Market Prices relayed from Prague. 3.0—Talk for Women: The Importance of Eurythmics. 4.0—Talk for Women. 4.10—See Prague. 4.25—Talk: Hokusai—a Japanese Artist. 4.35—See Prague. 5.5—Theatre and Film Review. 5.15—See Prague. 5.25—German Transmission. News and Talk: Goethe and Love.  
6.0—See Prague. 8.45—Song Recital by Vlasta Andryškova. 9.0—Light Music on Gramophone Records. 9.15—See Prague. 9.30—News Bulletin. 9.35—See Prague.

**BRUSSELS (Belgium) (No. 1)**  
I.N.R. 590 kc/s (509 m.); 15 kW.  
11.15 a.m.—12.45 p.m.—Weather Forecast and Light Music on Gramophone Records. Fifty Years of Operettas (Misrak). Chanson (Friml-Loretorey). Serenade (Tosti-Tavan). Si les Rois épousaient des Bergères (Ponso). C'est un Chant d'Amour (Klenner). Twelfth Hungarian Rhapsody (Liszt). Scherzo from "A Midsummer Night's Dream" (Mendelssohn). Foxtro, Mona Lisa. Army (Ibarez). Almond Blossom (Williams-Engleman). Slow Foxtro, Lustiges aus Milenberg (Rapallo). Foxtro (Be). Les Yeux qui font rêver (Lattes). C'est l'imprévu (Lattes). Selection of Waltzes (Lattes). Amoureuse (Berger). Sous les Ponts de Paris (Scott). Salut du Printemps. Gipsy Love; Neapolitan Nights (Zamecnik). Les Amoureux (Rizzi). La Rose de Béloc (Preckher). La Montagne (Preckher). Selection (Lincke). Sobre las olas (Rosas). 4.0—Concert by the Station Symphony Orchestra. Overture, "Les Saltimbanques" (Ganne). Pizzicato from "Sylvia" (Delibes). Le Pas des Fleurs (Delibes). Selection from "La Fille de Madame Angot" (Lecocq). Waltzes from "The Count of Luxembourg" (Lehár). Selection from "On with the Show" (Nicholls). 4.45—Literary Talk for Children. 5.15—Talk: Children in Industrial Work. 5.30—Jewish Music on Gramophone Records. 6.30—Journal Parlé. 7.0—Concert of Variety Music. 7.45—Talk: Spring and Flowers, with Musical Illustrations by Mme. Harvant. 8.0—Concert of Variety Music (contd.). 9.0—Journal Parlé and Close Down.

**BRUSSELS (Belgium) (No. 2)**  
N.I.R. 887 kc/s (338.2 m.); 15 kW. Programme in Flemish.  
11.15 a.m.—12.45 p.m.—Weather and Gramophone Concert. Overture, "Die Fledermaus" (Johann Strauss). Danse macabre (Saint-Saëns). Neapolitan Serenade, Ninna Nanna (Tagliaferr). Tango, Nostalgie messicaine (Galdiere). March of the Marionnettes (Savino). Dancing Animal Crackers (Steiner). Gluhwürschens Steldlichein (Siede). Chinese Street Serenade (Siede). Selection, Matinata (Leoncavallo). Vorrer morire (Fosti). Largo and Arioso (Händel). Nocturne (Chopin). Serenade (Schubert). Aria from "Prince Igor" (Borodin). Selection from "The Bartered Bride" (Smetana). 4.0—Orchestral Concert conducted by Meulemans. Overture, "Mireille" (Gounod). Hymne à Ste Cécile (Gounod). Waltz from "Faust" (Gounod). Die Post kommt (Eilenberg). Loin du Pays (Berger). 4.45—Programme for Children. 5.30—"Toen Petrus afstamde op" (Radio Play (Albe)). 6.15—Catholic Report. 6.30—Programme for Women. 7.0—Concert by the I.N.R. Symphony Orchestra, conducted by Jean Kumps, with the Collaboration of the Russian Students' Balalaika Orchestra of the Louvain Catholic University, conducted by Savtchenko. K.V.R.O. Strijlied (Meulemans). Overture, "Eury-anthe" (Weber). Balalaika Selections: (a) Potpourri of Russian Songs, (b) Hungarian Rhapsody No. 2 (Liszt), (c) Ballet Scene (Andreef), (d) Russian Dance (Tchaikovsky). 7.45—Talk by Mr. le Clanoine Janssen. 8.0—Concert (continued). Rhapsody No. 14 (Liszt). Balalaika Selections: (a) Waltz (Rokochinsky) (b) Overture, "Orpheus in the Underworld" (Offenbach), (c) Popular Russian Songs, (d) Selection from "His Life for the Czar" (Glinka). Ballet Music from "Coppelia" (Delibes). 8.55—Evening Prayer. 9.0—Le Journal Parlé.

**BUCHAREST (Romania)**  
Radio-Bucarest. 761 kc/s (394 m.); 12 kW.  
Transmits at intervals from 11.0 a.m. to 4.0 p.m.—Light Music and Romanian Music by the Gr. Dinico Orchestra. 5.0—News and Time Signal. 5.10—Concert (contd.). 6.0—Talk on Music and Art. 6.40—Light Music on Gramophone Records. 7.0—Song Recital by Mme. Vera (Pucini). Two Songs from "The Willy Widow" (Wolf-Ferrari). Giouetta (Buzzi-Peccia). Romanian Song (Tache Popesco). 7.20—Symphony Concert, conducted by M. T. Rogalsky, Symphonic Picture, Autumn (Alfred Mendelssohn). Concerto for Piano and Orchestra (Mozart). 8.0—Talk (to be announced). 8.15—Symphony Concert (contd.). Symphony in D Major (Haydn). 8.45—News Bulletin.

**BUDAPEST (Hungary)**  
545 kc/s (550 m.); 18.5 kW.  
Transmits at intervals from 8.15 a.m. to 4.30 p.m. and 6.00—11.0 p.m.  
4.30 p.m.—Hungarian Songs for Piano and Dr. Zoltán Kárpát and Dr. Eugen Paksy. 5.0—Talk on Goethe. 5.25—English Lesson. 6.0—Concert by the Mandits Orchestra. Selection from "The Czardas Princess" (Kálmán). Aria from "Der Rosenkavalier" (Richard Strauss). Once upon a Time (Poldini). Dance (Wolf-Ferrari). Ich bin so treu (Bartok). Es muss ein Stück vom Himmel sein (Werner). The Gamblers Blues (Calude Austin). Melody (Stephanides). 7.0—Talk by Albert Berzeviczy. 7.25—"Goethe and Music" Concert by the Budapest Vocal and Orchestral Society, conducted by Emil Lichtenberg. Introductory Talk. Overture and Selection from "Egmont" (Beethoven). Three Songs: (a) Es war ein König in Thule, (b) Lied, and (c) Spring Song (Mendelssohn). Four Songs to Goethe's Text (Schubert). Four Songs to Words by Goethe (Wolf). Meeresstille und glückliche Fahrt (Mendelssohn). Songs by Mozart, Schubert, Tchaikovsky and Liszt. Scenes from Goethe's "Faust" (Schumann); followed by Concert by the Eugen Farkas Cigány Orchestra from the Café Spolarich. 11.0 (approx.)—Close Down.

**COPENHAGEN (Denmark)**  
1,067 kc/s (281 m.); 0.75 kW. Relayed by Kalundborg, 260 kc/s (1,153 m.).  
Transmits at intervals from 6.30 a.m. to 11.0 a.m.—Time and Town Hall Chimes. 11.2—String Ensemble Concert, conducted by Leonard Gyldmark, relayed from the Palace Hotel. 1.0—2.30 p.m.—Interval. 2.30—Camillo Carlsen Song Recital. Aftenens svinder. Jeg ved ej, hvor du færdest. Maalet. I Høstens Farver. Birketræets Stenning. Song from "Foraar". 2.50—Concert from the Wivex Restaurant. 4.0—Programme for Boys. 4.40—Exchange and Fish Market Prices. 4.50—Talk. 5.20—English Lesson for Beginners. 5.50—Weather Forecast. 6.0—News Bulletin. 6.15—Time Signal. 6.16—Talk. 6.45—Danish Lesson.

**THURSDAY continued**

7.10—Twenty-Sixth Concert from the State Broadcasting Building. The Wireless Symphony Orchestra, conducted by Prof. Georg Szell. Soloist: Joseph Sziget (Violin). Serenade No. 9, in D Major (Mozart). Violin Solos: (a) La Folia (Corelli), (b) Violin Concerto in D Major (Mozart). Ten Minutes' Interval. Suite, Hary Janos (Kodaly). Violin Solos: (a) Air from the Violin Concerto (Goldmark), (b) Scene from the Czardas, No. 3 (Hubay) Rhapsody No. 1 (Liszt). 9.15—News Bulletin. 9.30—Dance Music from the Ritz Restaurant. In the interval at 11.0—Time and Town Hall Chimes. 11.30 (approx.)—Close Down.

**CRACOW (Poland)**  
959 kc/s (312.8 m.); 1.5 kW.  
Transmits at intervals from 10.45 a.m. to 5.50 p.m.—Miscellaneous Items and Announcements. 6.0—Talk on Local History. 6.15—Agricultural Report. 6.25—Programme Announcements. 6.30—Light Music on Gramophone Records. 6.45—11.0—See Warsaw. 11.0 (approx.)—Close Down.

**DUBLIN (Ireland)**  
(zRN). 725 kc/s (413 m.); 1.2 kW. Relayed by Cork, 1,337 kc/s (224.4 m.).  
1.30—2.0 p.m.—Time Signal, Weather Forecast, Stock Report and Light Music on Gramophone Records. 6.0—Popular Music on Gramophone Records. 6.15—Programme for Children. 7.0—Popular Music on Gramophone Records. 7.10—News and Dublin Cattle Market Report. 7.30—Time Signal. 7.31—French Lesson. 7.45—Violin and Pianoforte Duets by L. Thompson and Mrs. O' C. Miley. 8.5—Songs by T. Keane (Baritone). 8.20—The Station String Orchestra. 8.30—Soprano Solos by Edie O'Dwyer. 8.45—A Sketch by Eva Brennan and Company. 9.15—Mike Nono in Songs at the Pianoforte. 9.30—Sponsored Programme. 10.30—Time Signal, News, Weather Forecast and Close Down.

**FÉCAMP (France)**  
Radio Normandie. 1,364 kc/s (219.9 m.); 1 kW.  
Transmits at intervals from 11.0 a.m. to 6.30 p.m.—Light Music on Gramophone Records. Foxtro (Tibor Harsanyi). Après un Réve (Fauré). Chindia (Mialocic). Les Vieilles de chez-nous (Levadé). 6.45—Announcements. 7.0—News Bulletin. 7.30—Concert relayed from Rouen. 11.0—Concert of Variety Music. 1.0 a.m. (Friday)—Close Down.

**FRANKFURT-am-MAIN (Germany)**  
770 kc/s (390 m.); 1.5 kW. Relayed by Cassel, 1,220 kc/s (246 m.).  
Transmits at intervals from 5.0 a.m. to 12 noon—Gramophone Concert. Trio No. 2 in C Minor, Op. 66 (Mendelssohn). Pictures from an Exhibition (Moussorgsky-Ravel). 1.0 p.m.—News. 1.10—Sponsored Gramophone Concert. 2.0—Weather Report. 2.5—Time and Economic Notes. 3.15—Programme for Children. 2.55—Economic Notes. 4.0—See Langenberg. 5.15—Economic Notes. 5.25—Book Review. 5.50—Talk: Daily Encounters. 6.15—Time and News. 6.20—Programme of Lyrics. 6.30—9.20—See Stuttgart. 9.20—Time and News. 9.40—Dance Music from Langenberg. 11.0 (approx.)—Close Down.

**HAMBURG (Germany)**  
Norag (ha, in Morse) 806 kc/s (372 m.); 1.5 kW. Relayed by Bremen, 1,112 kc/s (270 m.); Flensburg, 1,373 kc/s (218 m.); Hanover, 530 kc/s (566 m.) and Kiel, 1,292 kc/s (232.2 m.).  
Transmits at intervals from 5.25 a.m. to 6.0 p.m.—Topical Talk. 6.15—Review in connection with the Goethe Year 1932—Books on Goethe. 6.35 (from Bremen)—Alfred Manns reads from his own Works, with Introductory Talk by Author. 7.0—Concert by the Hamburg Teachers' Choral Society, Annemarie Sottmann (Soprano), Edith Niemeyer (Contralto), Prof. Hoffmann (Tenor), Paul Kleinicke (Bass), Engelhard Barthe (Organ) and the Philharmonic Orchestra relayed from the Musikhalle. Mass for Male Voice Choir, Quartet, Organ and Orchestra (Wunsch). Selection

from the Frithjof "Szenen" for Male Voice Choir, Soprano, Baritone and Orchestra (Bruch). In the interval, Announcements. 9.0—Time and News. 9.10—Ziehler Concert by Herbert Ernst Groh, the Norag Choir, the Norag Male Voice Choir and the Norag Orchestra conducted by Horst Platen. Columbus March. Polka, Guck in die Welt. Waltz, Meeresleuchten. Barcarolle from "Der Liebeswälder." Sternbanner Marsch. Waltz, Nachtschwärmer. Gallop, Mir nach. Waltz, Heimatgefühl. Polka-Mazurka, Frauenlogik. March, Mein Vaterland, Mein Oesterreich. Katzen-Polka. Waltz, Donausagen. Polka-Mazurka, Liebes-Sophon. Polka, Kavallerie. Sei willkommen Du lauschige Nacht. Fahnen Marsch.

**HEILSBURG (Germany)**  
1,085 kc/s (276.5 m.); 60 kW. Relayed by Danzig, 662 kc/s (453.2 m.).  
Transmits at intervals from 5.30 a.m. to 10.30 a.m.—Concert relayed from Hamburg. 12.5—1.30 p.m.—Concert by the Little Orag Orchestra conducted by Eugen Wilcken. Overture to the Music to "Turandot" (Vincenz Lachner). Aladdin Suite (Nielsen). Waltz, Rosas and Marguerites (Waldfuefel). Lautenstädtchen (Wisnar). Catalonian Love Idyll (Dreyer). Tchaikovsky Concert Suite (Nemeti). Selection from "Faust" (Gounod). Valse piquante (Schytte). Trot de Cavalerie (Rubinstejn). 3.0—Programme for Young People—A Trip to the Zugspitze. 3.30—Concert by the Little Orag Orchestra conducted by Eugen Wilcken. Overture, "Lysistrata" (Lincke). Waltz, Nachtfalter (Johann Strauss). Czardas No. 8 (Michiels). Le Pas des Fleurs, from "Naila" (Delibes). Suite No. 2 (de Micheli). Fantasia on the Works of Verdi (Rhode). 4.45—Review of Books. 5.15—Market Prices. 5.30—An Agricultural Dialogue. 6.0—English Conversation. 6.30—Liszt Pianoforte Recital by Frich Winkler. Variations on "Weinen, Klagen." The Twelfth Rhapsody. 7.0—Weather Forecast.

7.5—"La Bohème"—Opera in Four Acts (Pucini) relayed from the Opera House, Königsberg. 8.10—(in an interval) News. 9.25—Second News.  
**HILVERSUM (Holland)**  
1,004 kc/s (298.8 m.); 8.5 kW. Programme of the Algemeene Vereniging Radio Omroep (A.V.R.O.). 7.40 a.m.—Time Signal. 7.41—Gramophone Records of Variety Music. 9.40—Time Signal. 9.41—The Daily Service. 9.55—Gramophone Records of Light Music. 10.10—Ballad Concert by Anny Prins (Vocalist), Sarah Lochner (Elocutionist), and Egbert Veen (Pianoforte). 10.40—Talk. 11.10—Concert (continued). 11.40—Time Signal. 11.45—Gramophone Records of Light Music. 12.10 p.m.—Concert by the Wireless Chamber Orchestra conducted by Max Tak. Overture, "Tancred" (Rossini). Suite (Gabriel Marie). Spanish Dance (Saraste). Song without Words (Tchaikovsky). Selection from "La Bohème" (Pucini). Gramophone Records of Variety Music. Waltz, Wiener Bonbons (Joh. Strauss). Selection from "Victoria and her Hussar" (Abraham). 1.40—Talk. 2.10—2.25—Interval. 2.25—Gramophone Records of Variety Music. In the interval at 2.40—Talk. 3.40—Programme for Hospitals. 4.40—Orchestral Concert conducted by Knikker. Overture, "Martha" (Flotow). Indian Suite No. 1 (Lüling). Gavotte and Musette (d'Ambrosio). Pavane de la Cour (Gabriel Marie). Selection from "Les Saltimbanques" (Ganne). Gramophone Records of Light Music. Londenienne (Mambour). Waltz, Die Kosenden (Lanner). Selection from "Die Fäschingsfee" (Kálmán). Matinata (Leoncavallo). Foles Bergères (Lincke). 6.10—Talk. 6.40—Concert (contd.). Sketches from Russia (Petras). The Top (Gillet). In Hongkong Streets (Humphries). Waltz, Donauellen (Ivanovici). Gallop (Lüling). 7.10—English Lesson. 7.40—Time Signal. 7.41—Gramophone Records of Popular Music. 7.55—Concert, relayed from the Concert Hall, Amsterdam. 10.10—

Weather and News. 10.25—Gramophone Records of Variety Music. 11.40 (approx.)—Close Down.

**HUIZEN (Holland)**  
160 kc/s (1,875 m.); 8.5 kW.  
7.40—8.55 a.m.—Programme of the Catholic Radio Society (K.R.O.). Gramophone Records of Variety Music. 9.40—10.40—Programme of the Christian Radio Society (N.C.R.V.). 9.40—Gramophone Records of Variety Music. 9.55—Programme for Hospitals. 10.25—Gramophone Records of Variety Music. 10.40—1.40 p.m.—K.R.O. Programme. 10.40—Gramophone Records of Variety Music. 11.10—Religious Address. 11.40—Police Notes. 11.55—Orchestral Concert conducted by Johan Gerritsen. Gipsy March (Star). Overture, "The Mikado" (Sullivan). Waltz, Wiener Praterleben (Translatour). A Norwegian Bridal Procession (Grieg). Two Novellettes for Strings (Coleridge-Taylor). Variations on "s' kommt ein Vogel geflogen" (Ochs). Potpourri of Waltzes (Robrecht). Selection from "Madame Butterfly" (Puccini). Serenata à Toscanini (Murilli). March, Bruder lustig (Siede). 1.40 p.m.—Will Close Down. N.C.R.V. Programme. 11.40—Handicrafts Lesson. 2.40—Programme for Women. 3.10—3.40—Interval. 3.40—Programme for Hospitals. 4.40—Lesson in Handwork for Young People. 5.25—Pianoforte Recital by Hans de Bock. Album Leaves (Jarnach). Two Selections (Scott): (a) Over the Prairie (de Blazurka). Three Pieces for Pianoforte (Kodaly). Selection (Bartok). Barlum! (Mallipiero). La cathédrale engloutie (Debussy). Clair de lune (Debussy). Two Pieces for Pianoforte. (de Bock). Chanson espagnole (Mompou). Selection from "El amor brujo" (Falla). 6.25—Dressmaking Lesson. 6.40—Talk by Heer Groen. 7.10—Police Notes. 7.25—Religious Notices. 7.40—Religious Programme of Music and Addresses relayed from the Evangelical Lutheran Church at Deventer. 9.40—News Bulletin. 9.50—Gramophone Records of Variety Music. 11.10 (approx.)—Close Down.

**KALUNDBORG (Denmark)**  
Kalundborg Radio. 260 kc/s (1,153 m.); 7.5 kW.  
See Copenhagen.

**KAUNAS (Lithuania)**  
155 kc/s (1,935 m.); 7 kW.  
Transmits at intervals from 4.0 p.m. to 6.0 p.m.—Time Signal, Weather Forecast, News and Exchange. 6.45—Orchestral Concert. Ilka (Doppler). Potpourri, Was wir lieben (Ganglbauer). Lachtaube (Heidberg). Waltz, España (Waldfuefel). Intermezzo (Mischau). March, Zur Attacke (Siede). 8.0—Notes on Foreign Countries. 8.15—Talk on the Occasion of the Fifteenth Anniversary of the Death of Dr. Zamenhof, the Inventor of Esperanto. 8.35—Orchestral Concert. Selection from "La Juive" (Halévy). Picturesque Serenade (Graener). Sixth Slavonic Dance (Dvorak). English Waltz (Preston). Suite (Micheli). 10.0 (approx.)—Close Down.

**LAHTI (Finland)**  
167 kc/s (1,796 m.); 54 kW.  
Transmits at intervals from 6.10 a.m. to 6.15 a.m.—Service in Swedish. 6.5 p.m.—Orchestral Concert. 7.45—News in Finnish and Swedish.

**LANGENBERG (Germany)**  
Westdeutscher Rundfunk. 635 kc/s (473 m.); 60 kW.  
Transmits at intervals from 5.45 a.m. to 11.0 a.m.—Concert from Munich. 11.50—Weather, News and Time. 12 noon—Concert conducted by Eysoldt. Overture, "Libussa" (Smetana). German Dances (Schubert). Suite, Pictures from Scandinavia (Friederiken). Minuet (Paderewsky). Selections from "Martha" (Flotow). Grand Chromatic Waltz (Kockert). The Angel's Serenade (Braga). Sicilietta (Blon). Potpourri, Suppé, Millöcker, and Strauss (Ziehler). 1.30—Sponsored Gramophone Concert. 2.30—Economic Notes and Time Signal. 2.50—Programme for Children. 3.10—Educational Talk. 3.20—Educational Talk. 4.0—Orchestral Concert, conducted by Buschkötter. Soloist: Amedeo Baldovino (Cello). Overture, "Susanna's Secret" (Wolf-Ferrari). "Cello Concerto in B

**THURSDAY**  
continued

Minor (Dvorak). Sinfonia seviliana (Turina).  
5.15—Talk on Peter Hille. 5.40—Italian Lesson. 6.0—Weather, Time, Economic and Sports Notes. 6.15—Topical Talk. 6.30—See Berlin (Witzleben).  
8.0—Concert of South American Music relayed from New York. 8.35—Concert of Light Music and Dance Music. In the interval at 9.0—News. 11.0 (approx.)—Close Down.

**LEIPZIG (Germany)**  
1,157 kc/s (250 m.); 2 kW. Relay by Dresden, 941 kc/s (319 m.). Transmits at intervals from 5.30 a.m. 3.0 p.m.—Concert by the Leipzig Symphony Orchestra conducted by Hilmar Weber. Selections (Lincke): (a) Overture, "Frau Luna" (b) Waltz from "Gri-Gri" (c) Selections from "Lysistrata." Selections (Fall): (a) Waltz from "The Merry Peasant," (b) Song from "Der liebe Augustin," (c) Selections from "The Rose of Stamboul." Selections (Kollo): (a) Selections from "Der Juxbaron," (b) Ich traun' von dir, from "Kitty macht Karriere," (c) Selections from "Filmzauber." Selections (Kálmán): (a) Selection from "The Little Dutch Girl," (b) Waltz from "Countess Maritza." 4.30—Weather and Time. 4.50—Economic Notes. 5.0—Talk: A Visit to the Pueblos—a Tribe inhabiting New Mexico and Arizona. 5.30—Spanish Lesson. 5.50—Announcements. 6.0—Talk for Workers. 6.30—Wagner as a Symphony and March Composer—Programme by the Leipzig Symphony Orchestra conducted by Theodor Blumer, with Introductory Talk and Commentary by Dr. Walter Lange. Symphony in C Major. Overture, "Christopher Columbus." Huldigungsmarsch.  
8.0—Concert relayed from New York. 8.30—"Das sterbende Dorf"—a Radio Play (Horch-Horch). 9.30—News and Silent Night.

**LJUBLJANA (Yugoslavia)**  
522 kc/s (574.7 m.); 2.5 kW. Transmits at intervals from 11.15 a.m. 6.0 p.m.—Italian Lesson. 6.30—Serbo-Croatian Lesson. 7.0—Educational Programme. 7.30—Instru-

mental Duets. 8.30—Recital by a Choral Quartet. 9.0—Quintet Concert. 9.30—Time and News Bulletin.

**ŁWÓW (Poland)**  
788 kc/s (381 m.); 16 kW. Transmits at intervals from 10.45 a.m. 5.50 p.m.—Miscellaneous Items. 6.15—See Warsaw. 6.25—Educational Talk. 6.40—Light Music on Gramophone Records. 6.45—See Warsaw. 9.50—Dance Music relayed from the Bagatela Variety Theatre. 11.0 (approx.)—Close Down.

**LYONS (France)**  
La Doua (P.T.T.) 644 kc/s (465.8 m.); 1.5 kW. Transmits at intervals from 7.0 a.m. 6.0 p.m.—Light Music on Gramophone Records. 6.30—Radio Gazette for Lyons and the South-East. 7.30—Provincial Programme relayed from Anney.

**MADRID (Spain)**  
Union Radio (E.A.J.7). 707 kc/s (424.3 m.); 2 kW. Transmits at intervals from 8.0 a.m. 7.0 p.m.—Chimes, Exchange Quotations, Market Prices, and Request Concert of Gramophone Records. 8.15—News and Parliamentary Review. 8.30—Interval. 9.0—French Lesson on Linguaphone Records. 9.30—Chimes, Time Signal, Parliamentary Review, followed by Song Recital of South American Music. 10.15—Concert by the Engineers Band, relayed from the National Hotel. 11.45—News and Announcements. 12 midnight—Chimes and Close Down.

**MILAN (Italy)**  
Ente Italiano Audizioni Radiofoniche. 905 kc/s (331.5 m.); 7 kW. See Turin.

**MORAVSKÁ-OSTRAVA (Czechoslovakia)**  
1,137 kc/s (263.8 m.); 11 kW. Transmits at intervals from 10.0 a.m. 6.0 p.m.—See Prague. 6.20—Orchestral Concert conducted by Plichta. 7.0—See Prague. 9.30—Miscellaneous Notes. 9.35—See Prague.

**MOSCOW (Russia)**  
Trades Union. 230.1 kc/s (1,304 m.); 100 kW.

Transmits at intervals from 4 a.m. 9.0 a.m.—Midday Concert from the Works of Bach, Schubert, Haydn, Mozart, Schumann and Beethoven. 10.0—Peasants' Radio Journal. 11.0—Literary Programme. 12 noon—Educational Programme. 1.0 p.m.—Programme to be announced. 1.30—Recreative Programme. 1.45—Weather Forecast. 2.0—Agricultural Report. 2.30—Talk (to be announced). 2.55—Time Signal. 3.0—Proletariat Radio Journal. 4.0—Peasants' Radio Journal. 5.0—Communist Programme. 7.0—Review of the Week and Answers to Correspondents in German and English. 8.55—Time Signal. 9.0 (approx.)—Close Down.

**MUNICH (Germany)**  
563 kc/s (533 m.); 1.5 kW. Relay by Augsburg and Kaiserslautern, 536 kc/s (560 m.) and Nürnberg, 1,256 kc/s (239 m.). Transmits at intervals from 5.45 a.m. 6.5 p.m.—Talk: The Creole Soul. 6.25—Introductory Talk to the following Transmission. 6.35—"Oberon"—Opera in Three Acts (Weber) relayed from the National Theatre. 9.30—Time, Weather, News and Sports Notes.

**OSLO (Norway)**  
Kringkastingskapet, 277 kc/s (1,083 m.); 60 kW. Relay by Fredrikstad, 816 kc/s (367.6 m.); Hamar, 536 kc/s (560 m.); Notodden, 671 kc/s (447.1 m.); Porsgrunn, 662 kc/s (453.2 m.) and Rjukan, 671 kc/s (447.1 m.). Transmits at intervals from 9.0 a.m. 9.30 a.m.—Programme for Schools. 9.40 p.m.—Concert relayed from the Cecil Restaurant. Overture, "Le Cheval de Bronze" (Auber). Waltz from "Faust" (Gounod). Selection from "Der Orloff" (Granichstedten). Intermezzo (Giordano). Spring Dance (Kjerulf). Two Selections from "Olav Trygvason" (Grieg). 5.0—German Lesson. 5.30—Divine Service. 6.0—Announcements, Weather and News. 6.30—Recitations. 7.0—Time Signal. 7.1—Agricultural Talk. 7.30—Choral

Concert. 8.40—Weather and News. 9.0—Topical Talk. 9.15—Concert by the Station Orchestra, conducted by Hugo Kramm. Soloist: Mme. Alfhild Sundene Bjurbeck (Soprano). Suite (Alf. Hurum). Alma mia (Händel). Aria from "Orpheus" (Gluck). Selection from "Mignon" (Thomas). Selection (Farstein Valon). Four Songs (Per Reidarson). Variations (Joh. Halvorsen). 10.15 (approx.)—Close Down.

**PALERMO (Italy)**  
Ente Audizioni Italiano Radiofoniche. 554 kc/s (542 m.); 3 kW. Transmits at intervals from 11.45 a.m. 4.30 p.m.—Light Music on Gramophone Records. 5.0—Programme for Children. 7.0—Announcements. Agricultural Report and Giornale Radio. 7.20—Popular Music on Gramophone Records. 7.30—Time Signal and Announcements. 8.0—An Opera relayed from the Vittorio Emanuele Theatre. In the interval, Cinema Review. 9.55—News Bulletin.

**PARIS (France)**  
Eiffel Tower (FLE). 207.5 kc/s (1,445.7 m.); 13 kW. Time Signals (on 2,650 m.) at 9.26 a.m. and 10.26 p.m. (preliminary and 6-dct signals). 5.45—Dramatic Review. 6.0—Le Journal Parlé. 7.26—Weather Forecast. 7.30—Gramophone Records. Scottish Symphony (Mendelssohn). Aria from "Der Freischütz" (Weber). March, The Ruins of Athens (Beethoven). Turkish March (Mozart). Selection from "Martha" (Flotow). Plaisir d'amour (Martini). Au Clair de la Lune (Lully). Waltz, Delirium (Johann Straus). Aria and Duet from "Nina Rosa" (Romberg). Selection from "The Desert Song" (Romberg). In the Express (Masciminto). Polo (Fetras).

**PARIS (France)**  
Poste Parisien. 914 kc/s (328.2 m.); 1.2 kW. Transmits at intervals from 11.0 a.m. 5.45 p.m.—News and Announcements. 6.0—Light Music on Gramophone Records, Talks and News. 6.30—Concert of Variety Music on

Gramophone Records. 7.30—Gramophone Records of Popular Music, Talk and News. 7.45—Vocal and Orchestral Concert. Overture, "Prometheus" (Beethoven). Kol Nidrei, for Cello and Orchestra (Bruch). Eight Variations on a Theme by Haydn (Brahms). Scherzo (Lalo). Ballet Music from "Faust" (Gounod). Marche militaire (Liszt). 9.45—News Bulletin. 9.50 (approx.)—Close Down.

**PARIS (France)**  
Radio-Paris (CFR). 174 kc/s (1,725 m.); 75 kW. 5.45 a.m.—Physical Culture Lesson. 6.30—Weather and Physical Culture (continued). 6.45—Popular Gramophone Music. 7.0—News, Weather and Press Review. 11.0—Request Gramophone Concert. Symphony No. 5 (Tchaikovsky). Selection from "Faust" (Gounod). Concerto for Violin in E Minor (Mendelssohn). Duet from "Carmen" (Bizet). Selections from "Pelléas et Mélisande" (Debussy). Selections from "Werther" (Massenet). In the intervals at 12 noon—Exchange, News and Weather, and at 12.30 and 1.0 p.m.—Exchange. 2.45—Exchange and Market Prices. 5.30—Market Prices, Weather, Agricultural Report and Racing Results. 6.0—Talk: The Theatre in Ireland. 6.30—German Lesson. 6.45—German Press Review, Commercial Prices and News. 7.0—Variety Programme arranged by the Palais de la Nouveauté. 7.30—News, Sports Notes and Weather. 7.40—Review by Georges Colomb. 7.45—Two Plays by Georges Colin and his Company: (a) Pages sur Bruges (b) Le Voile (Rodenbach). 8.15—Press Review. 8.30 Gramophone Concert. Aria from "The Magic Flute" (Mozart). Aria from "Don Juan" (Mozart). Three Arias from "La Sonnambula" (Bellini). Cavatina from "Norma" (Bellini). Selection from "The Carnival in Venice" (Benedict). Aria from "Don Pasquale" (Donizetti). Aria from "Lucia di Lammermoor" (Donizetti). Two Arias from "The Barber of Seville" (Rossini). Three Arias from "Rigoletto" (Verdi). 9

**ENGINEERS—IMPORTANT NOTICE**

The 19th Edition of "ENGINEERING OPPORTUNITIES" is now ready for distribution. This is not merely a pamphlet, but a 200-page book of unique reference that you cannot well afford to miss. By reading it you will know us, our work, our aims and how we can alter your entire outlook and earning power, whatever your age or experience. Among other things, the Hand-Book shows the easiest way of preparing for E.Sc., A.M.I.C.E., A.M.I.Mech.E., I.E.E., LONDON MATRIC, G.P.O., etc. Exams. outlines Modern Home-Study Courses in all branches of Civil, Mech., Elec., Motor, Aero., Radio and "Talkie" Engineering, and explains the unique advantages of our Employment Department. "ENGINEERING OPPORTUNITIES" has shown the way to better things to over 120,000 of your fellows. Send for your copy to-day—FREE and without obligation.

**BRITISH INSTITUTE OF ENGINEERING TECHNOLOGY**  
278, Shakespeare House,  
29-31, Oxford Street, London, W.1.

**If your Speaker does this -fit this**

Those weird cracklings and fizzlings and loss of signal strength are usually due to poor L.T. switching. So buy a Utility Snap switch, the perfect switch for your low tension, and enjoy reception free of funny noises.

From your dealer or **COMPLETE** post free from the **2/6** makers.

**WILKINS & WRIGHT, LIMITED**  
UTILITY WORKS, HOLYHEAD ROAD, BIRMINGHAM, ENG

AGENTS—London: F. R. Morion, Ltd., 22 Barlett's Building, Holborn Circus, E.C.1.; Scottish: E. B. Hammond, 113 Vincent Street, Glasgow; Lancashire and Cheshire: J. R. Lister, 93 Old Road, Blackley, Manchester; Westmorland, Cumberland, Durham, Northumberland, Yorkshire and Derbyshire: H. C. Rowson, Ltd., 100 London Road, Sheffield; South Western: Lawrence Fruser, Chelsea House, Leamdown Rd., Bath.

Enlarged photo. Switch takes up less than 3/4" cube behind panel.

**BOW LEGS. ARE YOU BOW-LEGGED?**

IF so, why not wear the B.L. APPLIANCE? (worn like an ordinary garter) and cease to worry about people looking at your legs. This wonderful invention not only makes the trousers hang straight, but does it in such an ingenious way with immediate results that your own friends forget, and others never know that you are bow-legged.

THOUSANDS OF TESTIMONIALS.

Write now for FREE Illustrated Booklet (W.R.), sent in plain, sealed envelope to:

**THE B.L. APPLIANCE CO.,**  
Salford House, 23, Charterhouse Street, London, E.C.1.

**TRANSFORMER FOR A.C. VALVES**

This range of Heayberd L.T. Transformers accurately supplies L.T. current for A.C. Valves. Available in any of the following types:

| LIST No. | SECONDARY OUTPUT | PRICE |
|----------|------------------|-------|
| 723      | 2+2v., 3 amps.   | 12/6  |
| 727      | 2+2v., 5 amps.   | 17/6  |
| 731      | 2+2v., 10 amps.  | 22/6  |

---POST NOW---

I enclose 3d. stamps for fully descriptive Lists, with circuit diagrams, of the new Heayberd Transformers.

M .....  
Address .....  
.....W.R. 16/4.

**HEAYBERD**  
MONARCH OF THE MAINS.

10, FINSBURY ST., LONDON, E.C.2.  
One minute from Moorgate Und. Stn.

THURSDAY continued

PITTSBURGH (U.S.A.) Westinghouse Electric (KDKA). 980 kc/s (306 m.); 25 kW. Transmits at intervals from 12 noon...

POZNAŃ (Poland) 896 kc/s (335 m.); 1.9 kW. Transmits at intervals from 10.45 a.m. 5.50 p.m.—Miscellaneous Items and Announcements. 6.15—Agricultural Report. 6.30—English Lesson on Linguaphone Records. 6.45—7.15—See Warsaw. 7.15—Orchestral Concert. 8.35—9.45—See Warsaw. 9.45—Time Signal, Sports Notes and Police Report. 10.0 (approx.)—Close Down.

PRAGUE (Czechoslovakia) 614 kc/s (488.6 m.); 120 kW. Transmits at intervals from 10.0 a.m. 3.10 p.m.—Orchestral Concert conducted by Fr. Dyk, from Bratislava. 4.10—Russian Lesson. 4.25—Talk. 4.35—Programme for Children. 5.5—Agricultural Report. 5.15—Talk: Foreign Politics. 5.25—German Transmission: News and Talk: How to prevent Accidents. 6.0—News Bulletin. 6.5—Talk on Hygiene. 6.20—Jewish Concert relayed from a Synagogue. Conductor: L. Whale. 7.0—A Fountain-Pen—Play (Fedor). 8.0 (in the interval)—Time Signal. 8.45—Piano-forte Recital by Professor Janger. Scherzo in F Flat Minor. Op. 4 (Brahms). Nocturne in F Sharp Major, Op. 15, No. 2 (Chopin). Preludes in C Major, A Minor, G Major, E Minor. Op. 28 (Chopin). Polonaise in E Major (Liszt). 9.0—Time and News. 9.30—Miscellaneous Notes. 9.35—Variety Music on Gramophone Records.

RABAT (Morocco) 721.1 kc/s (416 m.); 6 kW. Transmits at intervals from 12.30 p.m. 7.0 p.m.—Arab Transmission. 7.45—Journal parlé, Weather Report and News Bulletin. 8.0—Concert by the "Amis de Radio-Maroc." Talk on Chamber Music by Jean Giardino. Trio for Flute, Violin and Pianoforte (Bach). Quintet (Dvorak). Flute "Solo Fauré." Selections from "Les Folies Amoureuses"—Comedy in Three Acts (Rognard) by the Station Company. 9.30—Recital of Waltzes by Johann Strauss. 9.45—Programme of Jazz Music. 10.0—Relay of a Foreign Station.

RADIO-SUISSE ROMANDE (SOTTENS) (Switzerland) 743 kc/s (403 m.); 25 kW.; Lausanne, 442 kc/s (680 m.); and Geneva, 395 kc/s (760 m.). 11.30 a.m.—Time Signal from Neuchâtel Observatory. 11.32—Weather and News. 11.40—Concert by the Station Orchestra. 12 noon—Exchange Quotations. 12.5 p.m.—Concert (contd.). Humorous Item in the interval. 3.30—Time Signal from Neuchâtel Observatory. 3.31—(from Montreux) Concert by the Kursaal Orchestra, conducted by M. Spindler. 4.45 (from Lausanne)—Concert of Light Music. 5.30 (from Lausanne)—Film Talk. 5.45 (from Geneva)—Programme for Children. 6.0—Weather Report. 6.1 (from Geneva)—Variety Music on Gramophone Records. 6.10 (from

Geneva)—Esperanto Lesson. 6.30 (from Geneva)—English Lesson. 6.55 Programme Announcements. 7.0—(from Geneva)—Talk: The Work of the Disarmament Conference. 7.15 (from Lausanne)—Vaudois Festival Programme: Public Demonstration organised by the Vaudois Patriotic Association, relayed from Lausanne Cathedral. Addresses and Prayers and Programme of Swiss National Music by the Lausanne Musical Societies, and a Vaudois Choir. 9.0—Weather and News. 9.15 (approx.)—Close Down.

RIGA (Latvia) 572 kc/s (525 m.); 15 kW. Transmits at intervals from 10.0 a.m. 5.30 p.m.—English Lesson. 6.0—Weather Report. 6.5—Concert conducted by Medins. The Mountain (Jurevics). In the Steppes of Central Asia (Borodin). Children's Corner (Debussy). Waltz (Busoni). 7.0—News Bulletin. 7.20—Concert 7.0—Latvian Music. Soloists: A. Zilinsky (Pianoforte) and Berta Kuse (Songs). 8.0—Weather Report. 8.5—Light Music, conducted by Medins. Waltz, Golden Rain (Waldteufel). March, Hand in Hand (Von Blon). 8.30—Evening Concert. 9.30 (approx.)—Close Down.

ROME (Italy) Ente Italiano Audizioni Radiofoniche (IRO). 680 kc/s (441 m.); 50 kW. Relayed by Naples, 941 kc/s (319 m.), and 2RO, 11,810 kc/s (25.4 m.). Transmits at intervals from 7.15 a.m. 11.0 a.m.—Gramophone Concert of Variety Music. In the intervals at 11.35—Weather, at 12.15 p.m.—Giornale radio and Exchange and at 12.30—Time and News. 1.0—4.0—No Transmission. 4.0—Exchange Quotations. 4.5—Programme for Children. 4.25—Giornale radio and Announcements. 4.30—Mezzo-Soprano Song Recital by Maria Wullaume. Songs from (a) "The Secret Marriage" (Cimarra), (b) "La Gioconda" (Ponchielli), (c) "Don Carlos" (Verdi). 4.45—Concert. Overture. "Poet and Peasant" (Suppe). Serenade, Visione di Liu (Ricciardi). 10-day I feel so happy, from "Sunshine Suse" (Abraham). España (Waldteufel). Manon (Mascheroni). Selection (Stolz). 5.15—Giornale dell' Enit. 5.25—Educational Programme. 5.55—(from Naples)—Shipping News. 6.0—Agricultural Report, Weather, Announcements, Giornale radio and Press Review. 7.0—Time and News. 7.2—Gramophone Records of Light Music. 7.30—Talk for Housewives, Sports Notes and Announcements. 7.45—Vocal and Orchestral Concert. Goethe's Poems set to Music. Soloists: Lavinia Mugnaini (Mezzo-Soprano) and Alfredo Sernicoli (Tenor). Overture, "Faust" (Wagner). Mezzo-Soprano Solos: (a) "Two Songs from 'Egmont'" (Beethoven), (b) Wanderers' Nachtlied (Recl). Symphonic Poem, Au Jardin de Marguerite (Ducasse). Scherzo, "L'apprenti sorcier" (Dukas). Mezzo-Soprano Solos (Schubert): (a) Gretchen am Spinnrade, (b) Erlkönig. Two Tenor Solos from "Mignon" (Thomas). Prelude and Song from "Mephistopheles" (Boito). In the interval—Talk: Goethe as Director of a Theatre. After the programme—News.

STOCKHOLM (Sweden) Radiotjänst (SASA). 689 kc/s (436 m.); 55 kW. Relayed by Boden, 244 kc/s (1,220.5 m.); Göteborg, 932 kc/s (322 m.); Hörby, 1,166 kc/s (257 m.); Motala, 222.5 kc/s (1,348 m.); Östersund, 389 kc/s (770 m.); and Sundsvall, 554 kc/s (542 m.). Transmits at intervals from 6.20 a.m. 4.0 p.m.—Studio Service. 4.30—The Children's Letter Box. 4.45—Gramophone Records of Light Music. 5.45—Elementary German Lesson relayed from Göteborg. 6.15—Weather and News. 6.30—Talk on Swedish Lakes. 7.0—Concert by Leopold Friedman (Vocalist), Carl Barklind (Elocutionist) and Knut Broberg (Saxophonist). 7.45—Talk. 8.15—Organ Recital by Anders Rasmuson relayed from St. Mary's Church, Malmö, 1,301 kc/s (231 m.). Prelude and Fugue in A Minor (Bach). Pastorale (César Franck). Introduction, Andante and Fugue (Neruda). 8.45—Weather and News. 9.0—A Play in One Act (Helge Rode). 9.35 (approx.)—Close Down.

STRASBOURG (France) Radio-Strasbourg (PTT). 869 kc/s (345 m.); 11.5 kW. 10.30 a.m.—Gramophone Records of Light Music. 11.45—News in French and German. 12 noon—Time Signal. 12.2 p.m.—Gramophone Concert. Spanish Rhapsody (Liszt). A Night on the Bare Mountain (Moussorgsky). Selections (Chabrier): (a) Bourrée fantasque, (b) Joyeuse marche. Aria from "Werther" (Massenet). Selection from "La Vie Parisienne" (Offenbach). Serenade, Op. 15 (Mozzkovsky). Loin du bal (Gillet). Fantasia, Kamarinskaya (Glinka). Pictures from an Exhibition (Moussorgsky). Hungarian Rhapsody in F Major (Liszt). Selection (Strauss). 1.0—2.0—Programme for Children. 3.0—Gramophone Concert of Light Music. 3.45—Talk in French. 4.0—Dance Music. One step, Mais non, mais non, Madame. Foxtrot, Ain't that the way it goes. Just one more chance. Tango, Printemps. Foxtrot, Quand on est seul à minuit. When you're smiling. The Doll's Waltz. Foxtrot, Sonny Boy. Son Parfum. Tango, La voix. Foxtrot, My Song. Out of rehearsal. Waltz. Foxtrot, A l'ouest rien de nouveau. The old world, I love you. One-step. Esmeralda. 5.0—History Talk in French. 5.15—Talk in French: What the French Tourist goes to see in Switzerland. 5.30—Orchestral Concert, conducted by Maurice de Villars. Overture, "Ruy Blas" (Mendelssohn). Selection from "Lohengrin" (Wagner). Violin Solo: Canzonetta (Tchaikovsky). Scènes pittoresques (Massenet). Danse persane (Guiraud). 6.30—Time Signal. 6.32—News in French and German. 6.45—Song and Pianoforte Recital. 7.30—Vocal and Instrumental Concert, relayed from the Pörel Hall, Nancy. Overture, "Euryanthe" (Weber). Habanera (Ravel). Suite in G Major for Cello (Bach). Rondo for Cello (Bocherini). Symphony in D Major No. 10 (Haydn). Hesitation Waltz, Delilah (Nicholls). Talk by Baron Riston: Nancy. Viola Solos from the "Suite algérienne" (Saint-Saëns). Recitative and Aria from "L'Enfant prodige" (Debussy). Berceuse (Gretcheninoff). Song: Au bois dormant (Bachelet). Le Carnaval des Animaux for Two Pianofortes, Two Violins, Two Cellos, Double Bass, Flute and Clarinet (Saint-Saëns). España (Chabrier). 9.30 (approx.)—Close Down.

Albany, New York. 4.45—Cotton Club Orchestra from New York. 5.0—Jack Pettis' Orchestra. 5.30—New Kenmore Orchestra. 6.0 (approx.)—Close Down.

SCHWEIZERISCHER BERN LANDESSENDER (BEROMÜNSTER) (Switzerland) 653 kc/s (459 m.); 60 kW.; Basle, 1,220 kc/s (244.1 m.); and Bern, 1,220 kc/s (246 m.). 11.28 a.m.—Time Signal from the Neuchâtel Observatory. 11.30—Weather and News. 11.40—Concert by the Station Orchestra. 12.35 p.m.—Weather Report and Exchange Quotations. 12.45 (approx.)—2.30—Interval. 2.30—Viennese Folk Music on Gramophone Records. 3.0—Concert by the Station Orchestra. 4.0 (from Zürich)—Talk on Books: Italian Literature. 4.30—Weather Report. 4.35—5.30—Interval. 5.30—The Don Cossacks Choir on Gramophone Records. 6.0 (from Zürich)—Talk: Old Superstitions in New Attire. 6.28—Time Signal and Weather. 6.30 (from Zürich)—Hermann Kesser reads from his own works. 7.0—Concert by the Station Orchestra. 7.20 (from Basle)—Schubert Song Recital by Matz Mrakitsch (Bass) accompanied by Hans Haut. 7.30—Concert by the Station Orchestra. 8.10—"The Black Hand"—Play in One Act (Ruf) in Swiss Dialect. 9.0—Weather, News and Traffic Report. 9.15 (approx.)—Close Down.

SEVILLE (Spain) (EASJ). 815 kc/s (368.1 m.); 1.5 kW. 2.0—3.0 p.m.—Concert of Light Music. 9.0—Song Recital, News, Exchange and Weather Forecast, followed by Music by a Military Band, Concert and Flamenco and Dance Music.

STOCKHOLM (Sweden) Radiotjänst (SASA). 689 kc/s (436 m.); 55 kW. Relayed by Boden, 244 kc/s (1,220.5 m.); Göteborg, 932 kc/s (322 m.); Hörby, 1,166 kc/s (257 m.); Motala, 222.5 kc/s (1,348 m.); Östersund, 389 kc/s (770 m.); and Sundsvall, 554 kc/s (542 m.). Transmits at intervals from 6.20 a.m. 4.0 p.m.—Studio Service. 4.30—The Children's Letter Box. 4.45—Gramophone Records of Light Music. 5.45—Elementary German Lesson relayed from Göteborg. 6.15—Weather and News. 6.30—Talk on Swedish Lakes. 7.0—Concert by Leopold Friedman (Vocalist), Carl Barklind (Elocutionist) and Knut Broberg (Saxophonist). 7.45—Talk. 8.15—Organ Recital by Anders Rasmuson relayed from St. Mary's Church, Malmö, 1,301 kc/s (231 m.). Prelude and Fugue in A Minor (Bach). Pastorale (César Franck). Introduction, Andante and Fugue (Neruda). 8.45—Weather and News. 9.0—A Play in One Act (Helge Rode). 9.35 (approx.)—Close Down.

STRASBOURG (France) Radio-Strasbourg (PTT). 869 kc/s (345 m.); 11.5 kW. 10.30 a.m.—Gramophone Records of Light Music. 11.45—News in French and German. 12 noon—Time Signal. 12.2 p.m.—Gramophone Concert. Spanish Rhapsody (Liszt). A Night on the Bare Mountain (Moussorgsky). Selections (Chabrier): (a) Bourrée fantasque, (b) Joyeuse marche. Aria from "Werther" (Massenet). Selection from "La Vie Parisienne" (Offenbach). Serenade, Op. 15 (Mozzkovsky). Loin du bal (Gillet). Fantasia, Kamarinskaya (Glinka). Pictures from an Exhibition (Moussorgsky). Hungarian Rhapsody in F Major (Liszt). Selection (Strauss). 1.0—2.0—Programme for Children. 3.0—Gramophone Concert of Light Music. 3.45—Talk in French. 4.0—Dance Music. One step, Mais non, mais non, Madame. Foxtrot, Ain't that the way it goes. Just one more chance. Tango, Printemps. Foxtrot, Quand on est seul à minuit. When you're smiling. The Doll's Waltz. Foxtrot, Sonny Boy. Son Parfum. Tango, La voix. Foxtrot, My Song. Out of rehearsal. Waltz. Foxtrot, A l'ouest rien de nouveau. The old world, I love you. One-step. Esmeralda. 5.0—History Talk in French. 5.15—Talk in French: What the French Tourist goes to see in Switzerland. 5.30—Orchestral Concert, conducted by Maurice de Villars. Overture, "Ruy Blas" (Mendelssohn). Selection from "Lohengrin" (Wagner). Violin Solo: Canzonetta (Tchaikovsky). Scènes pittoresques (Massenet). Danse persane (Guiraud). 6.30—Time Signal. 6.32—News in French and German. 6.45—Song and Pianoforte Recital. 7.30—Vocal and Instrumental Concert, relayed from the Pörel Hall, Nancy. Overture, "Euryanthe" (Weber). Habanera (Ravel). Suite in G Major for Cello (Bach). Rondo for Cello (Bocherini). Symphony in D Major No. 10 (Haydn). Hesitation Waltz, Delilah (Nicholls). Talk by Baron Riston: Nancy. Viola Solos from the "Suite algérienne" (Saint-Saëns). Recitative and Aria from "L'Enfant prodige" (Debussy). Berceuse (Gretcheninoff). Song: Au bois dormant (Bachelet). Le Carnaval des Animaux for Two Pianofortes, Two Violins, Two Cellos, Double Bass, Flute and Clarinet (Saint-Saëns). España (Chabrier). 9.30 (approx.)—Close Down.

tion from "Lohengrin" (Wagner). Violin Solo: Canzonetta (Tchaikovsky). Scènes pittoresques (Massenet). Danse persane (Guiraud). 6.30—Time Signal. 6.32—News in French and German. 6.45—Song and Pianoforte Recital. 7.30—Vocal and Instrumental Concert, relayed from the Pörel Hall, Nancy. Overture, "Euryanthe" (Weber). Habanera (Ravel). Suite in G Major for Cello (Bach). Rondo for Cello (Bocherini). Symphony in D Major No. 10 (Haydn). Hesitation Waltz, Delilah (Nicholls). Talk by Baron Riston: Nancy. Viola Solos from the "Suite algérienne" (Saint-Saëns). Recitative and Aria from "L'Enfant prodige" (Debussy). Berceuse (Gretcheninoff). Song: Au bois dormant (Bachelet). Le Carnaval des Animaux for Two Pianofortes, Two Violins, Two Cellos, Double Bass, Flute and Clarinet (Saint-Saëns). España (Chabrier). 9.30 (approx.)—Close Down.

STUTTGART (MÜHLACKER) (Germany) Süddeutscher Rundfunk. 832 kc/s (360.5 m.); 60 kW. Relayed by Freiburg, 527 kc/s (570 m.). Transmits at intervals from 5.0 a.m. 10.15 a.m.—Sponsored Programme. 10.30—11.0—Interval. 11.0—Concert from Munich. 11.50—Time and News. 12 noon—Gramophone Concert of Light Music. 1.0 p.m.—Sponsored Programme. 1.30—Spanish Lesson. 2.0—English Lesson. 2.30—Programme for Children, from Frankfurt. 3.30—Talk: The Writer, Hans Jakob. 4.0—See Langenberg. 5.15—Time and Agricultural Report. 5.25—Talk. 5.50—Talk: Can you read Goethe?—Stella. 6.20—Time and Weather. 6.30—Folk Song Recital. 7.0—"Le Colonel Chabert"—Drama (after Balzac, by Alfred Mühl). 8.0—Concert by the Stuttgart Philharmonic Orchestra, conducted by Hans Winter. Soloists: Rhoda von Glehn (Soprano) and Fritz Wolf (Flute). Music for String Instruments (Thomassin). Serenade (Franckenstein). Aria for Soprano and Orchestra (Westermann). Suite for Flute and String Instruments (Bartels). Comedy Overture (Waltershausen). 9.20—News, Time, Programme Announcements and Weather. 9.45—Dance Music from Langenberg. 11.0 (approx.)—Close Down.

TOULOUSE (France) Radiophonie du Midi. 779 kc/s (385 m.); 8 kW. Transmits at intervals from 11.45 a.m. 5.0 p.m.—Selections from Comic Opera: (a) "L'Attaque du Moulin" (Pruess), (b) "Werther" (Massenet). 5.15—Accordion Recital. 5.30—News, Exchange and Market Prices. 5.45—Tourist Report. 6.0—Concert. 6.30—News and Racing Results. 6.45—Viennese Orchestral Selections. 7.15—Songs from Comic Operas: (a) "Rigoletto" (Verdi). (b) "Fortunio" (Messager). (c) "La Viandière" (Godard). 7.30—Modern Symphonic Music. Slavonic Dances (Dvorak). Prelude, La Habanera (Laparra). 7.45—Songs from Operettas: (a) "Paganini" (Léhar). (b) "Frasquita" (Léhar). (c) "La Basoche" (Messager). 8.0—Songs. 8.15—Dance Music. 8.30—Orchestral Selections from: (a) "Banditenstreiche" (Suppé), (b) "La Bohème" (Puccini). 8.45—Argentine Music. 9.0—Songs from "Hamlet" (Thomas). 9.15—Variety Music. 9.30—News Bulletin. 9.45—Chansonnettes. 10.0—Request Concert. Selection from "Les Saltimbanques" (Ganne). Chez le Tailleur (Bach-Loverne). 10.15—News Bulletin. 10.30—Request Concert (continued). La Chasse aux Lions (Bach-Loverne). Chinese Serenade (Siede). O sole mio (Di Capua). Selection from "The Desert Song" (Romburg). Célsoa (Ehlinger). Selection (Solér). Selection (Holzmann). Way down South (Myddleton). 11.0—Weather Forecast and Close Down.

TRIESTE (Italy) Ente Italiano Audizioni Radiofoniche. 1,211 kc/s (247.7 m.); 10 kW. Transmits at intervals from 7.15 a.m. 6.5 p.m.—Quintet Concert. Le ragazzo viennese (Lazzaro). Selection (Benatzky). Oriental Dance (Gravina). Stelle cadenti (Cosa). Selection from "Die geschiedene Frau" (Fall). Selection (Abraham). A Little Love (Eisemann). 7.0 till Close Down—See Turin.

TURIN (Italy) Ente Italiano Audizioni Radiofoniche. 1,096 kc/s (273.7 m.); 7 kW. Relayed by Milan, 905 kc/s (331.5 m.); and Genova, 959 kc/s (312.8 m.). Transmits at intervals from 7.15 a.m. 6.0 p.m.—Announcements. 6.5—Concert. Overture, "The Nuremberg Doll" (Adam). Selection (Androvitz). 6.30—Time and Announcements. 6.31—Orchestral Selections. 7.0—Giornale Radio and Weather. 7.15—Concert by a Plucked String Orchestra. 7.30—Talk for Housewives. 8.0—An Opera. (to be announced). In the intervals, Cinema Notes, Talk and Giornale Radio. News after the Opera.

VIENNA (Austria) Radio-Wien. 581 kc/s (517 m.); 15 kW. Relayed by Graz, 852 kc/s (352.1 m.); Innsbruck, 1,058 kc/s (283 m.); Klagenfurt, 662 kc/s (453.2 m.); Linz, 1,220 kc/s (246 m.); and Salzburg, 1,373 kc/s (218 m.). Transmits at intervals from 8.20 a.m. 6.40 p.m.—Concert by the Otto Wacek Orchestra. Overture, "The Queen's Kerchief" (Johann Strauss). Waltz, Weana Madln (Ziehrer). Selection from "La Traviata" (Verdi). Persian March (Johann Strauss). Souvenir d'amour (Wacek). Selection from "The Geisha" (Jones). Waltz, Gold and Silver (Lehar). Selection from "The Circus Princess" (Kálmán). March (Wacek). 8.0—Wilhelm Busch Centenary Programme. 9.15—News, Weather and Announcements. 9.30—See Berlin (Witzleben).

WARSAW (Poland) Polskie Radio. 212.5 kc/s (1,411 m.); 120 kW. 10.20 a.m.—Aviation Weather Report. 10.25—10.45—Interval. 10.45—Press Review. 10.58—Time Signal and Bugle Call from St. Mary's Church, Cracow. 11.5—Programme Announcements. 11.10—Weather Report. 11.15—Talk on Forestry. 11.35—23rd Concert by the Warsaw Philharmonic Orchestra, conducted by Wilkomirski. Soloists: L. Czechowicz (Mezzo-Soprano), Br. Matwid (Soprano), J. Urstein and G. Lefeld. (Pianoforte Duets). Introductory Talk by St. Natanson. Symphonic Poem, The Steppes (Noskovsky). Vocal Duets from the Child's Book of Songs (Noskovsky). Pianoforte Duets: (a) Cracovienne (Noskovsky). (b) Two Tartar Dances (Paderewsky). Vocal Duets: Two Songs (Noskovsky). Orchestral Selections: (c) Polonaise élégiaque (Noskovsky), (d) Minuet (Paderewsky). Two Cigany Dances from "Manru" (Paderewsky). 1.0—1.45 p.m.—Interval. 1.45—Light Music on Gramophone Records. 2.5—Economic Report and Exchange Quotations. 2.15—News Bulletin. 2.20—Interval. 2.25—Talk on History. 2.45—Hydrographic Report. 2.50—Programme for Children. 3.15—Interval. 3.20—Elementary French Lesson. 3.40—Light Music on Gramophone Records. 4.10—Talk: Africa in Danger, relayed from Cracow, 959 kc/s (312.8 m.). 4.35—Recital by the Liège String Quartet. String Quartet (Franck). String Quartet (Beethoven). 5.0—Miscellaneous Items. 6.15—Agricultural Correspondence. 6.25—Programme Announcements. 6.30 Sports Notes. 6.35—Light Music on Gramophone Records. 6.45—Radio Journal. 7.0—Feuilleton: China speaks. 7.15—Concert of Light Music by the Station Orchestra, conducted by Stanislaus Navrot. Soloist: Mmc. Czarnocka-Orwicz (Vocalist), with Pianoforte accompaniment by Louis Urstein. Overture, "Die Feltenmühle" (Reissiger). Waltz-Fantasia in B Minor (Glinka). Songs: (a) C'est toi (Fysher), (b) Prés de la cheminée (Stolz-Domanski), (c) A qui la faute (Plotrovsky). Bullet Music from "The Demon" (Rubinstein). Songs: (a) Drinking Song (Kuczera-Wolowski), (b) Chrysanthemum from "Victoria and her Hussar" (Czarnocka-Orwicz). Serenade, Baci al Buio (Micheli). Waltz, Roscn aus dem Süden (Johann Strauss). Fischertanz (Blon). March, Frischl voran (Blankenburg). 8.35—"Peer Gynt"—Drama (Ibsen), arranged for Radio by M. Karwicki. 9.20—Radio Journal. 9.25—Weather and Police Report. 9.30—Dance Music. 11.0 (approx.)—Close Down.



3rd December 1931. 10, Adelaide Street, TODMORDEN.  
H. Clarke & Co. (M/cr) Ltd.

Dear Sirs,

I have very much pleasure to inform you that I purchased one of your "ATLAS" Mains Units in July of this year, and I claim that this Model A.C. 244, has improved my set 100%. The cost of this Model can be saved within a few months, for I have not as yet found any extra cost in my Electricity Accounts.

I might add that my set is run at an average of 7 hours a day, 7 days to the week, and never any trouble. My Accumulator only needs re-charging once in five weeks.

I can assure you I advise all persons whom I know, and inform them of the wonderful work that "ATLAS" Mains Units can do.

I remain,

Yours faithfully,

*J. Whittle*

**IT WILL  
IMPROVE  
YOUR SET  
100%  
too!**



**10/-  
DOWN  
AND BALANCE  
IN EASY  
MONTHLY  
PAYMENTS**

You'll get more power, truer reproduction, rock-bottom running expenses and never-failing reliability when you install an "ATLAS" Mains Unit. Fitted in a few moments, it supplies perfect H.T. Power from your Mains for less than one penny a week, giving better and cheaper radio for many years to come.

D.C. Models from 39/6  
A.C. Models from 52/6  
or with L.T. Trickle  
Charger from 77/6  
Westinghouse Rectifiers.  
Guaranteed 12 months.

Ask your dealer for a demonstration and insist on "ATLAS," the Olympia Ballot winners in 1930 and 1931. There is no finer value in the world.

**CLARKE'S  
ATLAS  
MAINS UNITS**

**H. CLARKE & CO. (M/cr.) LTD.**

Old Trafford, Manchester. 'Phones: Trafford Park 1744-5-6  
Southern Offices: Bush House, W.C.2. 'Phones: Temple Bar 3862 and 7130  
Glasgow Office: 24 Oswald Street. 'Phone: Central 5119

**POST THIS COUPON NOW!**

H. CLARKE & Co. (M/cr) Ltd., Old Trafford, Manchester.

Please send me FREE copy of your Booklet, "Power from the Mains."

Name.....

Address.....

35/84

**48 m.p.g.  
with Morris Cowley**

**AUSTIN 12  
42 m.p.g.**

**SINGER  
JUNIOR  
60 m.p.g.**

**ROVER 9  
52 m.p.g.**

**ESSEX  
30 m.p.g.**

**FORD  
48 m.p.g.**

**HUMBER  
36 m.p.g.**

**JOWETT  
64 m.p.g.**

**aided by  
Duo-Vaporator**

"A customer who bought a Duo-Vaporator told me that since fitting this attachment he is getting 48 miles to the gallon with his 1927 Morris Cowley—an increase of 15 miles per gallon." — James Macdonald, Achnavast, Westfield, Thurso, Caithness, Scotland.

With a threatened increase in the price of petrol, now, more than ever, is the time to fit this proved device which definitely cuts down motoring costs. The Duo-Vaporator is a simple, yet remarkably effective, vaporiser which acts in two ways, simultaneously with ONE object—EFFICIENT VAPORISATION THROUGH COMPLETE COMBUSTION. The result is maximum mileage — power — engine efficiency — instant starting — worry and expense saved. Look at these amazing mileages under ordinary running conditions—every one supported by sworn declaration. Interested? Of course you are! Then take advantage of our limited offer (ending May 15th) to distribute 1,500 Duo-Vaporators to readers of this paper (the cost to be charged to advertising).

**1500  
DUO-VAPORATORS  
TO BE  
DISTRIBUTED**



**Easily fitted with a Spanner**

No drilling, tapping or cutting. A job you can do yourself. The Duo-Vaporator has no revolving parts to cause friction or wear. It is the mixture that revolves, not the Duo-Vaporator. The result is complete combustion through efficient vaporisation. Guaranteed for 5 years. More than 100,000 in use. No further proof is required when it is stated that the Duo-Vaporator is the only device of this character that has stood the test of time over a number of years. Tear out this announcement, print your name and address in the margin and post to-day for details of special offer. It commits you to nothing. (If you care to enclose a 1d. stamp to cover the cost of postage of these details, you may do so, but this is entirely optional.)

The whirling, swirling turbulence created by the Duo-Vaporator thoroughly mixes the petrol and air, and converts it into highly explosive power-making vapour resulting in greater efficiency and economy.

**DUO-VAPORATOR CO., LTD., 33, STRAND, LONDON, W.C.2**

**OFFER EXPIRES MAY 15<sup>TH</sup>**

W.R., 8/4/32

PRINCIPAL EVENTS

FRIDAY (April 15)

The programme includes Beethoven's *Seventh Symphony* and the *Emperor Pianoforte Concerto*, in which Backhaus is the soloist. It is the last and

SYMPHONY CONCERTS

- 7.15 p.m. Leipzig and all German Stations: Symphony No. 97 in G (Haydn).
- 7.15 " Budapest: The Philharmonic Society.
- 7.15 " Warsaw: The Philharmonic Orchestra, conducted by Emil Mlynarski, Backhaus (pianoforte).
- 7.45 " Vienna: Russian programme, conducted by Malko.
- 7.50 " Munich: Conducted by Abendroth.
- 7.50 " Heilsberg: The Königsberg Opera Orchestra.

Beethoven from Warsaw

In the concert from WARSAW this evening, the Philharmonic Orchestra is to be conducted by Emil Mlynarski, who was represented as a composer in the European concert broadcast from there last week.



(Illustracja Prasy, Warsaw.)

Emil Mlynarski

biggest of the five pianoforte concertos which Beethoven left, and in it he made several innovations on the traditional form. The soloist has, for instance, a little prelude like a fantasy before the orchestra begins the usual introduction. That includes the themes on which the movement is built up, and comes to an end with a long pause, when the pianoforte has another flourish before breaking into the first chief theme. But the listener who has noted the melodies of the orchestral introduction will have no difficulty in following the course of the movement after the soloist enters; it is very big and splendid Beethoven, but in no way difficult to understand. The slow movement is, in effect, a series of free variations on a simple and dignified melody, and the last movement is a brilliant rondo, which is linked with the slow movement by a very beautiful transition passage. The theme heard at the outset, gay and swift-footed, sets the pace for a movement which is throughout in Beethoven's brightest good spirits.

A Delius Concert in Germany

Listeners must have noticed that German stations frequently give programmes in the last part of the evening to which they give the name "Nachtmusik." The word is as near as may be the equivalent of "nocturne," and in that sense Mozart used it, for instance, in his *Eine Kleine Nachtmusik*. This evening such a programme, relayed from FRANKFURT by STUTTGART, LANGENBERG, and other stations, is devoted to the music of Delius, whose seventieth birthday was celebrated some weeks ago by nearly all the German stations. The programme consists of the third sonata for pianoforte and violin, and a series of songs to words taken from Nietzsche. A characteristic of Delius common to the three sonatas for violin and pianoforte, is the way in which both instruments are not only occupied, but intensely pre-occupied, nearly all the way through. But the fascination which they exercise on the hearer is far from the restless spirit that might suggest; rather is it witchery of a dreamlike order, dramatic and exciting or soothingly placid it may be, but, in its own quite individual way, always beautiful.

CONCERTS (Vocal and Instrumental)

- 6.0 p.m. Vienna: The Railway Choir.
- 7.0 " Brussels No. 2: Pol de Mont programme.
- 8.30 " Radio-Paris: "The Blessed Damosel" (Debussy).
- 8.45 " Berlin (Witzleben): Pianoforte Concerto No. 2 (Rachmaninov) (Orloff).
- 9.45 " Frankfurt, Langenberg, Stuttgart: Delius programme.

OPERAS AND OPERETTAS

- 6.0 p.m. Prague: Relay from the National Theatre.
- 7.30 " Strasbourg: "Carmen" (Bizet) (Concert performance).
- 9.0 " Stockholm: "The Valkyrie," Act 3, from the Royal Opera.

PLAYS AND TALKS

- 3.45 p.m. Radio-Paris: "The History of Music," XXI, Brahms, Strauss (Chantavoine).
- 7.45 " Leipzig, and other German Stations: Wilhelm Busch Commemoration.
- 10.0 " Budapest: "Hungarian Literature in English."

MISCELLANEOUS

- 8.10 p.m. Schweizerischer Landessender: Cabaret programme.
- 8.30 " Hamburg, Königs Wusterhausen: Instrumental Cabaret, from Hanover.

NATIONAL

|  | kc/s  | m.      | kW. |
|--|-------|---------|-----|
| London:  | 1,148 | 261.3   | 50  |
| Daventry:  | 193   | 1,554.4 | 30  |
| Northern:  | 995   | 301.5   | 50  |
| 10.15 a.m.—The Daily Service.  |       |         |     |
| 10.30—Time Signal, Greenwich; Shipping Forecast.   |       |         |     |
| 10.45—11.0—"The Week in Westminster," Mr. W. S. Morrison, M.C., M.P.   |       |         |     |
| 12 noon—Emanuel Starkey and his Orchestra.   |       |         |     |
| 12.45 p.m.—Organ Recital by Herbert Dawson.  |       |         |     |
| 1.0—Time Signal (Greenwich).   |       |         |     |
| 1.30—2.30—A Recital of New Gramophone Records.   |       |         |     |
| 4.0—Moschetto and his Orchestra.   |       |         |     |
| 4.45—Time Signal (Greenwich).  |       |         |     |
| 5.15 (Daventry)—The Children's Hour.   |       |         |     |
| 6.0—"The First News."  |       |         |     |
| 6.30—Time Signal (Greenwich).  |       |         |     |
| 6.30—The Foundations of Music. Haydn Pianoforte Trios.   |       |         |     |
| 6.50—"The Week-end in the Garden"—XIV. Mr. C. H. Middleton: "April Vegetable Sowings."   |       |         |     |
| 7.5—7.25—Mr. Hugh Tracey: "African Folk Music."  |       |         |     |
| 7.30—"The Changing Face of Nature"—I.  |       |         |     |
| 8.0—A Recital by Evelyn Scotney (Soprano) and Solomon (Pianoforte).  |       |         |     |
| 9.0—Time Signal (Greenwich).   |       |         |     |
| 9.0—"The Second News."   |       |         |     |
| 9.15—Shipping Forecast; New York Stock Market Report.  |       |         |     |
| 9.20—Mr. Gerald Barry: "Here and Now."   |       |         |     |
| 9.35—"Arrest in Africa." A Musical Farce by Lance Sieveking. The music and songs specially composed by Lance Sieveking and arranged by Frederic Jackson. Persons in the order of their appearance: Police Constable Swinburne, Inspector Bulky, Mrs. Marlenspike (a woman of mystery), The Voice of the Colonial Office, The Voice of the Senior Official of Uganda, Captain of the s.s. <i>Kilimanjaro</i> , Miss Lyminston (a passenger), A Sailor, Some African Natives, The Hippopotamus, The Tsetse Fly, The Country Vicar. |       |         |     |
| 10.50—12 midnight—Dance Music.   |       |         |     |
| 11.30—Time Signal (Greenwich).   |       |         |     |

REGIONAL

|  | kc/s | m.    | kW. |
|--|------|-------|-----|
| London:  | 842  | 356.3 | 50  |
| Midland:   | 752  | 398.9 | 25  |
| Northern:  | 626  | 479.2 | 50  |
| 10.15 a.m. (London and Northern)—The Daily Service.  |      |       |     |
| 10.30—11.0 (London and Northern)—Daventry National Programme.  |      |       |     |
| 11.30—12 noon (London)—Experimental Television Transmission (Baird Process).   |      |       |     |
| 12 noon—Frank Newman at the Organ.   |      |       |     |
| 1.0 p.m.—The New Victoria Cinema Orchestra, conducted by Haydn Heard.  |      |       |     |
| 2.0—3.0—The Northern Studio Orchestra. Wilfred Hindle (Tenor).   |      |       |     |
| 4.0 (London and Northern)—Daventry National Programme.   |      |       |     |
| 5.15—The Children's Hour.  |      |       |     |
| 6.0—"The First News."  |      |       |     |
| 6.30 (London and Northern)—The Leeds Model Anglers Prize Band, conducted by W. Bedford. Arnold Dalby (Baritone).   |      |       |     |
| 6.30 (Midland)—Ernest Parsons and his Orchestra.   |      |       |     |
| 7.30—Rex O'Grady at the Organ.   |      |       |     |
| 8.0 (Midland)—Walter de la Mare in Poetry and Song. J. D. Kirkpatrick (Declamations). Eveline Stevenson (Soprano).   |      |       |     |
| 8.0 (Northern)—Critics on the Ether. A musical entertainment, including sketches specially written by wireless critics.  |      |       |     |
| 8.30 (London)—An Orchestral Concert. Conductor, Adrian Boult.  |      |       |     |
| 8.45 (Midland)—"From the Light Operas and Musical Plays." The Midland Studio Orchestra, directed by Frank Cantell. Emily Broughton (Soprano). Reginald Morgan (Tenor). |      |       |     |
| 9.15 (Northern)—The Studio Orchestra, directed by John Bridge.   |      |       |     |
| 9.30 (London)—A Recital of Gramophone Records by Christopher Stone.  |      |       |     |
| 10.15—"The Second News."   |      |       |     |
| 10.35—11.0 (Midland)—As London.  |      |       |     |
| 10.35—12 midnight (London and Northern)—Dance Music. The Savoy Hotel Orpheans, from The Savoy Hotel.   |      |       |     |

NOTE: THE HOURS OF TRANSMISSION ARE REDUCED TO GREENWICH MEAN TIME

**ALGIERS (N. Africa)**  
825.3 kc/s (363.3 m.); 13 kW.  
Transmits at intervals from 12.30 p.m. to 7.0 p.m.—Song Recital. 7.15—Financial Notes, Exchange and Market Prices. 7.25—Shipping Notes and Weather Forecast. 7.30—Agricultural Talk. 7.45—Instrumental Selections. 7.55—News and Time. 8.0—Concert from the Works of Yvain and Moretti. 9.15—Songs from Other Lands. Songs from Spain, England and Italy. 9.30—Concert relayed from the Municipal Casino.

**BERLIN (Germany)**  
Königs Wusterhausen. 183.5 kc/s. (1,635 m.); 60 kW.  
Transmits at intervals from 4.45 a.m. (Weather, Gymnastics and Concert).  
6.30 a.m.—Weather for Farmers, followed by Gramophone Concert: "Flowers, Animals and God"—and Second Weather for Farmers. 11.55—Nauen Time Signal. 12.30 p.m.—News Bulletin. 1.0—Gramophone Concert from Berlin (Witzleben). 2.0—Talk for Young Girls: Books to read. 2.30—Weather and Exchange. 2.40—Talk for Young People on Natural History Research. 3.0—Educational Talk. 4.30—See Leipzig. 4.30—Talk. 5.0—Talk: German for Germans. 5.30—Talk: Wage-earners and the Industrial Crisis. 5.55—Weather for Farmers. 6.0—Talk for Doctors. 6.30—Legal Talk for Workers, followed by Weather for Farmers. 7.0—See Berlin (Witzleben). 7.15—Concert of Light Music from the Hotel Bristol. 7.45—News Bulletin. 8.0—Concert from Leipzig. 9.15—News Bulletin. 9.30—Cabaret Programme from Hamburg continued. 11.0 (approx.)—Close Down.

**BERLIN (Germany)**  
Witzleben. 715 kc/s (419.5 m.); 1.5 kW.  
Transmits at intervals from 5.30 a.m. (Gymnastics and Concert). 5.55 p.m.—The Witzleben Station informs its Listeners... 6.0—Topical Talk. 6.10—Concert by

the German Workers' Mandoline Society relayed from Magdeburg, 1,058 kc/s (283 m.). Overture, "Menodras Hochzeit" (Zeller). Waltz, Wine, Woman and Song (Joh. Strauss). Intermezzo, Melanie (Rückert). Potpourri, Dorfgeschichten (Oertel). 6.55—Labour Market Report. 7.0—Talk by Kurt G. Sell: What People are talking about in America, relayed from America. 7.15—See Leipzig. 7.45—News and Sports Notes. 8.0—Wilhelm Busch Centenary Programme. 8.45—Pianoforte Concerto No. 2 in C Minor, Op. 19 (Rachmaninov), by Nicolai Orloff (Pianoforte) and the Station Orchestra, conducted by Leo Borchard. 9.15—News Bulletin. 9.30 (approx.)—Dance Music from the Europa Pavilion. 11.30 (approx.)—Close Down.

**BORDEAUX-LAFAYETTE (France)**  
(PTT). 986 kc/s (304 m.); 13 kW.  
Transmits at intervals from 11.0 a.m. to 5.0 p.m.—Literary Talk with Recitations. 6.30—News Bulletin. 6.40—Talk on Education. 6.55—Lottery Results. 7.0—Spanish Lesson. 7.15—News and Weather Forecast. 7.30—"La Fille de Madame Angot"—Comic Opera in Three Acts (Lecocq). After the Programme, Amusement Guide and Time Signal.

**BRATISLAVA (Czechoslovakia)**  
1,076 kc/s (279 m.); 14 kW.  
Transmits at intervals from 9.30 a.m. to 5.55 p.m.—See Prague. 9.15—Programme Announcements and Theatre Notes. 9.20—Cigány Band, conducted by Devinsky.

**BRESLAU (Germany)**  
923 kc/s (325 m.); 1.5 kW.  
Relayed by Gletwitz, 1,184 kc/s (253 m.).  
Transmits at intervals from 5.30 a.m. to 6.5 p.m.—Weather for Farmers. 6.10 (approx.)—Orchestral Concert, conducted by Franz Marszalek. Suite, Algerian Nights (Grieg). Intermezzo (Reger). Waltz, Schwert und Leier (Jos. Strauss). Potpourri, Echoes of the World (Zimmer). 6.55—Weather Forecast. 7.0—Talk by Kurt Sell: What they are talking about in America, re-

layed from New York. 7.15—See Leipzig. 7.50—First General News. 8.0—Wilhelm Busch Recital on the Centenary of his Birth. 8.50—Instrumental Concert by Ernst Prade (Violin), Meer-Frenkel (Violin), Bruno Janz (Viola) and Curt Becker (Cello). String Trios for Violins, Viola and Cello (Haydn). Music for Three Violins (Svefan Frenkl). 9.10—Time, Weather, News, Sports Notes and Programme Announcements. 9.30—Dance Music from Berlin (Witzleben). In an interval from 10.10—10.25—Weekly Sound News from the Ufa Theatre. 11.0 (approx.)—Close Down.

**BRNO (Czechoslovakia)**  
878 kc/s (342 m.); 35 kW.  
Transmits at intervals from 9.30 a.m. to 5.55—See Prague. 9.15—News Bulletin. 9.20—See Prague.

**BRUSSELS (Belgium) (No. 1)**  
I.N.R. 590 kc/s (509 m.); 15 kW.  
11.15 a.m.—12.45 p.m.—Weather Forecast and Light Music on Gramophone Records. Selection from "The Barber of Seville" (Rossini). Selection from the "Marriage of Figaro" (Mozart). 4.0—Concert by the Station Orchestra conducted by Franz André. Selection from "La Fille du Tambour Major" (Offenbach). Selection (Schertzing). Chanson d'Arllette (Detaye). Selection from "Véronique" (Messager). Serenade (Pierré). Pas sur la Bouche (Yvain). Spring Song (Mendelssohn). Selection from "Les Mousquetaires au Couvent" (Varney). 5.0—Light Music on Gramophone Records. Fantasia (Chopin). Selection. Sunshine and Roses. Paso Doble, Flame of Desire. Foxtrot, Life is just a Bowl of Cherries. Quick Foxtrot, Song of Happiness. Foxtrot, Overnight. Rumba, Fiesta. Le Réve passe. An der schönen Narenta. Fantasia, The Cockchafer's Tea-Party (Noack). Selection (Kálmán). Mélodie d'Automne (Waldteufel). Aubade Printanière (Lacombe). Les Regrets de Suzette (Planquette). A Bougival (Lattes). Foxtrot. Foxtrot, On the Top of the World alone. Paso Doble, Fado Innamorato. Tango, Piangi Ninon. Désir

FRIDAY continued

Trigane. First Torch March (Meyerbeer-Artok). Valse Caprice (Rubinstein). Mazurka (Godard). 6.15—Educational Talk. 6.30—Journal Parlé. 7.0—Concert by the Station Symphony Orchestra. Soloist: Mme. José Pierre (Vocalist). Overture, "The Magic Flute" (Mozart). In the Steppes of Central Asia (Borodine). Danse des Bouffons (Rimsky-Korsakov). Selection from "Samson and Delilah" (Saint-Saëns). Procession Nocturne (Rabaud). Humoresque and Intermezzo (Reger). Waltz, Unter den Linden (Johann Strauss). 7.45—Talk on Economics. 8.0—Concert (cont'd).—Scènes Alsaciennes (Massenet). Song from "Lucia di Lammermoor" (Donizetti). Dance Suite (Pierné). Two Songs: (a) Hymn to the Sun (Rimsky-Korsakov), (b) Song from "The Pearl Fishers" (Bizet). Pastorale Suite (Ramsay). Second Egyptian Ballet (Luigini). 9.0—Journal Parlé and Close Down.

BRUSSELS (Belgium) (No. 2) N.I.R. 887 kc/s (338.2 m.); 15 kW. Programme in Flemish. 11.15 a.m.—12.45 p.m.—Weather and Gramophone Concert. Plaisir d'amour (Martini). Serenade (Luchest). Mattinata (Leoncavallo). Vrai Morire (Tosti). Aria (Mozart). Minuet (Beethoven). March of the Marionettes (Savino and Kosi). Dancing Animal Crackers (Steiner and De Costa). Melody (Rubinstein). Chanson villageoise (Popper). Two Russian Songs: (a) The Twelve Robbers, (b) Evening Bells. Overture, "Die schöne Galathee" (Suppé). March (Bury). Waltz, My Queen (Bucalossi). Spanish March (Garcia). Fantasia brillante (Ewing). Waltz (Jankovec). Pasodoble (Jankovec). Selection from "The Pearl Fishers" (Bizet). Intermezzo from "La Lettre de Manon" (Gillet). Entr'acte Gavotte from "Mignon" (Thomas). Russian Potpourri, Halo Moscow (Grothe). Glühwürmchen Stelldichein (Siede). Chinese Serenade (Siede). 4.0—Symphony Concert conducted by Jean Kumps. Overture, "The Bohemian Girl" (Balfe). Peer Gynt Suite No. 1 (Grieg). Waltz,

Bluets et coquelicots (Waldteufel) Aubade fleurie (Ganne). Le Coeur de ma mie (Dalcroze). Chaplinade (Sarly). Selection from "Le Chemineau" (Leroux). Elevation (Rasse). Dances from "Prince Igor" (Borodin). 5.0—Gramophone Records. Cadet March (Souza). Two Tangos (Caro). Waltz from "The Smiling Lieutenant" (Grey-Strauss). Foxtrot, Good night Sweetheart (Noble). 5.15—R. Korten reads from his own Works. 5.30—Gramophone Concert. Trio No. 3 in G Minor (Schumann). Aria, In quelle trine morbide (Puccini). Aria from "Madame Butterfly" (Puccini). Hungarian Dances Nos. 5 and 6 (Brahms). 6.15—Talk: The Aesthetic Principle in Cinema Art. 6.30—Wireless Notes. 7.0—Programme in Commemoration of Pol De Mont. Talk and Recitations. 8.15—Orchestral Concert conducted by Franz André. 9.0—Le Journal Parlé.

BUCHAREST (Romania) Radio-Bucarest. 761 kc/s (394 m.); 12 kW. Transmits at intervals from 11.0 a.m. 4.0 p.m.—Concert by the Station Orchestra. Potpourri (Recktenwald). Waltz, Acclamation (Waldteufel). Overture, Poet and Peasant (Suppé). Selection from "Cavalleria Rusticana" (Mascagni). Potpourri, "Die Puppenfee" (Bayer). 5.0—News and Time Signal. 6.10—Concert (cont'd). Song of the Nightingale (Recktenwald). Selection (Raasch). Selections from "Boccaccio" (Suppé). Roses of Florida (Korngold). March (Stelzig). 6.0—Talk on Philosophy. 6.40—Light Music on Gramophone Records. 7.0—Violin Recital by M. Marce. Gal. Sonata in G Major (Tartini). Scherzo, Tarantelle (Wienlavy) Elegy (Rachmaninoff - Hubay). Minuet (Beethoven). Fantasy (Paganini). 7.30—Dramatic Programme. 8.0—Romanian Music by the Luca Orchestra. 8.45—News Bulletin.

BUDAPEST (Hungary) 545 kc/s (550 m.); 18.5 kW. Transmits at intervals from 8.15 a.m.

Also relayed on 210 metres from 5.15—11.0 p.m. 4.0 p.m.—Concert by the Choir of the Elisabeth Szilagy Girls' School conducted by Adrienne Sztajnovits. Adoramus te Christe (Orlando). Pueri Hebraeorum (Palestrina). Parce Domini. Liebe, Trost (Haydn). Caro bell' idolo mio (Mozart). Wiegengied (Brahms) Lieder (Kodaly). 4.35—Talk by Ferdinand Heltsl. 5.15—Concert by the Budapest Concert Orchestra. Soloist: Ila Verböczy (Songs). Selection from "Norma" (Bellini). Selection from "Endlich allein" (Lehár). Hawaii Blues (Heidelberg). Selection from "Prince Bob" (Huszka). 1932 Potpourri (Golwiz). Vocal Tango (Haber). Foxtrot from an Operetta (Szlantay). 6.20—Talk: Hungarian Grammar. 6.50—Shortland Lesson. 7.15—Concert by the Philharmonic Society, conducted by Josef Krips. Oxford Symphony (Haydn). Suite, Le Bourgeois gentilhomme (Richard Strauss). Symphony No. 1 in B Flat (Schumann), followed by Concert by the Rigo Jancsi Cigány Orchestra from the Café Emke. 10.0—Programme of Hungarian Literature in English. 11.0 (approx.)—Close Down.

COPENHAGEN (Denmark) 1,067 kc/s (281 m.); 0.75 kW. Relayed by Kalundborg, 260 kc/s (1,153 m.). Transmits at intervals from 6.30 a.m. (Gymnastics). 11.0 a.m.—Time and Town Hall Chimes. 11.20—String Ensemble Concert conducted by Max Shaika, relayed from the Hotel d'Angleterre. 1.0—2.0 p.m.—Interval. 2.0—Concert by Carl Rydahl's Instrumental Ensemble. Overture, "L'Ecosais de Chatou" (Delibes). Waltz, Les fleurs (Waldteufel). Selection from "La Bohème" (Puccini). Humoresque (Taye-Reuchsel). Sorg (F. Henriques). Waltz and Czardas from "Coppélia" (Delibes). Reading, Schubert Fantasia (Urbach). Waltz, Wienerblut (Joh. Strauss). Tam-

bourin (Gossec). Lykkeposen (Ryning). Czardas (Monti). The Wedding of the Elves (Képping). March, Wien bleibt Wien (Schrammel). 4.0—Programme for Children. 4.40—Exchange and Fish Market Prices. 4.50—Talk: Great Works of Danish Literature—Ambrosius Stub. 5.20—German Lesson for Beginners. 5.50—Weather Forecast. 6.0—News Bulletin. 6.15—Time Signal. 6.20—Talk on Hygiene. 6.50—Programme by Per Knutzon. 7.0—Town Hall Chimes. 7.2—Concert for the Benefit of the Homeless, relayed from the Cathedral. 8.0—"Revision"—a Rural Radio Sketch (Anten Jørgensen). 8.25—Flute Recital by Johan Bentzon. Sonata for Flute and Pianoforte (Loeillet). Scherzo (Kuhlau). Fantasia (Fauré). 8.40—Talk for the Housewife. 9.10—News Bulletin. 9.25—Song and Pianoforte Recital of Modern Danish Music. Pianoforte Pieces, Op. 66 (Glass): (a) Pastorale, (b) Nocturne, (c) Ecosaisse. Songs: (a) Autumn (Weis), (b) Broom (Ring), (c) I Himmerlands Dale and (d) Foraassang (Larsen), (e) Svalen (Nielsen), (f) Barcarolle (Schierbeck), (g) Svanerne (Riis-Magnussen). Two Studies for Pianoforte (Schierbeck): (a) Kolvand, (b) Oceanets Vuggesang. Two Fantastic Studies (Schierbeck): (a) Morke, (b) Natteblaest. 10.0 (approx.)—Close Down.

DUBLIN (Ireland) (2RN). 725 kc/s (413 m.); 1.2 kW. Relayed by Cork, 1,337 kc/s (224.4 m.). 1.30—2.0 p.m.—Time Signal, Weather Forecast, Stock Report and Gramophone Concert. 6.0—Light Music on Gramophone Records. 6.15—Children's Hour. 7.0—Popular Music on Gramophone Records. 7.20—News Bulletin. 7.30—Time Signal. 7.31—Talk by G. O. Sherrard on Gardening. 7.45—Shakespearean Recital by Mrs. L. Donaghy. 8.0—Operatic Concert by the Station Sextet. Soloists: May Busby (Soprano), Ben Williams (Tenor) and Hubert Dunkerley (Baritone). 9.0—Fay Sargent and Joan Burke in a Variety Programme.

9.30—Pianoforte Recital by Gerard Shanahan. 9.45—Contraalto Solos by Kitty O'Flaherty. Banjo and Steel Guitar Solos. 10.10—The Station Sextet. 10.30—Time Signal, News, Weather Forecast and Close Down. FÉCAMP (France) Radio Normandie. 1,364 kc/s (210.0 m.); 1 kW. Transmits at intervals from 11.0 a.m. 6.30 p.m.—Chansonnettes. 6.45—Announcements. 7.0—News Bulletin. 7.15—Agricultural Report. 7.30—Selection from "Carmen" (Bizet). 11.0—Concert of Variety Music. 11.0 a.m. (Saturday).—Close Down.

FRANKFURT-am-MAIN (Germany) 770 kc/s (390 m.); 1.5 kW. Relayed by Cassel, 1,220 kc/s (246 m.). Transmits at intervals from 5.0 a.m. 4.0 p.m.—See Stuttgart. 5.15—Economic Notes. 5.25—Talk. 5.50—See Stuttgart. 6.15—Time and News. 6.20—Talk on Wilhelm Busch. 6.35—Wilhelm Busch Centenary Programme. 7.0—9.20—See Stuttgart. 9.20—Time and News. 9.45—Dellius Concert by Benno Ziegler (Baritone), Gustav Lenzevsky (Violin) and Dr. Heinrich Simon (Pianoforte). Sonata No. 3 for Violin and Pianoforte. Songs to Text by Nietzsche: (a) Nach neuer Meeren, (b) Der Wanderer, (c) Der Einsame, (d) Der Wanderer und sein Schatten. 10.10—Concert of Austrian Marches. 11.0 (approx.)—Close Down.

HAMBURG (Germany) Norag (ha, in Morse). 806 kc/s (372 m.); 1.5 kW. Relayed by Bremen, 1,112 kc/s (270 m.); Flensburg, 1,373 kc/s (218 m.); Hanover, 530 kc/s (566 m.) and Kiel, 1,292 kc/s (232.2 m.). Transmits at intervals from 5.25 a.m. 6.0 p.m.—Topical Talk. 7.0—6.15—Programme in North German Dialect by Fritz Wischer (Elocutionist), Kurt Spross (Baritone), and Orchestra, conducted by Hans Döring, relayed from Kiel. Seemannsgruss Marsch (Harres). Baritone Solo: Anne Marie (Meyer-Rahfs). Waltz, Kieler Rathausglocken (Westermann). Recitations (von-Wisser): (a) De of Mann, de

Just Published

'EDISON and his Competition'

by A. Horschitz and Paul Ostreich, with an introduction by Sir J. Ambrose Fleming. A study of the life and work of Edison, together with a reasoned criticism of the Edison Scholarship Competition held for the purpose of discovering the great inventor's successor. A detailed analysis of the more general questions in the examination is included. Price Three Shillings Net (Postage 3d.)

From all Booksellers or from the Publishers:— W. & G. FOYLE, Ltd., Charing Cross Rd., London, W.C.2. Telephone—Central 9310 (7 lines).

U.S.A. — 27/6

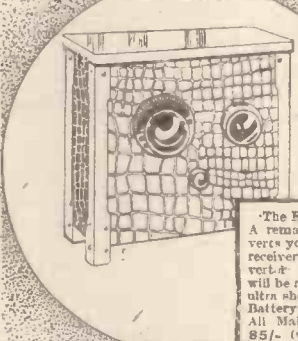
We now have ready a really good S/W Adaptor for S.G. sets. Complete with Coils, on receipt of 27/6. Direct from Makers only. DX COILS LTD., LONDON, E.8.

Famous Makers Offer £5 Radio-Gram. CABINET for 65/-

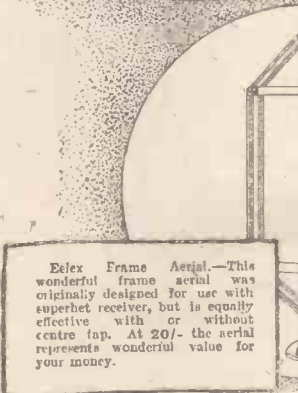
7 DAYS' FREE TRIAL (or 10/- monthly). Piano built (Pat. 8123), the acoustic tone brings a fine thrill (Piano Oak) (3,000 clemite, Radio-Press, B.E.G.). Other models, 35/- to £15. Photographs and List FREE! Picketts Piano-Tone Cabinets, W.R. Albion Rd., Boxleybeath, Kent.

a binding case to hold current copies of World-Radio stoutly made, from good quality binding-cloth, distinctively blocked in gold, corded so that the journal remains in place, and provided with a convenient pencil—it costs 2s. 6d., or by post direct from the B.B.C. Publications Dept., Savoy Hill, 2s. 10d.

TWO WINNERS



The Elex Short-Wave Converter.—A remarkable instrument that converts your set into an "All Station" receiver. With this wonderful converter attached to your set you will be able to receive stations on the ultra short-wave bands. Battery model with valve. Price 67/- All Mains. 65/- 2-Valve model, 85/- (without valves).



Elex Frame Aerial.—This wonderful frame aerial was originally designed for use with superhet receiver, but is equally effective with or without centre tap. At 20/- the aerial represents wonderful value for your money.

Write for List D28. J. J. EASTICK & SONS, Eelix House, 118, Bunhill Row, London, E.C.1 Telephone: Metropolitan 0134/5/6

RHEUMATISM CONQUERED!

CROSS-SECTION OF HUMAN VEIN (highly magnified)



BEFORE taking "Curicones." Note the "Acid Daggers" and poisons in the blood which cause the fiery agony of Rheumatic Affments.

AFTER taking "Curicones." They rid the system of the razor-edged crystals and poisons which cause swellings and rheumatic pain.



1,600 DOCTORS PRAISE AND RECOMMEND "CURICONES"

Cases of Chronic Rheumatism, Gout, Swollen Joints, excruciating Sciatica and Neuritis, once thought beyond hope, yield to "Curicones"—no matter what the first cause—without interference with daily occupation. Pain is banished, swelling reduced, stiffness relieved—all from within through the natural agency of the blood-stream. Every sufferer who sends the coupon below will receive a trial supply of "Curicones" absolutely FREE. Write to-day—don't delay.

To STEPHEN MATTHEWS & CO., LTD., (Dept. W.R.2), 19-21, Farringdon Street, London, E.C.4. Please send me FREE Trial Supply of "Curicones" with explanatory booklet. Name..... Address..... Ailment.....

wedder to Schoi geht, (b) De Mann ut'n Paradies. North German Dances. Baritone Solo: Appel op'n Boom (Heitmann-Rahfs). Recitations: (a) Hinner kohn to Kieler Umschlag (Johann Meyer), (b) All verschieden (Wride). Baritone Solo: De krüfdiele Neddersass (Lembcke-Rahfs). In schönen grünen Holstenland (Fetras).  
7.0—See Berlin (Witzleben). 7.15—See Leipzig.

8.30—Instrumental Cabaret relayed from Hanover. The Station Orchestra, conducted by Otto von Sosen. Soloists: Otto Swinnes (Bassoon), Wilh. Genger (Piano-forte), Emil Bartels (Cello) and Ernst Mülhndorfer (Clarinet). Fascinating Overture (Leuschner). Polka brillante for Bassoon (O. Swinnes). Festival Polonaise (Cui). Piano-forte Solo: Das Erwachen der Waldgeister (Prudent). Serenade (Kostal). Cello Solo: Cherry Ripe (Scott). Eine kitzlige Geschichte (Leuschner). Bassoon Solo: Polka, Der Brunnbär (Fucik). Clarinet Solo: Die Zauberklarinette (Vollstaedt). Gallop, Klarinet Kurve (Krüger). In the interval, News Bulletin.

**HEILSBURG (Germany)**

1.085 kc/s (276.5 m.); 60 kW. Relayed by Danzig, 662 kc/s (453.2 m.).  
Transmits at intervals from 5.30 a.m. (Gymnastics and Gramophone Concert).  
10.30 a.m.—Concert relayed from Breslau.  
12.5—1.30 p.m.—Concert by the Little Orag Orchestra, conducted by Eugen Wilcken. First Festival Overture (Lortzing). Waltz, Marienklänge (Joseph Strauss), Selection from "The Huguenots" (Meyerbeer). Waltz Serenade (Reznick). Golden Dreams (Murzilli). Suite, Reminiscences of Cairo (Armandola). Waltz, Au revoir (Waldteufel). Selection from "The Maid of the Black Forest" (Jessel). 2.30—Programme for Children. 3.0—Talk for Women: The Art of Saving. 3.30—See Leipzig. 4.30—Dialogue between a Sportsman, his Trainer and a Doctor. 5.0—Wit of To-day and Yesterday—Wit and Sport. 5.15—Market Prices.  
5.30—Famous Waltzes—Concert by the Little Orag Orchestra, conducted by Eugen Wilcken. Hofballtänze (Lanner). Tales from the Vienna Woods (Johann Strauss). Mondnacht auf der Alster (Fetras). España (Waldteufel). Hydopanthen (Gungl). Wiener Bürger (Ziehrer). Gold and Silver (Lehar). 6.35—Talk on Wilhelm Busch, on the Centenary of his Birth. 6.50—Weather Forecast.  
7.0—Talk by Kurt Sell: What they are talking about in America, relayed from America. 7.15—See Leipzig. 7.45—Announcements.  
7.50—Symphony Concert by the Königsberg Opera House Orchestra, Conductor, Dr. Hermann Scherchen. Soloist: Charlotte Bona-Piratzky (Soprano). Introductory Talk by Dr. Erwin Kroll. Music to "Phaedra" (Honegger). Soprano Solo: Die junge Magd (Hindemith). Scherzo from the Ninth Symphony (Bruckner). Symphonic Prologue (Reger). 9.10 (approx.)—News Bulletin.  
**HILVERSUM (Holland)**  
1.004 kc/s (298.8 m.); 8.5 kW.  
6.25—9.40 a.m.—Programme of the Workers' Radio Society (V.A.R.A.). 6.25—6.40 and 7.10—7.25—Gymnastics. 7.40—Gramophone Records of Variety Music. 8.40—Trio Concert. 9.40—Religious Programme by the Liberal Protestant Radio Society (V.P.R.O.). 9.55—11.40—V.A.R.A. Programme. 9.55—Recitations. 10.10—Trio Concert. 10.40—Programme for Women. 10.55—Trio Concert (continued), and Gramophone Records of Popular Music. 11.40—3.40 p.m.—Programme of the Algemeene Vereniging Radio Omroep (A.V.R.O.). 11.40—Concert by the Little Wireless Orchestra, conducted by Willem Knikker. Festival Overture (Leutner). Lyric Suite (Grieg). Selection from "Le Petit Duc" (Lecocq). Gramophone Records of Variety Music. Waltz, Die Werber (Lanner). Sous ta fenêtre (Lachaux). Fantasia on the Works of Johann Strauss (Schlögel). Minuet (Paderevsky). Gramophone Records of Variety Music. Music, Einzug der Rosenkönigin (Rhode). Pizzicato. Polka (Samedini). By the Swanee River (Myddleton). Florentine March (Fucik). 1.40 p.m.—Talk for Schools. 2.10—Concert by the Wireless Cham-

ber Orchestra, conducted by Hemmes. Overture, "Titus" (Mozart). Ballet Suite (Poppy). Spring Song (Gounod). Minuet (Boccherini). Selection from "I Pagliacci" (Leoncavallo). Gramophone Records of Variety Music. Waltz, Très jolie (Waldteufel). Selection from "Boccaccio" (Suppe). March, Grillenbäcker (Komzak). 3.40—7.40—V.A.R.A. Programme. 3.40—Piano-forte Recital by Johan Jong Suite, España (Albeniz). 4.10—Programme for Children.  
4.40—Orchestral Concert, conducted by Hugo de Groot. Overture, "The Thieving Magpie" (Rossini). Selection from "Lakmé" (Delibes). In a Pagoda (Bratton). Ballet égyptien (Luigini). Gramophone Records of Variety Music. Spanish March, Cordoba (Lozano). Idylle passionelle (Razigade). Der Rose Hochzeitstag (Jessel). Marechiaro (Toati). Selection from "The Dollar Princess" (Fall). 6.20—Talk: The Socialist Party. 6.40—Concert (cont'd). Ballet Music from "Undine" (Lortzing). Gramophone Records of Variety Music. From the Old World and the New—Fantasia on the Works of Dvorak (Leopold). Gramophone Records of Variety Music. Potpourri of Marches (Winter). 7.40—10.40—V.P.R.O. Programme. 7.40—Religious Talk by Mlle. Mara Dijkhoorn (Soprano) and Mlle. Henriette Bosmans (Piano-forte). Adelaide, Op. 46 (Beethoven). Songs (Gustav Mahler): (a) Liebst du um Schönheit, (b) Ich atme einen Linden Duft, (c) Ablösung im Sommer, (d) Rheinlegend, (e) Scheiden und Meiden. Songs (Hugo Wolf): (a) Der Scholar, (b) Der verzweifte Liebhaber, (c) Zitronenfalter im April, (d) Gesang Weylas, (e) Auf ein alte Bild, (f) Elfenlied. 8.40—Talk: The Protestant Liberal Society. 9.10—Recital (cont'd). Songs (Fauré): (a) Rencontre, (b) Toux jours, (c) Adieu, (d) Les Roses d'Espahan. Songs (Albert Roussel): (a) Amoureux séparés, (b) A un jeune Gentlehomme. Ariettes oubliées (Debussy): (a) C'est l'ex-tase languoureuse, (b) Il pleure dans mon cœur, (c) L'ombre des arbres dans la rivière embrumée, (d) Paysages belges, (e) Green, Aquarelle, (f) Spleen, Aquarelle, (g) Fêtes galantes.  
9.40—Religious Notices. 9.45—News Bulletin. 9.55—Talk by Heer Faber. 10.25—Gramophone Records of Variety Music.  
10.40—11.40—V.A.R.A. Programme, Gramophone Concert of Variety Music. 11.40 (approx.)—Close Down.  
**HUIZEN (Holland)**  
160 kc/s (1,875 m.); 8.5 kW.  
Programme of the Christian Radio Society (N.C.R.V.). 7.40 a.m.—Reading. 7.55—Gramophone Concert of Light Music. 9.10—10.10—Interval. 10.10—Programme for Invalids.  
10.40—Gramophone Concert of Popular Music. March (Blon), by the Groot Odeon Orchestra. Offenbach Potpourri, by the Berlin Philharmonic Orchestra, conducted by Theo Mackeben. Items by Constantine Vladescu with Gipsy Orchestra: (a) Hungarian Melodies (Leopold), (b) Gipsy Idylle (Ferraris). Items by the Groot Odeon Orchestra: (a) Fest der Zwerge (Noack), (b) Aufzug der Wichtelmännchen (Messow). Deutsche Marscherlein (Blankenburg) by the Groot String Orchestra, conducted by Dobrindt. Items by the Edelweiss Yodel Double-Quartet: (a) Baernerland, b'huet Gott! (Krenger-Schmalz), (b) Mi Schoeni Schwyz (Bühler). Items by the London Palladium Orchestra, conducted by Pethers: (a) Amina (Lincke), (b) Novelty Intermezzo: Animal Antics (Wark), Selections from "Flotte Bursche" (Suppe) by the Dajos Bala Orchestra. Graham-Paige March (Earl Donegan-Arthur Pryor) by the Victor Orchestra, with Male Voice Quartet. Husaren-Attache (Oscheit), by the Groot Odeon Orchestra. 11.40—Police Notes.  
11.55—Instrumental Concert. H. Hermann (Violin), T. v.d. Haar (Violin), H. v.d. Horst (Cello), and Mme. Horst-Bleekrode (Piano-forte). Overture, "Tancred" (Rossini). Donausagen (Fucik). Berceuse slave (Neruda). Selections from "The Bartered Bride" (Smetana). Serenade (Ohlsen). Overture, "Don Giovanni" (Mozart). Angelus (Massenet). Märchen (Translatur). Potpourri of the Works of Delibes (Urbach). Schön ist die Jugendzeit (Rohde).

**FRIDAY, continued**

1.40—'Cello—Concerto, Op. 85 (Elgar), by Beatrice Harrison (Cellist) and the New Symphony Orchestra, conducted by the Composer, on Gramophone Records.  
2.10—Programme to be announced.  
2.40—Concert of Songs by Dick Waldman (Bass-Baritone) and Lies de Waal (Piano-forte). 4.40—Talk for Amateur Photographers.  
5.10—Gramophone Concert: Selections from "Czar and Carpenter" (Lortzing), by the Berlin Orchestra, conducted by Hans Pfitzner. Memories of Mendelssohn (Scur), by the Squire Celeste-Octet. Potpourri from the Works of Tchaikovsky (Urbach), by Marek Weber and his Orchestra. Overture, "Di Ballo" (Sullivan) by the London Symphony Orchestra, conducted by Malcolm Sargent. 5.40—Talk by Mr. Steinvoort. 6.10—Talk by Mr. Herwig.  
6.40—Commemoration Address by Robijn, on the 25th Anniversary of the Founding of the Royal Mounted-Police Union. 7.10—Police Notes. 7.25—Talk: The Harz and Thuringia. 7.40—Talk: The Agricultural Crisis.  
8.20—Concert of "Old Religious Music" by the Amsterdam "Bel Canto" A-Capella Choir, conducted by Alphons Vranken, interspersed with Gramophone Records. Choral Items. Acclamations (Casimiri). Psalm 150 (Schütz). O crux ave (Palestrina). O bone Jesu (Palestrina). Gramophone Records: (a) Settings from the Song of Solomon (Palestrina), (b) 1st and 4th Movements of the Organ Concerto in F Major, Op. 4, No. 4 (Handel), by Alfred Sittard-Hamburg. Choral Items. Ave verum Corpus (Mozart). Palm Paaschlied (Diepenbrock). Palm 116 (Alph. Vranken). Gramophone Records: (a) Symphony, No. 3, in C Minor, with Organ (Saint-Saëns). Quand mon mari... (di Lasso). Old French Song (Chauvuis). Les fleurs et les arbres (Saint-Saëns). Gramophone Record: Le Rouet d'Omphale (Saint-Saëns). Choral Items: Trois beaux oiseaux du Paradis (Ravel). Yver, vous n'êtes qu'un villain (Debussy). Die Winter is vergangen (Nieland). 9.40 (in the interval)—Press News.  
10.25—Concert of Light Music on Gramophone Records. 11.10 (approx.)—Close Down.  
**KALUNDBORG (Denmark)**  
Kalundborg Radio. 260 kc/s (1,153 m.); 7.5 kW.  
See Copenhagen.  
**LANGENBERG (Germany)**  
Westdeutscher Rundfunk. 635 kc/s (473 m.); 60 kW.  
Transmits at intervals from 5.45 a.m. (Exercises, Weather, Time and Gramophone Records).  
12 noon—Concert conducted by Wolf. Freiheitsfeier (Rosey). Waltz, Hoch lebe der Tanz (Waldteufel). Overture, "The Nuremberg Doll" (Adam). Minuet and Barcarole (Offenbach). Suite, "As You Like It" (Wetzler). Serenade from "Les Millions d'Arlequin" (Drigo). Potpourri, Jugendklänge aus Alt Heidelberg (Rhode). Piedmontese Dance (Sinigaglia). Military Fanfare (Ascher).  
1.30—Sponsored Gramophone Concert. 2.30—Economic Notes and Time. 2.50—Programme for Children.  
4.0—Concert conducted by Eysoldt. Scottish Overture, In the Highlands (Gade). Petite Suite de Concert (Coleridge-Taylor). Four Indian Love Lyrics (Woodford-Finden). Waltz, Schwert und Leier (Joa. Strauss). Selections from "Samson and Delilah" (Saint-Saëns). Selection from "Willie Ratcliff" (Mascagni). Amourette Ständchen (Kockert). 's Räucherher (Kapeller). In gold'ne Löwen war's zu St. Goar (Königsberger). Potpourri of Children's Songs (Robrecht).  
5.15—Talk on Raabe and Busch. 5.40—English Lesson. 6.0—Weather, Time, Economic Notes and Sports Notes. 6.15—Three Germans converse with one another. 6.55—News Bulletin. 7.0—Talk by Kurt G. Sell: What People are talking about in America, relayed from America. 7.15—See Leipzig. 7.45—Wilhelm Busch Centenary Programme—9.15 News Bulletin. 9.45 (approx.)—Concert from Frankfurt. 11.0 (approx.)—Close Down.  
**LEIPZIG (Germany)**  
1,157 kc/s (259 m.); 2 kW. Relayed by Dresden, 941 kc/s (319 m.).

Transmits at intervals from 5.30 a.m. 3.30 p.m.—Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber. Dance from "Le Devin du Village" (Rousseau). Ballet Music from "Hamlet" (Thomas). Clog Dance from "Czar and Carpenter" (Lortzing). Ballet Music from "The Prophet" (Meyerbeer). Waltz from "Der Rosenkavalier" (Richard Strauss). Selection from "Schwanda the Piper" (Weinberger). Ballet Music from "The Two Widows" (Smetana).  
4.30—Book Review. 4.50—Economic Notes, Weather and Time. 5.0—Talk on Social Insurance. 5.25—English Lesson. 5.50—Programme to be announced. 6.0—Talk on Sociology.  
6.30—Piano-forte Recital by Prof. Emil Kronke with his own Works. Prelude in D Minor, Op. 221, Gavotte, Sarabande and Bourrée, Op. 182. Leid und Freud, Op. 206 Liebeslied, Op. 190. Spanish Caprice, Op. 217. Träumerei, Op. 106. Two Waltzes from Op. 109.  
7.0—Talk by Kurt Sell: What People are Talking About in America, relayed from America.  
7.15—National Transmission. Symphony No. 97 in C Major (London Symphonies) (Haydn), by the Leipzig Symphony Orchestra, conducted by Theodor Blumer. 7.45—Wilhelm Busch Programme—Literary and Musical Selections. The Leipzig Symphony Orchestra, conducted by Theodor Blumer, and Readings by Hans Freyberg. 8.15—Economic Notes. 8.25—Wilhelm Busch Centenary Programme—A Radio Sequence (arr. Gustav Herrmann).  
9.10—News, followed by Concert from the Works of Dresden Composers. The Orchestra conducted by Dr. Leonhard Prinz. Soloists: Susanne Prée and Margarethe Thum (Soprano). Prelude, Op. 14 (Richter-Haaser). Two Duets for Soprano (Hollstein): (a) Bei Saragossa, (b) Akazien. Six Songs (Prinz): (a) Singend stossen wir vom Ufer, (b) Ich hab' nach dir gerufen, (c) Blumenlager, (d) Volles Herz, (e) Man sieht dem armen Teufel an. Serenade, Op. 40 (Lederer). 10.30 (approx.)—Close Down.  
**LJUBLJANA (Yugoslavia)**  
522 kc/s (574.7 m.); 2.5 kW.  
Transmits at intervals from 10.30 a.m. 6.0 p.m.—French Lesson. 6.30—Topical Talk. 7.0—Sokol Lesson. 7.30—Violin Recital from Belgrade. 9.30—Time and News Bulletin.  
**ŁWÓW (Poland)**  
788 kc/s (381 m.); 16 kW.  
Transmits at intervals from 10.45 a.m. 5.50 p.m.—Miscellaneous Items. 6.15—Recitations by Mme. Beata Walska-Obertynska. 6.30—See Warsaw. 9.50—Variety Programme by Messrs. Jerzy Tępa and Jerzy Włodzoga. 11.0 (approx.)—Close Down.  
**LYONS (France)**  
La Doua (P.T.T.). 644 kc/s (465.8 m.); 1.5 kW.  
Transmits at intervals from 7.0 a.m. 6.0 p.m.—Light Music on Gramophone Records. 6.30—Radio-Gazette for Lyons and the South-East. 7.30—Programme arranged by the Lamartine Society.  
**MADRID (Spain)**  
Union Radio (E.A.). 707 kc/s (424.3 m.); 2 kW.  
Transmits at intervals from 8.0 a.m. 7.0 p.m.—Chimes, Exchange Quotations, Market Prices and Request Concert of Gramophone Records. In the interval at 7.30—Educational Talk. 8.15—News and Parliamentary Review: 8.30—Interval. 9.30—Chimes, Time Signal, Parliamentary Review, and Programme in Honour of Haydn by the Station Orchestra. Soloist: Enrique Aroca (Piano-forte). 10.30—Dance Music. 11.45—News and Announcements. 12 midnight—Chimes and Close Down.  
**MILAN (Italy)**  
Ente Italiano Audizioni Radiofoniche. 905 kc/s (331.5 m.); 7 kW.  
See Turin.  
**MORAVSKÁ-OSTRAVA (Czechoslovakia)**  
1,137 kc/s (263.8 m.); 11 kW. Transmits at intervals from 9.30 a.m. 5.55 p.m.—See Prague. 9.15—Miscellaneous Notes. 9.25—See Prague.  
**MOSCOW (Russia)**  
Trades Union. 230.1 kc/s (1,304 m.); 100 kW.  
Transmits at intervals from 4.0 a.m. 9.0 a.m.—Chinese Programme. 10.0

—Peasants' Radio Journal. 11.0—Literary Talk. 12 noon—Educational Programme. 1.0 p.m.—Programme for Children. 1.45—Weather Forecast. 2.0—Agricultural Report. 2.30—Talk (to be announced). 2.55—Time Signal. 3.0—Proletariat Radio Journal. 4.0—Peasants' Radio Journal. 5.0—Talk (to be announced). 6.0—Talk in German and English: The 1st of May in the Russia of the Czars. 8.55—Time Signal. 9.0 (approx.)—Close Down.  
**MUNICH (Germany)**  
563 kc/s (533 m.); 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s (560 m.); and Nürnberg, 1,256 kc/s (239 m.).  
Transmits at intervals from 5.45 a.m. 6.25 p.m.—Orchestral Concert by the Little Wireless Orchestra, conducted by Erich Kloss. Overture, "Euryanthe" (Weber). Romance from the Violin Concerto (Wieniawski). Selection from "Jesondina" (Spohr). Waltz, Donausagen (Fucik). Petite Suite No. 1 (de Micheli).  
7.10—Programme on the occasion of the Hundredth Anniversary of the Birth of Wilhelm Busch, with the Collaboration of Peperl Weichand, Fritz Horrmann and Willem Holzboer.  
7.50—Symphony Concert by the Wireless Orchestra, conducted by Abendorth. Soloist: Johanna Maria Unkel (Contralto). Variations and Rondo on an Old German Folk Song, Op. 45 (Haas). Four Songs for Contralto and Orchestra, Op. 15 (Jarnach): (a) Lied vom Meer, (b) Der wunde Ritter, (c) Ich hört ein Sichel rauschen, (d) Rückkehr. Symphony No. 2 in D Major, Op. 73 (Brahms).  
9.20—Time, Weather, News, Sports Notes and Snow Report. 9.50—Talk: What they are talking about in America, relayed from Washington, U.S.A.  
**OSLO (Norway)**  
Kringkastingsselskapet, 277 kc/s (1,083 m.); 60 kW. Relayed by Fredrikstad, 816 kc/s (367.6 m.); Hamar, 536 kc/s (560 m.); Notodden, 671 kc/s (447.1 m.); Porsgrund, 662 kc/s (453.2 m.); and Rjukan, 671 kc/s (447.1 m.).  
Transmits at intervals from 9.0 a.m. 4.0 p.m.—Light Music on Gramophone Records. 4.30—Talk in German: The Modern Theatre in Germany. 5.30—Recital of Norwegian Songs by Einar Elgen (Baritone). 6.0—Announcements, Weather and News Bulletin. 6.30—English Lesson. 7.0—Time Signal. 7.15—Dramatic Programme. 8.25—Talk on Economics. 8.40—Weather and News. 9.0—Topical Talk. 9.15—Concert of Popular Melodies by a Cornet Octet. 10.15 (approx.)—Close Down.  
**PALERMO (Italy)**  
Ente Italiano Audizioni Radiofoniche. 554 kc/s (542 m.); 3 kW.  
Transmits at intervals from 11.45 a.m. 4.30 p.m.—Variety Music and Dance Music from the Olympia Tearoom. 7.0—News, Agricultural Report, Report of the Royal Geographical Society and Giornale Radio. 7.20—Light Music on Gramophone Records. 7.30—Time Signal and Announcements.  
7.50—Concert of Variety Music. Soloists: Clara Bentivegna (Violin), Marisa Bentivegna (Piano-forte), and Aida Gonzaga (Soprano). Sonata in B Flat Major for Violin and Piano (Mozart). Two Soprano Solos: (a) Song from "A Masked Ball" (Verdi), and (b) Valzer Cantabile (Venzano). Piano-forte Solos: Two Preludes (Bach-Pick-Mangiagalli). Talk by de Maria. Two Violin Solos: (a) Romance and Mazurka from the Second Concerto (Wieniawski), (b) Moto Perpetuo (Ries). Two Soprano Solos: (a) Waltz from "La Bohème" (Puccini), (b) Campana dell'eremita (Sarría). Two Piano-forte Solos: (a) Minuet (Zanella), (b) Elfentanz (Liszt). After the Concert, Dance Music on Gramophone Records. 9.55—News and Close Down.  
**PARIS (France)**  
Eiffel Tower (F.L.E.). 207.5 kc/s (1,445.7 m.); 13 kW.  
Time Signals (on 2,650 m.) at 9.26 a.m. and 10.26 p.m. (preliminary and 6-dot signals).  
5.45 p.m.—Theatre Review. 6.0—Le Journal Parlé. 7.20—Weather Forecast. 7.30—Concert conducted by Edouard Flament. Soloists: Michel Costine (Song) and M. Bas (Violin). 8.30—"Bloomfield and Company"—One Act Play (Frapic and Fabri).

PARIS (France)

Poste Parisien. 914 kc/s (328.2 m.); 1.2 kW. Transmits at intervals from 11.0 a.m. 5.45 p.m.—News and Announcements. 6.0—Light Music on Gramophone Records, Talks and News. 6.30—Concert by the Station Jazz Orchestra, conducted by M. Crickett-Smith with the collaboration of Miss Mabel Mercer. Cuban Holiday (Warschauer). You forgot your Gloves (Lehak). Guilty (Kahn-Whiting). Why dance? (Alhert). By the Sycamore Tree (Wending). Home (Van Steeden). Makin' faces at the Man in the Moon (Rich-Hoffmann). Romany Rose (Wayne). All of me (Simons). Sweet and Lovely (Tobias). When the Moon comes over the Mountains (Woods). I don't know why (Alhert). Rhymes (Sarony). 7.30—Gramophone Records of Light Music. Talk and News. 7.45—Concert of French Songs by Music Hall Artists. 9.45—News Bulletin. 9.50 (approx.)—Close Down.

PARIS (France)

Radio-Paris (CFR). 174 kc/s (1.725 m.); 75 kW. 5.45 a.m.—Physical Culture Lesson. 6.0—6.30—Interval. 6.30—Weather Report, and Second Physical Culture Course. 6.45—Light Music on Gramophone Records. 7.0—News, Weather and Press Review. 11.0—Jewish Talk. 11.30—Gramophone Concert of Symphony Music. Overture and Serenade from "Don Giovanni" (Mozart). Scotch Symphony (Mendelssohn). Serenade italienne (Wolf-Reger). Miserere from "Il Trovatore" (Verdi). Der Doppelgänger (Schubert). Erlkönig (Schubert). Waltz from "Der Rosenkavalier" (Richard Strauss). Night on the Bare Mountain (Moussorgsky). During the interval at 12 noon—Exchange, News and Weather Report; at 12.30 p.m.—Exchange, and at 1.0—Exchange and Announcements. 2.45—Exchange Quotations. 3.20—Elementary English Lesson. 3.45—Talk by Jean Chantavoine on the History of Music—from Brahms to Richard Strauss. 5.30—Market Prices, Weather Forecast and Agricultural Talk. 6.0—Talk on the Colonies: The Native Medical College at Dakar. 6.45—Exchange Quotations and News. 7.0—"Der Freischütz"—Overture and Selections (Weber). 7.45—News and Weather Forecast. 7.55—Gastronomic Review. 8.15—Press Review and News. 8.30—"The Blessed Demosel" (Debussy), by Soloists, Chorus and Orchestra, conducted by Eugène Bigot.

PITTSBURGH (U.S.A.)

Westinghouse Electric (KDKA). 980 kc. (306 m.); 25 kW. Transmits at intervals from 12 noon. 9.0 p.m.—Business News. 9.15—Stock Exchange Report. 9.30—Weather Report. 9.32—Johnny Muskrat. 9.33—Market Reports. 9.45—KDKA Kiddies' Klub. 10.0—Bisquick Brevities. 10.5—David Lawrence Dispatch. 10.10—Temperature Report. 10.11—KDKA Artist Bulletin. 10.15—KDKA Orchestra. 10.30—The Singing Lady, relayed from New York. 10.45—Little Orphan Annie, relayed from New York. 11.0—Time Signal. 11.1—News Bulletin. 11.6—Sports Review. 11.11—Press News Report. 11.15—3.45 a.m. (Saturday)—New York Relay. 11.15 p.m.—Andy Sanella and his Orchestra. 11.30—The Royal Vagabonds. 11.45—Literary Digest Topics in Brief. 11.59—Time Signal. 12 midnight—Amos n Andy. 12.15 a.m. (Saturday)—Esso Programme—Elsie Janis. 12.30—Stebbins Boys. 12.45—Billy Jones and Ernie Hare. 1.0—Nestlé's Programme. 1.30—Ivory Programme. 1.45—Sisters of the Skillet. 2.0—Friendship Town. 2.30—Armour Programme. 3.0—Whiteman's Pontiac Chieftains. 3.30—Waves of Melody. 3.45—"Between the Acts"—Florence Fisher Parry. 4.0—Time Signal. 4.1—Sports Review. 4.11—Temperature and Weather Reports. 4.15—Last Minute Press Reports. 4.20—Hotel William Penn Orchestra. 5.0—Cotton Club Orchestra, relayed from New York. 5.15—Time and Close Down.

PRAGUE (Czechoslovakia)

614 kc/s (488.6 m.); 120 kW. Transmits at intervals from 9.30 a.m. 3.0 p.m.—Orchestral Concert, conducted by Janota, relayed from Brno. 3.55—Talk: "The History of the Church in Czechoslovakia. 4.5—

FRIDAY continued

Transmits at intervals from 11.45 a.m. 9.0 p.m.—Betty Moore, Decorating Notes from New York. 9.15—Zoller and Wilcox. 9.30—Stock Reports and Police Notices. 9.45—Musical Ad Men. 9.55—News Items. 10.15—"Skippy" from New York. 10.30—New York State Department Talk. 10.40—Ollie Yettru, Pianist. 10.45—Happy Rose Dance Orchestra from New York. 11.0—All Saints Cathedral Programme. 11.20—Time Signal. 11.30—With Gray Mc Clintock in the Canadian Northwest. 11.45—Lady Fingers. 12 midnight (WGY only)—General Electric Programme. 12 midnight—(W2XAF only)—Stock Reports and News Items. 12.15 a.m.—Campbell Orchestra from New York. 12.30—Prince Albert Quarter Hour from New York. 12.45—Trials of the Goldbergs from New York. 1.0 (WGY only)—Cities Service Programme from New York. 1.0 (W2XAF only)—International General Electric Programme. 1.30—WGY Agricultural Programme. 2.0—4.0—New York Relay. 2.0—Clicquot Club Eskimos. 2.30—Pond's Programme. 3.0—Sampler Orchestra. 3.30—RKO Programme. 4.0—Freddy Engel's Orchestra. 4.30—Jack Pettis' Orchestra. 5.0—Ralph Kirbery, Dream Singer from New York. 5.5—Hotel New Yorker Orchestra from New York. 5.30—New Kenmore Orchestra. 6.0 (approx.)—Close Down.

SCHWEIZERISCHER LANDESSENDER (BEROMÜNSTER) (Switzerland)

653 kc/s (459 m.); 60 kW.; Basle, 1,220 kc/s (244.1 m.); and Berne, 1,220 kc/s (246 m.). 11.28 a.m.—Time Signal from the Neuchâtel Observatory. 11.30—Weather and News. 11.40—Concert by the Station Orchestra. 12.35 p.m.—Weather and Exchange Quotations. 12.45 (approx.)—2.30—Interval. 2.30—Concert by the Station Orchestra. 3.0—Light Music on Gramophone Records. 4.0 (from Berne)—Programme for Women. 4.30—Weather Report and Market Prices. 4.40—5.30—Interval. 5.30—Famous Italian Singers on Gramophone Records. 6.0 (from Basle)—Elementary Italian Lesson. 6.20—Sports Forecast. 6.28—Time Signal and Weather Report. 6.30 (from Basle)—Talk with Readings: Paul Gurk. 7.0 (from Berne)—Concert of Marches by the Berne Municipal Orchestra, conducted by Carl Friedemann. 7.35—"A Lavasuit"—Play in Swiss dialect (Hans Rych); with Introductory Talk by Kurt Schenker. 8.10—Cabaret Programme. Irvin's Orchestra, conducted by Haitz, a Bassoon Quartet, Soloist Items and a Sketch. 9.0—Weather, News and Tourist Bulletin. 9.15 (approx.)—Close Down.

STOCKHOLM (Sweden)

Radiotjänst (SASA). 689 kc/s (436 m.); 55 kW. Relayd by Boden, 244 kc/s (1,229.5 m.); Göteborg, 932 kc/s (322 m.); Hörby, 1,166 kc/s (257 m.); Motala, 222.5 kc/s (1,348 m.); Östersund, 389 kc/s (770 m.) and Sundsvall, 554 kc/s (542 m.). Transmits at intervals from 6.20 a.m. 12 noon—12.30 p.m.—Educational Talk. 4.0—Programme for Scouts. 4.20—Folk Music, relayed from Norrköping. 1,292 kc/s (232.2 m.). 4.45—Reading (Rösa Nordenskiöld). 5.0—Gramophone Records of Light Music. 6.0—Talk: Pesta. 6.15—Weather and News. 6.30—Talk: Olympia and the Olympian Games. 7.0—Orchestral Concert. Hymn and Triumphal March from "Aida" (Verdi). Selection from "Cavalleria rusticana" (Mascagni). Waltz from "Faust" (Gounod). Meditation from "Thais" (Massenet). Blues from "Johnny spielt auf" (Krenek). Overture, "Prince Methusalem" (Joh. Strauss). Selection from "Les Cloches de Corneville" (Planquette). Waltz from "The Circus Princess" (Kálmán). Selection from "Schön ist die Welt" (Lehár). Selection from "Das Veilchen von Montmartre" (Kálmán). 8.15—Talk: The Swedish Emigration to Russia. 8.45—Weather and News. 9.0—Relay of the Third Act of "Die Walküre"—Opera (Wagner) from the Royal Opera House. 10.30 (approx.)—Close Down.

STRASBOURG (France)

Radio-Strasbourg (PTT). 869 kc/s (345 m.); 11.5 kW.

10.30 a.m.—Light Music on Gramophone Records. 11.45—News in French and German. 12 noon—Time Signal.

12.1 p.m.—Popular Music on Gramophone Records. Good Friday Magic from "Parsifal" (Wagner). Selection from Wagner. Biondel's Song from "Richard Coeur de Lion" (Grétry). Selection from "Manon Lescaut" (Auber). Song from "Werther" (Massenet). Song from "The Count of Luxembourg" (Lehár). You are my Heart's Delight from "The Land of Smiles" (Lehár). L'eau qui court from "Miarka" (Georges). A mes Regards from "Gillette de Narbonne" (Audran). Robots (Billy Mayerl). Selection (Stolz). Two Songs. 3.45—Literary Talk.

4.0—Concert by the Station Orchestra, conducted by M. Roskam. March des Sans Filistes (Pischeck). Waltz, Selection (Kollo). Selection (De Smetzky). Overture, "La Petite Mariée" (Lecocq). Gavotte Stéphanie (Czibulka). Trio from "A Masked Ball" (Verdi). Guitareros (Chillemont). Humorous Fantasy (Ochs). March, Blaze away (Holzmann). 6.0—Talk in German: Topical Problems. 5.15—Talk on Law.

5.30—Popular Music on Gramophone Records. Selection from Feramors (Rubinstein). Romance in F (Tchaikovsky). Minuet from "Cosi fan tutte" (Mozart). Villanelle (dell'Acqua). Your Smile (Catherine). Selection from "Romeo and Juliet" (Gounod). A Dream (Grieg). Potpourri of Lehár's Works (Hruby). Selections (Lecocq). Heartaches (Klenner). Whistling in the Dark (Allen). Medor (Almey). La Gironde (Almey). 6.30—Time Signal. 6.31—News in French and German.

6.45—Concert of Light Music on Gramophone Records. Selection from "Mam'zelle Nitouche" (Meilhac-Mihaud). Gai et Joyeux (Dietrich). Buvons encore une Bouteille (Lorenz). Ich bin verliebt (Holländer). La Petite Blonde (Scharaz). La plus jolie femme de Madrid (Alfons). Barcarole, Très jolie (Waldeufel). Japanese Waltz (Klenner). The Cuckoo (Jonasson). Amour d'un Poète (Lindemann). Lotus Flower (Ohlsen). 7.30—"Carmen"—Opera in Four Acts (Bizet). The Station Orchestra and Opera Company. 9.30 (approx.)—Close Down.

STUTTGART (MÜHLACKER) (Germany)

Süddeutscher Rundfunk. 832 kc/s (360.5 m.); 60 kW. Relayd by Freiburg, 527 kc/s (570 m.). Transmits at intervals from 5.0 a.m. 10.30 a.m.—Sponsored Concert. 11.0—Concert from Frankfurt. In the interval at 11.50—Time and News. 12 noon—Concert from Langenberg. 1.0 p.m.—Sponsored Programme. 1.30—English Lesson. 2.0—3.30—Interval. 3.30—Talk: Is Machinery Man's Friend or Enemy? relayed from Mannheim. 4.0—Orchestral Concert, conducted by Gustav Görlich. Soloist: Lily Bubb (Soprano). Songs (Greig): (a) "The Princess, (b) Hope, (c) Solweig's Song from "Peer Gynt, (d) Secret Love, (e) Two Brown Eyes. March from "The Bartered Bride" (Smetana). Overture, "Le macq" (Auber). Fantasia on Verdi's Opera Music (Morena). Ballet Suite (Popy). Waltz, Red Roses (Lehár). Overture, "Flotte Bursche" (Suppé).

5.15—Time and Agricultural Report. 5.25 (from Freiburg)—Talk: Hold-ups on the Railway. 5.50—Health Talk: The Cave of the Tech. 6.15—Time, Weather and Announcements in Esperanto. 6.25—See Frankfurt. 6.45—Topical Talk. 7.0—Talk by Kurt G. Sell: What People are talking about in America, relayed from America. 7.15—See Leipzig. 7.45—Lecture Recital: The Unfamiliar Works of Famous People. 8.30—Concert of Ballet Music by the Stuttgart Philharmonic Orchestra, conducted by Emil Kahn. Ballet Music (Gluck). Les petits riens (Mozart). Ballet Music from "Die Geschöpfe des Prometheus" (Beethoven). Ballet Music from "William Tell" (Rossini). Indian Ballet from "Lakmé" (Delibes). Ballet Music from "Manon" (Massenet). Selection from "Pierrette's Veil" (Dohnanyi).

9.20—News, Time, Programme Announcements, Weather and Sports Notes. 9.45—See Frankfurt. 11.0 (approx.)—Close Down.

TOULOUSE (France)

Radiophonie du Midi. 779 kc/s (385 m.); 8 kW. Transmits at intervals from 11.45 a.m. 6.15 p.m.—Accordion Recital. 6.30—News and Racing Review. 6.45—Military Music. 7.0—Songs from "Rigoletto" (Verdi). 7.15—Orchestral Selections. 7.30—English Lesson. 7.35—Modern Symphony Music. 7.45—Music from Films. 8.0—Concert relayed from the Grand Café des Américains. 9.30—News Bulletin. 9.45—Concert from the Grand Café des Américains (contd.). 10.0—Chansonnettes. 10.15—News Bulletin. 10.30—Selections from Comic Opera. Overture, "The Barber of Seville" (Rossini). Overture, "Lakmé" (Delibes). 10.45—Accordion Recital. 11.0—Weather Forecast and Close Down.

TRIESTE (Italy)

Ente Italiano Audizioni Radiofoniche. 1,211 kc/s (247.7 m.); 10 kW. Transmits at intervals from 7.15 a.m. 6.10 p.m.—Quintet Concert. 7.0 till Close Down—See Turin.

TURIN (Italy)

Ente Italiano Audizioni Radiofoniche. 1,095 kc/s (273.7 m.); 7 kW. Relayd by Milan, 905 kc/s (331.5 m.); and Genoa, 959 kc/s (312.8 m.). Transmits at intervals from 7.15 a.m. 6.30 p.m.—Time and Announcements. 7.0—Giornale Radio. Weather Talk and Gramophone Records. 7.55—Wireless Notes. 8.0—Variety Programme. Talk in the interval. 10.0—Giornale Radio.

VIENNA (Austria)

Radio-Wien. 581 kc/s (517 m.); 15 kW. Relayd by Graz, 852 kc/s (352.1 m.); Innsbruck, 1,058 kc/s (283 m.); Klagenfurt, 662 kc/s (453.2 m.); Linz, 1,220 kc/s (246 m.); and Salzburg, 1,373 kc/s (218 m.). Transmits at intervals from 8.20 a.m. 6.0 p.m.—Concert by the Vienna Branch of the Austrian Railway Officials Choir. Songs, conducted by Carl Fährlich. 6.50—Time Signal, Weather and Programme Announcements. 7.0—Talk by Kurt Sell: What People are talking about in America, relayed from America. 7.15—Feuilleton. 7.45—Concert from the Music of Russian Masters, by the Vienna Symphony Orchestra, conducted by Nikolai Malko. Symphony No. 7 (Mjaskowski). Capriccio Espagnole. (Rimsky-Korsakov). Polovtsian Dances (Borodin). 8.45—News, Weather and Announcements. 9.0—Concert by Marek Weber and his Orchestra, relayed from the Ronacher. 9.30—Concert from the Oase Restaurant.

WARSAW (Poland)

Polskie Radio. 212.5 kc/s (1,411 m.); 120 kW. 10.20 a.m.—Aviation Weather Report. 10.25—Interval. 10.45—Press Review. 10.58—Time Signal and Bugle Call from St. Mary's Tower, Cracow. 11.5—Programme Announcements. 11.10—Light Music on Gramophone Records. 12.20 p.m.—Weather Report. 12.35—Gramophone Records. 12.55—1.45—Interval. 1.45—Variety Music on Gramophone Records. 2.5—Economic Report and Exchange Quotations. 2.15—Talk: The Polish Singers' Association. 2.20—Interval. 2.25—Talk on History. 2.45—Hydrographic Report. 2.50—Literary Talk. 3.10—Light Music on Gramophone Records. 3.20—Answers to Correspondents. 3.40—Variety Music on Gramophone Records. 3.55—Lingaphone English Lesson. 4.10—Talk on History. 4.35—Concert by the Police Force Orchestra, conducted by Sielski. 5.50—Miscellaneous Items. 6.15—Agricultural Review relayed from Wilno, 533 kc/s (563 m.). 6.25—Programme Notes. 6.30—Sports Notes. 6.35—Light Music on Gramophone Records. 6.45—Radio Journal. 7.0—Musical Talk. 7.15—Beethoven Concert by the Philharmonic Orchestra, conducted by Emil Mlynarski. Soloist: Wilhelm Backhaus (Pianoforte). Overture, "Egmont." Pianoforte Concerto in E Flat Major. Symphony No. 7 in A Major. Feuilleton in the Interval: Women's Conquest of the Theatre. 9.40—Radio Journal. 9.45—Weather and Police Notes. 9.50—Dance Music. 11.0 (approx.)—Close Down.

PRINCIPAL EVENTS

SATURDAY (April 16)

CONCERTS (Vocal and Instrumental)

- 12 noon Frankfurt Stuttgart, Langenberg, Munich: Middy concert.
- 4.0 p.m. Langenberg: Haydn programme.
- 5.20 " Berlin (Witzleben): "The First Walpurgis Night" (Mendelssohn).
- 5.30 " Munich: The "St. Wolfgang" Male Voice Choir.
- 6.45 " Budapest: The Lazos Kiss Cigany Band.
- 7.0 " Brussels No. 1.
- 7.30 " Strasbourg: "Landscape in Music," programme arranged by M. Chantavoine.
- 8.0 " Italian Stations (Northern Group).
- 9.15 " Oslo: Popular Norwegian Choral music.

OPERA AND OPERETTAS

- 6.40 p.m. Bucharest: Relay from the Rumanian Opera.
- 7.0 " Brussels No. 2: "The Flying Dutchman" (Wagner), from the Royal Opera, Antwerp.
- 7.0 " Stuttgart, Frankfurt: "Prince Methusalem" (Johann Strauss).
- 7.45 " Rome: Relay from the San Carlo Theatre, Naples.

RECITALS

- 6.45 p.m. Vienna: Music for two pianofortes.
- 9.10 " Warsaw: Chopin.

PLAYS AND TALKS

- 6.30 p.m. Schweizerischer Landessender: The Wilhelm Busch Centenary.
- 7.25 " Vienna: "The Children's Tragedy" (Karl Schönherr).

DANCE MUSIC

- 7.30 p.m. Heilsberg: Dance Evening of the Königsberg Opera Orchestra.
- 9.30 " Strasbourg: Pegliero and his Argentine Band, and the Strasbourg "Savoy."
- 10.0 " Copenhagen: (till 11.15) Teddy Petersen's Band.

The Greatest French Musician of his Day Rameau's father, the Organist of Dijon Cathedral, had no intention that Jean Philippe, his eldest son, should follow in his own footsteps. From a very early age, however, the youth decided the matter for himself; it is recorded of him that when only seven years of age, he played the harpsichord well, and could read at sight any piece of music set before him. He eventually won for himself the undoubted position of the greatest French musician of his



The Flying Dutchman (Emil Schipper)

time, and many honours were conferred upon him. Among them—one of the most interesting in these days of heavy taxation—was that the authorities of his native town of Dijon exempted him and his descendants for all time from the payment of municipal rates. He was on the point of being raised to noble rank in 1764 when he died of typhoid fever. He was accorded magnificent funeral honours and the whole nation mourned his loss. A concerto of his for string orchestra is to be broadcast by FRANKFURT and other stations at midday to-day.

The Flying Dutchman

Wagner's opera, *The Flying Dutchman*, is to be relayed by BRUSSELS No. 2 station from the Royal Opera House, Antwerp, this evening. It was Heine's version which first aroused Wagner's interest in the tale; he was always attracted by legends of the weird and supernatural. The original story is no doubt very old. It tells how an adventurous Dutch sailor, striving to round the Cape of Good Hope in the teeth of a furious tempest, swore that he would achieve it though he should have to sail until the Day of Judgment. The Devil, overhearing him, took him at his word, and he was condemned, with his unhappy crew, to sail the seas for ever unless he should find a maiden who would redeem him by her faithful love. Once in seven years he was allowed to land in search of her. In Heine's version of the tale, which Wagner followed, he lands on the coast of Norway where a Norwegian skipper has just sought shelter from a storm. Daland, the Norwegian, offers the Dutchman hospitality, and they make their way to his home. Senta, Daland's daughter, has always been deeply interested in the story of the Dutchman, and when the stranger appears she at once knows herself to be the maid who is destined to save him, and pledges him her troth. But a young huntsman, Erik, tries to win her for his bride, and the Dutchman overhears his wooing. Doubt in Senta's faith, he tells them who he is and puts to sea once more. Senta, truly faithful, rushes after him and flings herself into the sea. The phantom vessel sinks, and in the evening light the figures of the Dutchman and Senta can be seen ascending to Heaven.

| NATIONAL   |       |            |
|--|-------|------------|
|  | kc/s. | m. kW.     |
| London:  | 1,148 | 261.3 50   |
| Daventry:  | 193   | 1,554.4 30 |
| Northern:  | 995   | 301.5 50   |
| 10.15 a.m.—The Daily Service.  |       |            |
| 10.30—Time Signal (Greenwich); Shipping Forecast.  |       |            |
| 10.45—11.0—"What's in the Papers?"   |       |            |
| 12 noon—Northern Studio Orchestra.   |       |            |
| 12.45 p.m.—Reginald New on the (Organ).  |       |            |
| 1.0—Time Signal (Greenwich).   |       |            |
| 1.30—2.30—The Commodore Grand Orchestra. Under the direction of Joseph Muscant.  |       |            |
| 3.30—The Ernest Leggett London Octet. Harry Brindle (Bass).  |       |            |
| 4.45—Time Signal (Greenwich).  |       |            |
| 4.45—Reginald Foort at the Organ of the Regal, Kingston-on-Thames.   |       |            |
| 5.15—The Children's Hour.  |       |            |
| 6.0—"The First News."  |       |            |
| 6.25—Interval.   |       |            |
| 6.30—Time Signal (Greenwich).  |       |            |
| 6.30—Welsh Interlude (Erom West Regional) (Egwyl Gymraeg). Canu Alawon Gwerin gan Dora Herbert Jones.  |       |            |
| 6.50—Topical Talk.   |       |            |
| 7.5—7.25—"The Common Earth."   |       |            |
| —VIII. Mr. E. L. Grant Watson. "Singing Mice and other small Deer."  |       |            |
| 7.30—The Frank Boyce Harp Quintet.   |       |            |
| 8.0—Vaudeville.  |       |            |
| 9.0—Time Signal (Greenwich).   |       |            |
| 9.0—"The Second News."   |       |            |
| 9.15—Shipping Forecast; New York Stock Market Report.  |       |            |
| 9.20—"On the 9.20." Conversations in the Train—XIV.  |       |            |
| 9.40—Orchestral Concert. The B.B.C. Orchestra (Section C), conducted by Joseph Lewis. Overture Son and Stranger (Mendelssohn), Almayne (Armstrong Gibbs), Pizzicati (Sylvia) (Delibes), Minuet My Lady Lavender (Leo Peter), Waltz Dancing Nights (Eric Coates), Selection The Cat and the Fiddle (Kern), Three Dances (Edward German), Suite Vive la Danse (Finck). |       |            |
| 10.40—12 midnight—Dance Music. Ambrose and his Orchestra, from the May Fair Hotel.   |       |            |
| 11.30—Time Signal (Greenwich).   |       |            |

| REGIONAL  |      |          |
|---|------|----------|
|   | kc/s | m. kW.   |
| London:   | 842  | 356.3 50 |
| Midland:  | 752  | 398.9 25 |
| Northern:   | 626  | 479.2 50 |
| 10.15 a.m. (London and Northern) —The Daily Service.  |      |          |
| 10.30—11.0 (London and Northern) —Daventry National Programme.  |      |          |
| 12 noon (London)—Daventry National Programme.   |      |          |
| 12 noon (Northern)—The Studio Orchestra, directed by John Bridge.   |      |          |
| 12.45—2.30 p.m. (Northern)—Daventry National Programme.   |      |          |
| 1.30—2.30 (London)—The Commodore Grand Orchestra, under the direction of Joseph Muscant.  |      |          |
| 3.30 (London and Northern)—Daventry National Programme.   |      |          |
| 3.30 (Midland)—Dance Music. Billy Merrin and his Commanders from the Palais de Danse, Nottingham.   |      |          |
| 5.15—The Children's Hour.   |      |          |
| 6.0—"The First News."   |      |          |
| 6.25—Regional Sports Bulletin.  |      |          |
| 6.30 (London and Northern)—Lewes Choral Festival. Elijah: Part II (Mendelssohn). Relayd from the Town Hall, Lewes. Mabel Ritchie, Anne Wood, Keith Falkner and Combined Choirs. Conductor, Adrian Boulst. |      |          |
| 6.30 (Midland)—"Rhythm." A Gramophone Recital arranged and presented by Robert Tredinnick.  |      |          |
| 7.15 (Midland)—"Favourites, Old and New." The Midland Studio Orchestra.   |      |          |
| 7.30 (London)—The Wireless Military Band, conducted by Charles Leggett. Maria Sandra (Soprano).   |      |          |
| 7.30 (Northern)—Selections from Musical Plays.  |      |          |
| 8.30 (London and Midland)—A Violin Recital by Marie Hall.   |      |          |
| 9.0—"Arrest in Africa." A Musical Farce by Lance Sieveking.   |      |          |
| 10.15—"The Second News."  |      |          |
| 10.30—Regional News.  |      |          |
| 10.30—12 midnight (London and Northern)—Daventry National Programme.  |      |          |
| 10.35 (Midland)—Experimental Transmission for the Radio Research Board by the Futograph Process.  |      |          |
| 10.40—11.0 (Midland)—Daventry National Programme.   |      |          |

NOTE: THE HOURS OF TRANSMISSION ARE REDUCED TO GREENWICH MEAN TIME

**ALGIERS (N. Africa)**  
825.3 kc/s (363.3 m.); 13 kW.  
Transmits at intervals from 12.30 p.m. 7.0 p.m.—Concert of Dance Music. 7.15—Report of the Chamber of Commerce and Exchange. 7.25—Weather Report and Shipping Notes. 7.30—Vocal Dance Music. 7.45—Instrumental Solos. 7.55—News and Time. 8.0—Variety Concert on Gramophone Records. 8.30—Request Concert of Gramophone Records. 9.45—Dance Music with Vocal Refrains.

**BELGRADE (Yugoslavia)**  
697 kc/s (430.4 m.); 2.5 kW.  
Transmits at intervals from 10.0 a.m. 6.0 p.m.—Talk.  
6.30—Recital of Songs. Aria from "La Zingara" (Donizetti). Aria from "La Traviata" (Verdi). Aria from "Lakmé" (Delibes). Waltz, Frühlingstimmen (Johann Strauss). Pesma o grlici (Mitrovic). Po polju je kisa pala (Binićki).  
7.0—Orchestral Concert. Yugoslavian Pearls (Leopold) Paraphrase (Artok). Caucasian Sketches (Ippolitov-Ivanov).  
7.45—A Radio Play. 8.30—Variety Programme. National Songs, Popular Melodies, Mandoline Solos and Selections by a Jazz Orchestra  
9.40—News Bulletin. 10.0—Cigany Music relayed from the Amerikana Restaurant.

**BERLIN (Germany)**  
Königs Wusterhausen. kc/s 183.5 (1,635 m.); 60 kW.  
Transmits at intervals from 4.45 a.m. (Hamburg Relay).  
11.50 a.m.—Weather for Farmers.  
11.55—Nauen Time Signal.  
12.30 p.m.—News Bulletin. 1.0—Concert from Berlin (Witzleben).  
1.50—Programme for Children. 2.30—Weather and Exchange Quotations. 2.45—Talk for Women. 3.0—Talk. 3.30—Concert from Berlin (Witzleben).  
4.30—Talk: Is Tuberculosis hereditary? 4.50—Wireless Technical Talk. 5.5—Music Review. 5.30—Talk: The Three Most Successful German Sound-Film Stars—Werner Krauss, Hans Albers and Willy Fräutlich. 5.55—Weather for Farmers.

6.0—English Lesson. 6.30—The Quiet Hour, followed by Weather for Farmers. 7.0—See Leipzig.  
9.0—Weather, News and Sports Notes. 9.30—Dance Music from Berlin (Witzleben). 11.30 (approx.)—Close Down.

**BERLIN (Germany)**  
Witzleben. 715 kc/s (419.5 m.); 1.5 kW.  
Transmits at intervals from 5.30 a.m. (Gymnastics and Concert).  
3.30 p.m.—Concert arranged by the German Composers' Society relayed from the Clou Concert House. March, Ausser Gefahr (Raasch). Selection from "Die toten Augen" (d'Albort). Serenade from Fridericus Rex (Roland). Selection from "Das Spielzeug ihrer Majestät" (Königsberger). Waltz Intermzzo, Das Spiel mit dem Schatten (Prager). Hallo, Moskau (Grothe-Kirchstein). Prelude to a Film (Knopf). Selection from "Jonny spielt auf" (Krenek). Engelchen und Teufelchen (Dickler). Foxtrot without Words (Bernards). Ufatonbomen (Borchert). In the interval, Film Notes. 5.0—Review of the Week. 5.20—The First Walpurgis Night—Ballad (Goethe) Music by Mendelssohn. Soloists: Hildegard Gajevska (Contralto), Paul Feher (Tenor), Fred Drissen (Baritone) Choir and Orchestra conducted by Dr. Kurt Singer.  
6.0—"The Witzleben Station informs its Listeners . . . 6.5—Topical Talk. 6.15—Gramophone Records—Selection from "Zirkus Aimée" — Operetta (Götz-Benatzky). 6.55—Labour Market Report.

7.0—Concert by the Berlin Teachers' Choral Society in aid of the Anti-Tuberculosis Campaign, relayed from the Philharmonic. Choral Selections (Schumann): (a) Abendlied, (b) Die Rose stand im Tau. Songs by Violetta de Strozzi: (a) Ueber allen Gipfeln ist Ruh, and (b) Freudvoll und leidvoll (Liszt), (c) Gretchen am Spinnrade (Schubert). Grab und Mond (Schubert). Songs by Willi Domgraf-Fassbaender: (a) Von ewiger Liebe (Brahms), (b) Rastlose Liebe (Schubert), (c) Nimmersatte Liebe (Hugo Wolf). Choral Selections (Moldenhauer): (a) Barbarossa, (b) Der unerbittliche Haupt-

mann, (c) Prinz Eugen vor Belgrad (d) Freiheitsgesang.  
8.0—News and Sports Notes. 8.10—Variety Programme. 9.10—Weather, News and Sports Notes. 9.30 (approx.)—Dance Music. 12 midnight—Close Down.

**BORDEAUX-LAFAYETTE (France)**  
(PTT). 986 kc/s (304 m.); 13 kW.  
Transmits at intervals from 11.45 a.m. 3.0 p.m.—Relay from Paris (Ecole Supérieure), 671 kc/s (447.1 m.). 4.0—Pardeloup Symphony Concert, relayed from the Théâtre des Champs Elysées, Paris. 5.30—Radio Journal. 7.0—News, Market Prices and Lottery Results. 7.5—Sports Notes. 7.10—Advanced English Lesson. 7.25—News and Weather Forecast. 7.30—Concert of Light Music on Gramophone Records.  
8.0—"La Famille Pont Biguet". Comedy in Three Acts (Alexandre Bisson). After the Programme, Amusement Guide and Time Signal.

**BRATISLAVA (Czechoslovakia)**  
1,076 kc/s (279 m.); 14 kW.  
Transmits at intervals from 10.0 a.m. 6.0 p.m.—See Prague. 6.5—See Brno. 6.20—See Prague. 8.0—"La Fille d'Elizonde"—Operetta in One Act (Offenbach), relayed from the Studio. 9.0—See Prague. 9.20—Programme, Announcements and Theatre Notes. 9.25—See Moravská-Ostrava.

**BRESLAU (Germany)**  
923 kc/s (325 m.); 1.5 kW.  
Relayed by Glewitz, 1,184 kc/s (253 m.).  
Transmits at intervals from 5.30 a.m. 6.0 p.m.—Weather for Farmers.  
6.2—Orchestral Concert conducted by Franz Marszalek. March, Mein Heimatland (Leuschner). Waltz from "Polish Blood" (Nedbal). Potpourri, Wolgalklänge (Lindemann). Selection from "Die Puppentheater" (Beyer).  
6.55—Weather Report. 7.0—See Langenberg. 9.0—Time and News. 9.30—Dance Music from Berlin (Witzleben). 11.0 (approx.)—Close Down.

**BRNO (Czechoslovakia)**  
878 kc/s (342 m.); 35 kW.  
Transmits at intervals from 10.0 a.m.

# Baldness & Greyness are NOT "Natural"

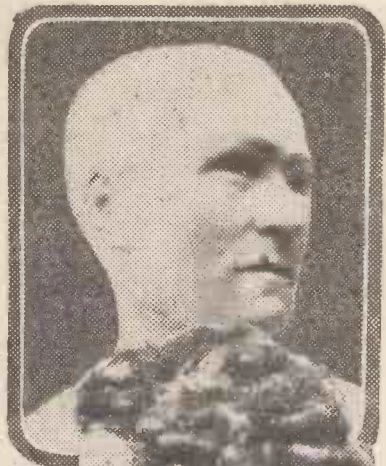


Mr. Fredk. Godfrey the discoverer of the modern "Direct" Method of Hair Growing.

### Celebrated Specialist Discusses Widespread Hair Troubles and How to Overcome Them.

*"I have Shewn 200,000 People How to Re-grow the Hair They Have Lost, and to Restore Original Colour When Grey"—says Mr. Godfrey, of Matlock.*

**Special Offer to "World-Radio" Readers:—  
FREE TRIAL Supply of My Wonderful Hair-Forcing Tonic—containing Radio-Active Water from My Matlock Spring.**



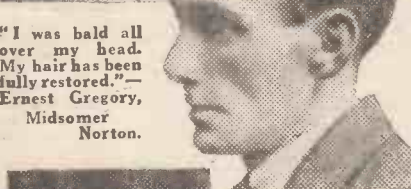
"I was quite bald six weeks ago."—Mrs. F. Willis Chalvey.



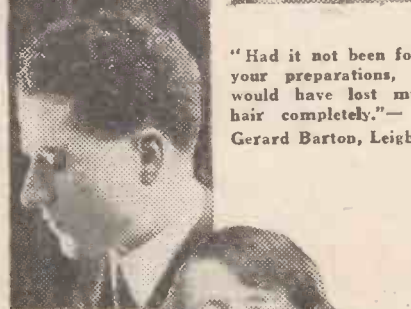
**A CONTRAST!**  
"My hair has grown splendidly. I cannot tell how pleased I am."—Mrs. Strong Bingham.



"Everybody is admiring my good head of hair."—Mrs. M. E. Dodd, Morpeth.



"I was bald all over my head. My hair has been fully restored."—Ernest Gregory Midsomer Norton.



"Had it not been for your preparations, I would have lost my hair completely."—Gerard Barton, Leigh.



"New hair has completely covered the bald patches on top and back of head."—Miss E. S.

**W**HY should so many fine heads of hair become Bald or Grey in middle life—often even earlier? People blame "heredity" or tell you that it is "perfectly natural." But they are wrong. After successfully treating over 200,000 cases, I say emphatically that these troubles are most unnatural. Nature certainly never intended us to wear tight hats, to work long hours, to worry or to live on artificial foods. It is a simple matter to retain good hair when you have it, but when people write to me the damage is generally done. Once magnificent heads are faded or grey. Old hair is brushing out faster than new can grow. Bald patches round the crown, or above the temples are becoming conspicuous. Dandruff or scurf has stifled the hair-shaft—or the scalp is tightly drawn over the skull, shutting off blood supply to the roots. No matter what the trouble, there is no cause for despair. In the light of modern discoveries, it is a call to immediate action, for the quicker you act, the sooner will you restore your hair. Some years ago I started experimenting and cured my own brother of patchy baldness. Since then I have succeeded in adapting my discovery to practically every type of hair trouble, among my cases being heads "as bald

as a billiard ball," when all hope had been abandoned. What is the explanation? Even when hairs have combed out with the "bulb" attached, the true roots or follicles generally remain alive below the surface, like seeds in the soil in winter, waiting for the right conditions to stimulate them into new life.

This is what I claim for my stimulating Tonic (containing Radio-Active water from a natural spring on my own property at famous Matlock Bath), and at the present moment several thousand readers are sending me monthly reports stating that their hair is being restored in quantity, colour and texture.

Knowing that "World-Radio" Readers are not easily convinced, I am arranging personal proof for everyone. Simply tell me your hair trouble (using the attached coupon) and I will not only tell

you how to remedy it, but will include a free copy of my well-known book on Hair-Growth, and a Free Trial Supply of my Hair Forcing Tonic.

Read the genuine extracts under the photographs on this page, all sent me by delighted clients, and selected from thousands of letters in my possession. Wouldn't you like similar benefits? Then let me help you.

**SEND NO MONEY**  
By a special arrangement readers of "World-Radio" are to receive a trial supply of Frederick Godfrey's Hair Tonic FREE.

**FILL IN THIS COUPON**

*The First Step to Gaining a Magnificent Crop of New Hair. This has proved True in 200,000 cases.*

**LET IT DO THE SAME FOR YOU**

**£1,000 GUARANTEE** that the brief reports printed here are genuine extracts from reports in Mr. Godfrey's possession. They are selected from many thousands of similarly appreciative letters.

## NEW HAIR COUPON

To Mr. FREDERICK GODFREY (W.R. Special Offer Department), Whatstandwell, Derbyshire.

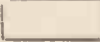
Please send me FREE Trial Bottle of Radio-Active Hair Tonic, your Book and Letter of Advice. I enclose two 1½d. stamps value 3d. to cover postage and packing.

NAME.....

ADDRESS.....  
Please Print in Block Capitals

My Hair Ailment is.....

If a Tube of the famous Godfrey Follex Shampoo is also required, please enclose extra 3d. in stamps (6d. in all) and make a cross in this square.



6.0 p.m.—See Prague. 6.5—Talk on the History of Czechoslovakia.  
6.30—*Accordion Recital* by Otto Böhm. Santa Lucia (Stravinsky). Selection from "White Horse Inn" (Benatzky). Mona Lisa (Stolz). Selection from "Sous les Toits de Paris" (Moretti). March, Folies Bergères (Souza).  
6.35—Programme of Popular Czech Songs by the Tisnov Choir, conducted by Rheil. 7.0 (approx.)—See Prague.  
8.0—*Orchestral Concert*, conducted by Janota. Entry of the Boyards (Halvorsen). Frühlingshymne (Goldmark). Symphonic Dances, Op. 64 (Grieg). Serenade, Op. 39 (Fibich). Selection, Recuerdos de viaje (Albeniz). 9.0—See Prague. 9.20—News Bulletin: 9.25—See *Moravská-Ostrava*.

**BRUSSELS (Belgium) (No. 1)**  
I.N.R. 590 kc/s (509 m.); 15 kW.  
11.15—12.45 p.m.—Weather Forecast and Concert by the Max Alexys Orchestra. 4.0—Concert, relayed from the Hotel Atlanta.  
5.0—*Popular Music on Gramophone Records*. Czardas (Grossmann). Frühlingstimmen (Johann Strauss). Song from "Mireille" (Gounod). Selection from "The Tales of Hoffmann" (Offenbach). 5.15—Talk for Housewives.  
5.30—*Concert of Popular Music on Gramophone Records*. Rondo Capriccioso (Mendelssohn). Largo (Händel). Nocturne from La Navarraise (Massenet). Clair de Lune, from "Werther" (Massenet). The Skaters' Waltz (Waldteufel). Cigany Melody, Black Eyes. Gouttes de Pluie (de la Rivière). Fairy Ballet (White). Selection from "André Chenier" (Giordano). O Lola (Mascagni). Selection from "The Belle of New York" (Kerker). Selection from "The Geisha" (Jones). Selection from "The Bohemian Girl" (Balfe).  
6.15—Talk on Liège. 6.30—Journal Parlé.  
7.0—*Concert by the Station Orchestra*. Overture, "The Barber of Seville" (Rossini). Selection from "Manon Lescaut" (Puccini). Concerto in G Minor (Bruch). Masques et Bergamasques (Faure). Le Rouet d'Omphale (Saint-Saëns). 7.45—Request Programme.  
8.0—*Concert (cont.)*. Ballet, Scheherazade (Rimsky-Korsakov). Solos by Henry Gadeyne. Cadiz (Albeniz). Granada (Albeniz). Polka Hayda (Reynard). Ballet Selection from "Coppélia" (Delibes). 9.0—Journal Parlé and Close Down.

**BRUSSELS (Belgium) (No. 2)**  
I.N.R. 887 kc/s (338.2 m.); 15 kW. Programme in Flemish.  
11.15—12.45 p.m.—Weather and Gramophone Concert of Light Music.  
4.0—Concert, relayed from the Hotel Albert I.  
5.0—*Gramophone Concert*. Selection from "The Merry Widow" (Lehár). Selection from "The Chocolate Soldier" (O. Straus). Traversant la Bande (Translatour). Selection (Peter). Tango Blues, Jealousy (Gade). San Salvador (Pepita). Selection (Debisty-Davil). Dreams on the Ocean (Gungl). Waltz, Over the Waves (Rossa). Light Cavalry Overture (Suppé). Pas des Fleurs (Delibes). The Butterfly (Bendix). Waltz, Tales from the Vienna Woods (Johann Strauss). Serenade (Heykens). Souvenir (Drdla). Valse Bluette (Drigo). March, King Cotton (Souza). The Mill in the Black Forest (Eilenberg). Waltz, (Parsons). I love Music (Parsons). Tambourin chinois (Kreiser). Tango (Albeniz). March (Drescher).  
6.15—Talk: Legends of the Province of Antwerp. 6.30—Film Review.  
7.0—"The Flying Dutchman" Opera (Wagner), relayed from the Royal Flemish Opera House. In the intervals: Recitations and Le Journal Parlé.

**BUCHAREST (Romania)**  
Radio-Bucarest. 761 kc/s (394 m.); 12 kW.  
Transmits at intervals from 11.0 a.m. 4.0 p.m.—Light Music and Romanian Music by the Sibiceanu Orchestra.  
5.0—News and Time Signal. 5.10—Concert (cont.). 6.0—Educational Talk.  
6.10—Opera Relay. News in the intervals.

**BUDAPEST (Hungary)**  
545 kc/s (550 m.); 18.5 kW.  
Transmits at intervals from 8.15 a.m. Also relayed on 210 metres from 4.0—11.0 p.m.  
4.0 p.m.—Literary Programme. 5.0—Variety Music on Gramophone

Records. 6.0—Answers to Correspondence. 6.45—Concert by the Lajos Kiss Cigány Orchestra. 7.45—Dramatic Programme, followed by the Karl Bura Cigány Orchestra from the Hotel Metropole. 11.0 (approx.)—Close Down.

**COPENHAGEN (Denmark)**  
1,067 kc/s (281 m.); 0.75 kW. Relayed by Kalundborg, 260 kc/s (1,153 m.).  
Transmits at intervals from 6.30 a.m. (Gymnastics).  
11.0 a.m.—Time and Town Hall Chimes. 11.2—String Ensemble Concert, relayed from the Wivex Restaurant. 1.0—1.30 p.m.—Interval. 1.30—Gramophone Concert of Variety Music. 2.0—Programme for Children.  
2.30—*Orchestral Concert* conducted by Emil Reesen. Soloist: Eliza Herlöv (Pianoforte). Overture, "Jean de Paris" (Boieldieu). Waltz, Nordlys (Lumbye). In the Shadows (Finck). Irish Dance, Mock Morris (Grainger). Selection from "Romeo and Juliet" (Gounod). March, With Pomp and Circumstance (Elgar). Pianoforte Solos: (a) Frühlingsglaube, and (b) Ständchen (Schubert-Liszt). (c) Frühlingssnacht (Schumann-Liszt). (d) Rhapsody No. 8 (Liszt). Overture, Peter, Schmolli (Weber). Ballet Music from "Ali Baba" (Cherubini). Saeterjentens Søndag (Bull-Svendsen). Selections from "Namouna" (Lalo). Dance of the Hours from "La Gioconda" (Ponchielli).

4.40—Exchange and Fish Market Prices. 4.50—Talk on P. A. Castberg. 5.20—French Lesson. 5.50—Weather Forecast. 6.0—News Bulletin. 6.15—Time Signal. 6.30—Review of Politics for the Past Month. 7.0—Town Hall Chimes.  
7.2—*Orchestral Concert of old Danish Music*, conducted by Launy Gröndahl. Soloists: Olga Røed and Ingrid Gøsmar (Vocalists). March (Dupuy). Selections from "Et Folkesagn" (Gade): (a) Jagten, (b) Elverpigernes Dans, (c) Polonaise. Duets (Glaeser): (a) Ved Dagry, (b) Irskens og Skaden, (c) Stærten og Gøgen, (d) Vaarværel, (e) Vævel, (f) Aftenang. March and Waltz (Hartmann). Dance from "Syltøien" (Løvenskiöld). Reel from "Livjægerne paa Amager" (Holm). 7.50—Talk and Folk Melodies. 8.30—Vocal Quartet. Selections of Light Music. 8.50—News Bulletin. 9.5—Reading from the Works of Edgar Wallace.  
9.25—Spanish Music by Danish Composers—*Orchestral Concert*, conducted by Launy Gröndahl. Spanish March (Gyldmarck). Moment espagnol from "Kysset" (Enna). Violin Solo by Otto Fessel: Spanish Serenade (Hansen). Bolero from "Anathema" (Tofft). Spanish Waltz, No. 1 (Glass). Spanish Dance, The Toreador (Dahl).  
10.0—Dance Music from the Industri Restaurant. In the interval at 11.0—Time and Town Hall Chimes. 11.15 (approx.)—Close Down.

**CRACOW (Poland)**  
959 kc/s (312.8 m.); 4.5 kW.  
Transmits at intervals from 10.45 a.m. 5.50 p.m.—Miscellaneous Items and Announcements. 6.0—Talk: Curiosities. 6.15—Agricultural Report. 6.25—Programme Announcements. 6.30—Review of Foreign Politics for the Past Week. 6.45—9.50—See Warsaw. 9.50—News Bulletin. 10.0—See Warsaw. 11.0 (approx.)—Close Down.

**DUBLIN (Ireland)**  
(2RN). 725 kc/s (413 m.); 1.2 kW. Relayed by Cork, 1,337 kc/s (224.4 m.).  
1.30—2.0—p.m. Time Signal, Weather Forecast, Stock Report and Light Music on Gramophone Records. 7.20—News Bulletin. 7.30—Time Signal. 7.31—Health Talk. 7.45—Gaedhlig.  
7.55—An Opera (to be announced) by the Augmented Station Orchestra, the Station Opera Chorus and Principals. Conductor: Mr. Vincent O'Brien. 10.30—Time Signal, News and Weather Forecast. 10.40—Weekly Sports Review and Close Down.

**FÉCAMP (France)**  
Radio Normandie. 1,364 kc/s (219.9 m.); 1 kW.  
Transmits at intervals from 11.0 a.m. 6.30 p.m.—Military Music on Gramophone Records. 6.45—Announcements. 7.0—Orchestral Concert. 7.45—News Bulletin.  
8.0—*Variety Programme*. Au Bal un Soir (Romolo Alégiani). Au Rayon des Jouets—Comic Sketch (Eugène

## SATURDAY

continued

Wyl and Trémolo). Grandmama's Advice (Guerrero). L'Art de faire des Poules (Timmony). Tango vers l'ouest (Trémolo). Le Taxi (André Dahl). Pourquoi, dis-moi, veux-tu me fuir? (Romolo Alégiani). Romance Impossible (Trémolo). La Fenêtre de ma Voisine (Gabaroché). Le Parapluie (Gabriel Timmony). Un Refrain de chez nous (Trémolo). Le Téléphone (André Dahl).  
9.45—Transmission of Pictures. 11.0—Concert of Variety Music. 3.0 a.m. (Sunday) (approx.)—Close Down.

**FRANKFURT-am-MAIN (Germany)**

770 kc/s (390 m.); 1.5 kW. Relayed by Cassel, 1,220 kc/s (246 m.).  
Transmits at intervals from 5.0 a.m. 11.0 a.m.—Concert on Gramophone Records. Choral Prelude: Wir glauben all an einen Gott (Johann Sebastian Bach), by the Philadelphia Symphony Orchestra, conducted by Leopold Stokovsky. Prelude and Fugue in E flat Major (Johann Sebastian Bach). Passacaglia in C Minor (Johann Sebastian Bach) by the Philadelphia Symphony Orchestra, conducted by Leopold Stokovsky. Fugato on Motives from Johann Sebastian Bach and Friedemann Bach. 11.50—News and Weather. 11.55—Nauen Time Signal.  
12 noon—*Orchestral Concert*, conducted by Reinhold Merten. Soloist: Gisela Derpsch (Soprano). Concerto for Orchestra (Rameau). Aria for Soprano: Nun steh' ich auf dem Gipfel (Joseph Haydn). Divertissement in B flat Major for two Oboes, two Horns, two Bassoons and Serpent (Joseph Haydn). Songs (Haydn). Overture, "Ascanio in Alba" (Mozart). Ballet Music from "Masaniello" (Auber). Overture, "Sicilian Vespers" (Verdi). Ballet Music from "La Favorita" (Donizetti). Overture, "Die Göttin der Vernunft" (Johann Strauss). Waltz Op. 25 (Fuchs). Instrumentation by Heuberg. Soldiers March from "The Chocolate Soldier" (Oscar Straus). Selection from Libellentanz (Lehár). Waltz from "Das Fürstentum" (Kálmán). March from "Die Landstreicher" (Ziehrer).  
12.50 p.m.—News Bulletin. 1.10—Sponsored Gramophone Concert. 2.20—Weather Forecast. 2.25—Time and Economic Notes. 2.30—5.50—See Stuttgart. In the intervals at 4.0 and 5.15—Economic Notes. 5.50—Dialogue: The Position of the Young Employed. 6.30—Time, Announcements, Weather and Economic Notes. 6.35—9.20—See Stuttgart. 9.20—Time, Weather, News and Sports Notes. 9.45—Dance Music from Berlin (Witzleben). 12 mid-night (approx.)—Close Down.

**HAMBURG (Germany)**  
Norag (ha, in Morse). 806 kc/s (372 m.); 1.5 kW. Relayed by Bremen, 1,112 kc/s (270 m.); Flensburg, 1,373 kc/s (218 m.); Hanover, 530 kc/s (566 m.); and Kiel, 1,292 kc/s (232.3 m.).  
Transmits at intervals from 5.25 a.m. 6.0 p.m.—Topical Talk. 6.15—Hanover Laughs—a Variety Programme by G. F. Konrich, Fritz Senf and the Hanover Station Orchestra, relayed from Hanover. 7.15—Concert of Dance Music. In the interval, Time, News and Announcements. 10.0—Dance Music.

**HEILSBURG (Germany)**  
1,085 kc/s (276.5 m.); 69 kW. Relayed by Danzig, 662 kc/s (453.2 m.).  
Transmits at intervals from 5.30 a.m. (Gymnastics and Gramophone Records).  
10.30 a.m.—*Concert by the Little Orag Orchestra*, conducted by Eugen Wilcken. Overture, "Alfons und Estrella" (Schubert). Waltz, Schwert und Leier (Joseph Strauss). Selections (Rubinstein): (a) Romance, (b) Toreador and Andalous. Suite No. 3 (de Michel). Selection from "La Traviata" (Verdi). "Cello Solos: (a) Andantino (Mozart-Leyckli). (b) Guitarr (Moszkovsky). Selection from "The Rose of Stamboul" (Fall). 12.20 p.m.—News Bulletin. 12.30—1.30—Gramophone Records of Variety Music. 2.30 (from Danzig)—Handwork for Children. 3.0—Talk: The State and the Church. 3.30—See Berlin (Witzleben)—In an interval: Reading. 5.0—Programme Announcements for the Coming Week. 5.10—Programme Notes in Esperanto. 5.15—Market

Prices. 5.30—World Market Reports. 5.40—Reading. 6.10 (from Danzig)—Concert by the Eibertas Male Voice Choir and a Police Band. Septembernacht (Lendvai). Lied der Islandfischer (Händel). Ueberschweemmung (Lendvai). Frühlingssnetz (Goldmark). Es wolle ein Jägerlein jagen (Rein). Sommers Anfang (Hegar). Studentenserenade (Kehldorfer). Fridericus Rex (Loewe-Stiebertz). 6.55—Weather Forecast. 7.0—Author's Programme—Paul Eipper. 7.30—Dance Music Programme by the Königsberg Opera House Orchestra, conducted by Karl Hrubetz and the Little Orag Orchestra, conducted by Eugen Wilcken. 9.10—News Bulletin. 9.30—Dance Music relayed from Berlin (Witzleben). 11.30 (approx.)—Close Down.

**HILVERSUM (Holland)**

1,004 kc/s (298.8 m.); 8.5 kW.  
6.25—9.40 a.m.—Programme of the Workers' Radio Society (V.A.R.A.). 6.25—6.40 and 7.10—7.25—Physical Culture. 7.40—Variety Music on Gramophone Records. 8.40—Concert by the Willem Drukker Trio with Popular Gramophone Music. 9.40—Programme of the Liberal Protestant Radio Society (V.P.R.O.). Religious Programme. 9.55—Concert for Workers by the Willem Drukker Trio, Los Catalanos (Duettists) and the "Vera Tooneet" conducted by W. van Cappellen.  
11.40—*Septet Concert*, conducted by Is. Eyl. March (Fetras). Waltz from "Gypsy Love" (Lehár). Poem (Jedyll-Sumkay). Variety Music on Gramophone Records. Love's Garden of Roses (Wood). Popular Gramophone Records. Selection from "Polenblut" (Nedbal). Foxtrot, Running round the Trees (Saron). Popular Gramophone Music. Waltz, Juristen Balltänze (Johann Strauss). Saxophone Solo: Nocturne (Chopin). Variety Gramophone Music. Ballet égyptien (Luigini). March, Sei mein Kamerad (Gilbert). 1.40 p.m.—Talk: Religion and Socialism. 1.55—Variety Music on Gramophone Records.  
2.10—*Operetta Concert*. Soloists: Friedl Dotza, Elly Krasser, Herbert Weissbach, Paul Harden and Joseph Ziegler. Johan Jong at the Pianoforte. Slow Foxtrot, Mach die Augen zu Baby! (Stravinsky). English Waltz, Ich möcht' wieder einmal verliebt sein (Stolz). Foxtrot, Der Herrgott schrieb: O hab' euch lieb! (Stolz). Foxtrot, Kannst du mir eventuell' bis morgen etwas borgen? (Marguilles-Holms). Tango, Schreib' in mein Album ein (Meissel-Doelle). Foxtrot, Ein bischen Liebe für mich (Abraham) March, Es lebe die Liebe (Stolz). 2.40—Talk on Sport. 2.55—Concert (continued). Rumba Parody, Die Schönsten Nelken, die müssen welken! (Stolz). Foxtrot, Ich hab' ein Mädel gern (Stolz). Foxtrot, Im Casino da steht ein Pianino! (Stolz). Wer weint heut' aus Liebe Tränen (Kaper-Jurmán). English Waltz, Kind weine nicht! (Stolz). March, Morgen geht's uns gut! (Benatzky). 3.20—Talk: Professor Freud's Theory. 3.40—Concert (continued). Tango, Winke-Winke (Rosen). In Bacharach am Rhein (Stolz). Du-Du-Du, schliess' deine Augen zu (Stolz). Foxtrot, Marie, Marie (Roland). Foxtrot, Wenn die kleinen Veilchen blühen (Stolz). Waltz, Im Himmel gibt's kein Pilsner Bier (Neubach-Schwarz).  
4.10—*Chamber Music*. Adagio and Allegro for 'Cello and Pianoforte (Boecherini). Moment Musical for Pianoforte, Op. 94, No. 2 (Schubert). 4.40—Political Review. 4.55—Quintet Concert with Variety Music on Gramophone Records. 5.45—Variety Programme by Messrs. Krips and Molenaar. Johan Jong at the Pianoforte. 6.40—Quintet Concert (continued). 6.55—News Bulletin.  
7.10—*Concert by the Willem Drukker Quintet*. The VARA Orchestra, conducted by Hugo de Groot, the Two Cavelli's (Accordionists), Teun de Klepperman and the "Vera-Tooneel Ensemble", conducted by Willem van Cappellen. Otto Zeegers (Songs) and Johan Jong (Pianoforte), with Variety Music on Gramophone Records. Quintet Selections. Topical Talk by Teun de Klepperman, Accordion Solos: (a) Overture, "Masaniello" (Auber). (b) Tango. In Santa Lucia (Stravinsky). (c) Love Letters in the Sand, (d) Foxtrot, Oh, Mona. Songs by Otto Zeegers. Accordion Solos: (a) Foxtrot, Home (Steeden). (b) Slow Foxtrot, Guilty (Aks). (c) Foxtrot, Song of Happiness (Nicholls). Songs by Otto Zeegers. Orchestral Selections: (a) March, Die lustige Dorf-

schmiede (Fucik), (b) Moon Dream Shore (Lockhart), (c) Tango, Rosita (Dupont), (d) Paso doble, Mexico (Rotter). Variety Music on Gramophone Records. Orchestral Selection from "No, No, Nanette" (Youmans). Dramatic Programme. Orchestral Selections: (a) Waltz, Glocken der Liebe (Benatzky). (b) Chinese Street Serenade (Siede). (c) Selection (Rosen). Variety Music on Gramophone Records. Orchestral Selections: (a) Aubade printanière (Lacombe). (b) Flic-flac Barataria March (Komzak). 9.55—News and Football Report. 10.10—Concert (continued). Orchestral Selection: Potpourri, For all (Dostal). Dramatic Programme. Orchestral Selection: Fremersberg (Koenenman). Variety Music on Gramophone Records. Orchestral Selections: (a) Waltz Potpourri, Verklungene Zeiten (Hannemann). (b) March, Old-Comrades (Teike). Popular Gramophone Music. 11.40 (approx.)—Close Down.

**HUIZEN (Holland)**

160 kc/s (1,875 m.); 8.5 kW. Programme of the Catholic Radio Society (K.R.O.). 7.40—8.55 a.m.—Gramophone Records of Light Music. 9.40—Concert. 11.10—Religious Address. 11.40—Police Notes. 11.55—*Septet Concert*. Honved Banda (Abraham). Gipsy Melody (Nicholls). Waltz Potpourri (Strauss-Weber). Geburtstagsständchen (Lincke). English Potpourri (Nicholls). Bei der Zigeunerkapelle (Meyer-Helmund). Sweden in Song and Dance (Panzel). Schenk mir einen Tango, Manuela (Engelberger). Ballet Music from "Czar and Carpenter" (Lortzing). My Golden Baby (Abraham). March, Tousjours gai (Stabel). 1.40 p.m.—Gramophone Records of Light Music. 2.10—Programme for Children.

3.40—*Organ Recital by Alphons Dreissen*. Gothic Suite (Boellmann). Serenade (Rachmaninov). Dainty Miss (Barnes). Au matin (Godard). Grande valse brillante in D flat Major (Schilhoff). 4.0—Gramophone Records of Variety Music. 4.20—*Organ Recital (continued)*. Cadiz from the Spanish Suite (Albeniz). Norwegian Dance (Grieg). Kol Nidrei (Bruch-Reimann). Czardas (Monti). Polish National Dance (Scharwenka). 4.40—Sports Talk. 4.55—Gramophone Records of Light Music. 5.40—Press Review. 6.0—Gramophone Records (continued). 6.20—Espéranto Lesson. 6.50—Talk. 7.10—Police Notes. 7.25—Talk.

7.40—*Orchestral Concert*. March, Tapfer und treu (Dickel). Waltz, Moonlight on the Alster (Fetras). Rusticarella (Cortopazzi). Fantasia on the Works of Verdi, Verdi's Triumph (Weninger). Selection (Rosen). Selections from "Zwei Herzen und ein Schlag" (Gilbert). In a Chinese Theatre (Dreyer). Waltz, Die schönen von Valencia (Morena). 8.40—Flemish Songs. 9.0 (approx.)—News. 9.10—Concert (continued). Pudding Potpourri (Morena). Valse orientale (Francoise). Une fête au Trianon (Poppy). 9.40—Flemish Songs. 10.0—Concert (continued). March, San Sebastian (Dufort). Spanish Dance, Pappa (Michiels). The Match Parade (Whele). Potpourri, Horch-Horch (Dostal). Washington Post March (Souza). 10.40—Variety Music on Gramophone Records. 11.40 (approx.)—Close Down.

**KALUNDBORG (Denmark)**  
Kalundborg Radio. 260 kc/s (1,153 m.); 7.5 kW. See Copenhagen.

**KAUNAS (Lithuania)**  
155 kc/s (1,935 m.); 7 kW. Transmits at intervals from 4.0 p.m. 6.0 p.m.—Time Signal, Weather Forecast, News and Exchange. 6.45—*Orchestral Concert*. March Potpourri (Bernards). Roman Suite (Zimmet). Waltz, The Wedding of the Winds (Hall). Süßer Traum (Blon). Lawn-Tennis Spiele (Lincke). Norwegian Wedding (Brace). 8.0—Talk: Silk. 8.20—Talk by Dr. B. Lazersonas.  
8.40—*Orchestral Concert*. Overture, "Der Wildschütz" (Lortzing). Romantic Suite (Armandola). Kiss Waltz (Johann Strauss). Selection from "Le Prophète" (Meyerbeer). 10.0 (approx.)—Close Down.

**LAHTI (Finland)**  
167 kc/s (1,796 m.); 54 kW. Relayed by Helsinki, 815 kc/s (368.1 m.).  
Transmits at intervals from 6.10 a.m. (Service in Swedish). 6.5 p.m.—Talk. 6.30—Concert of Sacred Music, relayed from St.



SATURDAY continued

John's Church. Toccata and Fugue in D Minor for Organ (Bach). Choral Selections: (a) De profundis (Mozart), (b) Ave verum corpus (Mozart), (c) Psalm No. 120 (Olsson). Choral for Organ (Reger). Choral Motets (Maasalo). 7.45—News in Finnish and Swedish.

LANGENBERG (Germany) Westdeutscher Rundfunk. 635 kc/s (473 m.); 60 kW.

Transmits at intervals from 5.45 a.m. (Exercises, Weather, Time and Gramophone Records).

11.0 a.m.—Gramophone Concert of Popular Music. 11.50—Weather, Announcements and Time. 12 noon—See Frankfurt. 1.35 p.m.—Concert. 2.30—Economic Notes and Time Signal. 2.50—Programme for Children. 3.20—Talk: Touring in the Saucer District. 3.40—English Lesson. 4.0—Haydn Concert by Maria Fouquet (Soprano), Erich Rauch (Baritone), the Wireless String Quartet, Reinhard Fritzsche (Flute) and Egbert Grape (Pianoforte). Baritone Solos: (a) Ein Wand'r kommt von ferne, (b) Rose weiss, Rose rot, (c) Ueber die Heide geht mein Gedenken. Soprano Solos: (a) Ich stehe auf der Heide, (b) So lang die liebe Sonne lacht, (c) Mein Schatz das ist ein freier Schütz Sonata for Pianoforte. Baritone Solos: (a) Berg um Berg, (b) Mein süßes Liebschen, schlafst du noch? (c) Im Schlummern, da kam ich einst zu dir, (d) Die Schneegans zieht. Baritone and Soprano Duet, Robin Adair. String Quartet in G Minor.

5.15—Talk for Women. 5.40—Talk on Economics. 6.0—Weather, Time, Economic Notes and Sports Notes. 6.15—Wireless Technical Talk. 6.30—Talk: Nature and the Mind. 6.55—Announcements. 7.0—Variety Programme. 9.5—News Bulletin. 9.15 (approx.)—Orchestral Concert conducted by Wolf. 10.0—Dance Music from Berlin (Witzleben). 12 midnight—Close Down.

LEIPZIG (Germany) 1,157 kc/s (259 m.); 2 kW. Relayed by Dresden, 941 kc/s (319 m.). Transmits at intervals from 5.30 a.m. 4.0 p.m.—Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber. Selections from "La Traviata" (Verdi). Die

Solisten (Schreiner). Rhapsody in D Major, Op. 128 (Lacombé). A Revue Overture (Lincke). Waltz, Dir allein (Waldteufel). Selections from "The Mikado" (Sullivan). March, Die Jugend marschiert (Lindemann).

5.30—Talk: The Teaching of Languages by Wireless. 5.50—Topical Talk. 6.0—Ten Thousand People make Artificial Flowers—a Wireless Report from Sebmitz. 6.30—Cabaret Concert by Else Liebert and Walter Simlinger (Vocalists), Arthur Preil (Humorist), Kurt Lukas (Light Recitations and Talk), Alfred Simon (Pianoforte), and the Emdé Orchestra, conducted by Hans Schmiedel. 9.5—News Bulletin, followed by Dance Music. 11.0 (approx.)—Close Down.

MILAN (Italy) Ente Italiano Audizioni Radiofoniche. 905 kc/s (331.5 m.); 7 kW. See Turin.

MORAVSKÁ-OSTRAVA (Czechoslovakia) 1,137 kc/s (263.8 m.); 11 kW. Transmits at intervals from 10.0 a.m. 6.0 p.m.—See Prague. 6.5—See Brno Programme. 6.20—Sokol Concert. 7.0—See Prague. 8.0—See Bratislava. 9.0—See Prague. 9.20—Miscellaneous Notes. 9.25—"Felix Saiten"—One Act Comedy, followed by Songs and Dances.

LJUBLJANA (Yugoslavia) 522 kc/s (574.7 m.); 2.5 kW. Transmits at intervals from 11.15 a.m. 6.0 p.m.—English Lesson. 6.30—Elocution Lesson. 7.0—Concert of Waltz Music. 8.30—Recitations. 9.0—Time and News Bulletin. 9.15—Guitar Recital.

LWÓW (Poland) 788 kc/s (381 m.); 16 kW. Transmits at intervals from 10.45 a.m. 5.50 p.m.—Miscellaneous Items. 6.15—See Warsaw. 6.25—Light Music on Gramophone Records. 6.30—See Warsaw. 6.35—Popular Music on Gramophone Records. 6.45—See Warsaw. 9.50—Relay of Foreign Stations. 11.0 (approx.)—Close Down.

LYONS (France) La Doua (PTT). 644 kc/s (465.8 m.); 1.5 kW. Transmits at intervals from 7.0 a.m. 4.0 p.m.—Pandeloup Concert, relayed from Paris (Ecole Supérieure), 671 kc/s (447.1 m.). 6.0—Popular Music on Gramophone Records. 6.30—Radio Gazette for Lyons and the South-East. 7.30—Vocal Concert under the direction of Mme. Lysiane Doriane of the Monte Carlo Opera House.

MADRID (Spain) Union Radio. (EAJ7). 797 kc/s (424.3 m.); 2 kW. Transmits at intervals from 8.0 a.m. 7.0 p.m.—Chimes, Market Prices and Request Concert of Gramophone Records. 8.15—News and Announcements. 8.30—Interval. 9.0—French

Lesson on Linguaphone Records. 9.30—Chimes, Time Signal and Selection from a Musical Comedy by the Station Orchestra conducted by Jose Antonio Alvarez Cantos. 11.45—News and Announcements. 12 midnight—Chimes and Close Down.

OSLO (Norway) Kringkastingselskapet, 277 kc/s (1,083 m.); 60 kW. Relayed by Fredrikstad, 816 kc/s (367.6 m.); Hamar, 536 kc/s (560 m.); Notodden, 671 kc/s (447.1 m.); Porsgrund, 662 kc/s (453.2 m.) and Rjukan, 671 kc/s (447.1 m.). Transmits at intervals from 10.10 a.m. 3.30 p.m.—Concert, relayed from the Cecil Restaurant. Overture, "The Marriage of Figaro" (Mozart). Waltz, Wo die Zitronen blüh'n (Johann Strauss). Selection from "Les Cloches de Corneville" (Planquette). Melody (Moszkovsky). Pavane (Mascagni). Polish Dance (Scharwenka).

4.15—Programme for Children. 5.15—Recital of Popular National Melodies on a Hardanger Fiddle. 5.45—Talk on Famous Men. 6.0—Announcements, Weather and News Bulletin. 6.20—Talk: The Work of Standardisation. 7.0—Time Signal. 7.1—Concert by the Station Orchestra, conducted by Hugo Kramm. Overture, and Two Marches from "Orpheus in the Underworld" (Offenbach). Fêtes de Printemps (Thomas). Russian Song (Lalo). Mazurka (Ganne). Berceuse Réverie (Sgambati). Dance of the Dervishes (Bendix). Potpourri of Operettas (arr. Morena).

8.10—Humorous Recitations. 8.40—Weather and News Bulletin. 9.0—Topical Talk. 9.15—Popular Norwegian Choral Music. 9.45—Dance Music on Gramophone Records. 11.0 (approx.)—Close Down.

MOSCOW (Russia) Trades Union. 230.1 kc/s (1,304 m.); 100 kW. Transmits at intervals from 4.0 a.m. 9.0 a.m.—Midday Concert. 10.0—Peasants' Radio Journal. 11.0—Literary Programme. 12 noon—Educational Talk. 1.0 p.m.—Programme to be announced. 1.45—Weather Forecast. 2.0—Agricultural Programme. 2.30—Talk (to be announced). 2.55—Time Signal. 3.0—Proletariat Radio Journal. 4.0—Peasants' Radio Journal. 5.0—Programme to be announced. 7.0—Talk in German and English: Lenin's return from Switzerland and his arrival in Petrograd on April 16, 1917. 8.55—Time Signal. 9.0 (approx.)—Close Down.

MUNICH (Germany) 563 kc/s (533 m.); 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s (560 m.), and Nürnberg, 1,256 kc/s (239 m.). Transmits at intervals from 5.45 a.m. 5.30 p.m.—Schubert Concert by the St. Wolfgang Catholic Choral Society, conducted by Bernhard Bayerle. Zum Rundtanz. Das Dorfchen. Die Nacht. Nachtheile.

Palermo (Italy) Ente Italiano Audizioni Radiofoniche. 554 kc/s (542 m.); 3 kW. Transmits at intervals from 11.45 a.m. 4.30 p.m.—Light Music on Gramophone Records. 5.0—Programme for Children. 7.0—Announcements, Agricultural Report and Giornale

An den Frühling. Gott, meine Zuversicht. 6.10—Answers to Correspondence and Wireless Notes. 6.25—Talk by Major-General von Lerch. 6.50—Wireless Notes. 7.0—Programme of Operetta Music. 8.30—The Four Executioners. 9.20—Time, Weather, News and Sports Notes. 9.45—Concert of Light Music on Gramophone Records. 11.0 (approx.)—Close Down.

Radio. 7.20—French Lesson on Gramophone Records. 7.25—Sports Notes. 7.30—Time Signal and Announcements. 7.50—"Le Tre Lune"—Operetta (Ranzato), by the Station Orchestra and Chorus conducted by Militello. In the interval, Amusement Guide. 9.55—News Bulletin.

PARIS (France) Eiffel Tower (FLE). 207.5 kc/s (1,445.7 m.); 13 kW. Time Signals (on 2,650 m.) at 9.26 a.m. and 10.26 p.m. (preliminary and 6-dot signals). 5.45 p.m.—Music Review. 6.0—Le Journal Parlé. 7.20—Weather Forecast. 7.30—"Bataille de Dames"—Comedy in Three Acts (Scribe and Legouvé). Wireless Notes in the interval.

PARIS (France) Poste Parisien. 914 kc/s (328.2 m.); 1.2 kW. Transmits at intervals from 11.0 a.m. 5.45 p.m.—News and Announcements. 6.0—Light Music on Gramophone Records, Talk and News. 6.30—Variety Music on Gramophone Records. 7.30—Gramophone Records, Talk and News. 7.45—Vocal and Instrumental Concert. Overture, "La Faute de l'Abbé Mouret" (Bruneau). Prelude, Tango and Melaguena from "Españita" (Albeniz). Rhapsodie d'Auvergne for Pianoforte and Orchestra (Saint-Saëns). Three Pieces (Massenet). Le Camp de Wallenstein (d'Indy). Mother Goose (Ravel). Berceuse (Cui). Concert Waltz (Glazouff).

9.45—News Bulletin. 9.50 (approx.)—Close Down.

PARIS (France) Radio-Paris (CFR). 174 kc/s (1,725 m.); 75 kW. 5.45 a.m.—Physical Culture Course. 6.30—Weather Report and Second Physical Culture Course. 6.45—Light Music on Gramophone Records. 7.0—News, Weather Forecast and Press Review. 11.30—Military Music on Gramophone Records. March, Paris-Belfort (Farrigou). Allegro Vivace from "Roma" (Bizet). March of the 5th Regiment of Algerian Fusiliers. Merle et Pinson (Reynaud). Fare of the 16th Battalion of Light Infantry. Dyonisiaques (Schmit).

OSLO (Norway) Kringkastingselskapet, 277 kc/s (1,083 m.); 60 kW. Relayed by Fredrikstad, 816 kc/s (367.6 m.); Hamar, 536 kc/s (560 m.); Notodden, 671 kc/s (447.1 m.); Porsgrund, 662 kc/s (453.2 m.) and Rjukan, 671 kc/s (447.1 m.). Transmits at intervals from 10.10 a.m. 3.30 p.m.—Concert, relayed from the Cecil Restaurant. Overture, "The Marriage of Figaro" (Mozart). Waltz, Wo die Zitronen blüh'n (Johann Strauss). Selection from "Les Cloches de Corneville" (Planquette). Melody (Moszkovsky). Pavane (Mascagni). Polish Dance (Scharwenka).

4.15—Programme for Children. 5.15—Recital of Popular National Melodies on a Hardanger Fiddle. 5.45—Talk on Famous Men. 6.0—Announcements, Weather and News Bulletin. 6.20—Talk: The Work of Standardisation. 7.0—Time Signal. 7.1—Concert by the Station Orchestra, conducted by Hugo Kramm. Overture, and Two Marches from "Orpheus in the Underworld" (Offenbach). Fêtes de Printemps (Thomas). Russian Song (Lalo). Mazurka (Ganne). Berceuse Réverie (Sgambati). Dance of the Dervishes (Bendix). Potpourri of Operettas (arr. Morena).

8.10—Humorous Recitations. 8.40—Weather and News Bulletin. 9.0—Topical Talk. 9.15—Popular Norwegian Choral Music. 9.45—Dance Music on Gramophone Records. 11.0 (approx.)—Close Down.

MUNICH (Germany) 563 kc/s (533 m.); 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s (560 m.), and Nürnberg, 1,256 kc/s (239 m.). Transmits at intervals from 5.45 a.m. 5.30 p.m.—Schubert Concert by the St. Wolfgang Catholic Choral Society, conducted by Bernhard Bayerle. Zum Rundtanz. Das Dorfchen. Die Nacht. Nachtheile.

Palermo (Italy) Ente Italiano Audizioni Radiofoniche. 554 kc/s (542 m.); 3 kW. Transmits at intervals from 11.45 a.m. 4.30 p.m.—Light Music on Gramophone Records. 5.0—Programme for Children. 7.0—Announcements, Agricultural Report and Giornale

Radio. 7.20—French Lesson on Gramophone Records. 7.25—Sports Notes. 7.30—Time Signal and Announcements. 7.50—"Le Tre Lune"—Operetta (Ranzato), by the Station Orchestra and Chorus conducted by Militello. In the interval, Amusement Guide. 9.55—News Bulletin.

PARIS (France) Eiffel Tower (FLE). 207.5 kc/s (1,445.7 m.); 13 kW. Time Signals (on 2,650 m.) at 9.26 a.m. and 10.26 p.m. (preliminary and 6-dot signals). 5.45 p.m.—Music Review. 6.0—Le Journal Parlé. 7.20—Weather Forecast. 7.30—"Bataille de Dames"—Comedy in Three Acts (Scribe and Legouvé). Wireless Notes in the interval.

PARIS (France) Poste Parisien. 914 kc/s (328.2 m.); 1.2 kW. Transmits at intervals from 11.0 a.m. 5.45 p.m.—News and Announcements. 6.0—Light Music on Gramophone Records, Talk and News. 6.30—Variety Music on Gramophone Records. 7.30—Gramophone Records, Talk and News. 7.45—Vocal and Instrumental Concert. Overture, "La Faute de l'Abbé Mouret" (Bruneau). Prelude, Tango and Melaguena from "Españita" (Albeniz). Rhapsodie d'Auvergne for Pianoforte and Orchestra (Saint-Saëns). Three Pieces (Massenet). Le Camp de Wallenstein (d'Indy). Mother Goose (Ravel). Berceuse (Cui). Concert Waltz (Glazouff).

9.45—News Bulletin. 9.50 (approx.)—Close Down.

PARIS (France) Radio-Paris (CFR). 174 kc/s (1,725 m.); 75 kW. 5.45 a.m.—Physical Culture Course. 6.30—Weather Report and Second Physical Culture Course. 6.45—Light Music on Gramophone Records. 7.0—News, Weather Forecast and Press Review. 11.30—Military Music on Gramophone Records. March, Paris-Belfort (Farrigou). Allegro Vivace from "Roma" (Bizet). March of the 5th Regiment of Algerian Fusiliers. Merle et Pinson (Reynaud). Fare of the 16th Battalion of Light Infantry. Dyonisiaques (Schmit).

A QUALITY JOB despite the LOW PRICE Only 39/6 Permanent Magnet MOVING COIL SPEAKER with MULTI-RATIO O.P. TRANSFORMER Goodman's Dept. W.R.1, 89, St. John Street, London, E.C.1.

The PIONEER PORTABLE at a POPULAR PRICE At HOME or on HOLIDAY, in RAIN OR SUNSHINE, the "PIONEER" Five Valve Portable provides supreme enjoyment. Fitted with Marconi Valves and British Batteries in Handsome Case. No AERIAL or EARTH. Foreign Stations easily received. Clear as Crystal Reception. TWELVE MONTHS GUARANTEE. SPECIAL CASH OFFER £3 15 0 Write, Phone or Call. The PIONEER RADIO MANUFACTURING CO., LTD., 166, Shaftesbury Avenue, London, W.C.2. Phone: Temple Bar 3176.

When replying to advertisements please mention World-Radio

YOU WILL ENJOY the truest reproduction of music and speech with the "TEN PAS" INDUCTOR LOUDSPEAKER. No finer instrument possible. Chassis £3 10 0 Cabinet Models from £5 5 0 Every good dealer can supply. Descriptive booklet from A. BRODERSEN, 11, Northampton Sq., London, E.C.1. Telephone: Clerkenwell 1286.

NEW STOCK TENNIS RACQUETS SUMMER IS COMING THIS YEAR Set your Racquet now and buy while you play. One of our customers writes: "Maty thanks for Essex Racquet. I think it is an excellent piece of workmanship and price is very reasonable." The cash price of the "Essex" is only 28/- post free. Send for our Catalogue and details of Easy Payment Terms. Also our offer of FREE TENNIS BALLS BROWN WHITE & COMPANY, 10, ESSEX STREET, LONDON, W.C.

THE BONTOP DICKEY SCREEN The Bontop Screen is just what you require for your two-seater. Up or down in a few seconds. The ideal protection for children or adults. Handy, strong, neat and easy to fix. NO FITTINGS ON OUTSIDE OF BODY. The screen will fit any double dicky, and folds without detaching, or may be instantly detached. A hood may be purchased with the screen, or later, as desired. This will clip on immediately, without any drilling or fitting, and afford complete protection from any weather. Write for descriptive leaflet. Screen £2-17-6. Hood 25/- extra. The Grafton Engineering Co. SYCAMORE GROVE, NEW MALDEN, SURREY.

THE SUPERDYNE AERIAL COUPLING UNIT Ensures that you isolate and retain only the station you want! Not a condenser nor a wave trap, but an actual Aerial Coupling Unit, for all battery or mains receivers. Just undo the wire from the aerial terminal and fix one end of "THE SUPERDYNE" then join the other end to the aerial terminal—the result will astound you! BRITISH MADE THROUGHOUT (Trade supplied) THE CROFT CO. WHEEL LANE LICHFIELD



## PREPAID CLASSIFIED ADVERTISEMENTS

Small advertisements for WORLD-RADIO are inserted in the nearest issue after the receipt of order, and cannot be accepted for any specific date. The cost for a single insertion is 4/6 per line (coverage 8 words), with a minimum of 3 lines. Box numbers 6d. extra. Series Discounts 2 1/2% on 13 insertions, 5% on 26 insertions, 10% on 52 insertions. All small advertisements should be accompanied by a remittance and the full name and address of the advertiser clearly written, and must reach the office not later than Friday of the week prior to publication. Voucher copies are supplied for announcements of 10 lines or over. In the case of box numbers readers should reply to the box number mentioned in the advertisement, c/o Advertisement Department, WORLD-RADIO, Broadcasting House, Portland Place, W.1.

### COMPONENTS

**WESTON** Moving Coil Milli-ammeters (301), 0-15 Milli-amps upwards, 22/6. Turner ditto, 17/6. Various makes 10/6. Weston and Turner, Thermo Couple Ammeters, 0-1.5, 25/- R.A.F. Transmitters, less meters, 7/6. Meter repairs a speciality.—The Victa Electrical Co., 47, High St., S.W.1.

**INCREASE** Range, Strength and Selectivity. New Design Coils, Dual Range, 4/6. Band Pass 9/- pair. Formers 2/6. The Inductance Co., West Street, Southport.

**ALL AMATEURS** have components, speakers, etc., which they have no further use for. Why not advertise these on this page and dispose of them? For cost of a small advertisement see top of this page.

**MAINS** and Local **INTERFERENCE** from Electric Motors and Domestic Appliances—can be silenced! Why tolerate interference any longer when by fitting a "Power Link" Compensator to the interference producer you can obtain and enjoy a perfect background to your reception. Send P.O. 78, 9d. (post free) now or write for descriptive leaflet to: Dept. W.R., J. H. Weedon & Co., 26a, Lisle Street, W.C.2.

**RADIO IN EVERY ROOM.** Why confine your loud speaker to a single room when you would often like it in another part of the house? Run a twin wire to each room, fit a Bulgin Wall Jack—then plug in wherever you want. Bulgin Jacks can be fixed to the wall, skirting board, or mantel-piece. A variety of finishes to harmonise with existing decorations.—Send 2d. postage for the Bulgin 75-page illustrated catalogue and manual: A. F. Bulgin & Co., Ltd., Abbey Road, Barking, Essex.

### H.T. SUPPLY, Etc.

#### WHY BUY BATTERIES?

**HAVE** your set turned into all electric (A.C.). No batteries. 2-valve set, £3 10s.; 3-valve set, £4 10s. A generous allowance on old parts. Send us your set; we are specialists in all-electric radio.—W. B. Mackie, 61, Dartmouth Rd., Forest Hill, S.E.23.

**ROTARY CONVERTER.** 230 volts D.C. to 230 volts A.C. 120 watts 50 cycles output, as new, £5. Filter unit, £1 5s. extra. Several others and battery charging converters for sale state requirements; repairs to all types of apparatus a speciality.—Freeman's Electrical Repair Armature and Coil Winding Depot, Tresham St., Kettering.

**CHARGE YOUR BATTERIES AT HOME—SAFELY AND QUICKLY.** Why incur trouble, expense and waste of time by taking your accumulators to a service station. Just install the Heayberd Trickle Chargers and do the job quicker, cheaper, and neater yourself. Incorporating a Westinghouse Rectifier complete in crystalline steel case. Model A.D.2. Trickle Charger, charging 2, 4 or 6 volts at 1-2 amp., price 35s.—Send 3d. in stamps for lists, giving full range of Heayberd Mains Kits, Chargers, Transformers, etc., with wiring diagrams of great interest: Heayberd, 10, Finsbury St., London, E.C.2.

### LOUD SPEAKERS

**MANUFACTURERS' SURPLUS FOR DISPOSAL.** Brand new **MOVING-COIL SPEAKERS**, boxed. ROLA (S) Type D.C. Field Resistance 4,800 ohms, Speech Coil 1 ohm, Transformer 64 to 1, Cone 7 1/2 in., 17/- each. Alternating Current Models, 30/-, OXFORDS, A.C., list £11 17s. 6d., sell £2 10s., 6 volt Models, 30/-, MAGNAVOX (X) CORE, D.C. 90/130 volts. Field Coil 2,500 ohms, Speech Coil 8 ohms, Cone 1 1/2 in., 25/- each. Others from Public Address to Midgets. Carriage Paid, Sale or Return, C.O.D., or Call. Enquiries Welcomed.—NEWTH'S RADIO SERVICE, 32, WARDOUR STREET, LONDON, W.1.

**A NEW MOVING-COIL LOUD SPEAKER.** This latest "Motor" masterpiece is something more than you expect to find in a high-grade permanent magnet moving-coil loud speaker. Added to its punch and brilliancy of tone is a degree of sensitive response hitherto unobtainable in loud speakers of the moving-coil type. A pot type magnet of high flux density—finest cobalt steel. Price 70s., including transformer. (Ratio to suit valve.)—Write for fully descriptive pamphlet post free: Tekade Radio & Electric, Ltd., 147, Farringdon Road, London, E.C.1.

**MOVING COIL Permanent Magnet Loud-speaker** in solid oak cabinet of excellent design and finish is offered for a 3-day test at our expense, which will prove our claim that its sensitivity equals that of the most expensive M.C. speaker. It gives perfect reproduction over the whole broadcast tonal range and can be operated from a good 2-valve battery set. Write for details.—Rays Service, Dept. W.R., 23 Norwood Road, London, S.W.24.

**AS** manufacturers selling direct to the public, we are able to offer the Lanchester speakers at 40 per cent. below competitors' prices. 14 days' free trial. Send for illustrated catalogue. Free and post free.—Lanchester's Laboratories, Ltd., Tyseley, Birmingham.

### PATENT AGENT

**ABC** of PATENTS. Write for my FREE "Inventors' Pocketbk." Confidential advice free on protecting your ideas.—Edwin O. Aye, A.I.M.E., 27, Chancery Lane, W.C.

### CABINETS

**£5 RADIO GRAM CABINET** FOR 65/- or 10/- monthly. Polished rich brown Oak, Piano built acoustically, for all set sizes, as supplied to Radio Press. Photographs and List Free.—Picketts "Piano-Tone" Cabinet (S.R.) Works, Bexleyheath, Kent.



—and cut out local and powerful stations that spoil your reception of foreign concerts. A PIX increases the selectivity of any set, and is better than a costly wave trap.

No alteration to sets needed, over 350,000 satisfied users testify to the efficiency of the PIX.

A PIX can be fitted to any type of set whether crystal, battery or mains operated with or without outside aerial. Just undo the wire from the aerial terminal and connect same to one end of the PIX and join the other end to the aerial terminal.

Read a typical letter from a purchaser:—

"Dear Sirs,

A few days ago I purchased one of your "PIX" and I am more than delighted with the results it gives. It is the finest 2/- I have ever spent, it improves the tone superb, no matter what Station you listen to "PIX" holds it firm and you need never fear of other Stations "butting in" and spoiling the programme you wish to hear, either British or Foreign."

Now fix a PIX and bring in loud and clear those elusive foreigners.



**CLIP THE PIX TO YOUR SET**

wall or window-ledge, etc. It holds the PIX securely and aids keen tuning. Ready mounted on drilled insulated base with screws.



**YOUR MONEY REFUNDED** at once unless you are thoroughly satisfied. Get the PIX from your Wireless dealer or send P.O. to

**BRITISH PIX Co. Ltd.** (Dept. 95), 14 Newgate Street, London, E.C.1  
Telephone: City 1044 (10 lines)

**STAND 350 IDEAL HOME EXHIBITION APRIL 5-30**

### FOREIGN LANGUAGES

**EXCEPTIONAL** opportunities of important positions in business and interesting foreign travel for men and women with knowledge of Foreign Languages. The foreign broadcasts, literature, science and art are brought within your grasp. Learn to speak, read and write any language by Linguaphone, the quick, easy, interesting method of acquiring foreign languages by Gramophone. Send to the Linguaphone Institute, 665, Napier House, High Holborn, W.C.1, for free 28 page book and seven days' FREE TRIAL.

### RECEIVERS FOR SALE

**ARE** you requiring a D.X. Portable? We can offer you the well-known Philips 4-valve S.G. Portable Type 2522 (List price 24 guineas), our price £8 8s., guaranteed. This receiver is an H.F. Detector 2 L.F. Receiver absolutely complete and self-contained, working over 200/600 M. and 1000/2000 Metre band. Send cash with order or C.O.D.: Dept. W.R.; Radio & Gramophones, 245 Tottenham Court Road, London, W.1.

**THE** latest in quality Radio-Grams—4 stage A.C. set Band-pass tuning, 2 Varimu's, 2 watts output and M.C. Speaker in walnut cabinet with Marconi pick-up, 38 gns.—For full details write F. E. Godfrey (Radio), Ltd., 4, High Street, Hampstead, N.W.7.

### REPAIRS

**REPAIRS.**—Single Ratio L.F. Transformers, Headphones, Loud speakers all one price, 3/6. (except Blue Spots 5/-, Inductors 6/-). A twelve months' printed guarantee given with each repair. 24 hours' service from receipt of cash with order.—REPAIR SERVICE, 104, Tolworth Rise, Tolworth, SURREY.

**LOUD** Speakers Repaired 4/-, Blue Spots 5/-, Transformers 4/-, and Headphones 4/-. All Repairs magnetised free. Tested, guaranteed and dispatched in 24 hours.—Loud Speaker Repair Service, 2, Shipka Rd., Balham, London.

### SHORT-WAVE APPARATUS

**S.W.R.C.** Low Loss Short Wave Coils (2 Pin Type). Range 18 to 85 metres with .0025 condenser. Set of 4 7s. 6d. P.F. S.W.R.C.S.W. Choke. Air spaced winding. Minimum self capacity. 3s. P.F. Trade supplied.—The Short-Wave Radio Co., 63A, Kingston Rd., New Malden, Surrey.

**THE "Scientific" Detector-Adaptor** converts any set into a short-wave receiver in a moment. Inexpensive and easy to build from Standard Components. Send 4d. for Blue Print with full details of this adaptor: Dept. W.R. Scientific Supply Stores, 126, Newington Causeway, Elephant and Castle, S.E.1. Telephone: Hop 4177.

**BRING IN THE WORLD AT FULL LOUDSPEAKER VOLUME!** The **KILODYNE** Four has been designed by Messrs. Stratton & Co. to work over the wave bands of 12 to 2000 Metres, thus covering the entire range of broadcasting wavelengths. It incorporates S.G. H.F. Amplification, absolutely no hand capacity, perfectly smooth reaction, one dial tuning, designed by short-wave specialists, praised by leading short-wave critics. Total cost of parts with blue prints, leads grid bias battery, coils for 12.5/85 Metres, not including valves, £6 17s. 6d. Set of blue prints, constructional details and list of parts 1s. 6d. post free. Write for complete lists of Stratton's Short-Wave components and receivers: Dept. W.R., Stratton & Co., Ltd., Bromsgrove Street, BIRMINGHAM.

### SITUATIONS VACANT

**AIRCRAFT ENGINEERS WANTED;** also employment is waiting for skilled **DRAUGHTSMEN**, Eng., Elec. Bldg., Motor, also **ENGINEERS** all branches. Let us tell you where the appointments are and how to qualify for some. There are examinations which are open and suitable to you and others which are not. We never accept students for unsuitable courses. We teach by post. **GET OUR ADVICE BEFORE DECIDING.** Our advice on all careers **Free**.—THE BENNETT COLLEGE, Dept. 69, SHEFFIELD.

### SPECIALISED TRAINING

**LEARN** Dutton's 3-day Shorthand. Only 6 rules, 29 characters. Speed practice by loud speaker. Send stamp for specimen lesson.—R. W. R. Dutton, Reporter, Skegness.

**A PROFITABLE PASTIME!**—Spare-time writing for the papers can be both pleasant and profitable. Send for **FREE LESSON** and **PROSPECTUS**, with details of our unique Success Guarantee, to Dept. A.4, London Editorial College, 12-13, Henrietta St., W.C.2.

**SALESMANSHIP** pays! Read this: S. G. W. was a Mining Engineer. Within 6 weeks of enrolling he had qualified, and we had found him a position in which he now earns from £15-£20 a week. Call, write or phone (Holborn 0004).—British School of Selling (Salesmanship, Ltd.) Dept. W.R., 7, Southampton Street, High Holborn, London, W.C.1.

### PUBLICATION

**ARMCHAIR SCIENCE**—A Popular Magazine for Thinking People. Specimen copy **FREE** on receipt of 2d for postage.—56, Victoria Street, London, S.W.1.

### MISCELLANEOUS

**TAKE** your time from your Electric Mains. All A.C. Mains are synchronised with Greenwich and the current reaches you keeping Greenwich Time. Our range of electric clocks run without noise and need no attention. Set the clock by the Time Signal and notice the consistent accuracy. The synchronous induction motor takes 1.2 watts energy only. Chiming Clocks, £12 12s.; Calendar Clocks, £4 12s. 6d.; Alarm Clocks (Illuminated dial), £3 15s.; other models from 30/-. Call or write.—Hancocks & Co., Clock Dept., 9, Vigo Street, Regent Street, London, W.1.

PLEASE MENTION WORLD-RADIO WHEN REPLYING TO ADVERTISERS

# EFFICIENCY— CONSISTENCY— LONG LIFE

—all ensured by the  
**MICA BRIDGE**

THE system of Mica Bridge construction employed in all Cossor A.C. Mains Valves has the following important advantages:

- (1) It permits microscopic accuracy in the assembly of the electrode system thus ensuring the highest possible efficiency.
- (2) It prevents variation of the electrode spacing and therefore of variation of characteristics.
- (3) It imparts great mechanical strength thereby ensuring exceptionally long life.

You will see, therefore, that Cossor A. C. Mains Valves possess all the features demanded by the valve user — efficiency, consistent performance and long and dependable service.

IN

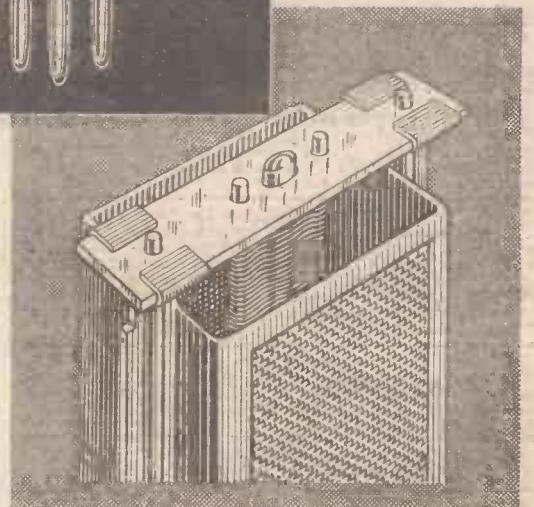
# COSSOR

ALL-BRITISH  
A.C. MAINS VALVES



A copy of the 72-page Cossor Wireless Book 3 II will be sent you free on application to A. C. Cossor Ltd., Melody Dept., Highbury Grove, London, N.5.

Get one of the new Cossor Station Charts price 2d. Ask your dealer for a copy of this useful novelty or write to us enclosing 2d. stamp.



A. C. COSSOR LTD. Highbury Grove, London, N.5. Depots at Birmingham, Bristol, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Sheffield and Dublin.

'57 ♡ 267