

WORLD-RADIO

DOMINION & FOREIGN PROGRAMMES

Official Foreign and Technical Journal of the B.B.C.

Vol. VI. No. 142. Registered at the G.P.O.
as a Newspaper.

FRIDAY, APRIL 13, 1928.

Two Pence.

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Via Ether.
From the Swiss Alps.
Wireless Step by Step.
The D.X. Man's Note Mag.
Holidays Abroad: Ways and Means.
II.—Castile and Northern Spain.

WORLD-RADIO

Station Identification Panel

Moscow, Russia.

Wavelength : 1,450 m.

Frequency : 207 kc. Power : 20 kw.
(Aer.).

Approximate Distance from London :
1570 miles.

Call : "Hallo, hallo, govorit Komintern."

No Interval Signal.

Closing Down Words : "Na etom nasha peredacha konchajetsia."

Close Down : 11.30 p.m. G.M.T.

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

RATES OF SUBSCRIPTION to "World-Radio"
(including postage): Twelve Months (Inland and
Foreign), 18s. Address Subscriptions Dept.
"World-Radio," 8-11, Southampton Street, Strand,
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are Astounding"

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21st March, 1928.
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WORLD-RADIO

Vol. 6. No. 142.

FRIDAY, APRIL 13, 1928.

Two Pence.

Poland's New Station in Wilno

POLAND promises to rank as one of the most enterprising of the European countries in the matter of broadcasting, five efficient transmitting stations having been erected during the course of the last two years, under by no means easy conditions. Two of

these — Warsaw and Kattowitz — operate on high power. All the stations were erected by the Government Department of Posts and Telegraphs and are under the direction of the Polish Broadcasting Company, "Polskie Radio," who possess the exclusive broadcasting rights in Poland. The first station, Warsaw, was opened in the spring of 1926; the last, Wilno, in the autumn of 1927.

Wilno is the largest city in North-Eastern Poland, some 25 miles from the Lithuanian frontier and 65 miles from that of Russia. Its

position during the strife between Poland and Russia in 1920 was not an enviable one. The district is gradually recovering from the devastating effects of the Great War, but it has yet much to do. The level of education and the standard of living among the peasants are very low — here perhaps the power of broadcasting may do much. The country suffers generally from inadequate means of communication, such as bad roads and few railway

lines. But broadcasting eliminates the question of transport. All the leading associations concerned with educational and artistic activities were unanimous as to the desirability of a broadcasting station for the dissemination of knowledge and the maintenance of the higher ideals of the nation.

Plans were put into operation in the summer of last year. The station was completed with expedition, the first transmission taking place on December 4. The official opening took place on January 15 of this year, and already Wilno's licensed listeners number over five thousand. M. Pikiel, the station director, and his assistants have been greatly encouraged by the numerous letters of support received from listeners.

The station buildings are situated in a suburb of the city, on the right bank of the river Vilja. The studio has been modelled on the style of that at Warsaw. A wavelength of 435 metres has been adopted, and at present the aerial power amounts to about 0.5 kw., but this is to be increased in the near future to 5 kw. In spite of the comparatively low power, a simple crystal set brings in the programme at 35 miles, while a one or two-valve receiver is efficient for reception at a distance of 65 miles.

The daily transmissions extend usually from 3 p.m. till 10 or 11 p.m. (G.M.T.). Talks, concerts and current topics receive their due share of attention, while special agricultural courses are given for the benefit of villages and farms. Relays are regularly and frequently made from the other stations at Warsaw, Posen, Kattowitz and Cracow. Sunday morning service is relayed from the Posen Cathedral and operatic performances are enjoyed via the same-station. A relay from Warsaw is effected almost every day. Wilno does not take an item from its colleagues without return, and the other Polish transmitters come to this city from time to time for a part of their programme. A series of talks has been arranged on the very interesting history of Wilno, with its great store of legend and tradition. The University of Wilno plays its part in the new work and the Professors extend their assistance in the broadcasting of lectures. The students send out once a week their quarter of an hour, usually an enlivening transmission of poetry and humour.

An excellent literary side has

been organised and great interest is taken in the talks, recitals, and dramatic performances.

Like every border city, Wilno has to deal with the problem of mixed populations, which in this case includes a considerable proportion of Lithuanians, Russians, Jews, and White Ruthenians. Wilno must of



M. Roman Pikiel,
the Director of Wilno
station.



"Polski Radio" string orchestra (frequently relayed by Wilno), consisting of 35 members with M. Emil Mlynarski, Director of the Warsaw Opera House, known in the British musical circles for his debuts in London, Edinburgh and Newcastle.

necessity be a polyglot station and caters for the various nationalities within her walls by transmitting in several languages.

The station directors are enthusiastic as to the international possibilities of broadcasting and take the opportunity whenever possible of giving their listeners relays of concerts from Prague, Vienna, Berlin and other main European stations.



The interior of the Wilno studio, Miss Tokarczyk, the announcer, is seen seated in the background in front of the microphone.



Wilno transmitting station, showing aerial masts.

Viâ Ether

POTTERING around Europe, at odd times, in my opinion is a pastime of which the interest can never pall. To make a tour of "easy" stations nightly may prove wearisome on certain nights, but the capture of a new transmission always provides a thrill which amply compensates for the time spent with the wireless set, just adding that extra dose of enjoyment which raises radio above the plane of more ordinary hobbies. Now and again it is interesting to concentrate one's energies on portions of the wave-band which are not so crowded with regular telephony transmissions—mely, in that region of 1,400 to 2,500 metres, which, as a rule, we do not explore so frequently.

* * *

As you may have discovered for yourselves by now, these casual excursions bring their own rewards. It was on one such occasion a few nights ago that I picked up a strong carrier wave, and much to my delight heard a call which prompted me to shout for pen, ink, and paper. It was Lahti, the new Finnish high-power station, and great was my pleasure to hear its first test transmissions. Atmospheric conditions on that evening were not very favourable, but most of the announcements made in what I took to be the Finnish and Swedish languages—the former of which is quite unfamiliar to me—were confirmed by a German translation.

* * *

The station was stated to be broadcasting on 10 kw. on a wavelength of 1,525 metres, or, as the speaker tersely put it: "auf funfzehnhundertfunfundzwanzigmeter." Followed then, a broadcast of those popular classical items so closely associated with broadcasts from restaurant orchestras, the items being interspersed with calls of: "Huomio! Huomio! Achtung! Achtung!" and references to Lahti and Tampere (Tammerfors). Now, comparison with the programme of Helsingfors proved that the transmission was a special one, and although I cannot confirm it, I am under the impression that the high-power transmitter was not being fed by the capital, to which it will act eventually as a relay, but was receiving its entertainment from the Tammerfors studio.

* * *

During the last week or so reports have reached me that broadcasts from the new P.T.T. station recently erected at Rabat (French Morocco) have been heard in the North of France. If this is the case there appears to be no reason why these signals should not be heard in Great Britain. A few details, therefore, regarding the transmissions may be of interest to our DX-hounds, and others, Rabat is situated on the Western coast of Morocco, some one hundred and ten miles west of Fez, of which it is the port. According to information gathered in France, the power of the new transmitter installed in that city approaches two kilowatts, and although at present the wavelength used is not definitely fixed, it has been carrying out tests on 412 metres or slightly above that of Berne. The call is the usual one adopted by the French official stations, namely: "Allo! Allo! Ici le poste radiotéléphonique des P.T.T. de Rabat," and at intervals between items it is curtailed to: "Ici Radio Maroc." Similarly

to Radio Toulouse and other provincial studios in France, it has adopted a metronome as an interval signal. So far, I have not seen any details of a complete programme, but my informant tells me that a news bulletin is sent out at 8 p.m., followed by a concert at 8.45 p.m. G.M.T. I understand that some of the entertainments may be supplied by native talent, and that arrangements are being made to relay dance music from the local Casino as did the private "Omega" transmitter, which operated for a short time at Casablanca.

* * *

During the summer months, in all French garrison towns, military bands perform on the Grand' Place; the Chasseurs d'Afrique, the Spahis, and the Zouaves provide regular concerts. It may therefore be expected that advantage will be taken by the authorities to relay these performances to the transmitter. Personally, for the moment I doubt whether we shall meet with success in any search carried out whilst Berne is transmitting; but as, similarly to Spain, amusements in the French North African colonies start at a later hour, attempts to pull in broadcasts from Rabat after the Swiss station has closed down may prove encouraging. Anyhow, it is worth a trial.

* * *

With the arrival on the scene of Zeesen's sister, as the new super-power Rosenhügel transmitter is already affectionately termed, the Austrian capital is now putting forward ambitious schemes to be carried out during the coming summer and autumn seasons. The magnitude of the entertainments is to be in keeping with the new toy. During the period July 16-26, Vienna contemplates a monster fête on the occasion of the convention in Austria of a large number of German Sängervereinen (choral societies). To present these concerts it will be necessary to erect a temporary hall of gigantic proportions; an idea of the size will be realised if I mention that it must accommodate an audience of 30,000 spectators. As a site it is probable that the neighbourhood of the famous Prater—the Coney Island of Vienna—will be selected. As it is stated that over 125,000 members of choral societies from Germany have already signified their intention to compete, the concert platform will be planned to take massed choirs of some 20,000 singers, the orchestra alone numbering over 400 musicians. Thousands of visitors from neighbouring and even distant countries are expected to throng to the Austrian capital this summer, and it is stated that 4,000 German-speaking Americans will cross the Atlantic with a view to assisting at the festival.

* * *

The Ravag authorities are fully alive to the possibilities offered by this great event to give Europe, through the intermediary of their new station, an insight into the artistic activities of their capital, and it is expected that during July many of the concerts will be broadcast. This year Austria celebrates the Schubert Centenary, the 100th anniversary of this great composer's death; throughout the season, concerts are being dedicated to him, and special entertainments on a large scale will be organised for November next; they will be relayed to the giant transmitter.

The advent of the new Rosenhügel station brings Vienna to our threshold.

* * *

To-day (Friday, April 13) brings us from the Continent several excellent entertainments. At Frankfurt (relayed by Stuttgart) at 7 p.m. we find a concert of which the main feature consists of Gustav Mahler's Second Symphony in C minor, with soloists, choir, and augmented symphony orchestra. At 7.15 p.m. Leipzig offers us a performance of Flotow's three-act opera *Alessandro Stradella*, based on a French libretto; it was first produced at Hamburg in 1844. The real Stradella was actually an Italian musician, born about 1645—the exact year is not known. He composed some one hundred and fifty works, and six operas, of which the best known is *Il Floridoro*. To Naples at 7.50 p.m. we may turn for Leoncavallo's *Zaza*, of which the book is taken from P. Berton's play of that name. It was first heard at Milan in 1900, but has achieved more popularity in the United States than in Italy. Rome at 7.45 p.m. gives us a light operetta: *Il Re de Chez Maxim*, by Costa, which may be taken as the companion to *The Girl* from that well-known Paris night resort. At 7.30 p.m. if you are a good German scholar you may care to listen to Lion Feuchtwanger at Berlin; he will lecture on "Pep, an American song book." Finally, Radio Paris, at 8.30 p.m., on that evening will broadcast from its studio excerpts from Wagner's *Tannhäuser*.

* * *

In to-morrow's programme from Warsaw, I find an announcement to the effect that the 4.45 p.m. transmission will be devoted to a concert given by canaries; such broadcasts have already been carried out by German stations. The nightingale apparently remains faithful to England; there are but few of them found in other European countries. From Brünn at 6.30 p.m. we are promised *Jacobin*, an opera by Dvorák, which was first performed in 1889. The Polish stations at 7.30 p.m. relay, from their capital, Lehár's *Count of Luxembourg*, and Oslo at that hour presents the *Spring Revue*, which is being played at the Chat Noir cabaret in the Norwegian capital.

* * *

From Sunday, April 15, for the next few evenings, we shall do well to tune in to Kalundborg almost nightly, for, with the advent of the Italian Company at the Royal Danish Opera House, Copenhagen, we are to be given broadcast performances of some of Verdi's most famous works. *Aida* is down for transmission on Sunday at 7 p.m., *Rigoletto* on Monday, *Il Trovatore* on Wednesday, and *Un Ballo in Maschera* on Friday, April 20.

* * *

Sunday, April 15, at 7 p.m., also brings us, via Munich, a concert from the famous Sängerhalle at Augsburg; the entertainment will illustrate Spring in Vienna. From the Bavarian stations on Tuesday, April 17, at 5.30 p.m. we are also to receive a performance of *Der Rosenkavalier* (Richard Strauss) as presented by the National Theatre at Munich. Produced at Dresden in 1911, it depicts a love comedy of Vienna in the picturesque days of the Empress Maria Theresa.

JAY COOTE.

Holidays Abroad: Ways and Means

II.—Castile and Northern Spain

By GERALD BRENNAN*

CASTILE is a country deprived by nature of almost all the qualities that in other countries attract tourists. You climb up on to a plateau lying two or three thousand feet above the sea, crossed in its centre by a broad moor-like range of mountains. Granite boulders crop out of the sides of the mountains, more boulders are scattered along the valleys, and smaller stones or pebbles make up the surface of the plain.

Then, your train, which has been travelling at about eight miles an hour across this monotonous landscape, will draw up outside a grey town built, most likely, upon a rock and overhanging a river with below it, perhaps, a grove of thick trees. You will give a sigh of relief at having at last arrived somewhere and begin to climb up the hill towards the inn where you expect your lunch.

After lunch you will visit the churches recommended by Baedeker, prowl about the convents and kitchen gardens and clamber down to the steep, shady bank of the river, ending up at nightfall on a chair in front of the principal café to watch the women walking up and down, parading their beauty, and the men staring critically at them. Then a cold blast of mountain air will rush down the street, whirling the dust into eddies, and you will very sensibly retire to your hotel and to bed.

Coming by train from Paris the first Castilian town that you get to is Burgos. Its great attraction is its French Gothic cathedral, and it has become a rule that no tourist visiting Spain shall miss it. Unfortunately, the railway timetable makes this rather difficult, and I advise you, therefore, unless you have ample time at your disposal, to pass it by.

In Valladolid there is no object in stopping at all; keep therefore straight on to Madrid, which contains, at all events, the Prado, where there are some of the greatest masterpieces of painting in a better state of preservation than in any other European gallery. You can also look at the Royal Palace, a fine Renaissance building, and at that quiet, English-looking square where many hundreds of men and women were burned by the Inquisition.

Forty miles to the south-west (and nearly three hours by train) lies Toledo, which is undoubtedly the most interesting town in the Peninsula. It stands surrounded by its Visigothic and Moorish battlements looking down on a yellow, treeless plain. The Tagus flows by on two sides in a deep gorge. The city itself is a labyrinth of narrow streets which, in spite of many alterations and rebuildings, still retain a Moorish and altogether un-Castilian appearance. The place is rich in works of art. First of all there are the pictures of El Greco, then three of the most beautiful churches in the country—Christo de la Luz, built apparently in the eighth century by the Visigoths: Santa Maria La Blanca and the old synagogue of the Transito, two Mudéjar works dating from the early Middle Ages. No building has ever made on me such an impression of absolute harmony and perfection as this little synagogue. Last of all there is the magnificent Gothic cathedral, itself stuffed with all sorts of objets d'art. If you take walks out into the plain and across the river, as you certainly ought to do, you will find two days to be the shortest time that you can give to Toledo.

On your way back to Madrid contrive to stop a few hours at Aranjuez to see the Royal gardens, so famous for their fountains, their tall trees, and their chorus of nightingales.

To the north-west of Madrid lies the broad and uninhabited waste of the Sierra Guadarrama, and immediately beyond that are the two towns



A Spanish Garden.

of Avila and Segovia. On the way to Avila you pass the Escorial, a vast and sombre palace built by Philip II. in a desert of granite and straggling pine-trees; you should certainly stop a few hours here, for this is one of the most impressive sights in Spain. Avila is an extraordinary place, the most uncompromising and Castilian of all. It is encased in a complete

armour of sharply-toothed Moorish walls, and looks out upon a vast and sterile landscape—a broad valley sown with granite boulders and merging at a great distance into the whitish flanks of the Sierra de Gredos.

Segovia, which you can reach by motor-bus across a rolling country covered in May with scarlet poppies and blue anchusa, is very different. There is the usual rock, the usual river at its foot, the usual bare landscape, but a thickly-wooded ravine, with nightingales that sing on almost every tree give it a gay and almost lyrical air. There is also a large Roman aqueduct, and the sixteenth-century cathedral built in a Gothic style has unexpected merits.

Just above Segovia, near the summit of the ridge, is the charming Royal Palace of La Granja, a rococo building, surrounded by waterfalls and thick pine woods. It is the chief summer resort of the people of Madrid, and a good centre for exploring the mountains. In the opposite direction, on a bare, muddy plain, stands the large and romantic castle of Coca.

You cannot say that you have really seen Castile until you have been to Salamanca, the Spanish Oxford, which lies fifty miles to the west at the end of a tedious railway journey across a plain that seems absolutely barren and uninhabited. The two Cathedrals, the Plaza Mayor and the University buildings require perhaps a visit of two days.

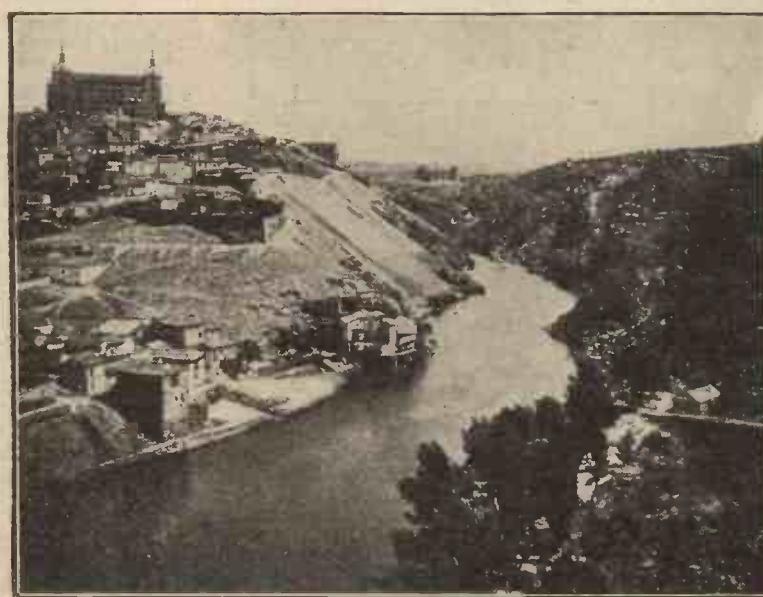
Various courses now offer themselves. You can go on to Ciudad Rodrigo, a charming place on the Portuguese frontier which I recommend strongly, or you can turn south to Plasencia, on the borders of Extremadura, through a wild and little-visited country. The hermitage of Yuste, where the Emperor Charles V. ended his life, is worth visiting for the beauty of its scenery. From this point you can either return to Madrid by way of Talavera, or go on to Lisbon.

I have tried to give you an idea how you may best spend a fortnight in Castile. About Aragon I have not time to say much. The most fascinating part of it, between its not very interesting capital Saragossa and Teruel, and Cuenca is rather inaccessible. I will only say that some parts of this country are so dry that it does not rain more than once in three years.

Beyond Aragon you come to Catalonia, inhabited by a different race, speaking a different language and having little in common with the rest of Spain. Its capital, Barcelona, is the largest town in the Peninsula. The Catalans have what is called to-day an inferiority complex, and in consequence of this they have laid out their city upon the vastest scale and decorated it in the most ostentatious manner.

It is well worth paying a visit to the new unfinished Cathedral in the suburbs or to the Parque Guell, where the rich magnates live in villas built in the form of grottoes or sponges, or drive their motors up inclined planes to the garages on the roof. The quarter of Montjuich is a kind of night-town like Montmartre, with cabarets where one often sees good flamenco dancing. The most interesting expeditions in the neighbourhood are to the monastery ofMontserrat and to the beautifully situated town of Tarragona. Then, about forty miles from the French frontier, at San Feliu and Palamos, there are some small summer resorts with particularly good bathing.

Castile and Aragon become too hot for comfort in July. As to the cost of living, Spain is not one of the cheapest countries to travel in. A moderately comfortable hotel or a good fonda will charge from 6s. to 10s. a day. The large hotels are more expensive.



Toledo : the Tagus and the Alcazar.

Photos by courtesy of the Spanish Travel Bureau.

* In a Talk broadcast from London, through Dayentry on April 10.

From the Swiss Alps

A Review of the March European Programmes

By YODELLER.

MARCH has now left us behind and officially spring is here, but since its advent the weather, in Switzerland, at any rate, has been far from spring-like. As I write these notes it is snowing hard, and for nearly a week it has been as cold as winter, whilst the valley and mountains opposite us have been hidden from view by mist. Curious to relate, the light dry fog seems to have a beneficent effect on listening-reception conditions.

For programmes, the month has been excellent, and seldom has it been difficult to find something well worth hearing from one of the multitude of broadcasting stations so easily captured out here.

Thursday, March 1.—Opened up the month by switching on Motala, which was putting out a splendid chamber-music concert. Then turned over to Daventry for the Welsh National Dinner, relayed from Cardiff, Mr. Lloyd George's speech coming through perfectly.

Friday, March 2.—Heard a most interesting broadcast from Breslau in the shape of relays from different Continental studios. First of all they gave us a few minutes at Toulouse, then we were taken over to London, and the next moment came the strains of "Bonnie Dundee" and other Scotch airs at tremendous strength; in fact, on changing over to Daventry direct, I found the Breslau retransmission

quite as pure and a little louder. Next we were given short visits to Kiel and Hamburg, and, lastly, a military-band concert from Moscow, this last relay simply roaring in on my loud-speaker.

Tuesday, March 6.—Picked up a splendid rendering of Wagner's *Das Rheingold*, from Berlin via Zeesen.

Thursday, March 8.—Again turned to the long-wave German transmitter, which this time was doing *Die Perlen der Cleopatra*, an operetta hitherto unknown to me, but which proved to be immensely enjoyable.

Friday, March 9.—Commenced the evening at Brünn, listening to the singing of a magnificent choir. This ended, changed up to Langenberg, which was relaying a concert from Cologne. Morse, however, was so terrific I had to change down to 283 metres, and succeeded in obtaining perfectly pure reception from Cologne direct. This concert was particularly noteworthy in that the star performer was Jan Kiepura, the marvellous young Polish tenor.

Tuesday, March 13.—The "Continental Programme" page of *World-Radio* gave me the following list to select from: *Madame Butterfly*, *Tannhäuser*, *La Bohème*, Mendelssohn's *Elijah*, and *Faust*, from Kattowitz, Königsberg, Motala, Munich and Madrid, respectively. What a wonderful selection! And I wonder what my readers made of the evening? This is how I

managed it. Seven-thirty p.m., Kattowitz, for Act 1 of *Madame Butterfly*, then changed to Königsberg for an hour of *Tannhäuser*, after which moved up to Munich for the last half of the *Elijah*. Then at 10 p.m. tuned in Madrid for *Faust*.

Thursday, March 15.—Stayed in Switzerland, listening to a splendid symphony concert from Lausanne, the executants being the Neuchatel Symphony Orchestra.

Wednesday, March 21.—This was a night of celebrities. First of all, picked up a speech by Dr. Stremann from Berlin, on the occasion of the International Press Congress from that city. Then from Daventry I heard the addresses of both Mr. Baldwin and the Prince of Wales which were being relayed from the Guildhall, London, following the annual banquet of the Company of Master Mariners. Ended the evening listening to the Sullivan concert.

Sunday, March 25.—This was a night to be remembered. With no hesitation whatever, after the first glance at *World-Radio*, set my dials for Munich, which was playing Wagner's masterpiece, *The Flying Dutchman*. The storm effects came over remarkably well, and the magnificence of this broadcast held me enthralled through every moment.

The month came to a fitting close with what must be the most popular events of the year from the Englishman's point of view, namely, the running commentary on the Grand National from Aintree, and the next day, Saturday, the Boat Race. I wonder how many people outside the British Isles listened to these last two events? Their number must be legion!

be the capacity of the condenser, because its resistance to a frequency of, say, 50 cycles gets lower and lower as its capacity is increased. For the mathematically-minded reader we may break the rule against formulae which we made at the beginning of this series, and give the following very simple one. The resistance to the flow of an alternating current which will be afforded by a condenser is expressed by

$\frac{1}{2\pi f c}$ when π is 3.14159, f is the frequency of alternation of the supply and c is the capacity of the condenser in microfarads. Supposing that the ripple we want to filter has a frequency of 50 cycles, let the reader who is sufficiently interested work out the resistance of a condenser of .001 microfarad and of another of 8 microfarads and observe the difference. The resistance of the latter is almost negligible. If, then, we connect a large condenser across the mains and earth one side of them, we are providing an easy path to earth for the unwanted voltage variation, and the result will be to smooth the supply.

But this is not enough in itself for practical purposes. We must also connect an inductance in series with one or both leads from the mains. The inductance has to deal with a very low frequency, and we want it to afford the maximum possible resistance to the unwanted frequency. It must therefore have a very high value of inductance, and generally takes the form of an iron cored choked coil. The most usual arrangement of a complete filter unit is that shown diagrammatically in Fig. 45. It is of little use to describe the values of the choke and condensers, since these will vary with the frequency of the supply ripple. For a rough guide, however, and as many mains have a frequency of about 50 cycles, it may be stated that a choke having an inductance of some 50 henries and condensers of 4 microfarads each will be satisfactory. Before installing apparatus to provide H.T. from D.C. mains it is as well to ascertain which side of the supply is earthed. If the positive side is earthed, the supply company should be approached and requested to change over. To discover the polarity of the mains, attach one wire to each terminal and hold the ends of the two wires in a glass of water. The wire which gives off bubbles is attached to the negative terminal.

Wireless Step by Step

By "DICTRON"

LI.—H.T. from the Mains

IN our last instalment we turned our attention to the provision of the necessary supply of high tension voltage to the anodes of the valves of the receiving apparatus and discussed the alternatives of the dry and wet battery of cells for the purpose. Both are satisfactory within certain limits. The former requires no attention, but must be renewed at considerable cost and with a frequency which depends upon the amount of current which is taken from it, thereby limiting to some extent the power which may be employed to operate the amplifier valves; and furthermore, the dry cell deteriorates when not in use. The wet cell gets over most of these difficulties, but at the expense of a good deal of trouble and care, and if the batteries cannot be charged in the house there is the cost of repeated charging to be considered.

Now if the listener is fortunate enough to have a supply of electricity laid to his house, he can dispense with either type of cell and operate the set from the lighting or power mains, preferably the latter, because the cost per unit is very much less. The initial cost of the apparatus required to obtain H.T. supply from the mains is admittedly somewhat high, particularly if the current from the mains is alternating, but the cost of maintenance is practically negligible, amounting to only a few shillings a year for the current consumed.

The Generator "Ripple."

The supply from the mains must be either direct current or, alternating current. If the former, it is generally supplied from a direct current generator at the power station, and cannot be applied direct to the receiver because the commutator ripple of the generator will be present. The generator consists in principle of a coil or coils fixed in a slot cut in a soft iron core called the armature. The armature with its attached coil is rotated at a high rate between the poles of a permanent magnet. The ends of the coil are connected to segments of a circular

commutator. Each segment is insulated from the next, and brushes are arranged to make contact with the segments as they rotate. Obviously, as the coil rotates between the poles of the magnet the polarity of its two ends will be reversed with every half revolution of the armature. By having two brushes 180 degrees apart making contact with the segments, one brush must always be picking up a positive voltage while the other is picking up a negative one. Thus the current in a circuit having its two ends connected one to each brush is a unidirectional current, but the current is not steady because the coils are changing polarity



Fig. 45

through zero, and consequently the voltage must rise and fall with each half revolution. This will produce a rippling sound in the set if the mains, the terminal points of which are connected to the brushes of the generator at the power station, are connected directly to the set. The frequency of the ripple will obviously be proportional to the speed at which the armature of the generator is rotated. To get rid of this ripple we must use what is called a smoothing or filter circuit. This circuit consists of a combination of capacity and inductance.

The Smoothing Circuit.

We know from our earlier studies that the resistance of a condenser varies according to the frequency of any alternating or fluctuating current which it may be required to pass. To put it another way, we may say that a condenser is capable of choosing between high and low frequencies according to its capacity. The lower the frequency of the ripple, the greater must

The DX Man's Note-Mag

MOST long distance enthusiasts probably are interested in two quite different sides of wireless reception: first of all, that which is concerned with the medium and long waves, and secondly, that which deals with the ultra short wavelengths from 100 metres downwards. No single receiving set can be used with complete satisfaction for both purposes. For the medium and long waves at least one stage of high-frequency amplification is required in order to give sufficient signal strength and the necessary degree of selectivity. On the short waves no high-frequency amplification is needed for ordinary reception purposes and a special circuit, usually some modification of the Reinartz, is desirable. Not a few readers probably go even further than to provide two receiving sets; they have also a third which is used entirely for the reception of the local station, 5XX and 5GB, and is therefore designed mainly with the idea of obtaining the purest possible reproduction of powerful transmissions at comparatively short range.

Now though the rectifying and high-frequency circuits (if any) of these three sets are all specialised for the purposes in view, there is one portion of the receiving set which is not in the least affected by the wavelength or by the degree of efficiency existing in the high-frequency and rectifying portions. This is the department devoted to low-frequency amplification. Whatever the valves or the circuits preceding it, the input to the first note-magnifying stage consists invariably of uni-directional impulses at audio frequency. A moment's thought will show that it is thus possible to have a common note-magnifier for all kinds of receiving sets. The receiving set proper, in fact, may end at the rectifying valve. It may be made with output terminals connected to the plate of the rectifier and high tension positive. The note-magnifier has corresponding input terminals and when the two pieces of apparatus are connected together by means of brass straps or of short lengths of wire a complete receiving apparatus is obtained. Provided that the note-magnifier is so designed that it is capable of giving high amplification without distortion, it will serve excellently whether connected to a super-heterodyne receiver, a "straight" receiver using screened grid valves, a receiver with neutralised high-frequency stages, or a rectifier with special short-wave circuits.

Before we can design a suitable note-magnifier we must first consider what it will have to do. In the short-wave receiving set gridleak-and-condenser rectification will almost certainly be used, for the anode bend system is not efficient when dealing with weak signals. On the other hand, a medium-wave set will most likely contain an anode bend rectifier for this gives much sharper tuning of its grid circuit than one utilising a leaky grid-condenser, and where there is ample H.F. amplification the anode detector is actually rather the more efficient of the two. If there is a special short-range set designed for pure reception it will certainly not incorporate gridleak-and-condenser rectification. It is not always realised that a leaky grid-condenser detector should be coupled to the following note-magnifying valve by means of a low-frequency transformer in order to produce the best results. Excellent though it is in many respects, resistance capacity coupling is not in this case suitable. An anode bend rectifier, however, should invariably be followed by resistance coupling, and this system is essential in any receiver that is intended to enable perfectly pure reproduction to be obtained.

The first problem that presents itself, therefore, is so to design the common note-magnifier that either resistance or transformer coupling may be used at will between the output of the

rectifier and its first valve. The next consideration is concerned with the number of low-frequency valves. If we wish, as naturally we do, to obtain loud-speaker reproduction from a number of stations, one valve will not be sufficient. Two, however, if suitable for the work, will give the necessary magnification. Next we have to bear in mind that to work a loud-speaker properly the output valve, that is the second valve of the note-magnifier, must be of the low impedance type. We cannot profitably use such a valve in the first low-frequency stage, since low impedance unfortunately means a small magnification factor. This means that we are debarred from cutting out the last valve by means of a jack if the strength of a received signal is too great when both are in use. If a jack were used the output to the loud-speaker would be from the first low-frequency valve, whose impedance is too great to allow of pure and undistorted reproduction. Can we cut out the first valve, delivering the output of the rectifier directly to the second? It is possible to do this, but it is not advisable in most cases owing to the complications, such as altering the grid bias and the like, which follow in its wake. On the whole, it is better to keep both valves always in circuit and to arrange an effective form of volume control which will allow a loud signal to be toned down until it can be dealt with comfortably by the last valve. In this way we are always working with something in hand, and the reserve amplification that is available enables signals from many stations to be reproduced at equal strength.

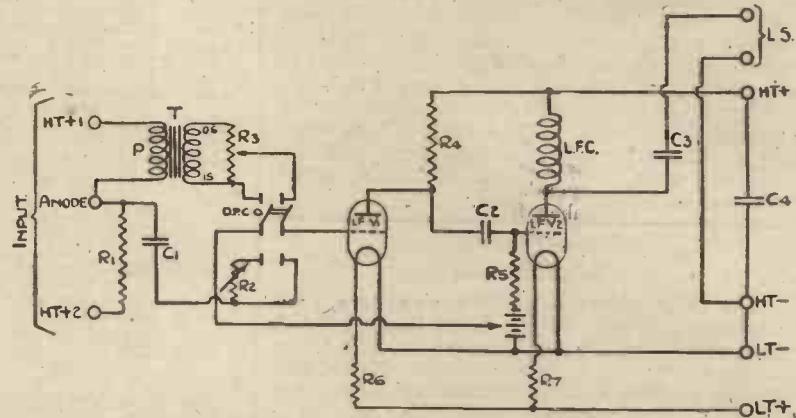
The accompanying diagram shows a simple way in which a note-magnifying unit suitable for use with any kind of receiving set may be arranged. There are three input terminals marked respectively "Anode," "H.T.+1" and "H.T.+2." If

we desire to use transformer coupling, as we shall when, say, the short-wave set is in use, the output terminals for the rectifier connected to "Anode" and "H.T.+1." At the same time the double-pole change over switch is turned over to the "up" position. On tracing out the circuit the reader will see that the transformer T is thus brought into action. Its primary is connected across the two terminals mentioned, whilst its secondary is wired to the upper pair of contacts of the switch. The grid of the first note-magnifying valve L.F.V1. is connected to one of the middle contacts of the switch, whilst a lead from a suitable negative tapping of the grid battery goes to the other. In order to use resistance coupling when an anode bend rectifier precedes the note-magnifying unit the output terminals of the detector are connected to "Anode" and "H.T.+2," the switch being turned downwards. The transformer is now out of circuit and the plate of the rectifier is connected through C1 and one of the arms of the switch to the grid of L.F.V1. It is also connected through the resistance R1 to high tension positive. The gridleak R2 is connected to the grid battery by way of the second contact arm of the switch.

Both the transformer and the components of the resistance capacity coupling must be chosen with care. The leaky grid-condenser rectifier of the short-wave set, or of the medium-

wave set, if this method of detection is used in it, will naturally be a valve of the medium impedance class, with a plate impedance that is to say, of the order of some 20,000 ohms. For the best results with such a valve a transformer with a high inductance value in its primary is required. This means that the step-up ratio between primary and secondary must be small. Various considerations definitely limit the number of turns of wire that can be placed upon the secondary, from which it is clear that a step-up ratio can be obtained only by reducing the number of primary turns. What is required is a transformer of large and heavy type with a step-up ratio between 2.5 and 3.5 to 1. In the resistance capacity portion the value of the anode resistance will depend upon the class of valve used as rectifier. Following a medium impedance valve a resistance with a value in the neighbourhood of 100,000 ohms will be suitable. If the rectifier is a high impedance valve the value of the anode resistance may be 500,000 ohms. A coupling condenser, C1, with a capacity of the order of .1 microfarad will answer well. Resistances of the values mentioned may be obtained in the wirewound type, whilst paper dielectric condensers of .1 microfarad are standard and not very costly components.

It must always be borne in mind that the gridleak and anode resistance are in parallel so far as oscillating currents are concerned. From the plate of the rectifying valve coupled by the resistance capacity system there are alternative paths to earth. The first is by way of the anode resistance and the condenser shunting the high tension battery; the second via the grid condenser and the gridleak. Clearly the magnitude of the potential changes across the anode resistance, and therefore of those reaching the grid of the first low-frequency valve, will depend largely upon the value of the gridleak. For this reason the leak R2 in the circuit diagram is not fixed but variable. By reducing its value signal strength is cut down



and the volume therefore becomes easily controllable. With an anode resistance of 100,000 ohms the gridleak may be a 0 to 1 megohm variable resistance. Where an anode resistance of 500,000 ohms is used after a high impedance valve a 0 to 5 megohm variable gridleak will be suitable. The volume control when transformer coupling is in use is obtained by means of another variable high resistance, this time of potentiometer form, which is connected across the secondary terminals. A value of from 0 to 1 megohm is suitable here. It is most important that the variable resistances used should be of the very best as regards both quality and design, for, if they are not, noisiness and faulty action may be expected.

The first and second note-magnifying valves are resistance capacity coupled, the values of R4 and R5 depending upon the impedance of L.F.V1. This last will usually be a "First L.F." valve with an impedance of the order of 8,000 to 10,000 ohms. Here a 50,000 ohm

(Continued on Page 550)

Practical Searching Hints

DIRECT PICK-UP

It not infrequently happens that a set, either made at home or purchased, proves rather disappointing, owing to its failure to eliminate the local station when it is desired to reach out for others further afield. In many instances this apparent lack of selectivity is due to what is known as direct pick-up. The coils, acting as miniature frame aerials, collect energy from the local station on their own account and a wipe-out effect is therefore noticeable over a fairly wide band of wavelengths. Where direct pick-up is experienced a great improvement can usually be made by substituting astatic or "fieldless" coils for those of plain solenoid or honeycomb type. The astatic coil is generally recommended for use in sets containing two or more stages of high-frequency amplification since, owing to its small field, it minimises stray couplings between circuits. But a coil that is a poor radiator is also a poor collector; hence the astatic inductance is exceedingly useful in reducing direct pick-up effects.

Any reader who suffers from the local station's wipe-out can make up astatic coils for trial with very little trouble or expense. Obtain a tubular former of ribbed ebonite, paxolin or even waxed millboard, scribe a line across it and drill holes on this, one close to either end and one in the middle. In each of the first mentioned mount a small terminal. In the middle hole place a 4B.A. screw and secure it loosely with a nut. The number of turns required will be about forty per cent. greater than is the case with solenoid or honeycomb coils. Attach the end of the wire to one of the terminals and wind on half the number of turns. Then take it round the middle screw, turn the former over in your hands and wind on the remaining turns outwards from the middle, attaching the end when all the turns are on to the second terminal. Tighten up the nut on the middle screw. You now have a coil one-half of whose windings are clockwise and the other anti-clockwise. The field of one-half of the coil is in opposition to that of the other, and the two almost cancel out. In order to keep the HF resistance as low as possible it is best to use Litz cable for the windings. The type known as 9/40 is very suitable. For trial coils, however, No. 26 double cotton covered wire may be used.

(Continued from col. 3.)

Short Waves

On short waves conditions also have been uncertain, 2XAF having been more or less regular and at fair strength, whilst 2XAD on 21.96 metres has been extremely variable, and at the present time is spoiled by high-speed fading. Rather below 2XAD one can hear what I take to be two-way telephone work between Java and, presumably, Holland. The latter is not very well heard, but the other transmission, though weaker, is quite clear. I have a note that "Radio Victoria" was heard just below 2XAD, but I regret that at the moment I cannot recollect whether this is correct, or should refer to 2XAF, since a figure, 29.5, alongside rather indicates that the wavelength had been given. The note was made in a hurry, and should have been amplified later, but I remember that an address was given to which to send reports, the language being French.

Owing to the holidays I am writing before having an opportunity of tuning for the Carillon from Cologne Cathedral. This was to be heard last New Year's Eve, if I remember rightly, but the transmission was not entirely a success. There is no doubt that there are very great difficulties in transmitting sounds from heavy bells, and of those I have heard no transmission of any bell, from any country, has ever approached the relay of Great Peter from York Minster at midnight on December 31 last.

SHORT WAVE STATIONS

M.	Kc.	
85	3529	Zürich (Radio Club) EH9XD.
70	4285	Springfield (Mass.) WBZ.
70	4285	Vienna (OKH2). (Transmits on SUN. for 15 minutes after each hour from 5 p.m. till midnight.)
67.65	4434	Döberitz (AFK) 5 kw. MON., WED., and FRI., 10-11 a.m. and 6-7 p.m.
66.04	4542	Los Angeles (California) 6XAL from mdt. 0.5 kw.
66.04	4542	Cleveland (Ohio) 8XF, 0.5 kw.
65.4	4587	Newark (N.J.) 2XAQ, .05 kw.
65.18	4600	Newark (U.S.A.) WAAM, 0.5 kw.
65.18	4600	Newark (New Jersey), 0.5 kw. 2XBA (S.W. of WAAM). Transmits between 12 mdt. and 5 a.m. TUESDAYS, THURSDAYS and SATURDAYS. .05 kw.
65.18	4600	San Diego (KFBC).
64	4687	Richmond Hill (New York) WABC, 0.5 kw.
62.5	4800	Pittsburgh East (Westinghouse Electric) KDKA (U.S.A.).
61.06	4913	Council Bluffs (Iowa) 9XU. 0.5 kw
61	4918	Paris (Radio LL) GC.
60	5000	Russia, RFN (irregular).
59.96	5003	Bound Brook (N.J.) 3XL, 30 kw.
56.7	5291	Nauen (AGJ) occasionally after 6.0 p.m.
54.02	5553	Columbus (Ohio) 8XJ.
54.02	5553	Coney Island (N.Y.) 2XBH, 0.15 kw.
54	5555	Brooklyn (N.Y.) WGGV, from 11.0 p.m.
53.54	5600	Portland (Oregon) 7XAO, 0.1 kw.
52.05	5763	Harrison (Ohio) 8XAL, 0.5 kw.
52.02	5767	Cincinnati (Ohio) WLW. Relays medium wave transmissions from 11.50 p.m. G.M.T. Except SUN.
50	6000	Karlsborg (Sweden).
50	6000	Russia, RFN. TUES., THURS. and SAT., 12.0 noon and 1 p.m.
45	6666	Rome (Italy) 1AX.
44.8	6696	Vienna, 0.24 kw.
43.35	6920	New Brunswick (N.J.) WIZ. Experiments occasionally from 11 p.m.
43	6878	Pittsburgh East (Westinghouse Electric) KDKA.
42.12	7122	Copenhagen, 7RL. SUN., 12 to 2 p.m. MON., 11 p.m. to 12.30 a.m. TUES., 10 p.m. to 12 mdt. FRI., 10 p.m. to 12 mdt.
40.20	7463	Lyon (Rhône) YR. Daily except SUN. from 4.30 to 5.30 p.m.
38	7894	Agen.
37.5	8000	Ibarakiiken (Japan) JHBB.
37	8103	Radio Vitus. WED., FRI. and SUN., 9.0 p.m. to 10.0 p.m.
33	9090	San Francisco (Cal.) 6XAR. from mdt.
32.9	9118	Perth (W.A.) 6AG. 11.0-11.30 a.m.
32	9375	Zürich (Radio Club) EH9XD.
32	9375	Melbourne (3LO). SUNDAYS, 6.30 p.m. to 8.30 p.m. G.M.T.
32	9375	Johannesburg (JB).
32	9375	Berne (Switzerland) EH9OC.
32	9375	Paris, Eiffel Tower. Time Signal 7.56 a.m. and 7.56 p.m.
32.5	9231	Sydney (2BL).
32	9375	Detroit (Mich.) 8XAO WJR, 0.75 kw.
31.4	9584	Schenectady (General Electric Co.), N.Y. 2XAF, 10 kw. (Aer.). SUN., WED. and FRI. No transmission. MON., 11.0 p.m. to 4.0 a.m. TUES., 11.0 p.m. to 6.0 a.m. THURS., 11.0 p.m. to 5.30 a.m. SAT., 11.25 p.m. to 5.0 a.m., 0.5 kw. Relays WGY.
31.93	9395	Bandoeung, Java (Radio Service) ANE. TUES. and THURS., 4.40 p.m. to 6.40 p.m. (G.M.T.).
31.25	9600	Bergen.
31.5	9523	Helsingfors, 0.3 kw.
30.91	9706	New York (2XAL). TUES., 12.0 midnight to 5 a.m. (WED.). WED., 12.0 midnight to 2.0 a.m. (THURS.). FRI., 12.0 midnight to 4.0 a.m. (SAT.). SAT., 12 midnight to 3.0 a.m. (SUN.), 0.5 kw.
30.2	9934	Hilversum, Holland, PCJJ. TUES. and THURS., 6.30 p.m. (G.M.T.) and SAT. from 2 to 6.0 p.m. (G.M.T.).
30	10,000	Bergen (Norway) LGN.
28.5	10,526	Sydney (2FC).
26.92	11,144	New York (2XAG).
26.8	11,194	Pittsburgh (8XK). MON. and THURS., 7 p.m. to 9 p.m., 40 kw.
24	12,500	New York (2XAB).
24	12,500	Chelmsford (5SW, 15 kw. Aer.). DAILY (except SAT. and SUN.) from 12.30-1.30 p.m. and from 7 p.m.
22.99	13,049	Houlton (Maine) 2XAA. after 11 p.m.
22.8	13,158	Fort Wayne (Indiana) WOWO, 1 kw. after 11 p.m.
22.2	13,392	Vienna, 0.24 kw.
22.1	13,574	Richmond Hill (N.Y.) 2XE (S.W. of WABC). after 11 p.m.
21.96	13,661	Schenectady (General Electric Co.) 2XAD SUN., 11.30 p.m.-4 a.m. MON., 7 p.m. to 9 p.m. TUES., Tests only 5 p.m. to 6 p.m. WED., 11 p.m.-4 a.m. THURS., 7 p.m. to 9 p.m. FRI., 11 p.m. to 4 a.m. Relays W.G.Y. Wednesdays and Fridays.
18	16,666	Kootwijk (Holland) PCLL. WED., 2.0 p.m. to 4.0 p.m. and occasionally on MON. and FRI.
17.2	17,441	Nauen (AGC).
17	17,647	Bandoeung, Java (Radio-Malabar) ANH, 30 kw. SAT., 12.40 p.m. to 2.40 p.m.
16.02	18,726	Rocky Point (Long Island) 2XG. MON. and FRI., after 5.0 p.m.
15.93	18,832	Bandoeung, Java (Radio Service) ANE. MON., 12.40 p.m. to 2.40 p.m.
15.5	19,354	Nancy (France).

Last Week's Log

By NORTHERNER

We appear now to have reached the part of the year when reception conditions definitely fall away from their winter-time efficiency. Throughout the last ten days or so I have noticed that some of the "certain" transmissions have not been quite so certain as one usually experienced. Fading has become more pronounced, at least on the medium wave-band, and at the present time I should describe conditions as satisfactory only to a point, variability being a great trial. Possibly the phases of the moon are not entirely unconnected with these conditions, but at any rate the lighter evenings and the period of the year make reception from a distance less happy than of late.

Even short-wave reception has been irregular, and variable in results. As in some way connected with the reception of transmissions, the ostensible subject of this article, I might perhaps be allowed to mention that of late I have been using my short-wave receiver on the normal broadcast wave-bands, both medium and long.

Medium Wavelengths on S.W. Receiver

Lest this be considered a retrograde step, it is, I think, clear that a tuner, set up specially for receiving on the very high frequencies met with on short waves, will be very efficient, so far as lay-out is concerned, on, say, 200 to 500 metres, and the convenience in quickly changing over is certainly a point for consideration.

On the long waves, Radio-Paris, which I have not mentioned recently, has a very good quality of reproduction, and is frequently well worth hearing, remarks which no doubt are common knowledge to Southern readers. Motala shows more variation in strength, but is still a good signal, and Königswusterhausen reception fluctuates from day to day. The interference on this station, to which reference was made in a paragraph in *World-Radio* a few weeks ago, is very pronounced at times. Kalundborg and Warsaw remain fairly steady, whilst Hilversum is, and I hope will remain, a reliable stand-by programme.

I noted a bad heterodyne on Kalundborg on March 28, and although I did not identify the station, I ascertained that French was the language used. Hilversum appears to be very close to what I think must be the Continental beacon signals, which can be frequently overheard. These signals are of similar type to those from the British beacons, which can be picked up a little lower at 1,000 metres.

Many Summer Programmes Available

On the medium wave-band matters have been more or less normal, with the reservation that signals fade more, and in general are weaker than for some time past. This I think is to be expected, but, fortunately, as time goes on receiving methods improve, and with the very numerous transmissions in existence, we need not fear the loss of more than a part of our alternative programmes through the summer season of the year. Radio Wien (Rosenhügel) I have picked up again, and as "The Searcher" heard that station when I missed it a short time ago, it certainly does appear that locality alone has marked effect in giving good or bad results in reception.

I find that one very successful transmission on this band is from Huizen on 340.9 metres (up to 5.40 p.m.). This station is easily heard during the hours of daylight and at much greater strength than at night, at which time the wavelength reverts to 1,870 metres. Under the latter conditions I have never found the transmission really good, owing to the preponderance of static and Morse when the station was brought up to the necessary strength.

(Continued in Col. I.)

Broadcasting and Languages

GERMAN GRAMMAR AIDS

LONG AND SHORT VOWELS.

Now that we have discussed the pronunciation of all the long and short vowels I should like to devote a few minutes to the problem of when to use a short vowel and when to use a long vowel.

All diphthongs are long, so we can rule them out at once. There is only one pronunciation for each diphthong : *ei*, *au* and *eu*.

Apart from a few exceptions which we need not consider here, vowels in unstressed syllables are short. Let us take the past participle of the verb to be : *sein*. The participle is *gewesen*. The second syllable carries the stress so that the first and last syllable could on no account be long : *gēwesen* or *gewesēn* are quite impossible.

We have now narrowed down our field of enquiry ; we are concerned merely with simple vowels in stressed syllables. Is there any way in which we can tell whether such a vowel should be long or short ? The length is sometimes indicated by an "h" as in the following words : *Lehrer* : teacher ; *Sahne* : cream ; *Sohn* : son ; *Kuhle* : pit. But this "h" by no means occurs always, and how are we to tell when ?

I am afraid I must now introduce two technical terms, namely, open syllable and closed syllable. To put the cart before the horse, stressed vowels in open syllables are long ; stressed vowels in closed syllables are short. An open syllable is a syllable which ends in a vowel ; a closed syllable, however, is closed by a consonant. Let us take an English example. We will, for a moment, consider the words "able" and "apple." In the word "able" the "a" is in an open syllable ; the "b" belongs to the second syllable. You can prove this to yourselves by giving an extra length to the "a." If you say : But is he a—ble to do this ? the effect may be curious, but there is nothing wrong with the English. Let us do the same with the word "apple." Did he really steal the a—pple ? The effect is ridiculous ; apples pronounced like that are no longer apples. Why ? Because the "a" in "apple" is in a closed syllable. You will notice that when you say "apple" the vowel is cut short by the mouth assuming the position for a "p."

Now let us apply this rule to German. If the stressed vowel is followed by one consonant only that consonant belongs to the next syllable and the vowel is therefore long : *haben* (to have) ; *Bogen* (bow) ; *sie schlugen* (they hit). If the stressed vowel is followed by two consonants the first consonant belongs to the first syllable, which is, therefore, closed ; then the vowel is short : *Apfel* (apple) ; *Eltern* (parents) ; *unter* (under).

There is a rule which cuts right across this scheme. This rule says that in words where both long and short vowels can occur in different forms only one form shall be used. Let us take an example. The verb to hear : *hören*, the vowel is long. *Ich höre, wir hören, sie hören*, the vowel is long. *Er hört, ihr hört* are therefore lengthened, too. The same applies to the past tense of this verb, *ich hörte*. According to our first rule this should be short, according to our second rule it should be long, and the second rule wins every time. This lengthening by analogy, as it is called, occurs in all words which can be inflected, i.e., in verbs, nouns and adjectives. One more example : *der Tag* (the day) has an accusative, *den Tag*. Both forms have a closed syllable. But all other forms must have a long syllable : *Tages, Tage, Tagen*. So there are six forms with open syllables and only two with closed ; the open win and the nominative and accusative of *Tag* are long by analogy.

(Continued on page 546.)



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MATRICULATION PASSED.

"I was able to pass London matriculation (in Spanish) last June with minimum labour and no drudgery, although I was always reckoned a 'dud' at languages." (S.B. 373.)

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1928

Dominion and Foreign Broadcasting Intelligence

SOUTH AFRICA

(From our Cape Town Correspondent.)
Wonderful Reception of 5SW.

5SW, which has been coming through with remarkable clarity of late, provided on Wednesday night, March 21, the biggest relay sensation ever experienced in South Africa. The speeches of the Prince of Wales and the Prime Minister during the Banquet proceedings of the Company of Master Mariners at the Mansion House were heard almost word perfect, and despite the late hour (it was 11.15 p.m. in Cape Town when the Prince was announced) the morning paper published a pretty full account of this remarkable reception. In view of the lateness of the hour nobody expected the relay would be a success, for 5SW has a nasty habit of fading badly about 10 o'clock and remaining unintelligible from that time onwards, but the unexpected happened. It was a night in a thousand, and fading was hardly noticeable even at midnight. Dr. Lunt of Kenilworth managed the pick-up perfectly and passed along his reception by 'phone to the Cape Town station about ten miles distant. The whole Peninsula is talking to-day of what they heard, and short-wave enthusiasts are on the increase.

French "Mystery Station."

But to-night I have received reports about a mysterious French station on 31 metres which has been heard for several nights in the Cape Peninsula and at Mossel Bay. The Frenchman's signals are remarkably loud and clear, but he does not disclose his identity. He repeats "Allô, Radiophonie," a dozen times, and then counts up to five in French, after which he vanishes, leaving everybody guessing.

(From our Johannesburg Correspondent.)

The New JB Transmitter.

In the near future broadcasting in South Africa will be greatly improved. Part of the plant for the erection of a new station has already arrived and work will be proceeded with as rapidly as possible. This is in accordance with the plans formed when the A.B.C. (African Broadcasting Corporation) took over the present station. The new set will give 15 kw. in the aerial and provide much better broadcasting for the Rand, Pretoria, and the rural district. The present JB set will probably be removed to Bloomfontein, which will obtain perfectly good service from the new transmitter and render unnecessary the provision of a local station, as was at one time contemplated.

AUSTRIA

(From our Vienna Correspondent.)
Stubenring and Rosenhügel.

About the end of April the new 60 kw. Rosenhügel station will be ready for steady work, but from Easter Tuesday the old Stubenring station will have to do all the work, using 517.2, the Rosenhügel wavelength, instead of its normal 577. The new Rosenhügel station has been erected without disturbing the existing station, which is going to Graz. The gymnastic lessons per radio, announced for Sunday mornings, beginning April 1, have been postponed till the 15th at the earliest.

Operatic Evenings.

On Saturday, April 14, a special musical programme will be transmitted from Vienna to Zürich, and on Tuesday, April 17, a similarly arranged programme will be sent to Prague. Monday, April 16, with its Italian programme (that being the date of the International Italian evening) will comprise works of Verdi, Rossini, Mascagni, and others. The Vienna Symphony Orchestra will be directed by Prof. Robert Heger. On Thursday, April 19, will be relayed from the Vienna State Opera Donizetti's

Daughter of the Regiment, and on the 21st will be given in the Ravag studio Franz Lehár's operetta, *Where the Lark Sings*.

DENMARK

(From our Copenhagen Correspondent.)

Italian Opera Broadcasts.

From Sunday, April 15, to Sunday, April 22, the Italian Opera Company will give a short season at the Royal Theatre, and the Danish State Broadcasting Co. have arranged to broadcast five performances, as follow:

Sunday, April 15, *Aida*; Monday, April 16, *Rigoletto*; Wednesday, April 18, *Il Trovatore*; Friday, April 20, *The Masked Ball* (Verdi); Sunday, April 22, *The Somnambulist* (Bellini). The Royal Theatre orchestra, with which will co-operate the Royal Opera Chorus and the Royal Ballet, is under the direction of Maestro Egisto Tango.

FRANCE

(From our Paris Correspondent.)

Another "Mystery" Station.

A mystery broadcaster who announces "Ici Radio ABCDEFGHIJK" is intriguing French listeners. It is "on the air" from 9.30 p.m. or 10.45 p.m. to 11 p.m. on from 1,100 metres to 1,170 metres wavelength with good power, for it is heard in the capital on small valve receivers. Many reports of reception come from the north of France.

Radio "Aces."

The two "aces" of French amateurs, M. Leon Deloy (8AB at Nice) and M. Pierre Louis (8BF), both of whom must be well known to British amateurs, will get the Legion of Honour if the petition now being launched by the French Amateurs' League is successful. The League and their paper *Journal des 8* draw attention to the fact, now that the short waves are being used so much for commercial and other purposes, that it was 8AB and 8BF, who, in 1921-2, with improvised apparatus and on low power, and much to the astonishment of the experts, established contact with America on 190 metres and 100 metres respectively. This was at a time when an international committee had abandoned the bands below 200 metres to amateurs "for their amusement." A stir was caused among amateurs in America from which country Mr. Schnell, secretary of the A.R.R.L., wrote "To-night we have written a page in history . . ."

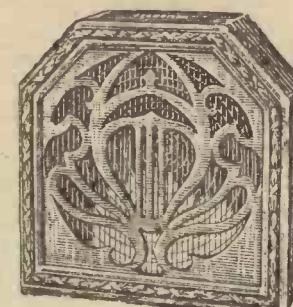
In April, 1924, M. Pierre Louis (8BF) was received in Eastern U.S.A., and subsequently established communication on 44 metres with Morocco, Syria, Indo-China and the Philippines, on 84 metres with Australia, and on 90 metres with New Zealand. In launching their petition the League quotes the fine tribute paid to amateurs by General Ferrié, the chief of military wireless in France.

A Listeners' Congress.

Wireless "fans" here are appealed to by the technical Press this week for the holding of a congress to formulate a plan of action in view of the Government's Radio Bill, which will be introduced as soon as the new Chamber of Deputies meets. They point out that there are more than 1,500,000 listeners and some 300 radio clubs here, and that new wireless organisations are being formed every week.

A Sports Tribute from Listeners.

Coming on top of the general demand for sports relays, the annual six-days' cycle race at the Velodrome d'Hiver is being "covered" this week by M. E. Dehorter, "le Parleur Inconnu," and broadcast from the State stations. A special prize for the contestants is being arranged for by listeners.



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TELEVISION PARTS.—Arc Lamps, as used in America, 60/-. Powerful Projectors, four lenses and fitted 100 watt focus lamp, 39/6, 24 x 21 in. Gun Telescope with 6 lenses, 17/6. Torpedo Type Spring-driven Gyroscopes, 15/-. Neon Tubes, 2/6. Holders, 8d. Osram B.E. Power Valves, 8/6. Selenium Cells up to 200 v. ratio 30-1, 15/-. Double Scale Taylor-Hobson Protractors for discs, 5/6. 3-valve Amplifiers, 50/-. A.C. or D.C. Motors for Disc Drive, 35/-. Wonderful 200-watt Alternators, Watford A.C. Self-exciting. Cost £30. Great bargain, £3. As used by Baird.

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"New Ventures in Broadcasting"

UNDER the above title the B.B.C. have published, at the price of one shilling, "a study in Adult Education"—a term which is described as "the widening of experience and the cultivation of new interests." The book is the result of the findings of a Committee of Inquiry, under the chairmanship of Sir Henry Hadow, set on foot jointly by the B.B.C. and the British Institute of Adult Education. The comprehensiveness of its field of inquiry may be gathered from the following chapter headings: "The Growth of Broadcasting," "The Listening Public," "Broadcasting and Adult Education," "The Broadcast Programme," "The Listener and his Difficulties," "The Broadcast Lecturer," "The Needs of the Moment," "Future Organisation," and "Finance."

Among the useful Appendices there are two of special interest to readers of *World-Radio*—namely, "Notes on the Choice and Use of Constructed Sets" and "Notes on Educational Broadcasting in Other Countries." In the chapter entitled "The Broadcast Programme," some remarks of Professor Noel Baker, Cassel Professor of International Relations, University of London, are quoted. In his evidence, given at the inquiry, he says:

"Broadcasting must have a powerful effect of one kind or another on general opinion with regard to international affairs. There is already a large amount of listening to foreign stations; such listening means that the listeners hear foreign news and sometimes foreign speeches, which inevitably affect their attitude to other countries. Every broadcasting authority has already, therefore, a direct responsibility which, with every technical improvement, must obviously increase."

In the same chapter the subject of Empire Broadcasting is referred to, and we cannot do better than quote from the book:

"The aim of the B.B.C. is to link together the various national systems for the benefit of the Empire; in other words, to make it possible for Great Britain and the Dominions and Colonies to listen to each other's programmes. It is scarcely necessary to emphasize the important bearing this development will have on the relations of the different communities within the British Commonwealth, nor the interest it will have for those who are thinking of making their homes overseas, and will thus be able to learn something at first hand, through broadcasting, of the country to which they may be going."

The Appendix on Educational Broadcasting in Other Countries, previously referred to, gives a summary of those parts of foreign stations' programmes which are devoted either to language lessons or to some other form of educational talk. Although, in general, readers of *World-Radio* will be familiar with the facts given, yet concentration of them in the present form will be found both helpful and instructive.

The difficult subject of an international language for broadcasting is referred to:

"The question of using broadcasting for the teaching of an international language raises many difficult problems. It is undoubtedly true that broadcasting does for the first time provide a chance for a living international language, since the universal character of broadcasting would provide a safeguard against the tendency toward national differences of usage and pronunciation. But it is difficult to make any recommendation until such time as agreement has been reached amongst the various claimants."

French Talks.

Owing to the great success which attended M. E. M. Stéphan's experiment on February 13 in giving a practical demonstration with an English student on "How to Pronounce French," M. Stéphan has decided to repeat this experiment twice during his summer session French talks. The two pronunciation demonstrations will be on May 14 and June 25.

Radio and International Relations

By Dr. E. E. FOURNIER d'ALBE, F.Inst.P. (the eminent scientist and radio inventor)

WITH the formation, in March, 1925, of the Union Internationale de Radiophonie, having its permanent seat in Geneva, international relations entered upon a phase hitherto unknown.

Not only has the International Broadcasting Union agreed upon a scheme of distributing wavelengths in proportion to the area, population, and activity of the various States concerned, and with a view to preventing mutual interference, but it has established the principle of active co-operation, based on mutual respect and good will.

The main difficulty in the way of the creation of a sense of unity among European nations is the linguistic one. It is by no means true, as is sometimes contended, that all international disputes are due to misunderstandings attributable to differences of language. Some of the bloodiest wars, even in modern times, have been fought between people speaking the same language.

The best way to stop men killing each other is to preserve harmony among their ideals. It is in this direction that broadcasting can exercise an influence making for peace. The national wireless programmes give a faithful picture of the national taste, the opinions, the hopes, and the aspirations of the people. This is particularly noticeable in countries which, like Great Britain, Germany, Austria, Italy, and Scandinavia, have adopted the system of indirect State ownership, and the international listener who roams through Europe with the aid of his four-valve receiving set gradually acquires a sense of comforting familiarity, of being at home in a larger world beyond the frontier, among people different from his own, and interesting in proportion to that difference.

In becoming familiar with the various European stations, the listener finds that the linguistic difficulty gradually disappears. He learns to understand the semi-military *Achtung!* of the German stations, the punctilious *Bonsoir*, *Mesdemoiselles*; *bonsoir*, *Messieurs* of France, and the *Buona notte a tutta di Roma*. He learns that *Lahku noc* is Serbian for "Goodnight," and that the Dutch *Wel te rusten* is intended to wish him happy slumbers. He becomes acquainted with quite a number of unfamiliar national anthems, and acquires a vivid impression of a "Concert of Europe" where all is harmony and benevolence.

One must not build too many hopes on this beginning. Some of us remember that until just before the War the Eiffel Tower was in the habit of sending out most affectionate greetings to *tous les chers amis de FL*. But we can hardly compare a small number of Morse-readers who understood and felt the warmth of these messages with the millions affected by modern broadcasting. The constant daily experience of international sympathy and co-operation must have a lasting effect on the mutual attitude of nations.

We need not look forward to a reduction in the number of languages to a minimum in order to break down the barriers between nations. The world loses by the death of every language which has been used and cultivated by great thinkers and writers for expressing their thoughts. The European listener has one great advantage over the American. He lives in a garden of the most choice and varied flowers, each carefully cultivated and having a perfume of its own. America offers us only English and Spanish.

Greece owes the success of its struggle for independence to Europe and the love inspired by Homer and Plato. The debt we owe to Greece has been paid back a hundredfold. Broadcasting makes it possible for every nation to make a free gift of its cultural treasures to all. Such gifts make enmity difficult.

Correspondence

Crystal Reception.

To the Editor of WORLD-RADIO.

SIR,—Given an unscreened position with a good aerial and earth, the following coils tuned with a good .0003 condenser, and with bornite-zincite detector will bring in a number of English and foreign stations. Former, 8 in. in diameter of prespahn or skeleton, with clear 4 in. in length for winding of 44 turns of 16 gauge wire, tapped at 14th turn from earthed end for aerial, and 36th turn for crystal.

This coil is probably the most efficient that can be made economically for broadcast wavelengths. Tuned to 500 m. the calculated H.F. resistance is 2.12 ohms, and magnification 710. At 300 m. these figures are improved. As a comparison a 3-in. diameter coil with 26 gauge wire will have a resistance of 6½ ohms and magnification of only 300 at 300 m.

For 5XX and Radio-Paris, etc., 150 turns of 25 gauge wire can be wound on a 6-in. former to give a magnification of 300. Resistance 13.93. Few, if any, plug-in coils have a magnification greater than 100 for these wavelengths.—Yours faithfully,

G. L. H. DORE.

Cricklewood, London, N.W. 2.
2nd April, 1928.

To the Editor of WORLD-RADIO.

SIR,—Having spent much time on the above, I am glad to see the letters recently published, and particularly to note that the "re-radiation" hypothesis is challenged by Mr. Rochester.

With so many powerful stations it is even easier to-day than a few seasons back. At N.E. London, four miles from 2LO, Aberdeen was often heard with London cut out by means of a wavetrap. With London not working, most other B.B.C. stations and some foreign stations were repeatedly heard in darkness. An exception was Birmingham. This could often be heard by day, and always by night, at poor but constant strength. Scarcely ever could more than a few words be made out. But other stations, though fading badly, were "at maximum" clear and easily readable (Aberdeen once or twice was R3 for a few seconds). Surely if "re-radiation" is the explanation, the same should have occasionally happened to the Birmingham transmissions. I was constantly referring to Birmingham for setting the crystal, and (using the wavetrap) often listened to it for a half-an-hour at a time.

At present when London 2LO closes down at 11 p.m. and 5GB at 11.15, I often get Langenburg, Frankfurt and Hamburg, without specially setting the crystal contact.—Yours faithfully,

E. F. FULLFORD.

Clapton, London, E. 5.

Listening to Canada

To the Editor of WORLD-RADIO.

SIR,—Regarding your article in *World-Radio* on "High-Power Broadcasting in Canada," I wish to tell you that I picked up the opening programme of the station you write about CKGW., 312.3 m. This was on Monday, March 5, at about 9 p.m. American time, or 2 a.m. G.M.T. When I tuned in on this station a band was playing the well-known march, "Colonel Bogey." Songs followed sung by a Miss Mabel Griffiths (Soprano). A great many reports regarding the reception of the station in many parts of Canada and U.S.A. were read by the announcer. I also heard this station on the following night and on both occasions it was very strong and clear. I wonder if any other *World-Radio* reader heard this? Wishing *World-Radio* every success.—Yours faithfully,

JAS. J. PRENDERGAST.

Clonmel, Co. Waterford,
Ireland.

"Crystal Truth"

IT must not be imagined that the magic crystal set of the correspondent, "Veritas Veritatum," who recently described the performance of his crystal set will escape severe competition. I can beat him into fits at getting "distance," having accomplished two-way intelligible communication with far-off Mars.

While "Veritas" carefully guards the secret of his hook-up, pending patent rights, mine is fully published to an enquiring world.

Previous protoplasmic-brained experimenters failed to get the planets because they used terrestrial components, whereas, for Star-radio, stellar material is plainly indicated, and of such my crystal set exclusively consists.

For three hundred years the Martians sent us unanswered signals, until final exasperation prompted them to wake up our dullards with a shower of stones and mud. Scientists christened them "meteories" and "cosmic dust"—hard words coined to clothe their own naked ignorance. One of these missiles fell in my front garden; here was my opportunity to achieve immortal fame. With the aid of the family blacksmith and two sledge hammers, I reduced the boulder to workable proportions for the construction of my Stellar Crystal Set.

My idea of transmission was adapted from an obsolete telegraph set. In that instrument a clock-face was engraved with the alphabet. You pointed the needle at your end of the wire to the letters you wished to send; the other chap's needle moved in sympathy to the same letters on his dial, and thus the message was received.

Adopting this principle, I selected a meteorite crystal of smooth fracture, and using a small microscope and microtome cutter, engraved the alphabet on its polished surface. After the manner of the announcers who say "Vabre" and "Vagner" for "Weber" and "Wagner," the W was rejected as a useless letter except for patriotic Britons who prefer their own language.

With a tellurium cat's whisker I commenced to spell out my message for Mars, hoping my magnetic crystal would fraternise with its relatives in the country of its origin. It did. The Martians responded at once. Their super-human intelligence is untold eras ahead of ours, being evolved from super-men, while we, I suppose, are only ascended from the anthropoid ape.

The official diplomatic language is nautical English, a tongue appropriate to all climes and seasons. They explained its acquisition as follows:—Seafaring speech is so powerful, explosive, and free that it sets up oscillation in their Heavyside Layer, sulphiding the electric ions into a galaxy of rectifying crystals. Beyond this is an air-exhausted space—the whole forming a gigantic thermionic valve, our layer being the grid, and the Martian layer the plate, to their receivers. The so-called "canals" of Mars are merely the shadows of their multi-purpose aerials, one use of which is to convey vapourised snow from the Polar ice-caps for distribution over the fields as warm and gentle showers. Nor is the red colour associated with Mars due to crimson vegetation. It is only the glow of their dull-emitters, diffused by a humid atmosphere.

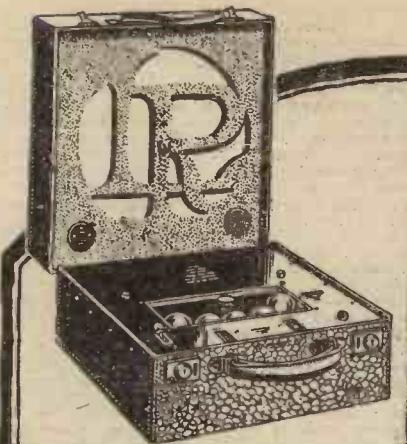
Jupiter and Saturn will come in when I have ascertained their wavelengths, but, being a bachelor of fixed principles, I leave Venus severely alone.

To bring Mars to Earth, earth wires are essential. Horizontal aerials are worse than useless. They must be directional. I use the lightning-conductor tipped with Meteorite and shellacked with Cosmic dust.

S.K.W.

Over £1,740 was raised by the recent Berlin Radio Ball, and after taxes had been deducted approximately £1,267 was available for distribution among various charities.

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AND WITH NO AERIAL AND NO EARTH!

Read what a recent customer says about the Langham 5-Valve Portable Radio Receiver:

"I feel I must write to express my complete astonishment at what this compact little Set does. Last night at about 12.30 a.m. to my great surprise I tuned in both to WEAF and WGY (America), both quite distinct on the loud speaker."

"The loud speaker contained in the set is the most perfect of its kind I have ever heard, the reproduction of even the most distant stations being extremely pure and mellow. GR"

You can try this self-contained set in your own home for a week; if you are not satisfied we will refund your money.

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Telephone: Gerrard 9676.

Which Station Was That?

ANSWERS TO CORRESPONDENTS

Glderney (Cambridge): Yes, Stuttgart (gramophone record) see first paragraph in "Via Ether." Bonzo (Streatham): Dublin (A Sunshine Shower), see programme in *World-Radio*. **Old Blue (Northumberland):** Lahti (Finland) testing on 1,525 m. Ajax (York): Kalundborg possibly relays London and Daventry, but this fact is not always advertised in programmes. **Solidyne (Lasswade):** Yes, this was Motala, relaying *Fidelio* (Beethoven) from the Royal Opera House at Stockholm. **Milkman (Leytonstone):** 2PX advertised as amateur transmitter, East Ham. **R. Lawrie (Aberdeen):** 5NW, amateur at Dundee. **Antiphonic (Blackpool):** Leipzig, giving dance music until midnight (11 p.m. G.M.T.). **Searcher (Cambridge):** Kalundborg, relaying Copenhagen. O. Campbell McCallum, English lesson: "The Art of Conversation." Wash (Inverness): Possibly WEAF (New York) on 491.5 m. **Rio Tinto (Reading):** Katowice (Poland). 9 p.m. time signal and news bulletin. **W. J. Salter (Maida Hill):** Yes, Moscow Comintern (RDW). **A. O. W. (E.C. 4):** 5RB advertised as amateur at Camberley. **Varifactor Two (Gordon):** (1) WPG (Atlantic City) on 272.6 m.; (2) WEAF (New York) 491.5 m. **L. Tanner (Scarborough):** (1) Göteborg, relaying opera *Fidelio* (Beethoven) from the Royal Opera House at Stockholm; (2) Possibly Notodden relaying Oslo. **Orinda (Richmond, Surrey):** Lahti (Finland) testing on 1,525 m. **BM/OVKR (Sutton):** This was Bordeaux, Radio-Sud-Ouest, apparently testing on lower WL. **Reigate (Surrey):** Apparently Motala relaying Stockholm, but cannot trace dance music in any programme or about that WL at that time. **E. G. Block (Rutington):** Kalundborg, relaying Copenhagen. Chimes are from the Town Hall at midnight (11 p.m. G.M.T.). **Amplifier (Islington):** 2PX advertised as amateur, East Ham. **Wireless Fan (Manchester):** An amateur transmission, but cannot trace as you give no call sign. **T. B. (Gorleston):** Yes, 2XG (Rocky Point, Long Island, New York), on 16.02 m. **London Calling (Norfolk):** It is very difficult to estimate WL from your condenser readings; possibly Naples (interval signal: Metronome) which was giving a concert of light music at that time. **Gibbie (Kings Lynn):** Madrid (EAJ7) relaying concert from the National Hotel in that city. **C. Roney (Clapham Park):** Milan (Vigentino) relay of opera, *La Gioconda* (Ponchielli). **Hyacinth (Atherstone):** (1) This was Kalundborg, relaying children's hour from Copenhagen; (2) Radio Toulouse, relaying opera from the Théâtre de la Capitole. **V. E. B. Leix (Ballickmoyler):** You must have misunderstood the call sign, as we know of no station of this name. It is impossible to trace without some estimate of WL. **Signal Box (Eastbourne):** Moscow Popoff (675 m.) advertised a relay of the opera *Mignon* (Thomas); it is quite possible that this was changed, and taken by Moscow Comintern (RDW). **D. P. C. (Leeds):** An amateur transmission but cannot trace call sign. **Piscator (Grantham):** (1) Details would tally with Madrid (EAJ7); recitations at Luis Medina, but this was not an outside relay; (2) PTT Lille. **Binks (E. 17):** Stuttgart, relaying Berlin. See first paragraph in "Via Ether." **RTZ/O. V. 2./J.W.F. (Cromer):** 2XG, Rocky Point, Long Island, New York (16.02 m.). **Mollie (Preston):** (1) 2XAA (Houlton, Maine) transatlantic telephone; (2) An amateur transmission, but cannot trace call sign. **School Boy (Alderley Edge):** (1) Berne (a lady announcer), concert of the works of Beethoven for violin, cello and piano; (2) If your estimate of WL is correct, Reval (Esthonia), *The Messiah* (Handel); (3) Aachen (Aix-la-Chapelle), relaying Cologne; (4) Rather vague, but possibly Madrid (EAJ7), children's hour. **Questor (Hawick):** (1) Moscow Comintern (RDW); (2) Madrid (EAJ7); (3) Geneva, The St. Matthew Passion (Bach) relayed from the St. Joseph's Church. **Jacko (Gerrards Cross):** (1) A U.S.A. station; possibly WOWO (Fort Wayne, Ind.); (2) possibly WORD (Batavia, Ill.), but cannot confirm; (3) U.S.A. station but your details are too vague to trace; (4) WBZ (Springfield); (5) possibly Oslo, which on one or two occasions has relayed U.S.A. transmissions, in which case you would have received this through Fredriksstad, but no foreign relay was advertised in the programme; (6) WJZ (Bound Brook); (7) Details are too vague; regret, cannot trace; (8) possibly WPG (Atlantic City); (9) U.S.A. station, but regret, cannot trace; (10) regret, cannot trace. **New Starter (N. 20):** 2PX advertised as amateur transmitter, East Ham. **Slim (Goudhurst):** (1) Langenberg, relaying classical and dance music from Cologne. The German National Anthem is played to the melody of the old Austrian Hymn; (2) Kalundborg, relaying dance music from the Restaurant Nimb at Copenhagen. **Curious (Southampton):** Yes, this was Berlin (Witzleben) gramophone record; see first paragraph in "Via Ether." **Jokey (Swindon):** Munich relaying the St. Matthew Passion (Bach) from the Odeon. **2 Valve (Taunton):** Leeds (277.8 m.), talk for Scouts: "Birds in Spring," Barcelona (EAJ7). **S. G. E. W. (Glasgow):** (1) 5NW amateur transmitter at Dundee; (2) yes, if WL correct, Breslau testing, but no, we cannot confirm; (3) yes, Posen (a lady announcer) giving light concert until 1 a.m. G.M.T. **Tommar (Sutton):** Apparently one of the Swedish relays of Stockholm, but cannot confirm as no details were advertised in the programme. **Kitten (Hartlepool):** This was a German station, as the National Anthem of that country is played to the melody of the old Austrian Hymn; your estimate of WL is surely wrong, we cannot say which as most of the German stations closed down at 11 p.m. G.M.T. on that date. **O. A. (Alnwick, Northumberland):** 5NW amateur transmitter at Dundee. **H. K. M. (N. 16):** Your details are too vague, regret, cannot trace; possibly an amateur transmission. **BM/BTS (The Mount):** Nürnberg is now on 241.9 m., and Münster on 803 m. **R. W. A. K. (Liverpool):** (1) Yes, WEAF (New York); (2) Berne, relaying orchestral concert from the Gundelinger Casino; (3) Yes, Brünn, relaying popular concert from Prague; (4) PTT Lille, relaying dance music from the Lilliana Dance Hall. **R. S. W. (Andover):** (1) 5SW B.B.C. experimental station at Chelmsford (Essex). **I. Woodno (Thorp Bay):** An amateur transmission but cannot trace as you give no call sign. **Longcliffe (Yeovil):** Nürnberg and Kaiserslautern taking the Munich programme. **Whey Rizit (Annan):** This was Königswusterhausen, relaying Berlin. See first paragraph in "Via Ether," *World-Radio* issue April 6. **Robin (Kent):** Apparently Bordeaux (Radio-Sud-Ouest), but cannot confirm as no programmes are available. **Master Three (Stroud Green):** Cologne, giving a concert of classical and dance music. **5 Valve (Ely):** Stockholm relaying 5GB (working later than advertised in programme). **Interested (Sunderland):** Milan (Vigentino), see wavelength page. **Wamphray: Motala (Vigentino), see wavelength page.** **Wamphray:** Motala (working later than advertised in programme) relaying 5GB.

E. C. H. (Kingston): (1) Posen (gramophone records); (2) All German stations close down by playing a few bars from this hymn, which is the melody of the National Anthem for that country, but we cannot say which transmitter you heard as you give no estimate of WL. **L. Thomson (Tufnell Park):** PTT Rennes, relaying PTT Paris; English lesson given by the Berlitz School. **Birdie (Stoke-on-Trent):** Regret, cannot trace, BM/CEKW (Swindon); PTT Paris, relaying dance music from the Coliseum in that city. **Tabletalk (Gambuslang):** From the last word heard, we should say that this was a Russian station, the nearest being Moscow Popoff (675 m.), but cannot confirm as no programmes are available. **Amorphous Q:** Would appear to be an official station, but regret, cannot trace. **Kitten (Hartlepool):** Correction—This was Döberitz (105 m.) relaying Berlin. **Angus (Leeds):** PTT Lille, relaying dance music from the Lilliana Dance Hall. **BM/BAHG (W.C. 1):** Brünn (Czecho-Slovakia). **Reinartz (Sunderland):** This was Posen, giving light concert until 1 a.m. G.M.T. **Wantem (Refford):** (1) More likely to be 2XAF (Schenectady); (2) Apparently 2BL (Sydney) on 32.5 m. **BM/PWM4 (Edinburgh):** Yes, Bergen and Madrid (EAJ7). **Mew (Mythe):** Brünn (Czecho-Slovakia); Call: "Hallo! Brno," Sunnyside (Ipswich); 5NW, amateur transmitter at Dundee. **Nighthawk (Ely):** This was the reception of Colonel Lindbergh at Washington on his return from his flight to Mexico and other South American States, relayed by many U.S.A. stations and also rebroadcast by most of the German transmitters; possibly heard through Langenberg. **Station Finder (Oxford):** WJZ (Bound Brook). **Two Dials (Boscombe):** Regret, cannot trace. **Dinic Four (Cornwall):** This was Warsaw, working later than advertised in programme. **3 Valve (Chatham):** PTT Lyons, relaying concert from the Théâtre Mogador at Paris. **Rundfunksender (Headingly):** (1) WAMD (Minneapolis) 222.1 m.; (2) WEBH (Chicago) 365.6 m.; (3) We know of no station on a WL between that of Dublin and Breslau. **Avidia (Blaenavon):** Posen (a lady announcer) giving light concert until 1 a.m. G.M.T. **F. A. B. (Peruvian):** Porsgrund, relaying Oslo. **Beam (Chesterfield):** (1) WL, apparently wrong; regret, cannot trace; (2) Königs-wusterhausen, relaying Berlin; (3) Kalundborg, relaying dance music from the Restaurant Nimb at Copenhagen. **Tom's Box (Belfast):** Belfast, relaying church service from St. Cuthbert's Parish Church at Edinburgh. **Gas (Luton):** An amateur transmission, but cannot trace as you give no call sign. **J. D. (Portsmouth):** Kaiserslautern relaying Munich; *The Passion, according to St. Matthew*. **Margaret (Shropshire):** Hamburg, weather and shipping news, followed by dance music. **H. J. H. G. (Dereham):** Kalundborg; this station often relays London and Daventry, but this is not always advertised in programmes. **J. E. Lee (Farncombe):** Possibly relayed by 2NM, amateur at Caterham (Surrey). **G. Satchwell (King's Heath):** Kalundborg, relaying dance music from the Restaurant Nimb at Copenhagen. **R. G. C. (Durham):** Apparently a U.S.A. station, but WL, too vague, regret, cannot trace. **Tri Valve (Wye):** 5NW, amateur transmitter at Dundee. **H. F. (Brighton):** Details are too vague; regres, cannot trace. **Orpheon (Burnley):** PTT Lyons, relaying PTT Paris. **Vladimir (E. 14):** 2BL (Sydney) on 31.5 m. Cannot understand your coils; presumably this station was relayed by some other transmitter. **Mersey (Stockport):** Presumably an amateur transmission (gramophone records), but cannot trace as you give no call sign. **BM/KVGP (Derby):** Cannot trace any transmitter on that WL, presumably a harmonic. **Drahtlose (Downham):** Yes, WGY (Schenectady); dinner concert from the Hotel Onondaga at Syracuse.

NOTE. Those who wish to take advantage of our free service by means of these columns must give a **NOM DE PLUME**, in addition to their own name and address. **PROPRIETARY TRADE NAMES MUST NOT BE USED AS NOMS DE PLUME.**

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For replies to questions concerning the identity of stations heard, this coupon should be cut out and forwarded, together with particulars, written on a separate sheet of paper, to Editor, *World-Radio*, Savoy Hill, London, W.C.

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The Alternative Postal Service.

Whilst retaining in *World-Radio* the usual free published service of "Which Station Was That?" we have instituted a paid postal service, which enables a reply to be posted within forty-eight hours of receipt of details and a stamped addressed envelope. Each enquiry must be accompanied by a coupon and 6d. in stamps or P.O.

(Continued from Page 543.)

anode resistance and a .25 or .5 megohm grid-leak will answer. If a medium impedance valve is used the values already given will again do well. The value of C_2 may again be of order of .1 microfarad. In the plate circuit of the output valve a filter circuit is used, consisting of a choke, L.F.C., with an inductance of about 30 henries and a condenser, C_3 , with a capacity of 2 microfarads or more. C_4 is a condenser of similar capacity shunting that portion of the high tension battery which serves the low-frequency valves. **R. W. H.**

Continental Programme Events

Sunday, April 15.

6 p.m. Frankfurt, Stuttgart.—"Boris Godunov" (Mussorgsky).
7 " Copenhagen.—"Aida" (Verdi).
7 " Hamburg.—"Old Heidelberg" (Meyer-Forster).
7 p.m.—Langenberg—The Armouer of Worms" (Lortzing).

7.30 " Warsaw.—Festival concert.

7.55 " Hilversum.—"Faust" (Gounod).

Monday, April 16.

Special Italian programmes will be given by the following stations: **Hamburg**; **Stockholm** (7 p.m.); **Königsberg** (7.5 p.m.); **Frankfurt**, **Stuttgart** (7.15 p.m.); **Berlin**, **Breslau** (7.30 p.m.); **Copenhagen** (7 p.m.); **Rigoletto** (Verdi).

7.30 p.m. **Munich**.—Symphony concert.
11.5 " **Barcelona**.—Goya festival programme.

Tuesday, April 17.

5.30 p.m. **Munich**.—"Der Rosenkavalier" (Strauss).
7 " **Radio Paris**.—"Aida" (Verdi).
7 " **Oslo**.—"A Doll's House" (Ibsen).
8 " **Rome**.—"The Pearl Fishers" (Bisetz).

Wednesday, April 18.

6.30 p.m. **Stettin**.—"Fra Diavolo" (Scribe).
7 " **Copenhagen**.—"Il Trovatore" (Verdi).
7 " **Hamburg**.—"The Black Domino" (Auber).
7 " **Stockholm**.—"Turandot" (Puccini).
7.15 " **Langenberg**.—"Der Jäger vom Königssee" (Adolf Klages).
7.30 " **Radio-Paris**.—Mozart festival.
8.15 " **Brussels**.—"Carmen" (Bizet).

Thursday, April 19.

6.30 p.m. **Vienna**.—"The Daughter of the Regiment."
7.15 " **Langenberg**.—Symphony concert.
7.30 " **Warsaw**.—"Enfin seuls" (Lehar).
7.45 " **Rome**.—"La Bajadera" (Kalmán).
7.50 " **Milan**.—"Faust" (Gounod).
8.45 " **Hilversum**.—Symphony concert.

Friday, April 20.

7 p.m. **Copenhagen**.—"A Masked Ball" (Verdi).
7.10 " **Berlin**.—"The Devil's Share" (Auber).
7.15 " **Stuttgart**.—"The Maid of Orleans" (Schiller).
7.50 " **Naples**.—"Don Pasquale" (Donizetti).
8.5 " **Hilversum**.—Selections from "The Messiah" and "Acis and Galathaea" (Handel).

Saturday, April 21.

6.30 p.m. **Königsberg**.—"Marriage of Figaro" (Mozart).
9 " **Dublin**.—"Lucia de Lammermoor."



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Deafness.	Paraplegia.
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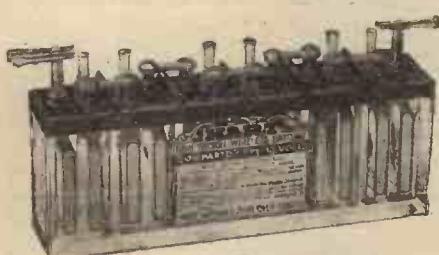
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(5XX)
(1604.3 metres : 187 kc.)**SUNDAY**

- 10.30 a.m.—Time Signal (Greenwich); Weather Forecast.
- 3.30 p.m.—*An Italian National Programme*: Heddle Nash (Tenor). Adila Fachiri (Violin). The Wireless Singers (Chorus Master, Stanford Robinson). The Wireless Symphony Orchestra. Conducted by John Barbirolli. Overture to "The Barber of Seville" (Rossini).
- 3.40 p.m.—*Heddle Nash and Orchestra*. Che gelida manina (What a cold little hand, from "La Bohème") (Puccini).
- 3.45 p.m.—*A Reading of Italian Poems* by Cesare Foligno. Serena Professor of Italian Studies in the University of Oxford.
- 3.50 p.m.—*Wireless Singers*. Sixteenth Century Madrigals. Madrigal: My heart it seemed was dying (1586), Canzonetta: Sooner the Heavens (1592) (Palestrina). Madrigal: How may I fly? (1591) (Marenzio). Aria: Let ev'ry heart be merry (1590) (Vecchi).
- 4.45 p.m.—*Adila Fachiri*: Seventeenth Century Violin Music.
- 4.20 p.m.—*Talk* by Mr. Colin Coote.
- 4.35 p.m.—*Orchestra*: Two Intermezzos from "The Jewels of the Madonna" (Wolf-Ferrari).
- 4.45 p.m.—*Heddle Nash and Orchestra*: Celeste Aida (Heavenly Aida) (Verdi).
- 4.50 p.m.—*Orchestra*: Overture to "Le Baruffe Chiozzotte" (The Squabbles at Chioggia) (Sinigaglia).
- 5.00 p.m.—*A Pianoforte Recital*, by Leslie England.
- 5.20 p.m.—*The Foundations of English Poetry—III*, read by Mr. Robert Harris. Spenser and Lyrics from Elizabethan Song Books.
- 5.10 p.m.—*A Children's Service*. From the Glasgow Studio. Conducted by the Rev. J. A. F. Dean, of Erskine U.F. Church, Falkirk. Assisted by the Children's Choir (From Glasgow).
- 8.00 p.m.—*A Religious Service*, from the Studio. Conducted by the Rev. E. D. Jarvis.
- 8.45 p.m.—*The Week's Good Cause*: Appeal on behalf of the National Society for the Prevention of Cruelty to Children, by Viscount Ulswater.
- 8.50 p.m.—*Weather Forecast*, General News Bulletin; Local Announcements, Shipping Forecast.
- 9.50 p.m.—Albert Sandler and the Park Lane Hotel Orchestra, from the Park Lane Hotel. Mavis Bennett (Soprano). The Orchestra: Overture, "Orpheus in the Underworld" (Offenbach). Mavis Bennett, Hymn to the Sun (Rimsky-Korsakov). Orchestra: Excerpts from "La Bohème" (Puccini). Albert Sandler: Ave Maria (Schubert, arr. Wilhelm); Variations on a Theme of Corelli (Tartini, arr. Kreisler). Mavis Bennett: Cease thy funning (Arne), Shepherd, thy demeanour vary (Brown, arr. Lane Wilson). Orchestra: Grand Fantasia on "Samson and Delilah" (Saint-Saëns).
- 10.30 p.m.—*Epilogue*.

MONDAY

- 10.15 a.m.—*A Short Religious Service*.
- 10.30 a.m.—Time Signal (Greenwich), Weather Forecast.
- 11.00 a.m.—*Gramophone Records*.
- 12.00 noon.—*A Ballad Concert*: James Hickey (Baritone), Anna Marsh (Pianoforte).
- 12.30 p.m.—*The B.B.C. Dance Orchestra*. Personally conducted by Jack Payne.
- 1.00-2.00 p.m.—*An Organ Recital*. From St. Michael's, Cornhill.
- 3.00 p.m.—*Light Music*: Corelli Windeatt's Quintet, Sydney Northcote (Tenor).
- 4.00 p.m.—*The Piccadilly Dance Band*. Directed by C. N. Watson, from the Piccadilly Hotel.
- 5.00 p.m.—*Household Talk*: Mrs. Edith L. Horwood—"Leatherwork: A Week-end Bag."
- 5.35 p.m.—"Lady Windermere's Fan." A Play about a Good Woman, by Oscar Wilde. Produced by Howard Rose. Lord Windermere (Harcourt Williams), Lord Darlington (Felix Aylmer), Lord Augustus (Eric Cowley), Cecil Graham (Philip Wade), Lady Windermere (Hilda Bruce-Potter), Duchess of Berwick (Cicely Turner), Mrs. Eryllynne (Irene Ropke), Lady Jedburgh (Edith Hunter), Lady Plymdale (Marjorie Clark-Jervoise).
- 7.15 p.m.—*The Foundations of Music*. Liszt's Pianoforte Works. Played by Beatrice Snell.
- 7.25 p.m.—*Prof. E. W. Patchett*: "Faust." (From Bournemouth.)

DAVENTRY PROGRAMME**WEDNESDAY**

- 7.45 p.m.—*Vaudeville*: Angela Baddeley in a Sketch, Teddy Brown (Xylophone), Norman Cocks (Comedian), Sandy Rowan (Scots Comedian), Hope Charteris and Eve Dixon (Syncopated Duets), Wish Wynne (Comedienne), The B.B.C. Dance Orchestra personally conducted by Jack Payne.
- 9.00 p.m.—*Weather Forecast*, Second General News Bulletin.
- 9.15 p.m.—*Mr. H. Isherwood Kay*: The Goya Centenary.
- 9.30 p.m.—*Local Announcements*, Shipping Forecast.
- 9.35 p.m.—*A Military Band Concert*: The Wireless Military Band, conducted by B. Walton O'Donnell; Sophie Rowlands (Soprano); Glyn Eastman (Baritone). Band: Military March (Schubert).
- 9.40 p.m.—*Sophie Rowlands*: Romance ("Cavalleria Rusticana") (Mascagni). The Pixie Piper Man (Elliott). Do not go, my love (Hageman).
- 9.48 p.m.—*Band*: Dramatic Overture, "The Maid of Orleans" (Rawlinson).
- 9.58 p.m.—*Glyn Eastman*: Il lacraro spirto (The broken spirit, from "Simon Boccanegra") (Verdi); Vaarlam's Song, from "Boris Godounov" (Mossorgsky).
- 10.00 p.m.—*Band*: Harvest Dance (from "The Seasons") (German).
- 10.15 p.m.—*Sophie Rowlands*: Fair House of joy (Quilter), How fair this spot (Rachmaninov), Ecstasy (Rummel).
- 10.22 p.m.—*Band*: First Movement of Fifth Symphony (Tchaikovsky).
- 10.38 p.m.—*Glyn Eastman*: Song of the Horn (Flégier), As the gloaming shadows creep (MacDowell), Good Ale (Warlock).
- 10.45-11.00 p.m.—*Band*: Ballet Suite from "The Furies" (Massenet).
- 11.00 p.m.—12.00 midnight.—*Dance Music*: The Cecilians.
- 10.15 a.m.—*A Short Religious Service*.
- 10.30 a.m.—Time Signal (Greenwich) and Weather Forecast.
- 11.00 a.m.—*Gramophone Records*.
- 12.00 noon.—*Light Music*. Sydrey Bowman's Trio, Elizabeth Mellor (Soprano).
- 1.00-2.00 p.m.—*Moschetto and his Orchestra* from the Savoy Hotel.
- 3.00 p.m.—*An Afternoon Concert*: Sylvia Van Dyck (Soprano), Ceredig Jones (Bass-Baritone), Thelma Rees-Smith (Violoncello).
- 4.00 p.m.—William Hodgson's Marble Arch Pavilion Orchestra.
- 5.00 p.m.—*Travel Talk*, "Holidays Abroad" Mrs. Oliver Strachey: Italy "I, Southern Italy."
- 5.15 p.m.—*The Children's Hour*.
- 6.00 p.m.—*A Recital of Gramophone Records*, arranged by Mr. Christopher Stone.
- 6.30 p.m.—Time Signal (Greenwich), Weather Forecast and First General News Bulletin.
- 6.45 p.m.—*Gramophone Records*.
- 7.00 p.m.—*Mr. R. Fletcher*, "How a Pigeon Race is Carried Out."
- 7.15 p.m.—*The Foundations of Music*. Liszt's Pianoforte Works, played by Beatrice Snell. St. Francis Preaching to the Birds.
- 7.25 p.m.—*Topical Talk*.
- 7.45 p.m.—*Variety*. Harold Scott and Elsa Lanchester (Duets), Helen Alston (Songs at the Piano), Leslie England (Pianoforte), Ernest Hastings: "Refusals of Margaret" III: Margaret, Phyllis Panting, Eustace, John Wyse.
- 8.40 p.m.—*A Song Recital* by Dale Smith (Baritone).
- 9.00 p.m.—*Weather Forecast* and Second General News Bulletin.
- 9.15 p.m.—*Prof. Walter Garstang*: "Our Resident Songsters—II, The More Complex and Musical Songs" (From Leeds).
- 9.30 p.m.—*Local Announcements* and Shipping Forecast.
- 9.35 p.m.—"Lady Windermere's Fan." A Play about a Good Woman, by Oscar Wilde. Produced by Howard Rose. Lord Windermere (Harcourt Williams), Lord Darlington (Felix Aylmer), Lord Augustus (Eric Cowley), Cecil Graham (Philip Wade), Lady Windermere (Hilda Bruce-Potter), Duchess of Berwick (Cicely Turner), Mrs. Eryllynne (Irene Ropke), Lady Jedburgh (Edith Hunter), Lady Plymdale (Marjorie Clark-Jervoise).
- 11.00 p.m.—12.00 midnight.—*Dance Music*: Kettner's Five, under the direction of Geoffrey Gelder.
- 10.15 a.m.—*A Short Religious Service*.
- 10.30 a.m.—Time Signal (Greenwich), Weather Forecast.
- 11.00 a.m.—*Gramophone Records*.
- 12.00 noon.—*A Ballad Concert*: James Hickey (Baritone), Anna Marsh (Pianoforte).
- 12.30 p.m.—*The B.B.C. Dance Orchestra*. Personally conducted by Jack Payne.
- 1.00-2.00 p.m.—*An Organ Recital*. From St. Michael's, Cornhill.
- 3.00 p.m.—*Light Music*: Corelli Windeatt's Quintet, Sydney Northcote (Tenor).
- 4.00 p.m.—*The Piccadilly Dance Band*. Directed by C. N. Watson, from the Piccadilly Hotel.
- 5.00 p.m.—*Household Talk*: Mrs. Edith L. Horwood—"Leatherwork: A Week-end Bag."
- 5.35 p.m.—"Lady Windermere's Fan." A Play about a Good Woman, by Oscar Wilde. Produced by Howard Rose. Lord Windermere (Harcourt Williams), Lord Darlington (Felix Aylmer), Lord Augustus (Eric Cowley), Cecil Graham (Philip Wade), Lady Windermere (Hilda Bruce-Potter), Duchess of Berwick (Cicely Turner), Mrs. Eryllynne (Irene Ropke), Lady Jedburgh (Edith Hunter), Lady Plymdale (Marjorie Clark-Jervoise).
- 7.15 p.m.—*The Foundations of Music*. Liszt's Pianoforte Works. Played by Beatrice Snell.
- 7.25 p.m.—*Prof. E. W. Patchett*: "Faust." (From Bournemouth.)
- 10.15 a.m.—*A Short Religious Service*.
- 10.30 a.m.—Time Signal (Greenwich) and Weather Forecast.
- 11.00 a.m.—*Gramophone Records*.
- 12.00 noon.—*A Ballad Concert*: Dorothy Penn (Soprano), John Protheroe (Baritone).
- 12.30 p.m.—*The B.B.C. Dance Orchestra*. Personally conducted by Jack Payne.
- 1.00-2.00 p.m.—*Frascati's Orchestra*. Directed by Georges Haecht, from Restaurant Frascati.
- 3.00 p.m.—*The B.B.C. Dance Orchestra*. Personally conducted by Jack Payne.
- 3.45 p.m.—*Mr. J. Page Croft*: "A Tale of Tea."
- 4.00 p.m.—*A Light Classical Concert*. Cuthbert Smith (Baritone), The Gershwin Parkington Trio.
- 5.15 p.m.—*The Children's Hour*.
- 6.00 p.m.—*Musical Interlude*.
- 6.20 p.m.—*The Week's Work in the Garden*, by the Royal Horticultural Society.
- 6.30 p.m.—Time Signal (Greenwich) Weather Forecast and First General News Bulletin.
- 6.45 p.m.—*Musical Interlude*.
- 7.00 p.m.—*Ministry of Agriculture Talk*: Capt. W. Brumwell—"The British Fur Rabbit Industry."
- 7.15 p.m.—*The Foundations of Music*. Liszt's Pianoforte Works. Played by Beatrice Snell. Concert Studies, Nos. 2 and 3.
- 7.25 p.m.—*Commander B. T. Coote*: "How to Keep Fit."
- 7.45 p.m.—*A Pianoforte Recital*. Berkeley Mason and Leslie Spurling.
- 8.00 p.m.—"Armida" (See 5GB Monday, 7.40 p.m.)
- 9.00 p.m.—*Weather Forecast* and Second General News Bulletin.
- 9.15 p.m.—*Miss V. Sackville-West*: "From Syria to Persia."
- 9.30 p.m.—*Local Announcements* and Shipping Forecast.
- 9.35 p.m.—"Armida" (contd.).
- 10.45 p.m.—12.00 midnight.—*Dance Music*: Alfredo's Band, and The New Princes Orchestra.

TUESDAY

- 10.15 a.m.—*A Short Religious Service*.
- 10.30 a.m.—Time Signal (Greenwich) and Weather Forecast.
- 11.00 a.m.—*Gramophone Records*.
- 12.00 noon.—*Light Music*. Sydrey Bowman's Trio, Elizabeth Mellor (Soprano).
- 1.00-2.00 p.m.—*Moschetto and his Orchestra* from the Savoy Hotel.
- 3.00 p.m.—*An Afternoon Concert*: Sylvia Van Dyck (Soprano), Ceredig Jones (Bass-Baritone), Thelma Rees-Smith (Violoncello).
- 4.00 p.m.—William Hodgson's Marble Arch Pavilion Orchestra.
- 5.00 p.m.—*Travel Talk*, "Holidays Abroad" Mrs. Oliver Strachey: Italy "I, Southern Italy."
- 5.15 p.m.—*The Children's Hour*.
- 6.00 p.m.—*A Recital of Gramophone Records*, arranged by Mr. Christopher Stone.
- 6.30 p.m.—Time Signal (Greenwich), Weather Forecast and First General News Bulletin.
- 6.45 p.m.—*Gramophone Records*.
- 7.00 p.m.—*Mr. R. Fletcher*, "How a Pigeon Race is Carried Out."
- 7.15 p.m.—*The Foundations of Music*. Liszt's Pianoforte Works, played by Beatrice Snell. St. Francis Preaching to the Birds.
- 7.25 p.m.—*Topical Talk*.
- 7.45 p.m.—*Variety*. Harold Scott and Elsa Lanchester (Duets), Helen Alston (Songs at the Piano), Leslie England (Pianoforte), Ernest Hastings: "Refusals of Margaret" III: Margaret, Phyllis Panting, Eustace, John Wyse.
- 8.40 p.m.—*A Song Recital* by Dale Smith (Baritone).
- 9.00 p.m.—*Weather Forecast* and Second General News Bulletin.
- 9.15 p.m.—*Prof. Walter Garstang*: "Our Resident Songsters—II, The More Complex and Musical Songs" (From Leeds).
- 9.30 p.m.—*Local Announcements* and Shipping Forecast.
- 9.35 p.m.—"Lady Windermere's Fan." A Play about a Good Woman, by Oscar Wilde. Produced by Howard Rose. Lord Windermere (Harcourt Williams), Lord Darlington (Felix Aylmer), Lord Augustus (Eric Cowley), Cecil Graham (Philip Wade), Lady Windermere (Hilda Bruce-Potter), Duchess of Berwick (Cicely Turner), Mrs. Eryllynne (Irene Ropke), Lady Jedburgh (Edith Hunter), Lady Plymdale (Marjorie Clark-Jervoise).
- 7.15 p.m.—*The Foundations of Music*. Liszt's Pianoforte Works. Played by Beatrice Snell.
- 7.25 p.m.—*Mr. J. H. Vallancey*: "Stamp Collecting."
- 7.45 p.m.—*A John Ireland Programme*. George Parker (Baritone), Albert Sammons (Violin), Beatrice Harrison (Violoncello), John Ireland (Pianoforte), Beatrice Harrison and John Ireland. Sonata for Violoncello and Pianoforte (Composed in 1923).
- 8.00 p.m.—George Parker and John Ireland. Three Poems by Thomas Hardy: Summer Schemes, Her Song, Weathers, The Merry Month of May (Dekker), Love and Friendship (Emily Brontë), Give me the depth of Love (Anon.).
- 8.20 p.m.—John Ireland: Sonatina (1926-7) (First Performance).
- 8.35 p.m.—George Parker and John Ireland: Three Poems by A. E. Housman—When I would muse in boyhood, Spring will not wait, We'll to the woods no more.
- 8.45 p.m.—Albert Sammons, Beatrice Harrison, and John Ireland. Second Trio (1917).
- 9.00 p.m.—*Weather Forecast* and Second General News Bulletin.

THURSDAY

- 10.15 a.m.—*A Short Religious Service*.
- 10.30 a.m.—Time Signal (Greenwich) and Weather Forecast.
- 11.00 a.m.—*Gramophone Records*.
- 12.00 noon.—*Light Music*. The Chelsea Qxet. Winifred Morris (Contralto).
- 1.00-2.00 p.m.—*The Week's Concert of New Gramophone Records*.
- 3.00 p.m.—*Evensong*. Relayed from Westminster Abbey.
- 3.45 p.m.—*Miss Molly Sivabey*: Very old are these Rhymes."
- 4.00 p.m.—*The Astoria Orchestra*. Directed by Fred Kitchen, from the Astoria Cinema.
- 5.00 p.m.—*An Organ Recital* by Patman.
- 5.15 p.m.—*The Children's Hour*.
- 6.00 p.m.—*The B.B.C. Dance Orchestra*. Personally conducted by Jack Payne.
- 6.15 p.m.—Market Prices for Farmers.
- 6.20 p.m.—*Orchestra* (contd.).
- 6.30 p.m.—Time Signal (Greenwich), Weather Forecast and First General News Bulletin.
- 6.45 p.m.—*Girl Guide Programme*.
- 7.00 p.m.—*Mrs. Mary Agnes Hamilton*: "New Novels."
- 7.15 p.m.—*The Foundations of Music*. Liszt's Pianoforte Works. Played by Beatrice Snell. Consolations, Nos. 1-4.
- 7.25 p.m.—*Mr. J. H. Vallancey*: "Stamp Collecting."
- 7.45 p.m.—*A John Ireland Programme*. George Parker (Baritone), Albert Sammons (Violin), Beatrice Harrison (Violoncello), John Ireland (Pianoforte), Beatrice Harrison and John Ireland. Sonata for Violoncello and Pianoforte (Composed in 1923).
- 8.00 p.m.—George Parker and John Ireland. Three Poems by Thomas Hardy: Summer Schemes, Her Song, Weathers, The Merry Month of May (Dekker), Love and Friendship (Emily Brontë), Give me the depth of Love (Anon.).
- 8.20 p.m.—John Ireland: Sonatina (1926-7) (First Performance).
- 8.35 p.m.—George Parker and John Ireland: Three Poems by A. E. Housman—When I would muse in boyhood, Spring will not wait, We'll to the woods no more.
- 8.45 p.m.—Albert Sammons, Beatrice Harrison, and John Ireland. Second Trio (1917).
- 9.00 p.m.—*Weather Forecast* and Second General News Bulletin.

(April 15-21)
(25 kw.)

- by Beatrice Snell: Hungarian Rhapsody, No. 12.
- 7.25 p.m.—*Sports Talk*: Mr. Gordon Lowe, "Prospects for the Teanis Season."
- 7.45 p.m.—*Old Folks' Programme*: The Casano Octet. Caroline Hatchard (Soprano). Charles Knowles (Baritone). The Octet: Turkish Patrol (Michaelis), Salut d'Amour (Elgar).
- 7.55 p.m.—*Caroline Hatchard*: The Last Rose of Summer (Flotow), Love's old sweet song (Molloy).
- 8.20 p.m.—*Octet*: Selection from "The Drum Major's Daughter" (Offenbach).
- 8.12 p.m.—*Charles Knowles*: The Midshipmite (Stephen Adams), The Vagabond (Molloy), Anchored (Watson).
- 8.20 p.m.—*Octet*: Stephanie Gavotte (Czibulka); Song, "Lustige Brüder" (Vollstedt).
- 8.28 p.m.—*Caroline Hatchard*: She wandered down the Mountain side (Clay), Killarney (Balfe), Comin' through the Rye (Old Scottish).
- 8.36 p.m.—*Octet*: On wings of song (Mendelssohn), La Paloma (The Dove) (Yradier).
- 8.44 p.m.—*Charles Knowles*: I fear no foe (Pinsuti), A Friar of Orders Grey (Shield), Father O'Flynn (arr. Stanford).
- 8.52 p.m.—*Octet*: Plaisir d'Amour (Love's Pleasure) (Martini), March, "Francesa" (Mario Costa).
- 9.00 p.m.—*Weather Forecast*, Second General News Bulletin.
- 9.15 p.m.—*Mr. A. B. Valentine*: "Holidays in Britain—I. Over the Cotswold Hills."
- 9.30 p.m.—*Local Announcements*, Shipping Forecast.
- 9.35 p.m.—*"This Freedhold!"* (a Suburban Survey). Planned and plotted by Ernest Longstaffe. Song, Sketches and Scenae, including: "The Farmer," "Restless Nights," "Those Telephones," "A Vegetarian Tête-à-tête," "Our Allotment," "The Wee Freeholders." This meeting has been convened by the following "occupier-owners": John Armstrong, Lillian Harrison, Jean Alliston, Philip Wade and Tommy Hindley. Power and light by the Wireless Reyus Chorus, and the B.B.C. Dance Orchestra, Personally conducted by Jack Payne.
- 7.45 p.m.—*A Song Recital* by Florence Holding (Soprano): Spring (Henschel), A Blackbird Singing (Head), Baby's Night Song (Gerrard Williams), By the Waters of Minnetonka (Lieurance), Gathering Berries (from "The Snow-Maiden") (Rimsky-Korsakov).
- 8.00 p.m.—*A National Symphony Concert*: Paul Hermann (Violoncello): The National Symphony Orchestra, conducted by Sir Henry Wood, relayed from the Queen's Hall. Spanish Caprice (Rimsky-Korsakov), Overture for a Drama (Lafey) (First Performance in England), Symphony "Israel" (Bloch).
- 9.00 p.m.—*Weather Forecast*, Second General News Bulletin and Road Report.
- 9.15 p.m.—*National Concert* (contd.): Paul Hermann and Orchestra: Violoncello Concerto (Dvorák).
- 9.55 p.m.—*Orchestra*: Prelude and Closing Scene from "Tristan and Isolde" (Wagner).
- 10.15 p.m.—*Local Announcements* and Shipping Forecast.
- 10.20 p.m.—*Topical Talk*.
- 10.35 p.m.—*Variety*: Four Admirals in Harmony, Wolsey Charles at the Piano.
- 11.00 p.m.—12.00 midnight.—*Dance Music*: Debroy Somers' Ciro's Club Dance Band, under the direction of Ramon Newton.
- 10.00 p.m.—*Weather Forecast*, Second General News Bulletin.
- 10.15-11.15 p.m.—*Dance Music*.
- SATURDAY**
- 10.15 a.m.—*A Short Religious Service*.
- 10.30 a.m.—Time Signal (Greenwich), Weather Forecast.
- 1.00-2.00 p.m.—*The Carlton Hotel Octet*, directed by Renee Tapponiér, from the Carlton Hotel.
- 2.40 p.m.—*Blackburn Rovers v. Huddersfield*. A Running Commentary on the Final Tie for the F.A. Cup, by Mr. George F. Allison, relayed from Wembley.
- 4.45 p.m.—*A Ballad Concert*: The Harmony Eight, Enid Bailey (Violin).
- 5.15 p.m.—*The Children's Hour*: "My Programme," by Helen Alston.
- 6.00 p.m.—*Organ Recital* by Reginald Foort, from the Palladium.
- 6.30 p.m.—Time Signal (Greenwich), Weather Forecast, First General News Bulletin.
- 6.50 p.m.—*Florence Smithson*.
- 7.00 p.m.—*Mr. Basil Mainie*: "Next Week's Broadcast Music."
- 7.15 p.m.—*The Foundations of Music*. Liszt's Pianoforte Works, played

DAVENTRY (EXPERIMENTAL) PROGRAMME

(5 GB) (491.8 metres: 610 kc.) (25 kw.) (April 15—21)

SUNDAY

3.30 p.m.—*The Victor Olof Soloist Sextet*: Marjorie Parry (Soprano), Keith Falkner (Baritone).
 5.20 p.m.—*The Foundations of English Poetry* (See 5XX).
 5.30 p.m.—6.0 p.m.—*Children's Service* (See 5XX).
 8.0 p.m.—*A Religious Service* (From Birmingham). Relayed from the Central Hall, Birmingham. Address by the Rev. F. H. Benson.
 8.45 p.m.—*The Week's Good Cause* (See 5XX).
 8.50 p.m.—*Weather Forecast*, General News Bulletin.
 9.0 p.m.—*From the Oratories* (From Birmingham): The Birmingham Studio Augmented Orchestra (Leader, Frank Cantell), conducted by Joseph Lewis. Bella Baillie (Soprano), Parry Jones (Tenor). The Birmingham Studio Chorus: I. "St. Paul" (Mendelssohn).
 9.30 p.m.—II. "Lazarus" (Schubert).
 9.45 p.m.—III. "Judas Maccabeus" (Handel).
 10.0 p.m.—IV. "Emmaus" (Brewer).
 10.30 p.m.—Epilogue.

MONDAY

3.0 p.m.—*The B.B.C. Dance Orchestra*. Personally conducted by Jack Payne. Ernest Hastings (Entertainer).
 4.0 p.m.—*Lozells Picture House Organ* (From Birmingham): Frank Newman (Organ). Leonard Hunt (Baritone).
 5.0 p.m.—*A Ballad Concert*: Louise Way (Soprano), Percy Underwood (Baritone), Maude Gold (Violin).
 5.45 p.m.—*The Children's Hour*.
 6.30 p.m.—*Time Signal* (Greenwich). Weather Forecast, First General News Bulletin.
 6.45 p.m.—*Light Music* (From Birmingham): The Birmingham Studio Orchestra, conducted by Frank Cantell. Edgar Wheatley (Violin).
 7.40 p.m.—*Armida*: A Grand Opera in Five Acts by Gluck. Cast: Armida (Stiles Allen), The Spirit (Wortley Allen).

of Hatred (Risphah Goodacre), Sidonia, A Spirit (Theresa Ambrose), A Naiad, Lucinda (Elsie Suddaby), Phenice (Risphah Goodacre), Hidra, Ubaldo (Dennis Noble), A Danish Knight, Artémidorus (Harry Williamson), Arontes (Frank Phillips). The Wireless Chorus (Chorus-master, Stanford Robinson). The Wireless Symphony Orchestra (Leader, S. Kneale Kelley), conducted by Percy Pitt.
 8.40 p.m.—Poems read by Edward Shanks.
 8.50 p.m.—"Armida" (Continued).
 10.0 p.m.—*Weather Forecast*, Second General News Bulletin.
 10.15 p.m.—*Dance Music*: Teddy Brown's Band and the Melodians, directed by Jack Vernon.
 11.0—11.15 p.m.—*The Cecilians*.

TUESDAY

3.0 p.m.—*Paul Moulder's Rivoli Theatre Orchestra*. From the Rivoli Theatre.
 4.0 p.m.—*A Military Band Programme* (From Birmingham): The City of Birmingham Police Band. Conducted by Richard Wassell. Osmond Davis (Tenor), Ernest Elliott (Entertainer).
 5.45 p.m.—*The Children's Hour* (From Birmingham).
 6.30 p.m.—*Time Signal* (Greenwich). Weather Forecast and First General News Bulletin.
 6.45 p.m.—*Dance Music*. The B.B.C. Dance Orchestra, Personally conducted by Jack Payne. Dolly Rich and Gerald (Entertainers), Arthur Chesney (Comedian).
 7.30 p.m.—*Santos Casani*. A Lesson in the Baltimore.
 7.50 p.m.—*Orchestra* (contd.).
 8.0 p.m.—"Snowdrifts." (From Birmingham): A Play by Dor Allan. Produced by Stuart Vinden. Ann Brentwood (Gladys Ward), Mrs. Brentwood (F. A. Chamberlain), Jim Bryant (Ann's Sweetheart) (William Hughes), A Gipsy (Wortley Allen).

8.30 p.m.—*Excerpts from Popular Operas*. (From Birmingham). The Birmingham Studio Augmented Orchestra (Leader, Frank Cantell), Conducted by Joseph Lewis. Marjorie Parry (Soprano), Walter Widdop (Tenor), Dennis Noble (Baritone). The Birmingham Studio Chorus. I. "Faust" (Gounod). II. "Cavalleria Rusticana" (Mascagni).
 9.45 p.m.—III. "Tannhäuser" (Wagner).
 10.0 p.m.—*Weather Forecast* and Second General News Bulletin.
 10.15—11.15 p.m.—*A Military Band Concert*. Hardy Williamson (Tenor). The Wireless Military Band, conducted by B. Walton O'Donnell.

WEDNESDAY

3.0 p.m.—*Chamber Music*. (From Birmingham). Frank Cantell and Harry Freeman (First Violins), Elsie Stell and Edgar Wheatley (Second Violins), Arthur Kennedy and Lena Wood (Violas), Leonard Dennis and Thomas Freeman (Violoncello).
 4.0 p.m.—*The B.B.C. Dance Orchestra*. Personally conducted by Jack Payne. Dolly Rich and Gerald (Entertainers), Arthur Chesney (Comedian).
 5.45 p.m.—*The Children's Hour*. (From Birmingham).
 6.30 p.m.—*Time Signal* (Greenwich). Weather Forecast and First General News Bulletin.
 6.45 p.m.—*Light Music*. (From Birmingham). The Birmingham Studio Orchestra, conducted by Frank Cantell. Mary Pollock (Soprano).
 8.0 p.m.—*Vaudeville*. Elsie Carlisle (Syncopated Songs), Ernest Hastings, Wallace Cunningham (Ventriloquial Comedian), Billy Mayerl (Syncopated Pianist), Leslie Sarony (Entertainer). The B.B.C. Dance Orchestra. Personally conducted by Jack Payne.
 9.0 p.m.—*Railway Clearing House Musical Society Concert*. Relayed from the Kingsway Hall. The

Railway Clearing House Male Voice Choir. Conducted by John E. West. Tom Kinniburgh, John Cockerill.
 10.0 p.m.—*Weather Forecast* and Second General News Bulletin.
 10.15—11.15 p.m.—*Dance Music*.

THURSDAY

3.0 p.m.—*A Symphony Concert*. Relayed from the Winter Gardens, Bournemouth. Concert No. 29 of the Thirty-third Winter Series. The Symphony Orchestra (50 Performers). Conducted by Sir Dan Godfrey.
 4.30 p.m.—*Lozells Picture House Orchestra*. (From Birmingham). Conducted by Paul Rimmer. Lewis Knight (Bass).
 5.45 p.m.—*The Children's Hour*. (From Birmingham).
 6.30 p.m.—*Time Signal* (Greenwich). Weather Forecast, First General News Bulletin.
 6.45 p.m.—*Dance Music*: The B.B.C. Dance Orchestra, personally conducted by Jack Payne. Arthur Chesney (Comedian). Hilda Bryant (Soprano).
 8.0 p.m.—*A Military Band Concert*. The Wireless Military Band, conducted by B. Walton O'Donnell. Linda Seymour (Contralto), Norman Venner (Baritone). Band: Overture to "Morning, Noon, and Night" (Suppé).
 8.10 p.m.—Linda Seymour: Sea Wrack (Hamilton Harty), Do not go, my love (Hazeman).
 8.18 p.m.—*Band*: Three Yorkshire Dale Dances (Arthur Wood).
 8.32 p.m.—Norman Venner: The Two Grenadiers (Schumann); Linden Lea (Vaughn Williams).
 8.40 p.m.—*Band*: Selections from "La Bohème" (Puccini).
 8.55 p.m.—Linda Seymour: A Last Year's Rose, Fair House of Joy (Quilter).
 9.2 p.m.—*Band*: Russian Peasant Dance, "Kukuska" (Lehár).
 9.10 p.m.—Norman Venner: The Monkey's Carol (Stanford), The

Early Morning (Peel), Sigh no more (Aiken).

9.18 p.m.—*Band*: Two Hungarian Dances, Nos. 5 and 6 (Brahms).
 9.30 p.m.—Albert Sammons: A Violin Recital.

10.0 p.m.—*Weather Forecast*, Second General News Bulletin.

10.15 p.m.—*Two Plays*: "The Crossing." A Play for Broadcasting, by Holt Marvell and Cyril Lister. Characters: A Porter (Matthew Boulton); Gerald (Patrick Waddington); Jane (Dorothy Holmes-Gore); an Old Man (Raymond Trafford).

10.45—11.15 p.m.—*The Third Act of "Apples and Eve"*. A Dialect Play, by John Mackie and Conrad Carter. Presented by the Dramatic Section of the Society of Somerset Folk. Characters: Willy, Keziah Cullymore, William Penny (a Farm Labourer), Kitty Carey, Matilda Matthews (a Spinner), Joseph Lovibond (a Farmer), Poly Curtis (Village Gossip), Thomas Matthews (a Maltster), Crabby Curtis (a Corn Merchant's Clerk), Sam Sparks (a Blacksmith), Danny Pitman (an Old Gaffer), Benjamin Pearce (a Cattle Dealer), Charles Carey (Landlord of the Barley Mow), 1st Skimmerty Rider, 2nd Skimmerty Rider, Counsel for Prosecution, Counsel for Defence; the Judge, Usher, Villagers, Policeman, Clerk of the Court. Incidental Music by the Parkington Quintet.

FRIDAY

3.0 p.m.—*An Organ Recital*, by Leonard H. Warner. Relayed from St. Botolph's, Bishopsgate. Joan Muirella (Soprano).
 4.0 p.m.—*The B.B.C. Dance Orchestra*, personally conducted by Jack Payne. Dolly Rich and Gerald (Entertainers). Ernest Hastings (Entertainer at the Piano).
 5.45 p.m.—*The Children's Hour*. (From Birmingham).
 6.30 p.m.—*Time Signal* (Greenwich), (CONTINUED ON PAGE 553)

TANNOY

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Greyhead

By MICHAEL STRANNY

OLD women said that Greyhead had lived from time immemorial and belonged to the devil himself; that he was an *oboroten* (were-wolf) and could change his shape at will. No bullet, they said, not even one with the sign of the Cross on it, could kill him.

But Marpha, the witch, declared that Greyhead could be killed—on a Christmas Eve—if three avengers, after crossing themselves three times, together fired three successive bullets at the son of the evil one.

Men believed Marpha, the witch. Was she not a *white* witch—not evil as other witches? Always they crossed themselves three times before they fired, three times, at Greyhead. But they always missed—even on Christmas Eve. The best shots in the district could not hit the old wolf.

The fame of Greyhead and his pack spread far and wide. An evil fame. At his name men crossed themselves—three times, if the name was spoken between October and April, for during those months, when almost all Russia lies under deep snow, when the temperature drops below zero and the air itself seems to be possessed of fangs waiting to bite, the wolves can travel fast over the crisp, dry snow.

In summer a wolf will slink away like a beaten dog on meeting a man, but in winter . . . the pack will come close to a village and lie in wait in the shadow of the forest edge. If a man leave his hut after nightfall, he may never be seen again. Emboldened by hungry bellies, the pack may even make a raid on the village in the early hours of the morning . . . a child may stray from the protecting threshold . . . an affronted dog may make a foolish rush . . .

In common with thousands of others all over Russia, the peasants of Peski, having finished their harvest labours and the storing of pine logs for fuel, resigned themselves to the meagre comforts of their low, tumble-down *izbas*, grateful for shelter and warmth for their families and what they had of poultry and cattle. The *moujik* would seldom be out after dusk, unless, as sometimes happened, he was delayed on the road when returning with his horse-drawn sleigh with supplies from the distant town. Then, God preserve him from the terrors of the night . . . when the impenetrable shadows take lean, fearsome forms, when a howl like no other pierces the distance, when at any moment the blackness may be studded by hundreds of pairs of red-hot, hunger-maddened eyes.

* * *

This winter, tedium was banished from the long nights in the village of Peski. The village schoolmaster had become an “amateur.” He was immensely proud of his “station.” True, he could not transmit far, but with the schoolmaster at Tchijovo, only fifteen miles away, and one at Striji, there was more than enough of interest in the exchange of “local news,” even when there was no official broadcasting to be received. In the matter of reception there was no limit to the possibilities. Moscow was brought to Peski every evening, and sometimes far-away foreign stations also, as certificates displayed upon the wall certified.

Even the menace of wolves could not keep the villagers at home, and to-night, Christmas Eve, an impatient assembly filled the village school, eagerly awaiting the return of four peasants who had taken two sleighs to the nearest town for Christmas fare and who were to bring with them valves, batteries and some fresh literature for the schoolmaster.

Presently there would be music and song from Moscow: nothing of Christmas import, of course. There were strange ideas abroad nowadays . . . but Moscow was far, far away, and, despite numerous decrees, Peski had changed very little . . . Christmas Eve was still charged with religious significance.

Meantime, the schoolmaster sat, telephones over his ears, waiting for a sign from one or other of his distant friends.

As the condenser dial crept round, a sound was heard, persistent, but faint . . . then clearer. It developed. . . . “PSK . . . PSK . . . PSK. . . .” The schoolmaster threw over his switch and replied to the call. . . . Switched over again. He alone of the company understood Morse. . . . Dash, dash, dot . . . dot, dash, dot . . . dot, dash, dot, dash, dash . . . dot, dot, dot, dot . . . dot, dash . . . dash, dot, dot . . . “G-R-E-Y-H-E-A-D” . . . Greyhead has just passed Tchijovo with his pack. . . . A man and two dogs have been killed. . . . The pack went in the direction of Peski. . . . Warn everybody. . . . End of transmission.” The schoolmaster felt his blood running cold. . . . Greyhead leading his pack across the lake towards Peski, and the four villagers still on the road. . . .

Within a few seconds the whole village seethed with excitement. Doors were opening and shutting everywhere. . . . A crowd of *moujiks* emerged, armed with rifles, hunting knives, pitchforks and axes, and, with the schoolmaster leading, hurried off in the direction of the main road, while their women-folk, frenziedly crossing themselves, secured the doors and the windows of their huts. Mercifully, there was a full moon, and one could see a long way off across the glistening white snow.

* * *

Greyhead was grey all over, grey on account of his great wolfish age, and for that same reason so lean that one could count his ribs through the numerous bald patches in his shaggy hide—that is, provided one stopped long enough to do the counting.

But, in spite of his great age, Greyhead was still strong and could cover many miles without hanging his tongue out very far. Greyhead had a taste for human flesh, he found it better, much better, than the flesh of horse or sheep; more tender, more tasty than even the flesh of pig, but much more difficult to get.

The human male had no fangs and no claws for defence, but he was full of tricks. He carried a stick that roared and killed . . . also a long tooth that bit deeply into the flesh. . . . he could surround himself with dead wood and make it alive and crackling, glowing like a wolf’s eyes in darkness, and agonising to touch! . . . But nevertheless humans were worth trailing. Sometimes they left their roaring sticks behind, and forgot to bring with them their long tooth; and if they were not given time to collect the dead wood, or the wood happened to be wet, they became an easy prey. Humans could not run fast enough to escape the pack, even when they had long pieces of wood attached to their feet; they soon became tired and breathless. They seemed to have no senses to warn them of the pack’s approach, provided the young and inexperienced wolves did not begin to howl too soon in the heat of the chase. Greyhead scented the horses of the returning Peski villagers soon after the pack left Tchijovo. He growled quietly and wheeled to his right, taking a short cut instead of the turns and twists in the road. The pack followed the leader and the dark shadows became somewhat longer as the pace of the wolves increased with the scenting of the prey.

Greyhead’s heart was thumping joyfully against his ribs. . . . What luck! . . . Four men and six horses with heavily laden sleighs. Their scent was shifting slowly. . . . This meant that they were travelling at a leisurely pace. Greyhead’s hair bristled at the back of his neck and he instinctively increased his stride. He did not like to take risks. Experience had taught him to make sure of his prey without delay. . . . The humans must be overtaken before they had a chance to reach their lairs. . . .

They were quite near . . . perhaps a little more effort . . . Suddenly Greyhead stopped.

He could now see the belated travellers, but there came to his nostrils a new scent, the scent of numerous sheepskins, dead sheepskins worn by men . . . there were men on his left . . . still, there might be time yet . . . a loud howl escaped Greyhead and was echoed by the pack . . . the wolves flew over the crisp, dry snow.

At the howl the horses on the road shied, recognising the presence of their dread enemy, and, with a mighty effort, changed their leisurely trot into a mad gallop despite the heavy loads.

The startled travellers had barely time to grasp the ropes binding the bales of goods to the sleighs and so avoid being thrown out. One of the men, who had been fast asleep, woke with a start, saving himself from a fall with great difficulty, and swore. “What is the matter with our accursed grass bags? . . . Have they gone mad?” “Wolves,” muttered his companion, and crossed himself.

Four white-faced men held on grimly to the flying sleighs, praying fervently to be permitted to reach their village before the wolves caught them, praying in spite of the decree of Moscow that religion was “dope” for human reason.

One of the men fired at the shadowy, rapidly moving pack, but the sleigh jerked and his shot went wide. . . .

The wolves increased their pace, but the terrified horses still managed to keep their speed on the hard, frozen road. . . . Peski appeared in view. The wind changed . . . Greyhead lost the scent of the dead sheepskins and in the heat of the chase forgot all about it.

And suddenly the night was rent by thunder and lightning. . . . Thirty rifles roared together . . . roared again and again. . . . The pack stopped. Another instant and the infuriated peasants were right in the middle of the pack, firing at close range, stabbing . . . hacking. . . .

The pack turned tail. . . . But they left half of their number in the crimsoned snow. And they had lost their leader.

Greyhead, the wily old Greyhead, whom no bullet could kill, was feebly kicking his legs in the air. Pitchforks held him down . . . three bullets had bitten deep into his side, six others had scored his hide. . . .

Three men had fired, three times each, after crossing themselves three times, as Marpha had predicted. The end of Greyhead had come at last—on the eve of Christmas. Greyhead was dying . . . another would lead the pack. . . . But Greyhead’s dimming brain feebly tried to piece together a mystery. How had humans, with no sense of scent, got warning of the pack’s approach? Life was going to be harder for wolves in the future—it were well to die and leave the puzzle for a younger leader.

A New Use for Loud speakers.

The loud speaker as a labour and time saver has recently been installed in two important buildings here—a large hotel and the Patent Office. In the former it is being used as a means of calling customers to the telephone, the telephone clerk speaking through a microphone attached to loud speakers in the public rooms. The Patent Office has the microphone in the Council Chamber where inventors have to appear to justify their claims, the loud speaker being in the waiting-room.

On the initiative of the Federal Council of the Churches of the United States, eight radio stations are putting out simultaneous Bible readings every day, reaching from Boston to San Francisco and from the Great Lakes to the Gulf of Mexico. In this way the Gospel according to St. Matthew was read through during January, and St. John’s Gospel during February. It is interesting to note the two facts which are thus indicated: first, the general desire of the public to participate in this daily reading, and secondly, the sympathetic attitude of the broadcasting stations.

PROGRAMMES FOR SUNDAY

(April 15)

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

BARCELONA (Spain)

Radio Barcelona (EAJ1). WL.
344.8 m. (870 kc); 1.5 kw.
10.0 a.m.—Chimes and Weather.
12.30 p.m.—Variety Concert.
5.10 p.m.—Orchestral Selections.
5.30 p.m.—Soprano Songs.
6.0 p.m.—Recitations.
6.20 p.m.—Orchestral Selections.
6.50 p.m.—Soprano Songs.
7.20 p.m.—Orchestral Selections.
7.40 p.m.—Sports Notes.

BERLIN (Germany)

Königswusterhausen. WL. 1,250 m. (240 kc); 35 kw.
8.0 a.m.—From Voxhaus.
1.0 p.m.—Talk for Amateur Photographers.
1.20—5.0 p.m.—Programme from Voxhaus.
5.0 p.m.—Theatre Talk.
6.0 p.m.—Programme from Breslau.
6.30 p.m.—Talk, "Fritz Reuter."
7.30 p.m.—Programme from Voxhaus.

BERLIN (Germany)

Voxhaus. WL. 484.6 m. (619 kc); 4 kw.
8.0 a.m.—Morning Recital followed by Cathedral Chimes.
10.30 a.m.—Concert of Military Music from the "Grosse Schauspielhaus."
1.0 p.m.—Shorthand Lesson.
1.30 p.m.—Agricultural Talk.
1.45 p.m.—Market Review and Weather.
1.55 p.m.—Agricultural Talk.
2.30 p.m.—Sports Relay from the Berlin-Grünwald Stadium, followed by Concert. 1. "The Barber of Seville"—Overture (Rossini). 3. Sonata for Violin and Pianoforte (Mozart). 3. Adagio and rondo for Pianoforte, violin, viola and 'cello (Schubert). 4. (a) Lied (Tchaikovsky), (b) Scenes (Massenet).
5.40 p.m.—Talk, "The International Automobile Exhibition, Leipzig."
6.0 p.m.—Talk, "The Journalist."
6.30 p.m.—Talk, "Holiday Trips."
7.0 p.m.—Talk, "The Parliamentary Investigations of the National Crisis in Germany in 1918."
7.30 p.m.—"An Evening in Grinzing," Concert, followed by News, Weather, Time and Sports Notes.
9.30 p.m.—Dance Music.
11.30 p.m.—Close Down.

BERNE (Switzerland)

Radio-Berne. WL. 411 m. (730 kc); 1.5 kw.
9.0 a.m.—Protestant Address.
10.0 a.m.—Morning Concert.
12.0 (noon).—Time and Weather.
12.15 p.m.—Orchestral Concert.
2.0 p.m.—Football Match—Germany v. Switzerland, from the Neufeld Stadium, Berne.
4.0 p.m.—Programme from Lausanne.
6.30 p.m.—Time and Weather.
7.0 p.m.—Chamber Music.
7.10 p.m.—The Kursaal Orchestra.
8.0 p.m.—Song Recital.
8.20—9.30 p.m.—The Kursaal Orchestra—Sports Notes, News, and Weather in the interval.

BRUSSELS (Belgium)

Radio Belge. WL. 508.5 m. (590 kc); 1.5 kw.
1.30 p.m.—Instrumental and Vocal Concert.
6.45 p.m.—Radio Chronique.
7.15 p.m.—Italian Concert. 1. "The Barber of Seville"—Overture (Rossini). 2. Three Melodies: (a) Caro mio ben (Giordani), (b) Lamento d'Arianna (Monteverde), (c) Tre giorni (Pergolese). 3. Don Pascale (Donizetti). 4. Violin Solos: (a) Prelude, (b) Allegro (Pugnani-Kreisler). 5. Selection from "Il Trovatore" (Verdi). 6. Selection from "I Pagliacci" (Leoncavallo). 7. Violin Solos: (a) Aria, (b) Minuet (Porpora-Corti), (c) La Caccia—Caprice (Chiabrano-Corti). 8. Selection from "Mme. Butterfly" (Puccini). 9. Intermezzo from "Cavalleria Rusticana" (Mascagni). 10. Italian Folk Songs. In the Intervals, Literary Selections.
9.15 p.m.—News.

Cologne (Germany)

Westdeutscher Rundfunk. WL.
283 m. (1,060 kc); 4 kw.
8.0 a.m.—Morning Recital.
10.0 a.m.—See Langenberg.
11.30 p.m.—Reading.
1.30 p.m.—Concert.

1.50—6.10 p.m.—See Langenberg.

6.10 p.m.—Recitations.

6.45 p.m.—Sports Notes.
7.0 p.m.—"Der Waffenschmied von Worms"—Opera-comique (Lortzing), followed by Sports Notes, and Concert.
11.0 p.m.—Close Down.

COPENHAGEN (Denmark)

Copenhagen Radio. WL. 337 m. (890 kc); 1 kw. Relayed by Kalundborg on 1,153.8 m. (260 kc).
9.0 a.m.—Divine Service.
1.0 p.m.—Divine Service.
2.30 p.m.—Talk on Italian Opera, with Musical Illustrations.
3.30 p.m.—Concert.
5.0 p.m.—Chimes.
5.2 p.m.—Children's Corner.
6.0 p.m.—News and Time.
6.25 p.m.—Talk, "Modern Belgium."
6.55 p.m.—Introductory Talk to the following Opera.
7.0 p.m.—"Aida"—Opera, from the Royal Theatre. News.

CORK (Ireland)

Cork Broadcasting Station (6CK). WL. 400 m. (750 kc); 1.5 kw.
7.30 p.m.—No. 2 Army Band. Conductor, Lieut. A. Duff, Mus. B.
7.45 p.m.—Daisy Sheahan (Mezzo-soprano).
8.0 p.m.—Alexander McCredie (Tenor).
8.15 p.m.—No. 2 Army Band.
8.30 p.m.—Lecture Recital by E. Sims-Hilditch.
9.15 p.m.—Denne Parker (Soprano).
9.30 p.m.—No. 2 Army Band.
10.0 p.m.—National Anthem.
11.30 p.m.—Close Down.

CRACOW (Poland)

Polskie Radio. WL. 566 m. (530 kc); 1.5 kw.
9.15 a.m.—Divine Service.
11.0 a.m.—Fanfare from the Church of Notre Dame. Time and Weather.
11.10 p.m.—Programme from Warsaw.
1.0 a.m.—Agricultural Talk.
1.30 p.m.—Talk, "Weeds and Their Encroachment upon Seed Plots."
2.0 p.m.—Weather.
2.15 p.m.—Programme from Warsaw.
4.20 p.m.—Variety.
6.10 p.m.—Talk, "Peace and War."
7.0 p.m.—Fanfare from the Church of Notre Dame. Sports Notes.
7.30 p.m.—Orchestral, Vocal and Instrumental Concert: 1. (a) The Bohemians—Tableau Musical (Skapski), (b) Mandoline Selection—Serenade (Förster). 2. Three Songs of Old Poland: (a) Laura et Filon, (b) Des hanteurs du Parnasse, (c) L'Echo. 3. Mandoline Selections: (a) Asta—Intermezzo (Leopold), (b) March (Herzer). 4. Four Songs: (a) Non loin du lac, (b) Ils sont la dans l'étang poissonneux, (c) Ho! ma petite violette des bois, (d) Autour de mon petit jardin. 5. Selection by Orchestra of Mandolinists—Overture of "Fedora" (Vlach). 6. Polish Soldier Songs: (a) Là sur l'herbe, (b) Les hussards s'en vont, (c) Il va le uhlans par le bois, (d) Les uhlans sont arrivés (Niewiadomski). 7. Mandoline Selection "Sefira"—Intermezzo (Siede). 8. Five Songs: (a) Lenartowicz, (b) Mon mal est revenu, (c) Chez Marie, (d) Sur la chaude prairie bleue, (e) La louange du seigneur (Leszczyński).
9.0 p.m.—Programme from Warsaw.
9.30 p.m.—Restaurant Concert.

DUBLIN (Ireland)

Dublin Broadcasting Station (2RN). WL. 319.1 m. (940 kc); 1.5 kw.
8.30—11.5 p.m.—Programme from Cork.

FRANKFURT-am-MAIN (Germany)

Südwestdeutscher Rundfunk. WL. 428.6 m. (700 kc); 4 kw. Relayed by Cassel on 252.1 m. (1,190 kc).
7.0 a.m.—Morning Recital.
9.30 a.m.—Talk for Parents.
10.0 a.m.—The 75th Jubilee of the Town of Ludwigshafen-on-the-Rhine, from Ludwigshafen.
2.0 p.m.—Football Match, relayed from Berne.

3.45 p.m.—Orchestral Concert.

5.0 p.m.—Programme from Königs-wusterhausen.

6.0 p.m.—"Boris Godounov"—Musical Drama (Mussorgsky), followed by Dance Music and Sports News.

11.30 p.m.—Close Down.

GENEVA (Switzerland)

Radio Geneva. WL. 760 m. (395 kc); 0.5 kw.
9.0 a.m.—Divine Service.

7.15 p.m.—Sports Notes.

7.25 p.m.—Divine Service.

8.0 p.m.—Organ Recital:

HAMBURG (Germany)

Norag (ha, in Morse). WL. 306 m. (757 kc); 4 kw. Relayed by Bremen on 272.7 m. (1,010 kc); Hanover, 297 m. (1,010 kc); and Kiel, 278 m. (1,076 kc).

Transmits at intervals from

7.25 a.m.—Sports Notes.

10.0 a.m. (Hamburg only)—A Stroll through the Hamburg Museums.

11.0 a.m.—Concert from the Ostermann Restaurant.

12.50 p.m.—Talk for Stamp Collectors.

1.15 p.m.—Concert from Hanover.

4.0 p.m.—Reading by C. Rob Sonntag from his own works.

4.30 p.m.—Talk, "The Problem of Atlantis."

5.0 p.m.—Concert by Juvenile Orchestra, "Aus Wald und Heide" (Walter Ebers). 1. "Morgenwanderung" in D major. 2. "An der Waldquelle" in A major. 3. "Fahrendes Volk" in B major.

4. "Der Heidehirten Abendlied" in E major. 5. "Tanz der Dryaden" in B minor. 6. "Abend in der Heideschenke" in D major.

6.0 p.m.—Talk, "Original Types I have Met."

6.30 p.m.—Talk, "Physical Culture and Song."

6.45 p.m.—Sports Notes and Weather.

7.0 p.m.—"Old Heidelberg"—Play (Meyer-Förster), followed by News and Topical Talk.

9.30 p.m. (approx.) (Hamburg and Kiel).—Concert from Café Wallhof.

10.30 p.m. (Hamburg, Bremen and Kiel).—Dance Music.

11.30 p.m.—Close Down.

HILVERSUM (Holland)

Algemeene Vereeniging Radio-Omroep. WL. 1,069 m. (280.5 kc); 5 kw.

9.10 a.m.—Programme by the Workers' Radio Society.

12.10 p.m.—Trio Concert.

1.40 p.m.—Chamber Music. 1. Two Symphonies (Couperin). 2. Sonata (Ariosti). 3. Sonata No. 7 in E minor (Clérambault). 3. Le Parnasse—Sonata (Couperin).

2.55 p.m.—"Our Native Land"—Children's Operetta (Appeldoorn).

3.55 p.m.—Sonatas for Pianoforte (Beethoven).

4.25 p.m.—Reading.

4.55 p.m.—Trio in D major for Violin, 'Cello and Pianoforte (Hudson).

6.10 p.m.—Divine Service.

7.40 p.m.—Time, Weather and News.

7.55 p.m.—"Faust" (Gounod).

10.40 p.m. (approx.).—Close Down

HUIZEN (Holland)

WL. 1,870 m. (160 kc); 4 kw.

8.10 a.m.—Divine Service.

10.10 a.m.—Divine Service from St. Catherine's Church, Utrecht.

12.10 p.m.—Time and Trio Concert.

1.10 p.m.—Talk.

1.25 p.m.—Recital from Bloemendaal.

1.55 p.m.—"I Pagliacci"—Opera (Leoncavallo).

3.40 p.m.—Programme for Hospitals.

5.30 p.m.—Divine Service from the Reform Church at Utrecht.

7.10 p.m.—Talk and Concert.

9.40 p.m.—News.

10.10 p.m.—Epilogue.

11.30 p.m.—Close Down.

KATTOWITZ (Poland)

Polskie-Radio. WL. 422 m. (710 kc); 12 kw.

9.15 a.m.—Divine Service.

11.10 a.m.—Time and News.

10.30 a.m.—Divine Service from St. Catherine's Church, Utrecht.

12.10 p.m.—Time and Trio Concert.

1.10 p.m.—Talk.

1.25 p.m.—Recital from Bloemendaal.

1.55 p.m.—"I Pagliacci"—Opera (Leoncavallo).

3.40 p.m.—Programme for Hospitals.

5.30 p.m.—Divine Service from the Reform Church at Utrecht.

7.10 p.m.—Programme from Warsaw.

7.30 p.m.—Programmes from Warsaw and Wilno.

9.0 p.m.—Time and News.

9.30—10.30 p.m.—Dance Music.

11.30 p.m. (approx.).—Close Down.

DUBLIN (Ireland)

Dublin Broadcasting Station (2RN). WL. 319.1 m. (940 kc); 1.5 kw.

8.30—11.5 p.m.—Programme from Cork.

FRANKFURT-am-MAIN (Germany)

Südwestdeutscher Rundfunk. WL. 428.6 m. (700 kc); 4 kw. Relayed by Cassel on 252.1 m. (1,190 kc).

7.0 a.m.—Morning Recital.

1.20 p.m.—Talk on Gardening.

1.40 p.m.—Agricultural Talk.

2.0 p.m.—Weather.

2.15 p.m.—Programme from Warsaw.

4.20 p.m.—Announcements.

6.10 p.m.—Variety.

6.35 p.m.—Religious Address.

7.0 p.m.—Programme from Warsaw.

7.30 p.m.—Programmes from Warsaw and Wilno.

9.0 p.m.—Time and News.

9.30—10.30 p.m.—Dance Music.

11.30 p.m. (approx.).—Close Down.

KÖNIGSBURG (Germany)

Ostmarken Rundfunk. WL. 330.3 m. (908 kc); 4 kw. Relayed by Danzig on 272.7 m. (1,100 kc).

8.0 a.m.—Morning Recital from the Works of Beethoven.

10.0 a.m.—Weather.

10.5 a.m.—Concert for String Orchestra. 1. Serenade (Mozart). 2. Holberg-Suite (Grieg). 3. Serenade in F major (Tchaikovsky).

11.55 a.m.—Time and Weather.

12.0 p.m.—Chess Talk.

1.45 p.m.—Sports Notes.

2.45 p.m.—Children's Corner.

3.15 p.m.—Relay of the Second Half of the Football Match.

4.0 p.m.—Orchestral Concert. 1. "Martha"—Overture (Flotow).

2. Selection from "The Damnation of Faust" (Berlioz). 3. (a) Tanz der Irrlichter (Berlioz). (b) Hungarian March (Berlioz). 4. Valse-Fantasie (Glinka). 5. Dance-Suite (Mraczek).

5.0 p.m.—Operatic Lesson.

5.30 p.m.—Talk, "With Germany's Poets through German Provinces" (Harz and Thuringia).

6.30 p.m.—Talk, "Dr. Alexander Wyncken's 80th Birthday."

7.0 p.m.—Concert. 1. "Marinarella"—Overture (Fucik). 2. Selections by Robert Koppel. 3. Heimatklänge (Kromé). 4. Ronde d'amour (Blondinette) (Van Westergout). 5. Voga a mare—Soprano Solo with Pianoforte accompaniment (Valente).

6. Selection from "The Merry Widow" (Lehar). 7. Vola o serenata—Soprano Solo with Pianoforte accompaniment (Tosti). 8. Sulla laguna—Barcarolle (Cipollone). 9. Doretta's Dream—Soprano Solo from "La Rondine" (Puccini). 10. Crepuscolo tentatore—Serena (Leuschner). 11. Splendour—March (Billi).

12.30 p.m.—Time Signal.

1.30 p.m.—Lesson in Wireless Technology.

7.40 p.m.—Programme from Wireless Technology.

7.50 p.m.—Vocal and Instrumental Concert. 1. First and Second Movements from the "Symphonie pathétique" (Tchaikovsky). 2. Io sono zietella—Soprano Solo (Peri). 3. Pur dicesti voce bella—Soprano Solo (Lotti). 4. Tenor Solos (a) Elégie (Massenet), (b) Spring (Gounod). 5. The Two Grenadiers—Bass Solo (Schumann). 6. Soprano Solos (a) Con gli angeli (Savasta), (b) Raggio di sole (Sangiorgi). 7. Chopiniana (Finck). 8. Prelude to Act III of "La Wally" (Catalani). 9. Duet for Soprano and Tenor from Act I of "Manon" (Massenet). 10. Bass Solo from "La Sonnambula" (Bellini). 11. Tenor Solo from "L'Amico Fritz" (Mascagni). 12. Bass Solo from "Il Trovatore" (Verdi). 13. Soprano Solo from "Francesca da Rimini" (Zandonai). 14. Duet for Tenor and Bass from "La Favorita" (Donizetti). 15. Joan of Arc—Symphony (Verdi). 16. Time and Sports Notes in the Interval.

9.55 p.m.—Calendar and Programme Announcements.

OSLO (Norway)

Kringkastingselskapet. WL. 461.5 m. (650 kc); 1.5 kw. Relayed by Hamar on 555.8 m. (540 kc); Porsgrunn, 500 m. (600 kc); Fredrikstad, 434.8 m. (600 kc); Notodden, 411 m. (730 kc); and Rjukan, 448 m. (670 kc).

10.0 a.m.—Divine Service from the Military Church.

5.45 p.m.—Chamber Music.

6.15 p.m.—News.

6.30 p.m.—Popular Concert.

7.0 p.m.—Time.

Programmes for Sunday.—(Cont.)

(b) Lamento (Faure). 5. Prelude pour la mort de Tintagiles (Cools). At 7.56 p.m., Time Signal on 32 m. (9,375 kc.).

8.30 p.m.—Educational Programme: Talks on "Paternal Affection," "Woman and the Law," etc.

10.20 p.m.—Time Signal.

PARIS (France)

Petit Parisien. WL. 340.9 m. (880 kc); 0.5 kw.

8.00 p.m.—Orchestral Concert.

"Sigurd"—Overture. 2.

Pianoforte and Cello Selection—

Sonata (Grieg).

3. Intermezzo (Boellmann).

4. Selection from "Sigurd" (Reyer).

5. Variations Symphoniques for Cello and Orchestra (Boellmann).

6. "Peer Gynt" (Grieg).

7. Salammbô—Suite (Reyer).

8. Symphonic Dance (Grieg).

9. Gavotte (Boellmann).

10. Marche tzigane (Reyer).

PARIS (France)

Radio-Paris (CFR). WL. 1,750 m. (171 kc); 3 kw.

7.00 a.m.—News.

11.0 a.m.—Religious Address and Sacred Music. News.

11.45 p.m.—Concert. 1. Gaona-March (Marcucci).

2. Serenity-Boston (Fray).

3. Selection from "Les Saltimbanques" (Ganne).

4. Pianoforte Solos: (a) Playera y Zambrá—Spanish Dance, (b) Le Jongleur.

5. Songs. 6. Bilboquet in Selections from his repertory.

7. Selection from "Lohengrin" (Wagner).

8. Les Pélerins d'amour (Arezzo).

9. Programma Nocturne (Rabaud).

10. Partout-partout-Foxtrot (Lejac).

11. Cordoba-Spanish March (Fuste).

3.30 p.m.—Dance Music. News in the Interval.

6.00 p.m.—Agricultural Report.

7.00 p.m.—News.

7.30 p.m.—Dance Music by Mario Cazes and his Orchestra. News in the Interval.

PITTSBURGH (U.S.A.)

Westinghouse Electric (KDKA).

WL. 315.6 m. (950 kc); 50 kw.

3.45 p.m.—Time.

4.00 p.m.—Church Service.

6.00 p.m.—Golden Strand Programme from WJZ, New York.

7.00 p.m.—Rox's Programme from WJZ, New York.

9.00 p.m.—Time. Organ Recital from the Carnegie Music Hall.

9.45 p.m.—Vesper Service of the Shadyside Presbyterian Church.

11.15 p.m.—KDKA Little Symphony Orchestra (Victor Saudek, Conductor), playing in the Lobby of the William Penn Hotel, Pittsburgh.

11.30 p.m.—"Travelogue" from WJZ, New York.

12 (midnight)—Time. Service of the Calvary Episcopal Church. Rev. E. J. Etten, Pastor.

1.15 a.m.—3.30 a.m. (approx.)—Programme from WJZ, New York. Collier's Radio Hour.

2.15 a.m.—Paula Hemminghaus (Contralto).

2.30 a.m.—Vibrant Melodies.

2.45 a.m.—Utica Jubilee Singers.

3.15 a.m.—Don Amaizo.

9.55 p.m.—News and Close Down.

POSEN (Poland)

Polskie-Radio. WL. 344 m. (872 kc); 1.5 kw.

9.15 a.m.—Divine Service from Vilna.

11.0 a.m.—Agricultural Talk.

11.50 a.m.—Press Review.

12.15 p.m.—Concert by the Warsaw Philharmonic Society.

4.20 p.m.—Variety Selections.

4.50 p.m.—Children's Corner.

5.30 p.m.—Talk in French "Topical Events in France."

5.50 p.m.—Talk.

6.10 p.m.—Review of Modern Books and Periodicals.

6.35 p.m.—Talk, "Polish Comedy of the 18th Century."

7.00 p.m.—Talk from Warsaw.

7.30 p.m.—Evening Concert.

9.00 p.m.—Time, News, Weather and Sports Notes.

9.20 p.m.—Variety Selections.

9.50 p.m.—Dance Music from the Carlton Restaurant.

11.0 p.m.—Close Down.

ROME (Italy)

Unione Radifonica Italiana (IRO).

WL. 448.4 m. (669 kc); 3 kw.

9.15 a.m.—Concert of Vocal and Instrumental Sacred Music.

12.00 noon—Government Report.

4.00 p.m.—Concert of Quartet and Vocal Music.

5.00 p.m.—Dance Music from the "Casinetta."

6.30 p.m.—Government Report.

7.30 p.m.—Time, Sports Notes and News.

7.45 p.m.—Concert from the works of Rossini. 1. "Othello"—Symphony.

2. Tenor solos: (a) Aria from "L'Occasione fa il ladro," (b) Aria from "William Tell." 3. "Eugenio per mia memoria"—Duet for Soprano and Mezzo-Soprano from "The Thieving Magpie."

4. The Siege of Corinth—Symphony.

5. Soprano Solos: (a) L'Orgia, (b) La pastorella delle alpi.

6. Duet for Tenor and Baritone—Finale from Act 1 of "The Barber of Seville." 7. Talk on "Rossini."

8. Soprano Solos: (a) L'invito; (b) La danza. 9. Semiramide—Symphony. 10. Duet for Soprano and Mezzo-Soprano, from "Semiramide." 11. Trio for Soprano, Tenor and Baritone from "The Barber of Seville."

9.55 p.m.—News and Close Down.

SCHEECTADY (U.S.A.)

General Electric Company (WGY).

WL. 379.5 m. (790 kc); 50 kw.

Programme relayed by 2XAD on 21.96 m. (13,661 kc) from 11.30 p.m.

3.30 p.m.—International Bible Students' Association, from the Strand Theatre, Albany, N.Y.

8.25 p.m.—Eastman Symphony Orchestra, from Rochester, N.Y.

9.00 p.m.—Talk for Men, by Dr. S. Parker Cadman, Y.M.C.A.

10.30 p.m.—2.0 a.m. (Monday)—Programme from New York.

10.30 p.m.—"Acousticon" Programme.

11.0 p.m.—National Symphony Orchestra.

12 (midnight).—Hans Barth (Pianist).

12.20 a.m.—Capitol Theatre Programme.

2.0 a.m.—Talk, "Our Government."

2.15 a.m.—Time.

2.17 a.m.—Atwater Kent Hour, from New York.

3.15 a.m.—"Biblical Drama," from New York.

3.45 a.m. (approx.)—Close Down.

STOCKHOLM (Sweden)

Radiotjänst (SASA). WL. 453.8 m. (661 kc); 1.5 kw. Relayed by Motala on 1,380 m. (217 kc); Göteborg, 416.7 m. (720 kc); Malmö, 260.9 m. (1,150 kc); and Sundsvall, 545.8 m. (550 kc).

10.0 a.m.—Divine Service.

12.30 p.m.—"Mlle. Nitouche"—

Opera-comique (Hervé) from Göteborg.

5.00 p.m.—Divine Service.

6.00 p.m.—"Le Pêcheur d'Ombre"—Play (Jean Sarment).

7.10 p.m.—Orchestral Concert.

8.40 p.m.—Organ Recital from Sundsvall.

9.10 p.m. (approx.)—Close Down.

STUTTGART (Germany)

Süddeutscher Rundfunk. WL. 380.7 m. (788 kc); 4 kw.

10.0 a.m.—Morning Recital, followed by Promenade Concert.

2.30 p.m.—Children's Corner.

3.0 p.m.—Orchestral Concert.

5.0 p.m.—Programme from Königs-Wusterhausen.

6.0 p.m.—"Boris Godunow"—Musical Drama (Mussorgsky), relayed from Darmstadt.

TOULOUSE (France)

Radiophonie du Midi. WL. 391 m. (767 kc); 3 kw.

11.30 a.m.—When it was June.

11.45 a.m.—Concert. 1. Il a les bras retournés (Mercier). 2. "Indian Love Call," from "Rose Marie" (Frimal). 3. Menuet de la minute.

4. Les Roses blanches (Raites). 5. Je voudrais t'emporter. 6. Basque Airs. 7. Rose-Marie. 8. A Love Song (Mabel Wayne). 9. Chanson Rustique. 10. Les Montagnards.

11. Se cante que canto.

1.10 p.m.—Religious Address, Psalms.

7.00 p.m.—News. Selection from "Madame Butterfly."

7.20 p.m.—Talk on "Amélie-les-Bains."

7.30 p.m.—Concert. 1. C'est Lily—One Step (de Buxeuil). 2. (a) Pianoforte Solo—Coloquio de los Majos (Pedro Seras). (b) Béte chinoise. 3. Symphonic Poem—Agamemnon (Smet). 4. Coeur de mome (Moreau-Chobillon). 5. Artemise—Overture (Marcucci). 6. Afsen—Symphonic Poem (Smet). 7. La Tardé—Tango (Pedro Seras). 8. La Ribera—Song (Smet).

8.0 p.m.—Concert. 1. Arlette—Overture (Vieu). 2. Serenade (Gounod). 3. "The Count of Luxembourg"—Waltz (Lehár). 4. Scènes Montagnardes (Dyff). 5. "Lucia di Lammermoor"—Fantasia (Donizetti). 6. Mi copla (Javes). 7. "Les Millions d'Arlequin" (Drigo). 8. Fandango d'Ainoha (Razigade). 9. La Chaste Suzanne (Gilbert).

8.30 p.m.—Selections from "Boris Godounow" (Mussorgsky).

1. Chant de vaillam. 2. Scène du carillon. 3. J'ai le pouvoir supreme. 4. Les Adieux de Boris.

5. Mort de Boris.

8.50 p.m.—Dance Music.

VIENNA (Austria)

Radio-Wien. WL. 576 and 517.2 m. (520 and 580 kc); 0.75 and 5 kw. Relayed by Innsbruck on 294.1 m. (1,020 kc); and Klagenfurt, on 272.7 m. (1,100 kc).

8.00 a.m.—Physical Exercises.

9.30 a.m.—Organ Recital. 1. Choral Prelude (Joh. Seb. Bach). 2. Ave Maria (Weiss). 3. Prelude and Fugue on a Bach Theme (Liszt).

10.0 a.m.—Concert by the Vienna Symphony Orchestra. 1. Concerto in C minor for Pianoforte and Orchestra (Beethoven).

2. Songs: (a) Misero o sonje soudesto, (b) Vado, ma dove (Mozart). 3. Viola Solo—"Harold" —Symphony (Berlioz).

3.0 p.m.—Orchestral Concert. 1. "The Merry Wives of Windsor"—Overture (Nicolai).

2. Liebesgeflüster—Ballet Scene (Bayer).

3. Märchen aus dem Orient—Waltz (Joh. Strauss).

4. Liebchen träumt—Character Sketch (Komzak).

5. Scènes from "Lucia di Lammermoor" (Donizetti).

6. "La Violette"—Prelude (Verdi).

7. Violin Solo—Hymn to the Madonna (Hummer).

8. Pamela—Spanish Serenade (Graener).

9. Menuet célèbre (Paderewski).

10. Pas des Fleurs, air from "Naila" (Delibes).

11. Spring Song (Gounod).

12. German Folk Song (Ochs).

13. Du liebe goldne Meisterin—Waltz Intermezzo (Eysler).

14. Fragments from Kalman's Operetta (arr. by Hummer).

15. Selection from "The Circus Princess" (Kalman).

16. Song, "Frauenherz, du bist ein kleiner Schmetterling (Lehár).

17. Dein ist die Welt—Selection from "Schwarz auf Weiss" (Engelberger).

18. "The Merry Widow"—March (Lehár).

5.0 p.m.—Travel Talk. "The South American Republic, Paraguay."

5.45 p.m.—Chamber Music. 1. String Quartet, Op. 11, B flat major (Suk). 2. String Quartet (Leo Janacek).

7.0 p.m.—"Der Weibsteufel"—Play.

Followed by Light Music.

Exide BATTERIES IN AUSTRALIA

The following tribute to Exide batteries appeared recently in an Australian wireless trade periodical:

WORLD-WIDE REPUTATION

There is no battery better known throughout the radio and electrical world than Exide. These batteries are used at the La Perouse Receiving Station, which handles the reception from 2LO (London) of the programmes which are rebroadcast to Australian listeners. 2FC also uses Exide batteries in the apparatus which is assigned for the rebroadcasting of the London programmes. Most of the Marconi systems throughout the world are also equipped with Exide batteries.

The continued use of these well-known batteries for the above purposes, and in hundreds of other enterprises where good batteries are essential, is ample tribute to the permanent efficiency of Exide.

Exide
THE LONG LIFE BATTERY

Advertisement of The Chloride Electrical Storage Co., Ltd., Clifton Junction, near Manchester.

MASS TYPE CELLS FOR LOW TENSION.

These cells will stand for long periods on open circuit without detriment and give an exceptionally steady discharge. The most satisfactory and economical type of cell to use for the average receiver, and they are an enormous improvement on the ordinary Leclanche battery for the operation of electric bells in houses, offices, factories, etc.

Type	DTG	DFG	DHG
Capacity on slow intermittent discharge	20 a.h.	45 a.h.	100 a.h.
Price per cell	4/6d.	8/6d.	16/-

EXIDE H.T. BATTERY Type WH	Capacity 5,000 milli-ampère hours
24 volt unit	£1 4 0
10 volt unit	0 7 6
Complete in Case with detachable wire handle	40 volts 60 volts
	1 17 6 2 14 0

PROGRAMMES FOR MONDAY

(April 16)

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

BARCELONA (Spain)
Radio Barcelona (EAJ). WL.
344.8 m. (870 kc); 1.5 kw.
8.0 p.m.—Chimes and Weather.
8.5 p.m.—Exchange and News.
8.10 p.m.—Humorous Review of the Week's Events in Verse.
8.20 p.m.—Selections by the Cobla Barcelona.
9.0 p.m.—Exchange Closing Prices.
9.5 p.m.—Three Talks on "Goya" to Commemorate the Centenary of his Death. Orchestral Selections in the intervals.
10.0 p.m. (approx.)—Close Down.

BASLE (Switzerland)
Basler-Radio-Genossenschaft. WL.
1,000 m. (300 kc); 0.25 kw.
6.30 p.m.—Time and Weather.
6.35 p.m.—Talk from Zurich.
7.0 p.m.—Italian Concert.
9.0 p.m.—News and Weather.
9.10 p.m. (approx.)—Close Down.

BERLIN (Germany)
Königswusterhausen. WL. 1,250 m. (240 kc); 35 kw.
Transmits at intervals from 11.0 a.m.
4.0 p.m.—Concert from Voxhaus.
5.0 p.m.—Talk on "Electro-Technology".
5.30 p.m.—English Lesson.
5.55 p.m.—Talk, "Woman and Agriculture."
6.20 p.m.—Talk.
6.45 p.m.—Talk, "Classical Weimar."
7.30 p.m.—Programme from Voxhaus.

BERLIN (Germany)
Voxhaus. WL. 484.6 m. (619 kc); 4 kw.
Transmits at intervals from 9.10 a.m.
4.0 p.m.—Concert.
5.20 p.m.—Talk on "Francisco de Goya" on the centenary of his death.
5.45 p.m.—Talk, "Men and Work."
6.10 p.m.—Talk, "The Wonders of Medicine."
6.35 p.m.—Talk, "New Outlook—New Architecture."
7.0 p.m.—Talk, "Portraits of the Romantic Period."
7.30 p.m.—Concert of Italian Music.
1. Sancta Maria—Sonata (Monteverdi).
2. Sanctus and Benedictus from "Missa papae Marcelli" (Palestrina).
3. Concerto grosso No. 1, op. 3 in D minor (Vivaldi).
(a) from "Blütenkranz des Heiligen Franciscus von Assisi" (b) from "The Divine Comedy".
(c) from "Platonischer Schönheitskult" (Michel Angelo).
5. Orchestral Trio for Violin, 'Cello and Pianoforte in G major (Pergolesi).
6. Symphony from the Oratorio, "Sant' Elena al Calvario" (Kretschmar).
7. Piedmont Dance on National Themes, op. 31 (Sinigaglia). Followed by News, Weather, Time and Sports Notes.

9.30 p.m.—Concert. 1. (a) Jubel—Overture (Flotow), (b) Frühlingsrauschen (Sinding). 2. Soprano Solos: (a) Widmung (Schumann), (b) Frühlingssonne (Trunk). 3. (a) Liebesfeier (Weingartner), (b) Waldezauber—Waltz (Vollstedt), (c) Im schönen Lenz—Serenade (Siede). 4. Hat dich die Liebe berührt—Soprano Solo (Marx). 5. (a) Salut d'amour (Elgar), (b) Paraphrase on "Ich habe den Frühling gesehn" (Krome), (c) Erwachte Liebe—Polka Mazurka (Millöcker). 6. Soprano Solos: (a) Herzensfrühling (Wickede), (b) Weisst du's noch? (Schmalstich). 7. (a) Spring Serenade (Drdla), (b) Freudich Fritzenchen, der Lenz ist da—Fox-trot Potpourri (Robrecht).

BERNE (Switzerland)
Radio-Berne. WL. 411 m. (730 kc); 1.5 kw.
12 (noon)—Time, Weather, Exchange, Market Prices, and Gramophone Music.
2.56 p.m.—Time.
3.0 p.m.—The Kursaal Orchestra.
3.30 p.m.—Review of Books.
4.0 p.m.—The Kursaal Orchestra.
6.30 p.m.—Time and Weather.
6.35 p.m.—Italian Concert.
8.20 p.m.—The Kursaal Orchestra. News and Weather in the interval.
9.30 p.m. (approx.)—Close Down.

BRESLAU (Germany)
Schlesische Funkstunde. WL.
322.6 m. (930 kc); 4 kw. Relayed by Gleiwitz, on 250 m. (1,200 kc).
Transmits at intervals from 10.15 a.m.

5.25 p.m.—Illustrated Music Talk.
6.25 p.m.—Talk, "Inventions and Discoveries."
6.50 p.m.—Topical Events.
7.30 p.m.—Italian Concert. 1. Sonata in A major (Corelli).
2. Recitations from Dante, Petrarch and Michelangelo. 3. Sonata in E minor (Veracini). 4. Recitations from Manzoni, Leopardi, Carducci, d'Annunzio and Pirandello. 5. Sonata in G minor (Tartini). News.

BRUSSELS (Belgium)
Radio Belge. WL. 508.5 m. (590 kc); 1.5 kw.
4.0 p.m.—Trio Concert.
5.0 p.m.—French Lesson.
6.45 p.m.—Radio Chronique.
7.15 p.m.—Flemish Talk.
7.30 p.m.—Concert from the Theatre Royal, Antwerp. 1. The Unfinished Symphony. 2. Chant de la Terre (Gustave Mahler). Followed by News.

COLOGNE (Germany)
Westdeutscher Rundfunk. WL.
283 m. (1,060 kc); 4 kw.
Transmits at intervals from 9.30 a.m.
12.5 p.m.—See Langenberg.
3.5 p.m.—Talk for Women.
3.30 p.m.—Review of Books.
3.50 p.m.—Talk, "Germanic Basis of German Culture."
4.15 p.m.—Reading from Gems of World Literature.
5.0 p.m.—See Langenberg.
6.20 p.m.—Spanish Lesson.
6.40 p.m.—Recitations from the works of Italian Poets.
7.30 p.m.—Italian Concert. 1. Francesca da Rimini—Symphonic Poem (Bazzini). 2. Concerto Gregoriano for Violin and Orchestra (Respiatti). 3. Venetian Scene (Mancinelli). 4. Symphony in D minor (Martucci), followed by News, Sports Notes, Concert and Dance Music—"Venetian Programme".
11.0 p.m. (approx.)—Close Down.

COPENHAGEN (Denmark)
Copenhagen Radio. WL. 337 m. (890 kc); 1 kw. Relayed by Kalundborg on 1,153.8 m. (260 kc).
6.30 a.m.—Exercises.
12.15 p.m.—Programme for Schools.
2.0 p.m.—Concert.
5.0 p.m.—Chimes.
5.2 p.m.—Talk, "Outdoor Sports in the Spring."
5.30 p.m.—English Lesson.
6.0 p.m.—News and Exchange.
6.15 p.m.—Time and Talk.
6.55 p.m.—Talk on "Rigoletto".
7.0 p.m.—"Rigoletto"—Opera (Verdi), relayed from the Royal Theatre. News.

CORK (Ireland)
Cork Broadcasting Station (6CK). WL. 400 m. (750 kc); 1.5 kw.
1.30 p.m.—Weather, Stock Market Report and Gramophone Records.
5.15 p.m.—Programme from Dublin.

CRACOW (Poland)
Polskie Radio. WL. 566 m. (530 kc); 1.5 kw.
11.0 a.m.—Fanfare from the Church of Notre Dame. Time, Weather and Gramophone Concert.

2.0 p.m.—Weather.
2.30 p.m.—Programme from Warsaw.

3.40 p.m.—Talk, "Poland and the Vatican."

4.20 p.m.—Talk.
4.45 p.m.—Programme from Warsaw.

5.45 p.m.—Agricultural Report.

6.15 p.m.—Variety.

6.30 p.m.—French Lesson.

7.0 p.m.—Fanfare from the Church of Notre Dame. News.

7.30 p.m.—Concert. 1. Duet for Two Pianofortes (Busoni). 2. Rondo (Boccherini). 3. Concerto in A major (Rameau). 4. (a) Hungarian Dance (Brahms), (b) Le Cygne (Saint-Saëns). 5. Variations on a theme by Beethoven, for two Pianofortes (Saint-Saëns). 6. (a) Gavotte No. 2 (Popper), (b) Berceuse from the Opera "Jocelyn" (Godard). 7. Rhapsody for Two Pianofortes—Espana (Chabrier).
9.0 p.m.—Programme from Warsaw.

DUBLIN (Ireland)
Dublin Broadcasting Station (2RN). WL. 319.1 m. (940 kc); 1.5 kw.
1.30 p.m.—Stock Exchange Weather and Gramophone Concert.
6.0 p.m.—Gramophone Concert.
6.15 p.m.—Children's Hour.
7.0 p.m.—Gramophone Concert.

7.20 p.m.—News.
7.30 p.m.—Irish Lesson, by Sile Ni Dhubhgha.

7.45 p.m.—Poultry Talk, by Miss Hennerty, N.D.P.

8.0 p.m.—Selections from the Works of Weber and Wagner, by the Station Orchestra.

8.15 p.m.—Tenor Solos — Gerard Crofts.

8.30 p.m.—Pianoforte Offerings by Edna Bevan.

8.45 p.m.—Illustrated Lecture on "Susan Mitchell," by H. Franklin.

9.0 p.m.—Station Orchestra.

9.15 p.m.—Sketch by Mme. Kirkwood Hackett.

9.45 p.m.—Denne Parker (Soprano).

10.0 p.m.—Ceilidh Trio.

10.30 p.m.—News, Weather Report, and Close Down.

FRANKFURT-AM-MAIN (Germany)

Südwestdeutscher Rundfunk. WL. 428.6 m. (700 kc); 4 kw. Relayed by Cassel on 252.1 m. (1,190 kc). Transmits at intervals from 11.30 a.m.

3.30 p.m.—Concert of Opera Music.

4.45 p.m.—Reading from "Ivanhoe" (Scott).

5.15 p.m.—Wireless News and other announcements.

5.30 p.m.—Talk from Cassel.

6.0 p.m.—Selection from English Literature.

6.15 p.m.—English Lesson.

6.45 p.m.—Programme arranged by the Frankfurter Zeitung.

7.15 p.m.—Italian Programme.

1. Sanctus from "Missa Papae Marcelli," for mixed choir (Palestrina).

2. Selection from "The Divine Comedy" (Dante). 3. "M' e più dolce il penar per Amarilli," for mixed choir (Monteverdi). 4. (a) Sonnet (Petrarch), (b) Sonnet (Buonarotti). 5. Organ Selections: (a) Toccata (Frescobaldi), (b) Canzone (Frescobaldi). 6. Selection from "Das breite Jerusalem" (Torquato Tasso). 7. Lamento d'Arianna (Monteverdi). 8. Concerto grosso in C minor for two violins, cello and orchestra (Corelli). 9. Scene from the drama "Philipp Second" (Alferi). 10. Holde Taler und Hugel—Cantata for soprano and flute (Scarlatti). 11. Scene from the comedy, "Die neugierigen Frauen" (Goldoni). 12. "Cinderella"—Overture (Rossini). 13. (a) Selection from "Gedanken" (Leopoldi), (b) "The Fifth of May"—Ode (Marzoni). 14. Selection from "Pezzi sacri" (Verdi): (a) Ave Maria for mixed choir, (b) Laudi alla Vergine Maria. 15. Last scene from "Aida" (Verdi). Followed by "Night Concert" on the occasion of the Meeting of the blind German Scholars in Marburg; 1. (a) Fantasia in G major, (b) Toccata and Fugue in D minor (Bach). 2. Sonata Op. 88 (Rheinberger). 3. Adagio (Liszt). 4. Introduction and Passacaglia (Reger). 5. Suite (Boellmann).

GENEVA (Switzerland)

Radio Geneva. WL. 760 m. (395 kc); 0.5 kw.

5.0 p.m.—Gramophone Selections and News.

7.15 p.m.—News.

7.20 p.m.—English Lesson.

7.35 p.m.—Gala Concert from the Victoria Hall. News in the interval.

GRAZ (Austria)

Oest. Radio-Verkehrs. WL. 357.1 m. (840 kc); 0.5 kw.

3.5 p.m.—Concert by the Huttli Orchestra.

1. Um den Lorbeer—March (Christ).

2. Nur wer die Sehnsucht kennt (Tchaikovsky-Moreno).

3. Loreley Rheinklange—Waltz (Johann Strauss).

4. "Nacht-lager in Granada"—Overture (Kreutzer).

5. Romance (Grinfeld).

6. (a) Prelude to the "Loreley" (Bruch-Goldmann), (b) Hungarian Intermezzo (Samary).

7. "The Geisha"—Potpourri (Sisney Jones).

8. (a) A Little Rouge—Slow Foxtrot (Philippe).

(b) We lang Morgot schwimmt (Plank).

9. "The Gipsy Baron"—Potpourri (Strauss).

10. (a) Semolina Shimmy (Warren).

(b) Hollywood Fox (Rust).

11. Flammenzeiten Marsch (Vischer).

4.30 p.m.—Talk on Mushrooms.

5.0 p.m.—Talk on Elocution.

5.45 p.m.—Shorthand Lesson.

6.10 p.m.—Lesson in Serbo-Croatian.

6.15 p.m.—Mythological Play "Eros."

8.40 p.m.—Concert by the Graz Police Force Orchestra. 1. Floren-

tine March (Fucik). 2. G'schichten aus dem Wienerwald (Joh. Strauss).

3. "The Bohemian Girl"—Overture (Balfe).

4. Aubade printaniere.

5. Potpourri of Bavarian Songs.

6. Styrian March. News and Weather.

HAMBURG (Germany)

Norag (ha, in Morse). WL. 396 m. (757 kc); 4 kw. Relayed by Bremen on 272.7 m. (1,100 kc); Hanover, 297 m. (1,010 kc); and Kiel, 278 m. (1,076 kc).

Transmits at intervals from 4.45 a.m.

4.0 p.m.—Talk, "Francesco Goya, on the centenary of his death."

4.25 p.m.—Talk, "Rio de Janeiro."

5.0 p.m.—Orchestral Music.

5.30 p.m.—Elementary English Lesson from Königswusterhausen.

6.0 p.m.—Orchestral Music.

6.25 p.m.—Talk, "Great Men and the Laws of Heredity."

6.55 p.m.—Weather.

7.0 p.m.—Concert of Italian Music.

1. "Semiramide"—Overture (Rossini).

2. Songs: (a) Canzonetta (Martini), (b) Posate dormite (Bassani), (c) Sicilian Folk Song;

3. Prelude to "A basso forte" (Spinelli).

4. Air from "La Bohème" (Puccini).

5. Danze piemontesi, Op. 31 (Sinigaglia).

6. Song, Caro amor (Sacchini).

7. Prologue from "I Pagliacci" (Leoncavallo).

8. Song from "Aida" (Verdi).

9. "Italia"—Rhapsody (Casella).

9.15 p.m. (approx.)—News and Silence Night.

HILVERSUM (Holland)

Algemeene Vereeniging Radio-Omroep: WL. 1,069 m. (280.5 kc); 5 kw.

1.40 p.m.—Police News.

2.10 p.m.—Trio Concert.

4.20 p.m.—Children's Corner.

5.40 p.m.—Trio Concert.

6.55 p.m.—Elementary English Lesson.

9.15 p.m. (approx.)—News and Silence Night.

MADRID (Spain)

Union Radio (EAJ7). WL.

375 m. (800 kc); 1.5 kw.

Transmits at intervals from 10.45 a.m.

6.0 p.m.—Orchestral Selections. In the interval: Talk on the Poetry of Gabriel and Galán.

7.0 p.m.—Dance Music from the Alcazar.

8.30 p.m.—French Lesson,

8.45 p.m.—Legal Talk,

9.0 p.m. (approx.)—Close Down.

MILAN (Italy)

Unione Radifonica Italiana (IMI). WL. 549.3 m. (546 kc); 7 kw.

Transmits at intervals from 11.15 a.m.

7.0 p.m.—English Lesson.

7.50 p.m.—Time, and Lesson in Wireless Technology.

8.0 p.m.—Relay of an Operetta.

9.55 p.m. (approx.)—News.

10.0 p.m.—Dance Music from the "Fiaschetteria Toscana."

10.30 p.m. (approx.)—Close Down.

OSLO (Norway)

Kringkastingselskapet. WL. 461.5 m. (650 kc); 1.5 kw. Relayed by Hamar on 555.8 m. (540 kc);

Porsgrunn, 500 m. (600 kc);

Fredrikstad, 434.8 m. (690 kc);

Notodden, 411 m. (730 kc); and Ryukan, 448 m. (670 kc).

10.10 a.m.—Exchange.

12.0 (noon)—Gramophone Records.

12.15 p.m.—Agricultural Report and Weather.

12.30 p.m.—Exchange.

4.55 p.m.—Orchestral Concert of Italian Music.

5.55 p.m.—Shorthand Lesson.

PARIS (France)

Ecole Supérieure (FPIT). WL.

458 m. (655 kc); 0.5 kw.

12.0 (noon)—Talk and News in English.

12.45 p.m.—Talk on the Evolution of Memory and the Conception of Time."

2.0 p.m.—Talk, "The Social Effects of Opening-up Railways."

3.0 p.m.—Concert. 1. "Fidelio"—Overture (Beethoven). 2. Au Matin (Godard). 3. Lied de Mal (Pesse).

4. Czarda (Michiels).

4.0 p.m.—Geography Lesson, "Canada."

5.0 p.m.—Radio Journal de France.

6.0 p.m.—Talks.

6.0 p.m.—Programme from the Salle

Programmes for Monday.—(Cont.)

6.15 p.m.—News.
6.30 p.m.—German Lesson.
7.0 p.m.—Time and Review of Foreign Affairs.
7.30 p.m.—Song Recital.
8.0 p.m.—Recitations.
8.30 p.m.—Choral Concert.
9.0 p.m.—Weather and News.
9.15 p.m.—Topical Talk.
9.30 p.m. (approx.)—Close Down.

PARIS (France)

Eiffel Tower (FL). WL. 2,650 m. (113 kc); 5 kw.
7.56 a.m.—Time Signal on 32 m. (9,375 kc).
9.26 a.m.—Time Signal.
5.45 p.m.—"Le Journal Parlé," Talks, "A Visit to the Belgian Colonial School," "Theatre," "New Things in Wireless" and "Art."
7.10 p.m.—Weather.
7.30 p.m.—Concert of Light Music. At 7.56 p.m.: Time Signal on 32 m. (9,375 kc).

8.30 p.m.—Educational Programme. Talks on "Electricity" and "The Brain," etc.
10.26 p.m.—Time Signal.

PARIS (France)

Petit Parisien. WL. 340.9 m. (880 kc); 0.5 kw.
8.0 p.m.—Science Talk by M. Jules Lemoine, "The Problem of the Hour."

PARIS (France)

Radio-Paris (C.F.R.). WL. 1,750 m. (171 kc); 3 kw.

Transmits at intervals from 6.30 a.m. 11.30 a.m.—Concert. News in the interval.

12.50 p.m.—Market Prices.

2.30 p.m.—Exchange Quotations.

2.45 p.m.—Literary and Musical Programme. 1. "The Merry Wives of Windsor"—Overture (Nicolai). 2. Polonaise for 'cello (de Cristofaro). 3. Literary Talk. 4. Pavane (Ravel). 5. Histories (Ibert).
6.45 p.m.—Exchange and News.

6.0 p.m.—Agricultural Report.

7.0 p.m.—Exchange and News.

7.15 p.m. (approx.)—Horticultural Talk.

7.30 p.m.—Concert. Part 1. "Le Coup d'Etat du dix-huit Brumaire"—Historical Sketch. Part 2. Programme of Italian Music. 1.

Selections from the Sonata in A (Pizzetti). 2. (a) Poignards (Coppola), (b) Parlamio amor mio (Alfano). (c) Nebbie (Respighi), (d) Sonetto del Berni (Malipiero). 3. (a) "Pièces enfantines" (Casella), (b) Danse d'Olaf (Mangialardi). 4. Ritmi (Castelnuovo). 5. (a) Three "Epigrammes antiques" (Davico), (b) Come un cipresso notturne. News in the interval.

PITTSBURGH (U.S.A.)

Westinghouse Electric (KDKA). WL. 315.6 m. (950 kc); 50 kw.
2.45 p.m.—Time, Exchange Quotations, Weather, News, and Market Prices.

3.0 p.m.—Dr. Royal S. Copeland Hour from WJZ, New York.

4.0 p.m.—Time. "Blue Monday Cheer."

4.30 p.m.—KDKA Theatrical Calendar.

4.57 p.m.—Time Signal.

5.0 p.m.—Exchange Quotations, Weather, and Market Prices.

9.0 p.m.—Time, Exchange Quotations, Weather, and Market Prices.

10.0 p.m.—Time and Market Prices.

11.0 p.m.—Time.

11.10 p.m.—KDKA Theatrical Calendar.

11.15 p.m.—KDKA Little Symphony Orchestra (Victor Saudek, Conductor), playing in the Lobby of the William Penn Hotel, Pittsburgh.

12.0 (midnight)—"Eclipse Clippers."

12.30 a.m.—3.30 a.m. (Tuesday)—Programme from WJZ, New York.

"Rox'y's Gang."

2.0 a.m.—"Riverside Hour."

2.30 a.m.—Marks of Great Composers

3.0 a.m.—Time. "Moon Magic."

3.30 a.m.—Smalle and Robertson.

POSEN (Poland)

Polskie-Radio. WL. 344 m. (872 kc); 1.5 kw.

12.0 (noon)—Gramophone Music. In the Intervals: Exchange and Market Prices.

1.15 p.m.—News.

4.20 p.m.—Literary Talk.

4.45 p.m.—Concert of Lithuanian Music and Literature.

5.30 p.m.—Song Recital.

5.45 p.m.—Variety Selections.

6.0 p.m.—Talk.

6.15 p.m.—French Lesson.
6.35 p.m.—Talk, "The Art of Teaching—Past and Present."
7.0 p.m.—Financial Notes.
7.30 p.m.—Programme from Warsaw.
9.0 p.m.—Time, News and Sports Notes.
9.20 p.m.—Variety Selections.
9.50 p.m. (approx.)—Close Down.

ROME (Italy)

Unione Radiofonica Italiana (rRO). WL. 448.4 m. (660 kc); 3 kw.

11.30 a.m.—Government Report.

12.30 p.m.—Concert by the Station Trio.

1.30 p.m.—Exchange Quotations and News.

3.40 p.m.—News and Exchange Quotations.

3.50 p.m.—Children's Corner.

4.15 p.m.—Agricultural Report.

4.30 p.m.—Time.

4.35 p.m.—Concert.

6.0 p.m.—Government Report.

7.0 p.m.—French Lesson.

7.45 p.m.—Concert of Light Music.

1. "The Grand Duchess of Gerolstein"—Symphony (Offenbach). 2. Two Intermezzos for Orchestra (Ganne): (a) Nocturne,

(b) I folletti. 3. Tenor Solos, (a) Sciumicuttato (Nardella), (b)

Napoli (Valente). 4. Sextet Selections, (a) Oriental March (Orlandi), (b) Corrida è amore (Ferrari). 5. Recital of Humorous Poems. 6. Tenor Solos (a), Vomero e Mergellina (Lama), (b) Nuttata 'sentimento (Capolongo).

7. Gandhi—Indian Foxtrot (Bili).

8. Valse Suite in Viennese Style (Gilson). 9. Soprano Solos, (a) Juanita (Abbat). (b) Oh. Ninon! (Zuccoli). 10. Il soldatino innamorato—Soprano Solo (Ferraris).

11. Tenor Solos with Sextet Accompaniment (Allegri), (a) Non dir di no (b) Le parigine. 12. Orchestral Selections (a) Pifferata (Storti), (b) Festa d'amore (Weingartner). 13. Tenor Solos with Sextet accompaniment, (a) Roma se chiama mamma (Ferrari), (b) Le donne son tutte così (Balzani). 14. Rosalinda—One-step (Lincke).

9.55 p.m.—News.

10.0 p.m. (approx.)—Close Down.

SCHEECTADY (U.S.A.)

General Electric Company (WGY). WL. 379.5 m. (790 kc); 50 kw.

Programme, relayed by 2XAF on

31.4 m. (9554 kc); from 1.0 p.m. 4.0 a.m. (Tuesday).
11.45 a.m.—Exercises.
1.30 p.m.—Talk and Musical Selections.
4.15 p.m.—"Radio Household" Institute Talk from New York.
4.55 p.m.—Time, Weather and Produce Report.

5.7 p.m.—"Farm Flashes."

5.30 p.m.—Stock, Cotton, and Grain Market Prices.

5.45 p.m.—Weather.

7.0 p.m.—French Lesson.

7.30 p.m.—Clark Johnson's Orchestra.

11.20 p.m.—"U.S. Radio Farm School."

11.30 p.m.—Dinner Music from the Hotel van Curle, Schenectady.

12.30 a.m.—"General Electric Hour," by the General Electric Band and the "Radio Four."

1.30 a.m.—Time.

The following programme from New York.

1.32 a.m.—"The A. & P. Gipsies."

2.30 a.m.—"General Motors Family Party."

3.30 a.m.—Fisk, "Time to Retire, Boys."

4.0 a.m. (approx.)—Close Down.

STOCKHOLM (Sweden)

Radiotjänst (SASA). WL. 453.8 m. (661 kc); 1.5 kw. Relayed by

Göteborg on 294.1 m. (1,020 kc) and Klagenfurt, 272.7 m (1,100 kc).

Transmits at intervals from 10.0 a.m.

5.40 p.m.—"Francisco Goya" Centenary Concert.

7.5 p.m.—Italian Concert. 1. "The Barber of Seville"—Overture (Rossini). 2. Ballet Music from "Othello" (Verdi). 3. Songs: (a) Gilda's Aria from "Rigoletto" (Verdi), (b) Butterfly's Aria from "Madame Butterfly" (Puccini).

4. Intermezzo from "Cavalleria Rusticana" (Mascagni). 5. La baruffa chiozotte (Sinigaglia). 6. Impression dal vero (Malipiero). 7. Fontane di Roma (Respighi).

ZURICH (Switzerland)

Radio - Genossenschaft. WL. 588.2 m. (510 kc); 2 kw.

11.30 a.m.—Time and Weather.

11.32 a.m.—Orchestral Music.

11.50 a.m.—News.

12.35 p.m.—Weather and Exchange.

2.0 p.m.—Gramophone Selections.

3.0 p.m.—Concert by the Carletti Orchestra from the Carlton Elite Hotel.

4.10 p.m.—Children's Corner.

4.45 p.m.—Weather.

6.30 p.m.—Time and Weather.

6.32 p.m.—Talk by Dr. G. A. Farmer.

7.0 p.m.—Concert of Italian Music.

9.0 p.m.—News and Weather.

9.15 p.m. (approx.)—Close Down.

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PROGRAMMES FOR TUESDAY

(April 17)

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

BARCELONA (Spain)

Radio Barcelona (EAJ1). WL. 344.8 m. (870 kc.) ; 1.5 kw. 5.10 p.m.—Talks for Women. 5.30 p.m.—*Sextet Selections*. 7.40 p.m.—*English Lesson*. 8.0 p.m.—Chimes and Weather. 8.5 p.m.—Exchange and News. 8.10 p.m.—Orchestral Selections. 8.45 p.m.—Selections from the Drama "La Nave sin Timón" (Fernandez) and the Comedy, "La Cruz de Pepita" (Arniches). 9.0 p.m.—Exchange Closing Prices. 9.5 p.m.—Pianoforte Selections. 9.35 p.m.—Guitar Selections. 10.0 p.m. (approx.)—Close Down.

BASLE (Switzerland)

Basler Radio - Genossenschaft. WL. 1,000 m. (300 kc.) ; 0.25 kw. 6.30 p.m.—Time and Weather. 6.35 p.m.—Health Talk. 7.0 p.m.—Concert of Guitar Music. Songs in Dialect, Swiss Songs, and Pianoforte Solos from the works of Schubert, Chopin and MacDowell. 8.20 p.m.—Programme from Berne. 8.50 p.m.—News and Weather. 9.5 p.m. (approx.)—Close Down.

BERGEN (Norway)

Kringkastingselskap. WL. 369.9 m. (111 kc.) ; 1.5 kw. Transmits at intervals from 10.15 a.m. 7.0 p.m.—Orchestral Music. 7.30 p.m.—Talk, "Poultry Breeding." 7.45 p.m. (approx.)—Song Recital. 8.30 p.m.—Orchestral Concert: 1. Selection from "Peter the Swineherd" (Aitterberg). 2. Nocturne (Grieg). 3. Aux championnons (Moussorgsky). 4. Im Kloster (Borodin). 5. Swedish Dance No. 1 (Aulin). 9.0 p.m.—Weather, News and Time. 9.15 p.m.—English Talk by Mr. F. L. M. Somerville. 9.30 p.m. (approx.)—Close Down.

BERLIN (Germany)

Königswusterhausen. WL. 1,250 m. (240 kc.) ; 35 kw. Transmits at intervals from 11.0 a.m. 3.30 p.m.—Talk, "The Fourth Centenary of Dürer." 4.0 p.m.—Concert from Leipzig. 5.0 p.m.—Talk, "The Measurement of Space." 5.30 p.m.—French Lesson. 5.55 p.m.—Talk, "Classical Weimar." 7.30 p.m.—Programme from Voxhaus.

BERLIN (Germany)

Voxhaus. WL. 484.6 m. (619 kc.) ; 4 kw. Transmits at intervals from 9.10 a.m. 11.30 a.m.—Agricultural Notes. 2.30 p.m.—Talk, "Man and the Clock." 3.0 p.m.—Review of Books. 3.30 p.m.—Concert of Light Music. 3.50 p.m.—Talk, "Air Traffic over the Alps." 6.0 p.m.—Talk, "Sports Training." 6.25 p.m.—Talk, "The Problems of Production and Distribution." 6.55 p.m.—Talk, "Education in Berlin." 7.30 p.m.—Chamber Concert. 1. Chamber Symphony for 13 solo instruments, op. 25 (Butting). 2. Five Songs (Schreker): (a) Ich frag nach dir jedwed Morgen-sonne, (b) Dies aber kann mein Sehnen nimmer fassen, (c) Die Dunkelheit sinkt schwer wie Blei, (d) Sie sind so schön, die milden sonnenreichen, (e) Einst gibt ein Tag mir alles Glück zu eignen. 3. Chamber Symphony in One Movement (Schreker), followed by Weather, News, Time and Sports Notes.

BERNE (Switzerland)

Radio-Berne. WL. 411 m. (730 kc.) ; 1.5 kw. 12.0 (noon)—Time, Weather, Exchange and Gramophone Dance Records.

2.56 p.m.—Time Signal.

3.0 p.m.—The Kursaal Orchestra.

6.30 p.m.—Time and Weather.

6.35 p.m.—Talk from Zurich.

7.0 p.m.—Programme from Lausanne.

8.20 p.m.—The Kursaal Orchestra. News and Weather in the Interval.

9.30 p.m. (approx.)—Close Down.

BRESLAU (Germany)

Schlesische Funkstunde. WL. 322.6 m. (930 kc.) ; 4 kw. Relayed by Gleiwitz on 250 m. (1,200 kc.). Transmits at intervals from 10.15 a.m.

5.30 p.m.—French Lesson from Königswusterhausen.

5.25 p.m.—Talk, "Photographed Music and the Speaking Film." 6.50 p.m.—Review of Art and Literature.

8.20 p.m.—*Baritone Recital*. 1. Songs (Brahms): (a) Minnelied, (b) To a violet, (c) May Night, (d) Feld einsamkeit, (e) O lieblich Wangen. 2. Songs (Grieg): (a) Autumn storms, (b) Auf dem Monte Pincio, (c) The Old Song, (d) Poesie, (e) Verborgene Liebe, (f) Eros. News.

BRUSSELS (Belgium)

Radio Belgique. WL. 508.5 m. (590 kc.) ; 1.5 kw. 4.0 p.m.—*Dance Music* from the Armentonville Tea Rooms. 5.0 p.m.—French Lesson. 6.45 p.m.—*Radio Chronique*. 7.15 p.m.—*Concert of Dance Music*. 8.15 p.m.—*Gramophone Selections*. 8.30 p.m.—*Concert*. 1. Overture (Glinka). 2. Three Songs: (a) Le Lilas, (b) Folk Song, (c) Les trois princesses. 3. Orientale (Cui). 4. Spanish Serenade (Glazounov). 5. Three Songs: (a) Chanson de Parassia (Moussorgsky), (b) Seguidilla murciana (de Falla), (c) Pano murciano (Joachim Nin). 5. Aragonais (de Falla). 9.15 p.m.—News. 9.30 p.m. (approx.)—Close Down.

COLOGNE (Germany)

Westdeutscher Rundfunk. WL. 283 m. (1,060 kc.) ; 4 kw. 12.5 p.m.—See Langenberg. 2.45 p.m.—Children's Corner. 3.10 p.m.—"The Frog King"—Fairy Play (Woermann). 4.0 p.m.—See Langenberg. 4.30 p.m.—Talk, "Breathing and its Importance to Health." 5.0 p.m.—See Langenberg. 6.15 p.m.—French Lesson. 6.45 p.m.—See Langenberg. 7.15 p.m.—"Der Jäger vom Königssee"—Cantata for Choir and Soloists, followed by News, Sports Notes and Silent Night.

COPENHAGEN (Denmark)

Copenhagen Radio. WL. 337 m. (890 kc.) ; 1 kw. Relayed by Kalundborg, on 1,153.8 m. (260 kc.). 6.30 a.m.—Exercises. 10.15 a.m.—Programme for Schools. 2.0 p.m.—Concert. 4.30 p.m.—Children's Corner. 5.0 p.m.—Chimes. 5.30 p.m.—Talk, "Denmark's Quadrupeds." 6.0 p.m.—News and Exchange. 6.30 p.m.—Agricultural Talk. 7.0 p.m.—Time. 7.2 p.m.—Concert of Danish Folk Melodies and Dances. 8.15 p.m.—News. 8.30 p.m.—"Lazarus" — Comedy (Grandrup). 9.15 p.m.—Quartet for Brass Wind Instruments (Ramsøe). 9.45 p.m.—Relay of Foreign Stations. 11.0 p.m.—Chimes and Close Down.

CORK (Ireland)

Cork Broadcasting Station (6CK). WL. 400 m. (750 kc.) ; 1.5 kw. 1.30 p.m.—Weather, Stock Market Report, and Gramophone Records. 5.15 p.m.—Programme from Dublin.

GRACOW (Poland)

Polskie Radio. WL. 566 m. (530 kc.) ; 1.5 kw. 11.0 a.m.—Fanfare from the Church of Notre Dame. Time. Weather and Gramophone Concert. 2.0 p.m.—Weather and Finance Notes. 2.30 p.m.—Programme from Warsaw. 3.40 p.m.—Talk for Parents, "The Present Day Teaching of Mathematics and the Old Method." 4.20 p.m.—Talk from Posen. 4.45 p.m.—Programme from Warsaw. 5.45 p.m.—Variety. 6.55 p.m.—Agricultural Report. 6.20 p.m.—Programme from Posen. 9.0 p.m.—Programme from Warsaw. 9.30 p.m.—Concert from the Pavilion Restaurant. 10.30 p.m. (approx.)—Close Down.

DUBLIN (Ireland)

Dublin Broadcasting Station (2RN). WL. 319.1 m. (940 kc.) ; 1.5 kw. 1.30 p.m.—Stock Exchange List, Weather and Gramophone Concert. 6.0 p.m.—*Gramophone Concert*. 6.15 p.m.—Children's Corner. 7.0 p.m.—*Gramophone Concert*. 7.20 p.m.—News. 7.30 p.m.—Famine Talk. 7.45 p.m.—Spanish Lesson, by W. Starkie, LL.D.

PROGRAMMES FOR TUESDAY

8.0 p.m.—Augmented Station Orchestra.

8.20 p.m.—Vocal Offerings, by Mamie Dingle (Soprano).

8.30 p.m.—Station Orchestra.

8.45 p.m.—Recitations by J. B. Magennis.

9.0 p.m.—Augmented Station Orchestra.

9.30 p.m.—Variety Offerings by the Studio Cabaret.

10.15 p.m.—Augmented Station Orchestra—Puccini Selection.

10.30 p.m.—News, Weather Report, and Close Down.

FRANKFURT-am-MAIN (Germany)

Südwestdeutscher Rundfunk. WL. 428.6 m. (700 kc.) ; 4 kw. Relayed by Cassel on 252.1 m. (1,190 kc.). Transmits at intervals from 11.30 a.m. 3.30 p.m.—*Concert of Old German Music*. 1. Festival Overture (Lassen). 2. Three Folk Songs (arr. Brahms): (a) In stiller Nacht, (b) Schwesterlein, (c) Dort in den Weiden. 3. Swabian Folk Music—Potpourri (Rhode). 4. The German Folksong—Potpourri (Rhode). 5. Three Folk Songs (arr. Brahms): (a) Feinsliebchen, du sollst mir nicht barguss gehn, (b) Die Sonne scheint nicht mehr, (c) Mein Mädel hat einen Rosenmund. 6. Nindobon (Leopold). 4.45 p.m.—Reading.

5.15 p.m.—Wireless News and other announcements.

5.30 p.m.—Health Talk.

6.0 p.m.—Educational Talk, "The State."

7.0 p.m.—Programme from Stuttgart, followed by Gramophone Selections.

GENEVA (Switzerland)

Radio Geneva. WL. 760 m. (395 kc.) ; 0.5 kw. 5.0 p.m.—*Gramophone Selections and News*. 5.30 p.m.—News. Programme from Lausanne. 8.20 p.m.—News. 8.40 p.m.—*Gramophone Selection*, "The Unfinished Symphony" (Schubert).

GRAZ (Austria)

Oest.-Radio-Verkhofs. WL. 357.1 m. (840 kc.) ; 0.5 kw. 7.5 p.m.—*Orchestral Concert*. 1. Alphonso and Estrella. 2. Overture (Schubert). 3. Trios and Coda (Schubert). 4. Ballet and Interludes from "Rosamunde" (Schubert). 5. German Dances (Schubert). 6. Roses of the South—Waltz (Strauss). 6. Pizzicato Polka (Joh. and Jos. Strauss). 7. Kunstlerleben—Waltz (Joh. Strauss). 8. Overture to "Die Fledermaus" (Joh. Strauss). Followed by News and Weather.

HAMBURG (Germany)

Norag (ha, in Morse). WL. 396 m. (757 kc.) ; 4 kw. Relayed by Bremen on 272.7 m. (1,100 kc.) ; Hanover, 297 m. (1,010 kc.) ; and Kiel, 278 m. (1,076 kc.). Transmits at intervals from 4.45 a.m. 4.0 p.m.—Talk, "A Mediterranean Cruise with the 'Ozeana'—Old and New Athens." 4.20 p.m.—Taxation Talk. 4.35 p.m.—Talk, "The Training for a Career," from Hanover.

5.0 p.m.—A Waltz Programme.

6.0 p.m.—Elementary Chess Lesson.

6.25 p.m.—Talk, "The Hansa Merchant Abroad."

6.55 p.m.—Weather.

7.0 p.m.—Johann Heinrich Fehrs Commemoration Programme, from Kiel.

8.0 p.m.—*Violin Recital* by Stefan Frenkel, from Hanover. 1. Orchestral Selection—Symphony (Bach).

2. Sonata for violin and pianoforte in E minor (Platti). 3. Orchestral Selection—Allegretto and Menuetto from the Military Symphony No. 100 (Haydn). 4. Prelude and Fugue for violin, Op. 117, No. 6 (Reger). 5. Orchestral Selection—Polonaise (Moszkowski). 6. (a) Chanson Louis XIII (Couperin-Kreisler), (b) Novelette Op. 6a (St. Frenkel), (c) Canzonetta (d'Ambrosio), (d) Aus der Heimat (Smetana).

9.0 p.m.—Talk, "The Training for Parenthood."

9.15 p.m. (approx.)—Topical Talk and News.

9.30 p.m.—(Hamburg and Kiel).—Concert from Café Wallhof.

10.30 p.m.—(Hamburg, Bremen and Kiel).—*Dance Music*.

11.30 p.m. (approx.)—Close Down.

LAREN (Netherlands)

Middelnederlandse Rundfunk. WL. 366.3 m. (819 kc.) ; 4 kw. Relayed by Dresden on 275.2 m. (1,090 kc.). Transmits at intervals from 8.45 a.m. 5.30 p.m.—*French Lesson* from Königsteinerhausen. 6.0—7.0 p.m.—Talks. 7.0 p.m.—Weather and Time. 7.15 p.m.—*Waltz Programme*.

HILVERSUM (Holland)

Algemeene Vereeniging Radio-Omroep. WL. 1,069 m. (280.5 kc.) 5 kw.

11.40 a.m.—Police News.

12.10 p.m.—*Trio Concert*.

2.40 p.m.—Fashion Talk.

5.40 p.m.—*Trio Concert*.

6.55 p.m.—*English Lesson*.

7.25 p.m.—Police News.

7.45 p.m.—*Review of Books*.

8.0 p.m.—*Concert*. 1. Pianoforte Solos: (a) Burlesque (Scarlati), (b) Minuet (Scarlati), (c) Gigue (Scarlati). 2. Soprano Solos (Wolf): (a) Im Frühling, (b) Auf einer Wanderung, (c) Elfenlied, (d) Der Gärtner. 3. Kinderstücke für Soprano (Bell Bartok). 4. Soprano Solos: (a) Widmung (Schumann), (b) Spring Night (Schumann), (c) Die junge Nonne (Schubert), (d) Die Altmacht (Schubert).

8.50 p.m.—*Concert*. 1. "Oberon"—Overture (Weber). 2. Rustle of Spring (Sinding). 3. Selection from "The Magic Flute" (Mozart). 4. Polar Star—Waltz (Waldeufel).

9.40 p.m.—Weather and News.

9.50 p.m.—*Concert* (contd.). 5. "Martha"—Overture (Flotow). 6. Flower Song (Lange). 7. Selection from "Carmen" (Bizet). 8. Loreley Paraphrase (Nesvedba).

11.0 p.m.—*Dance Music* from the "Alcazar" and Close Down.

MADRID (Spain)

Union Radio (EAJ7). WL. 375 m. (800 kc.) ; 1.5 kw. Transmits at intervals from 10.45 a.m. 6.0 p.m.—*Orchestral Selections*. Interlude by Luis Medina.

7.0 p.m.—*Dance Music* from the "Alcazar."

8.30 p.m.—*English Lesson*.

9.0 p.m.—Programme relayed by San Sebastian (EAJ8), 335 m. (895 kc.). Time and Exchange Quotations.

9.10 p.m. (approx.)—*Concert* in Commemoration of the Death of "Goya."

11.0 p.m.—*Dance Music* from the "Alcazar" and Close Down.

MILAN (Italy)

Unione Radiofonica Italiana (1MI). WL. 549.3 m. (546 kc.) ; 7 kw.

Transmits at intervals from 11.15 a.m. 5.15 p.m.—Agricultural Report.

7.0 p.m.—*German Lesson*.

7.50 p.m.—Literary Talk.

8.0 p.m.—*Concert*. 1. (a) Siegfried's Idyll (Wagner), (b) "L'Edipo Re," Three Preludes (Pizzetti). 2. Tenor Solos. 3. Soprano Solos from the works of R. Strauss and Wolfe. 4. Cello Solos. 5. Tenor Solos. 6. Piccola Suite (Picc-Mangialli).

9.55 p.m.—News.

10.0 p.m.—*Dance Music* from the "Fiaschetteria Toscana."

10.30 p.m. (approx.)—Close Down.

NAPLES (Italy)

Unione Radiofonica Italiana (1NA). WL. 333.3 m. (900 kc.) ; 1.5 kw.

Transmits at intervals from 1.0 p.m.

7.45 p.m.—Relay from the St. Carlo Theatre.

10.0 p.m. (approx.)—Close Down.

OSLO (Norway)

Kringkastingselskap. WL. 461.5 m. (650 kc.) ; 1.5 kw. Relayed by Hamar on 555.8 m. (540 kc.); Porsgrunn, 500 m. (600 kc.); Fredrikstad, 434.8 m. (690 kc.); Notodden, 411 m. (730 kc.); and Rjukan, 448 m. (670 kc.).

10.10 a.m.—Exchange.

12.0 (noon)—Gramophone Records.

12.15 p.m.—Agricultural Report and Weather.

12.30 p.m.—Exchange.

5.15 p.m.—Fashion Talk.

5.55 p.m.—Shorthand Lesson.

6.15 p.m.—News.

6.30 p.m.—*English Lesson*.

7.0 p.m.—Time.

7.2 p.m.—"A Doll's House"—Play (Ibsen).

9.25 p.m.—Weather and News.

9.40 p.m.—Topical Talk.

10.0 p.m. (approx.)—Close Down.

PARIS (France)

Ecole Supérieure (FPTT). WL. 458 m. (655 kc.) ; 0.5 kw.

1.0 p.m.—*Orchestral Concert*. 1. The Barber of Seville—Overture (Rossini). 2. Rigaudon de Dardanus (Rameau). 3. Petite Suite Espagnole (Vidal). 4. Danish Song (Colls).

3.0 p.m.—Talk, "The Co-operative Communities."

4.0 p.m.—Talk, "The Evolution of the Intellect."

5.0 p.m.—"Radio Journal de France."

7.0 p.m.—*English Lesson*.

8.0 p.m.—*Orchestral Concert*, of Selections from "La Juive" (Meyerbeer). Talk in the Interval.

PARIS (France)

Eiffel Tower (FL). WL. 2,650 m. (113 kc.) ; 5 kw.

7.50 a.m.—Time Signal on 32 m. (9,375 kc.).

9.20 a.m.—Time Signal.

5.45 p.m.—"Le Journal Parlé."

Talks on "Books to Read," etc.

Programmes for Tuesday.—(Cont.)

PARIS (France)

Petit Parisien. WL. 340.9 m. (880 kc); 0.5 kw.
8.0 p.m.—Orchestral Concert. 1. Prelude and Dance from "Carmosine" (Février). 2. Rapsodie ariégeoise for 'Cello and Orchestra (Marc Delmas). 3. Monna Vanna (Février). 4. Cantabile (Sporck). 5. Au Pays wallon (Delmas). 6. Petite Suite d'antan (Février). 7. Islande—Poem (Sporck). 8. Orient (Delmas). 9. Gismonda—Ballet (Février).

PARIS (France)

Radio-Paris (CFR). WL. 1,750 m. (171 kc); 3 kw.
Transmits at intervals from 6.30 a.m.
11.30 a.m.—Concert from the works of Massenet and Ravel. 1. "Phèdre"—Overture (Massenet). 2. Les Erynnies—Entr'acte (Massenet). 3. Selection from "Manon" (Massenet). 4. Ballet Music from "Le Cid" (Massenet). 5. L'Heure espagnole (Ravel). 6. Pavane pour une infante défunte (Ravel). 7. Le Tombeau de Couperin (Ravel). News in the Interval.

12.30 p.m.—Market Prices.

2.30 p.m.—Exchange Quotations.

2.45 p.m.—Concert. 1. "The Magic Flute"—Overture (Mozart). 2. Sonata for Violin (Fauré). 3. Serenade (Borodine). 4. Pianoforte Solos: (a) Arlequinade (Dejean), (b) Vol de Libellules (de la Tombelle). 5. Largo from "Pyrame and Thisbe" (Trémisot). 6. Symphonic Variations for 'Cello (Boellmann). 7. Ballet Music from "Hérodiade" (Massenet).

3.45 p.m.—Exchange and News.

6.0 p.m.—Agricultural Report.

6.45 p.m.—English Lesson.

7.0 p.m.—Exchange and News.

7.15 p.m. (approx.)—Literary Talk.

7.30 p.m. (approx.)—"Aida"—Opera Selection (Verdi). News in the Interval.

PITTSBURGH (U.S.A.)

Westinghouse Electric (KDKA). WL. 315.6 m. (950 kc); 50 kw.
2.45 p.m.—Time, News, Weather Report and Market Prices.

3.0 p.m.—Dr. Royal S. Copeland Hour from WJZ, New York.

4.0 p.m.—Congress of Women's Club period.

4.15 p.m.—KDKA Theatrical Calendar.

4.20 p.m.—KDKA Household Question Box.

4.45 p.m.—Time Signals.

5.0 p.m.—Exchange Quotations, Weather and Market Prices.

9.0 p.m.—Time, Weather and Market Prices.

10.0 p.m.—Time and Market Prices.

11.0 p.m.—Time.

11.15 p.m.—KDKA Theatrical Calendar.

11.15 p.m.—KDKA Little Symphony Orchestra, Victor Sudek (Conductor), playing in the lobby of the William Penn Hotel, Pittsburgh.

12.0 (midnight)—Time. "Four One Minute Men," presenting a popular programme.

12.30 a.m.—"Haller Bakers."

1.0 a.m.—Stromberg-Carlson Hour from WJZ, New York.

1.30 a.m.—Concert.

2.0 a.m.—"High Spots of Melody" from WJZ, New York.

2.30 a.m.—"Rhythmic Ripples" from WJZ, New York.

3.0 a.m.—Time. "Happiness Programme," by the "Merry Maytag Ramblers."

3.30 a.m.—Sacred Song Concert.

4.0 a.m.—Time and Weather Forecast.

4.15 a.m. (approx.)—Close Down.

POSEN (Poland)

Polskie-Radio. WL. 344 m. (872 kc); 1.5 kw.

12 (noon)—Gramophone Music. In the Intervals, Exchange and Market Prices.

1.15 p.m.—News.

4.0 p.m.—English Lesson.

4.20 p.m.—Talk.

4.45 p.m.—Programme from Warsaw.

6.0 p.m.—Variety Selections.

6.30 p.m.—"Der Freischütz"—Opera (Weber) from the Grand Theatre, followed by Time, Variety, Weather and News.

10.0 p.m.—Dance Music from the Palais Royal Restaurant.

11.0 p.m. (approx.)—Close Down.

ROME (Italy)

Unione Radiofonica Italiana (IRO). WL. 448.4 m. (669 kc); 3 kw.

11.30 a.m.—Government Report.

12.30 p.m.—Concert by the Station Trio.

1.30 p.m.—Exchange Quotations and News.

3.40 p.m.—News and Exchange Quotations.

3.50 p.m.—Children's Corner.

4.15 p.m.—Agricultural Report.

4.30 p.m.—Time.

4.45 p.m.—Vocal and Instrumental Concert and Dance Music from the "Casinetto."

5.30 p.m.—Morse Lesson.

5.45 p.m.—Lesson in Wireless Technology.

7.0 p.m.—English Lesson.

7.30 p.m.—Time, News, Exchange Quotations and Weather.

7.45 p.m.—Hygiene Talk.

8.0 p.m. (approx.)—"The Pearl Fishers"—Opera in Three Acts (Bizet). In the First Interval: Fashion Talk.

9.55 p.m.—News.

10.0 p.m. (approx.)—Close Down.

3.30 a.m.—Rolle's Palais d'or Orchestra.

4.30 a.m.—J. Gordon Baldwin (Organist) and Dorothy Drakeley (Soloist), from Rochester, N.Y.

5.0 a.m.—Shea's Buffalo Symphony Orchestra, from Buffalo, N.Y.

6.0 a.m. (approx.)—Close Down.

STOCKHOLM (Sweden)

Radiotjänst (SASA). WL. 453.8 m. (661 kc); 1.5 kw. Relayed by Motala on 1,380 m. (217 kc); Göteborg, 416.7 m. (720 kc); Malmö, 260.9 m. (1,150 kc); and Sundsvall, 545.8 m. (550 kc).

Transmits at intervals from 11.35 a.m.

5.30 p.m.—Concert of light music.

6.20 p.m.—Dramatic Criticism.

6.45 p.m.—Talk, "Our Milk."

7.15 p.m.—Concert of Popular Music.

8.0 p.m.—Agricultural Talk, News and Weather.

8.40 p.m.—Talk.

9.30 p.m. (approx.)—Close Down.

STUTTGART (Germany)

Süddeutscher Rundfunk. WL. 380.7 m. (788 kc); 4 kw.

Transmits at intervals from 11.30 a.m.

3.30 p.m.—Programme from Frankfurt.

4.45 p.m.—Time and Weather.

5.15 p.m.—Talk, "Polar Expeditions Fifty Years Ago."

5.45 p.m.—Wireless Talk.

6.15 p.m.—Talk, "The Basis of Danzig's Foreign Policy."

6.45 p.m.—Time, Weather and Wireless Notes.

7.0 p.m.—Concert from the Liedhalle, with Vasa Prihoda.

1. Symphony in C minor, No. 9 (Haydn).

2. Violin Concerto in D major (Mozart).

3. "Euryanthe" Overture (Weber).

4. Violin Concerto in D major (Paganini).

5. La Folia (Corelli).

6. Variations on a theme by Corelli (Tartini-Kreisler).

7. Stimmung (Prihoda).

8. Jota Navarra (Sarasate).

News followed by Silent Night.

TOULOUSE (France)

Radiophonie du Midi. WL. 391 m. (767 kc); 3 kw.

Transmits at intervals from 9.15 a.m.

11.45 a.m.—Concert.

7.0 p.m.—Time and News. Followed by Selection from "Lakmé."

7.30 p.m.—Concert. 1. Paille d'avoine Overture (Planquette).

2. Minuet (Doret).

3. Holidays—Foxtrot

(Parrish).

4. Blondinette aux yeux bleus (Gerbasio).

5. L'Étoile—Fantasia (Chabrier).

6. En trottinant (Gillet).

7. Sabotier de Hans (Ganne).

8. Le Mariage des Roses (Franck).

9. Valse du Volga (Bakalaïnoff).

10. Romeo and Juliet—Fantasia (Gounod).

11. Loupy—Charleston (le Rey).

12. Fantaisie poudrée (Chillemont).

13. Si tu le veux (Koeckir).

14. El Relampago (Chauvel).

8.0 p.m.—Concert of Selections from "Madame Butterfly" and "La Tosca" (Puccini).

9.0 p.m.—Dance Music.

VIENNA (Austria)

Radio-Wien. WL. 576 and 517.2 m. (520 and 580 kc); 0.75 and 5 kw. Relayed by Innsbruck on 294.1 m. (1,020 kc).

Klagenfurt on 272.7 m. (1,100 kc).

Transmits at intervals from 10.0 a.m.

5.30 p.m.—Talk for Employees.

6.0 p.m.—French Lesson.

6.30 p.m.—English Lesson.

7.5 p.m.—Concert of Viennese Music.

WILNO (Poland)

Polskie-Radio. WL. 435 m. (689 kc); 0.5 kw.

Transmits at intervals from 3.0 p.m.

5.30 p.m.—News, Time and Variety.

6.20 p.m.—Relay of an Opera.

9.5 p.m.—News.

9.30 p.m.—Dance Music.

10.30 p.m. (approx.)—Close Down.

ZURICH (Switzerland)

Radio - Genossenschaft. WL. 588.2 m. (510 kc); 2 kw.

11.30 a.m.—Time and Weather.

11.32 a.m.—Gramophone Selections.

11.50 a.m.—News.

12.35 p.m.—Weather and Exchange.

2.0 p.m.—Orchestral Music.

3.0 p.m.—Concert by the Carletti Orchestra from the Carlton Elite Hotel.

4.10 p.m.—Children's Corner.

4.45 p.m.—Weather.

6.30 p.m.—Time and Weather.

6.32 p.m.—Talk, "Modern Methods in the Treatment of Tuberculosis."

7.0 p.m.—The Station Orchestra.

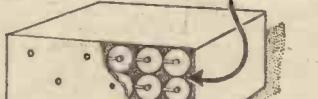
7.30 p.m.—Selected Chapters from Carl Peter's novel "Ich bin Ich," read by Eugen Aberer.

8.0 p.m.—Students' Songs.

9.0 p.m.—Weather and News.

9.10 p.m.—Gramophone Selections of Dance Music.

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PROGRAMMES FOR WEDNESDAY

(April 18)

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

BARCELONA (Spain)

Radio Barcelona. WL. 344.8 m. (870 kc); 1.5 kw. 5.10 p.m.—*Sextet Selections*. 7.10 p.m.—Castilian Grammar Lesson. 8.0 p.m.—Chimes and Weather. 8.10 p.m.—Orchestral Selections. 8.45 p.m.—Recitations. 9.0 p.m.—Exchange Closing Prices. 9.5 p.m.—*Soprano Solos*. 9.30 p.m.—Relay of part of the Concert from the "Grana Royal." 11.0 p.m. (approx.)—Close Down.

BASLE (Switzerland)

Basler-Radio-Genossenschaft. WL. 1,000 m. (300 kc); 0.25 kw. 6.30 p.m.—Time and Weather. 6.35 p.m.—Recital of Modern Songs and Poems. 8.20 p.m.—Orchestral Concert from the Hotel Metropole-Monopole. News and Weather in the Interval. 9.30 p.m. (approx.)—Close Down.

BERGEN (Norway)

Kringkastingselskap. WL. 369.0 m. (811 kc); 1.5 kw. Transmits at intervals from 10.15 a.m. 7.0 p.m.—The Wireless Orchestra. 1. "Titus"—Overture (Mozart). 2. Resignation (Neupert). 3. Egyptian Ballet (Luigini). 7.30 p.m.—Talk. 8.0 p.m.—Cello and Pianoforte Recital. 8.30 p.m.—French Lesson. 9.0 p.m.—Weather, News and Time. 9.15 p.m.—Dance Music. 10.0 p.m. (approx.)—Close Down.

BERLIN (Germany)

Königswusterhausen. WL. 1,250 m. (240 kc); 35 kw. Transmits at intervals from 11.0 a.m. 3.30 p.m.—Talk, "Introduction to the Study of Music." 4.0 p.m.—Concert from Hamburg. 5.0 p.m.—Talk, "Electro-Technology." 5.30 p.m.—French Lesson. 5.55 p.m.—Talk. 6.20 p.m.—Talk, "Gold and Money in the History of the Nations." 7.5 p.m.—Programme from Cologne. 9.15 p.m. (approx.)—Programme from Voxhaus.

BERLIN (Germany)

Voxhaus. WL. 484.6 m. (619 kc); 4 kw. Transmits at intervals from 9.10 a.m. 2.30 p.m.—Talk. 3.0 p.m.—Medical Talk. 3.30 p.m.—Children's Corner. 4.0 p.m.—Orchestral Concert. 5.30 p.m.—Talk. 6.0 p.m.—Talk, "The Free Press and its Legal Recognition." 6.30 p.m.—Talk, "The National Gallery." 7.0 p.m.—Legal Talk. 7.30 p.m.—Talk, "Wireless and Educational Training." 8.0 p.m.—Concert. 1. (a) Noche en la Volga (Sab), (b) Pretensiosa, (c) Lucio (Thébault). 2. (a) Lolita (Buzzi-Peccia), (b) Ay, Ay, Ay (Freire). 3. Quartet Selections: (a) Nicht der Wind rauscht in den Zweigen, (b) Gestern war ich (Rimsky-Korsakov), (c) Ins Grun (Liadoff). 4. Reading of Anecdotes. 5. (a) Plegaria (Bianco), (b) Un beso, (c) Mala (Thébault), (d) Populache (Romano). 5. (a) Ständchen (Heykens), (b) The Kiss (Arditi). 6. (a) Maschenka (Glazounov), (b) Als ich ging vom Wald nach Hause, (c) Von den Hügeln werd' ich müde, followed by News, Weather, Time, and Sports Notes. 9.30 p.m.—Dance Music. 11.30 p.m.—Close Down.

BERNE (Switzerland)

Radio-Berne. WL. 411 m. (730 kc); 1.5 kw. 12.0 (noon)—Time, Weather, Exchange Market Prices, and Gramophone Records. 2.56 p.m.—Time Signal. 3.0 p.m.—The Kursaal Orchestra. 3.30 p.m.—Children's Corner. 4.0 p.m.—The Kursaal Orchestra. 6.30 p.m.—Time and Weather. 6.35 p.m.—Talk, "The Swiss National Park in the Lower Engadine." 7.0 p.m.—National Programme. 7.30 p.m.—The Kursaal Orchestra. 8.0 p.m.—Recital of French Folk Songs. 8.20 p.m.—The Kursaal Orchestra. News and Weather in the Interval.

9.30 p.m. (approx.)—Close Down.

BRESLAU (Germany)

Schlesische Funkstunde. WL. 322.6 m. (930 kc); 4 kw. Relayed by Gleiwitz on 250 m. (1200 kc). Transmits at intervals from 10.15 a.m. 5.0 p.m.—Talk, "The Occult in Literature." 5.30 p.m.—French Lesson from Königswusterhausen. 6.25 p.m.—Legal Talk. 6.50 p.m.—Talk, "The Importance of the Arbitration System." 7.15 p.m.—Request Programme by Robert Koppel and the Station Orchestra.

BRUSSELS (Belgium)

Radio Belga. WL. 503.5 m. (500 kc); 1.5 kw. 4.0 p.m.—Trio Concert. 6.45 p.m.—Radio Chronique. 7.15 p.m.—"Carmen"—Opera Selection (Bizet). 9.15 p.m.—News. 9.30 p.m. (approx.)—Close Down.

COLOGNE (Germany)

Westdeutscher Rundfunk. WL. 283 m. (1,060 kc); 4 kw. Transmits at intervals from 9.30 a.m. 12.5 p.m.—Concert. 1.30 p.m.—See Langenberg. 3.0 p.m.—Talk for Women. 3.40 p.m.—Review of Books. 4.15 p.m.—See Langenberg. 4.35 p.m.—Legal Talk. 5.0 p.m.—Concert. 1. Thermen-Walzer (Strauss). 2. "Coriolan" —Overture (Beethoven). 3. Melodies from "Tannhäuser" (Wagner). 4. Duet from "Aida" (Verdi). 5. Alumbablat (Micheli). 6. Selection from "No, No, Nanette" (Younans). 7. Küsse mich—Serenade milonga (Eysoldt). 6.15 p.m.—Talk, "The Biography of a Workman." 6.30 p.m.—See Langenberg. 7.5 p.m.—Talk on the following Transmission. 7.15 p.m.—"Der dreimal tote Peter" —Comedy (Sling), followed by News, Sports Notes, Concert and Dance Music. 11.0 p.m. (approx.)—Close Down.

COPENHAGEN (Denmark)

Copenhagen Radio. WL. 337 m. (890 kc); 1 kw. Relayed by Kalundborg on 1,153.8 m. (260 kc). 6.30 a.m.—Exercises. 10.15 a.m.—Programme for Schools. 2.0 p.m.—Concert. 5.30 p.m.—Five Minutes' Humour. 5.35 p.m.—Wireless Announcements. 6.0 p.m.—News and Exchange. 6.15 p.m.—Time, and Talk on China." 6.55 p.m.—Talk, "Il Trovatore." 7.0 p.m.—"Il Trovatore"—Opera (Verdi), relayed from the Royal Theatre, followed by News and Dance Music. 11.0 p.m. (approx.)—Close Down.

CORK (Ireland)

Cork Broadcasting Station (6CK). WL. 400 m. (750 kc); 1.5 kw. 1.30 p.m.—Weather, Stock Market Report and Gramophone Records. 5.15 p.m.—Programme from Dublin.

CRACOW (Poland)

Polskie Radio. WL. 566 m. (530 kc); 1.5 kw. 11.0 a.m.—Fanfare from the Church of Notre Dame, Time, Weather and Gramophone Concert. 2.0 p.m.—Weather and Finance Notes. 2.30 p.m.—Programme from Warsaw. 3.40 p.m.—Talk, "The State of Poland; its External Defences and Internal Consolidation." 4.20 p.m.—The Letter Box. 4.45 p.m.—Children's Corner, "Stories about Poland." 5.15 p.m.—Programme from Warsaw. 6.5 p.m.—Agricultural Report. 6.15 p.m.—Variety. 6.35 p.m.—Talk, "The Economic Wealth of the Ukraine." 7.0 p.m.—Fanfare from the Church of Notre Dame, News. 7.30 p.m.—Programme from Warsaw.

DUBLIN (Ireland)

Dublin Broadcasting Station (2RN). WL. 319.1 m. (940 kc); 1.5 kw. 1.30 p.m.—Stock Exchange List, Weather and Gramophone Concert. 6.0 p.m.—Gramophone Concert. 6.15 p.m.—Children's Corner. 7.0 p.m.—Talk for Women. 7.20 p.m.—News. 7.30 p.m.—Irish Lesson, by M. O. Maolain. 7.45 p.m.—German Lesson, by Olga von Wenckster.

8.0 p.m.—Pianoforte Quintet, Op. 114 (Schubert), by Mrs. O. C. Miley. 8.30 p.m.—Musical Sketch by Fay Sargent and Joan Burke. 9.0 p.m.—Gaelic Offerings by Kathleen Roddy (Soprano).

9.15 p.m.—Musical Chat by H. R. White. 9.30 p.m.—Newcomers: Baritone Solos by L. Maguire. Pianoforte Solos by Michael Bowles.

9.45 p.m.—Children's Corner.

9.55 p.m.—Talk, "The Silesian Housewife."

10.0 p.m.—Announcements.

10.15 p.m.—Talk.

10.30 p.m.—Concert.

10.45 p.m.—Time and News.

10.55 p.m. (approx.)—Close Down.

3.40 p.m.—Talk.

4.5 p.m.—News.

4.20 p.m.—Polish Lesson.

4.45 p.m.—Children's Corner.

5.15 p.m.—Light Music.

5.55 p.m.—Talk, "The Silesian Housewife."

6.15 p.m.—Announcements.

6.35 p.m.—Talk.

7.30 p.m.—Concert.

7.45 p.m.—Time and News.

7.55 p.m. (approx.)—Close Down.

KOVNO (Lithuania)

Radio Kaunas. WL. 2,000 m. (150 kc); 15 kw.

4.0 p.m.—Orchestral Concert.

1. Reminiscences (Grieg). 2. Intermezzo (Hellmud). 3. La Serenade (Tosti). 4. Tales from the Vienna Woods (Strauss). 5. Juavano (Tosti). 6. Cello Solo—Intermezzo (Schmeling).

5.30 p.m.—Talk, "Travels in America."

6.0 p.m.—Time, Weather and News.

6.30 p.m.—"La Tosca"—Opera (Puccini), from the National Theatre.

FRANKFURT-AM-MAIN (Germany)

Südwestdeutscher Rundfunk. WL. 428.6 m. (700 kc); 4 kw. Relayed by Cassel on 252.1 m. (1,100 kc).

Transmits at intervals from 10.12 p.m.

3.30 p.m.—Concert of old operetta music. 1. "Fatinitza"—Overture (Suppé); 2. Waltz from "The Mikado" (Sullivan). 3. Waltz from "Boccaccio" (Suppé). 4. Potpourri from "La belle Galathée" (Suppé). 5. "Carnival in Rome" —Overture (Joh. Strauss). 6. (a) Drinking Song from "La belle Hélène," (b) Song from "Zehn Mädchen und kein Mann" (Suppé). 7. Potpourri from "Der Feldprediger" (Millöcker). 8. 4.15 p.m.—Review of Books. 9.15 p.m.—Talk, "The Religion of Euripides."

10.0 p.m.—Chess Lesson.

10.30 p.m.—French Lesson.

11.0 p.m.—Natural History Talk.

11.15 p.m.—Variety Concert.

GENEVA (Switzerland)

Radio Geneva. WL. 760 m. (395 kc); 0.5 kw.

5.0 p.m.—Dance Music from the Mac-Mahon. News.

6.40 p.m.—News.

7.15 p.m.—Talk by M. René Gouvy.

7.35 p.m.—Programmes from Basle and Berne.

8.50 p.m.—News.

9.0 p.m.—Programme from Fantasio.

10.0 p.m. (approx.)—Close Down.

HAMBURG (Germany)

Mitteldeutscher Rundfunk. WL. 366.3 m. (819 kc); 4 kw. Relayed by Dresden on 275.2 m. (1000 kc).

Transmits at intervals from 9.0 a.m.

5.0—5.55 p.m.—Programme from Königswusterhausen.

6.0—7.0 p.m.—Talks.

7.0 p.m.—Weather, Time and Market Prices.

7.15 p.m.—Concert of Love Songs and Poems.

7.30 p.m.—News and Sports Notes.

7.45 p.m.—Dance Music.

10.10 a.m.—Exchange.

12.0 (noon)—Gramophone Records.

12.30 p.m.—Exchange.

5.40 p.m.—French Lesson.

6.15 p.m.—News.

6.30 p.m.—Technical Talk.

7.0 p.m.—Time.

7.2 p.m.—Talk, "David Livingstone."

7.30 p.m.—Orchestral Selections.

8.0 p.m.—Song Recital and Talk.

8.30 p.m.—Orchestral Concert.

9.0 p.m.—Weather and News.

9.15 p.m.—Topical Talk.

9.30 p.m.—Dance Music.

11.0 p.m.—Close Down.

LEIPZIG (Germany)

Mitteldeutscher Rundfunk. WL. 366.3 m. (819 kc); 4 kw.

Transmits at intervals from 9.0 a.m.

5.0—5.55 p.m.—Programme from Königswusterhausen.

6.0—7.0 p.m.—Talks.

7.0 p.m.—Weather, Time and Market Prices.

7.15 p.m.—Concert of Love Songs and Poems.

7.30 p.m.—News and Sports Notes.

7.45 p.m.—Dance Music.

10.10 a.m.—Exchange.

12.0 (noon)—Gramophone Records.

12.30 p.m.—Exchange.

5.40 p.m.—French Lesson.

6.15 p.m.—News.

6.30 p.m.—Technical Talk.

7.0 p.m.—Time.

7.2 p.m.—Talk, "David Livingstone."

7.30 p.m.—Orchestral Selections.

8.0 p.m.—Song Recital and Talk.

8.30 p.m.—Orchestral Concert.

9.0 p.m.—Weather and News.

9.15 p.m.—Topical Talk.

9.30 p.m.—Dance Music.

11.0 p.m.—Close Down.

MADRID (Spain)

Union Radio (EAJ7). WL. 375 m. (800 kc); 1.5 kw.

Transmits at intervals from 10.45 a.m.

6.0 p.m.—Orchestral Selections. Talk in the interval by Victorino Tamayo.

7.0 p.m.—Dance Music from the Alcazar.

8.30 p.m.—History Lesson.

8.45 p.m.—Talk, "The Influence of Meteorology on Aviation."

9.0 p.m. (approx.)—Time and Exchange Quotations.

9.15 p.m. (approx.)—Concert from the Works of Isaac Albeniz. Introductory Talk, "Anecdote from the Life of Albeniz," followed by Selections by the Station Sextet. News.

11.0 p.m.—Dance Music from the Alcazar.

11.30 p.m. (approx.)—Close Down.

MILAN (Italy)

Unione Radiofonica Italiana (MI). WL. 549.3 m. (546 kc); 7 kw.

Transmits at intervals from 11.15 a.m.

5.15 p.m.—Agricultural Report.

5.50 p.m.—Time, and History Talk.

5.50 p.m.—Concert: 1. (a) Canzonetta (Schutte), (b) La Chaste Suzanne (Gilbert), (c) Valse tendre (Gillet), (d) Spanish Caprice (Pennati).

6.15 p.m.—Topical Talk. 2. Variety. 3. Comedy.

9.20 p.m.—News.

9.30 p.m.—Dance Music from the Cora Restaurant.

10.30 p.m. (approx.)—Close Down.

MUNICH (Germany)

Deutsche Stunde in Bayern. WL. 535.7 m. (560 kc); 4 kw. Relayed by Nürnberg on 241.9 m. (1,240 kc) and Augsburg on 566 m. (530 kc).

Transmits at intervals from 11.45 a.m.

5.15 p.m.—Chess for Boys.

5.45 p.m.—Talk on "The History of German Economics."

6.20 p.m.—Talk.

PARIS (France)

Radio-Paris (CFR). WL. 1,750 m. (171 kc); 3 kw.

Transmits at intervals from 6.30 a.m.

5.15 p.m.—English Lesson.

7.20 p.m.—Concert. 1. "Die Schweizer familie"—Overture (Weigl). 2. Arias from "Das Nachtlager von Granada" (Kreutzer). 3. Aus der Ballsuite, Op. 170 (Lachner). 4. Recitative and Arioso from "Der Waffenschmied" (Lortzing). 5. Die Romantiker—Waltz (Lanner). 6. "Erlenhügel" — Overture (Kuhlau).

8.15 p.m.—Concert of American Dances and Marches.

9.15 p.m.—Announcements.

9.30 p.m.—Orchestral Concert from the Hotel Bayerischer Hof.

10.30 p.m. (approx.)—Close Down.

NAPLES (Italy)

Unione Radiofonica Italiana (INA).

Programmes for Wednesday.—(Cont.)

11.30 a.m.—Concert. 1. Chanson d'amour (de Bréville). 2. Cantique de Sainte Cecile—Cello Solo (Chausson). 3. Berceuse for Clarionet (Defosse). 4. Aux étoiles (Duparc). 5. Pitres Napolitains (d'Indy). 6. Gavotte Provençale (Reynaud). 7. Fêtes romaines (Fourdrain). 8. Ballet Russe (Luigini). News in the interval.

12.30 p.m.—Market Prices.

2.30 p.m.—Exchange Quotations.

2.45 p.m.—Concert. 1. Selection from "Falstaff" (Verdi). 2. Concerto in E flat (Mozart). 3. "The Caliph of Bagdad"—Overture (Boieldieu). 4. Pianoforte Solos: (a) Nocturne (Debussy), (b) Prelude valse (Sibelius). 5. Berceuse (Brun). 6. Introduction and Polonaise (Casadesus). 7. Marche militaire française (Saint-Saëns). 3.45 p.m.—Exchange and News. 6.0 p.m.—Agricultural Report. 6.30 p.m.—Singing Lesson. 7.0 p.m.—Exchange and News. 7.30 p.m.—Concert from the works of Mozart. In the interval, News.

PITTSBURGH (U.S.A.)
Westinghouse Electric (KDKA). WL 315.6 m. (950 kc.); 50 kw. 2.45 p.m.—Time, Exchange Quotations, News and Market Prices. 3.0 p.m.—"Dr. Royal S. Copeland Hour" from WJZ, New York. 4.0 p.m.—University of Pittsburgh Address. 4.15 p.m.—KDKA Theatrical Calendar. 4.57 p.m.—Time Signals. 5.0 p.m.—Exchange Quotations, Weather and Market Prices. 8.0 p.m.—Musical Masterpieces. 9.0 p.m.—Time, Exchange Closing Prices, Weather, and Market Prices. 10.0 p.m.—Time and Market Prices. 10.15 p.m.—Farm Chat.

11.0 p.m.—Time; 11.15 p.m.—The Westinghouse Band from the William Penn Hotel. 12.0 (midnight)—Time, and University of Pittsburgh Address on "More About Mythological Zoology."

12.15 a.m. (Thursday).—"King Comfort and his Oil-O-Matics." 12.45—3.0 a.m.—Programme from WJZ, New York.

12.45 a.m.—"Political Situation in Washington To-night." 1.0 a.m.—"Champion Sparkers." 1.30 a.m.—"The Sylvania Foresters." 2.0 a.m.—"Variety Hour." 3.0 a.m.—Happiness Programme by the Merry Maytag Ramblers. 3.30 a.m.—"Power Period." 4.0 a.m.—Time and Weather. 4.15 a.m. (approx.)—Close Down.

POSEN (Poland)
Polskie Radio. WL 344 m. (872 kc.); 1.5 kw. 12.00 (noon)—Orchestral Concert. 1. Ballet Suite (Poppy). 2. Ballet Music from "Loreley" (Catalani). 3. Ballet Music from "Sylvia" (Delibes). 4. Spanish Dances Nos. 1 and 2 (Moszkovski). 5. "Minnesold"—Ballet Suite (Fresco). 6. Ballet Music from "Gioconda" (Ponchielli). During the interval Exchange, Market Prices and Agricultural Report.

1.15 p.m.—News. 4.0 p.m.—Children's Corner. 4.45 p.m.—Concert of Lithuanian Music. 5.30 p.m.—Variety Item. 6.0 p.m.—Talk. 6.15 p.m.—French Lesson. 6.35 p.m.—Talk, "Americanisation of the Polish Press." 7.0 p.m.—Finance Notes. 7.30 p.m.—Organ Recital. 9.0 p.m.—Time, News and Weather. 9.20 p.m.—Variety Item. 9.40 p.m.—Dancing Instruction. 10.0 p.m.—Dance Music. 11.0 p.m. (approx.)—Close Down.

ROME (Italy)
Unione Radiofonica Italiana (IRO). WL 448.4 m. (669 kc.); 3 kw. 11.30 a.m.—Government Report. 12.30 p.m.—Concert by the Station Trio. 1.30 p.m.—Exchange Quotations and News. 3.40 p.m.—News and Exchange Quotations. 3.50 p.m.—Children's Corner. 4.15 p.m.—Agricultural Report. 4.30 p.m.—Time. 4.32 p.m.—Vocal and Instrumental Concert: 1. Pianoforte Solos (Chopin): (a) Prelude in C minor; (b) Impromptu in F sharp minor.

2. Mezzo-Soprano Solos: (a) Morir voglio (Astorga); (b) "Inno al sole" from "Euridice" (Peri). 3. Tenor Solos: (a) "La mia letizia infondere" from "I Lombardi" (Verdi); (b) Song from "The Cloak" (Puccini). 4. Pianoforte Solos: (a) Ballade in G minor (Brahms); (b) Scherzo in E major (Martucci). 5. Mezzo-Soprano Solos: (a) Nebbi (Respighi); (b) La serenata (Bossi). 6. "Addio Mignon"—Tenor Solo from "Mignon" (Thomas).

6.0 p.m.—Government Report. 7.0 p.m.—German Lesson. 7.30 p.m.—Time, News, Exchange Quotations and Weather. 7.45 p.m.—Talk, "The Planets and Jupiter." 8.0 p.m. (approx.)—Relay from a Rome Theatre. In the Interval: Review of Books, and News.

SCHENECTADY (U.S.A.)
General Electric Company (WGY). WL 379.5 m. (790 kc.); 50 kw. Programme relayed by 2XAD on 21.06 m. (13,661 kc) from 11 p.m. 11.45 a.m.—Exercises. 1.30 p.m.—"Cheerie" Talk and Musical Selections. 4.15 p.m.—"Radio Household Institute" Talk from New York. 4.55 p.m.—Time, Weather and Produce Report. 5.07 p.m.—"Farm Flashes." 5.30 p.m.—Stock, Cotton and Grain Market Reports. 5.43 p.m.—Weather. 11.0 p.m.—Exchange and News. 11.20 p.m.—"U.S. Radio Farm School." 11.30 p.m.—Musical Selections. 11.45 p.m.—WGY Agricultural Programme. 12.30 a.m.—Remington Rand Band, from Ilion, N.Y. 1.0 a.m.—"American Magazine Hour" from New York. 2.0 a.m.—Time. 2.02 a.m.—"Ipana Troubadours" from New York. 2.30 a.m.—Goodrich Silvertown Cord Quartet and Orchestra, from New York. 3.30 a.m.—Madrigal Quartet. 4.0 a.m. (approx.)—Close Down.

STOCKHOLM (Sweden)
Radiotjänst (SASA). WL 453.8 m. (661 kc.); 1.5 kw. Relayed by Motala on 1380 m. (217 kc); Göteborg, 416.7 m. (720 kc); Malmö, 260.9 m. (1150 kc); and Sundsvall, 545.8 m. (550 kc). Transmits at intervals from 11.35 a.m.

6.10 p.m.—German Lesson from Göteborg. 6.40 p.m.—Introductory Talk to the following transmission. 7.0 p.m.—"Turandot"—Opera (Puccini) from the Royal Opera House. 9.15 p.m. (approx.)—Close Down.

STUTTGART (Germany)
Süddeutscher Rundfunk. WL 386.7 m. (788 kc); 4 kw.

Transmits at intervals from 11.30 a.m. 3.15 p.m.—Concert from works ① Suppé. 1. "Tantalusqualen." 2. Forget-me-not. 3. Melodies from "Boccaccio," 4. Melodies from "Finatizza." 5. "Poet and Peasant"—Overture. 6. Humorous Variations on "Was kommt dort von der Hoh?" 7. "Pique Dame"—Overture. 8. Melodies from "Das Pensionat."

5.0 p.m.—Time, Weather and Agricultural Notes. 5.15 p.m.—Medical Talk. 5.45 p.m.—Talk, "From the Kerosene Lamp to the Electric Bulb." 6.15 p.m.—English Lesson. 6.45 p.m.—Time and Weather. 7.0 p.m.—Variety Concert including "Czirkus und Zigeunerin"—Play (Schilling). News.

TOULOUSE (France)
Radiophonie du Midi. WL 391 m. (767 kc); 3 kw.

Transmits at intervals from 9.15 a.m.

11.45 a.m.—Concert of Dance Music. 7.0 p.m.—News.

7.30 p.m.—Concert: 1. Les Marie-Louise—March (Robert). 2.

Printemps nouveau (Vidal). 3.

Valse à la Viennoise (Ziller). 4.

Madre—Tango (Pracanico). 5.

Le Chemineau—Fantasia (Leroux). 6.

Danse des Lutins (Fourdrain). 7.

Impressions de Nice—Suite (Auvray). 8.

Cavatina (Saint-Saëns). 9.

Rose mousse (Bosc). 10.

Galathée—Fantasia (Massé). 11.

A Piedigrotta (Bonincontro). 12.

Second Minuet (Boccherini). 13.

L'ile heureuse (Chabrier). 14.

Crying for the Moon—Foxtrot (Couley J. Stern).

8.0 p.m.—Concert. 1. Four Waltzes (Ravel). 2. Le tombeau de Couperin (Ravel). 3. "Hymn to the Sun," from "Le Coq d'Or" (Rimsky-Korsakoff). 4. Two Selections from Rousseau. 9.5 p.m.—Dance Music.

VIENNA (Austria)

Radio-Wien. WL 576 and 517.2 m. (520 and 580 kc); 0.75 and 5 kw. Relayed by Innsbruck on 294.1 m. (1,020 kc) and Klagenfurt on 272.7 m. (1,100 kc).

Transmits at intervals from 11.0 a.m. 5.30 p.m.—Talk for Veterinary Surgeons.

6.0 p.m.—Talk on "Vitamins."

6.30 p.m.—Concert relayed from the Concert House. 1. Symphony in D major (Mozart). 2. The Seventh Symphony in E major (Bruckner), followed by Programme of Light Music.

WILNO (Poland)

Polskie-Radio. WL 435 m. (689 kc); 0.5 kw. Transmits at intervals from 3.0 p.m.

5.35 p.m.—Talk, "Contemporary Polish Music."

6.0 p.m.—News.

6.25 p.m.—Time and Variety.

6.35 p.m.—Programme from Warsaw.

7.30 p.m.—Programme from Warsaw.

9.5 p.m.—News.

9.20 p.m. (approx.)—Close Down.

ZURICH (Switzerland)

Radio-Genossenschaft. WL 588.2 m. (510 kc); 2 kw.

11.30 a.m.—Time and Weather.

11.32 a.m.—Orchestral Music.

11.50 a.m.—News.

12.35 p.m.—Weather and Exchange.

2.45 p.m.—Gramophone Selections.

3.0 p.m.—Concert by the Carletti Orchestra from the Carlton Elite Hotel.

4.10 p.m.—Children's Corner.

4.45 p.m.—Weather and Market Prices.

6.30 p.m.—Time and Weather.

6.32 p.m.—Talk, "The Railway Services of Large Cities."

7.0 p.m.—Beethoven Concert.

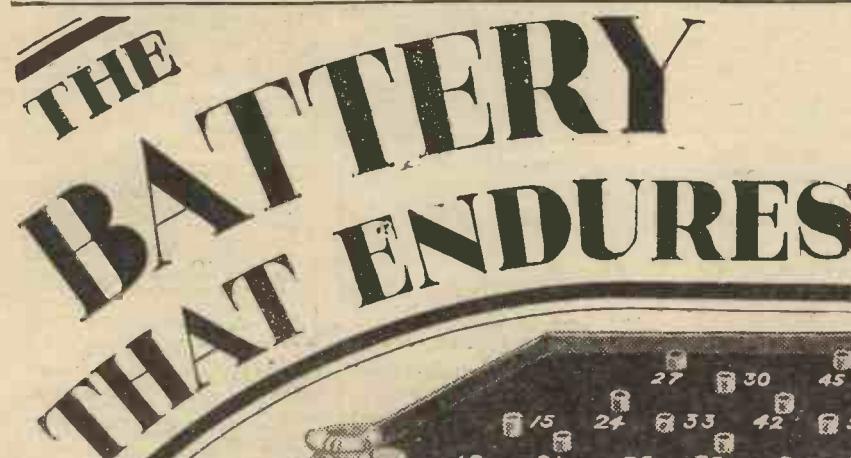
7.30 p.m.—Talk by Dr. Hans Zbinden on "Ludwig van Beethoven."

7.50 p.m.—Concert of vocal and instrumental music.

8.30 p.m.—The Station Orchestra.

9.0 p.m.—Weather and News.

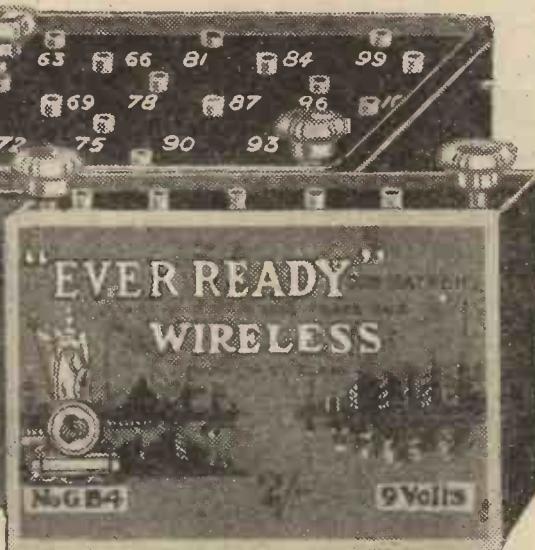
9.15 p.m. (approx.)—Close Down.



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PROGRAMMES FOR THURSDAY

(April 19)

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

BARCELONA (Spain)

Radio Barcelona (EAJ1). WL. 344.8 m. (870 kc); 1.5 kw.
5.10 p.m.—Sextet Selections.
5.30 p.m.—Children's Corner.
5.50 p.m.—Reading.
7.40 p.m.—English Lesson.
8.0 p.m.—Chimes and Weather.
8.5 p.m.—Exchange and News.
8.10 p.m.—Orchestral Selection.
8.20 p.m.—Dance Music.
9.0 p.m.—Exchange Closing Prices.
9.5 p.m.—"Night of Love"—Lyrical Drama in Catalan from the Barcelona Theatre.
9.45 p.m.—"La Alegria que Passa"—Lyrical Scena in Catalan.
10.50 p.m. (approx.)—Close Down.

BERGEN (Norway)

Kringkastingselskap. WL. 369.0 m. (811 kc); 1.5 kw.
Transmits at intervals from 10.15 a.m.
7.0 p.m.—The Wireless Orchestra: 1. To the Sea (MacDowell), 2. Aufschwung (Schumann), 3. Berceuse (Iljinsky), 4. Mazurka (Scriabin), 5. La Complainte (Liadoff), 6. Swedish Dance No. 4 (Aulin).
7.30 p.m.—Recitations.
8.0 p.m.—Programme from Oslo.
9.0 p.m.—Weather, News and Time.
9.15 p.m.—English Talk by Mr. F. L. M. Somerville.
9.30 p.m. (approx.)—Close Down.

BERLIN (Germany)

Königswusterhausen. WL. 1,250 m. (240 kc); 35 kw.
Transmits at intervals from 11.0 a.m.
3.30 p.m.—Talk, "Space and Time."
4.0 p.m.—Concert from Voxhaus.
5.0 p.m.—Talk, "Germany's Commercial Relations with South and Central America."
5.30 p.m.—Spanish Lesson.
5.55 p.m.—Talk, "Fish Cultures in Germany."
6.20 p.m.—Talk, "Dürer Letters and Anecdotes."
7.0 p.m.—Programme from Bremen.
8.0 p.m.—Programme from Kiel.
9.20 p.m.—Programme from Hamburg.
9.30 p.m.—Programme from Voxhaus.

BERLIN (Germany)

Voxhaus. WL. 484.6 m. (619 kc); 4 kw.
Transmits at intervals from 9.10 a.m.
11.30 a.m.—Agricultural Notes.
2.30 p.m.—Talk, "Corfu and the Dörfeld Excavations."
3.15 p.m.—Modern Poetry, Talk and Reading.
4.0 p.m.—Concert of Ballet Music.
5.30 p.m.—Talk, "Das Teufels Anteil."
6.0 p.m.—Spanish Lesson.
6.30 p.m.—Talk, "Eastern Culture."
7.0 p.m.—Talk, "Modern Church Music."
7.15 p.m. (approx.)—Concert of Sacred Music. 1. "So ruhest du, o meine Ruh," for Choir and Orchestra, from "Ostergang" (Bachmann). 2. Kyrie eleison for choir (Schütz). 3. First Orchestral Movement from the Cantata "Der Himmel lacht, die Erde jubiliert" (Bach). 4. "Gloria," for Choir, from the German Mass (Schütz). 5. Christ ist erstanden—Sacred Folk Song of the Middle Ages, for Choir and Orchestra (Bachmann). 6. "Mein gläubiges Herz frohlockt," Aria, for Soprano and Cello from the Easter Cantata, "Also hat Gott die Welt geliebt" (Bach). 7. Credo for Choir (Bachmann). 8. Selections for Choir and Orchestra: (a) Holy, Holy, Holy. (b) "Wach auf, mein Herz, die Nacht ist hin," from the "Ostergesang" (Bachmann).
8.20 p.m.—Talk, and Reading, followed by Weather, News, Time, and Sports Notes.
9.30 p.m.—Dance Music.
11.30 p.m.—Close Down.

BERNE (Switzerland)

Radio-Berne. WL. 411 m. (730 kc); 1.5 kw.
12.0 (noon)—Time, Weather, Exchange, Market Prices, and Gramophone Records.
2.50 p.m.—Time Signal.
3.0 p.m.—The Kursaal Orchestra.
3.30 p.m.—Talk for Children.
4.0 p.m.—The Kursaal Orchestra.
6.30 p.m.—Time and Weather.
6.35 p.m.—Talk, "What Happened to Prisoners of War in Siberia."

7.0 p.m.—Concert. Recitations, Flute Solos, and Selections by the Kursaal Orchestra.
8.20 p.m.—The Kursaal Orchestra. News and Weather in the Interval.
9.30 p.m. (approx.)—Close Down.

BRESLAU (Germany)

Schlesische Funkstunde. WL. 322.6 m. (930 kc); 4 kw. Relayed by Gleiwitz on 250 m. (1,200 kc). Transmits at intervals from 10.15 a.m.
5.0 p.m.—Talk, "The Occult in Literature."
5.25 p.m.—Talk, "The development of German culture."
6.25 p.m.—"The Aran Islands," read by Douglas Yates, M.A.
6.50 p.m.—Shorthand Lesson.
7.15 p.m.—Symphony Concert, followed by News.
9.30 p.m.—Dance Music.
11.0 p.m. (approx.)—Close Down.

BRUSSELS (Belgium)

Radio Belga. WL. 508.5 m. (590 kc); 1.5 kw.
4.0 p.m.—Children's Concert.
4.45 p.m.—Colonial Bulletin.
5.0 p.m.—Flemish Lesson.
6.45 p.m.—Radio Chronique.
7.15 p.m.—Orchestral Concert.
7.30 p.m.—Talk, "In Sicily with Ulysses."
7.40 p.m.—Concert (contd.), Topical Talk and Literary Selection in the Intervals.
9.15 p.m.—News.
9.30 p.m. (approx.)—Close Down.

COLOGNE (Germany)

Westdeutscher Rundfunk. WL. 283 m. (1,060 kc); 4 kw.
Transmits at intervals from 9.30 a.m.
12.5 p.m.—See Langenberg.
3.30 p.m.—Talk, "Blank Verse."
4.0 p.m.—Talk, "Young Russian Poets."
4.30 p.m.—Talk, "On the Highest Peak of Germany."
5.0 p.m.—See Langenberg.
7.15 p.m.—Symphony Concert. 1. Meiergruss und Seemorgen (Schillings). 2. Concerto for Cello and Orchestra (Bettingen). 3. The Seasons—Suite (Unger), followed by News, Sports Notes, Economic Report, Concert, and Dance Music.
11.0 p.m. (approx.)—Close Down.

COPENHAGEN (Denmark)

Copenhagen Radio. WL. 337 m. (890 kc); 1 kw.
Delayed by Kalundborg on 1,153.8 m. (260 kc).
6.30 a.m.—Exercises.
2.0 p.m.—Concert.
6.0 p.m.—News and Exchange.
6.15 p.m.—Time.
6.30 p.m.—Talk, "Electricity in the Home."
7.0 p.m.—Chimes.
7.2 p.m.—Selections from the Works of Lumbye, by the Orchestra. Followed by "Hos Greveninden"—Comedy (Leopold) and Selections from the Works of Lumbye.
9.0 p.m.—News.
9.15 p.m. (approx.)—Relay of Foreign Stations.
11.0 p.m.—Chimes and Close Down.

CORK (Ireland)

Cork Broadcasting Station (6CK). WL. 400 m. (750 kc); 1.5 kw.
1.30 p.m.—Weather, Stock Market Report, and Gramophone Records.
5.15 p.m.—Programme from Dublin.

CRACOW (Poland)

Polskie Radio. WL. 566 m. (530 kc); 1.5 kw.
11.0 a.m.—Fanfare from the Church of Notre Dame. Time and Weather.
11.5 a.m.—Programme from Warsaw.
2.0 p.m.—Weather and Finance Notes.
2.30 p.m.—Programme from Warsaw.
3.40 p.m.—Talk for Women.

4.20 p.m.—Talk, "American Milhomines."—A. Carnegie.
4.45 p.m.—Programme from Warsaw.
6.15 p.m.—Agricultural Report.
6.15 p.m.—Variety.

6.30 p.m.—English Lesson.

7.0 p.m.—Fanfare from the Church of Notre Dame. News.
7.30 p.m.—Programme from Warsaw.
9.30 p.m.—Restaurant Concert.
10.30 p.m. (approx.)—Close Down.

DUBLIN (Ireland)

Dublin Broadcasting Station (2RN). WL. 370.7 m. (640 kc); 1.5 kw.
1.30 p.m.—Stock Exchange List, Weather and Gramophone Concert.
6.0 p.m.—Gramophone Concert.

WORLD-RADIO

6.15 p.m.—Children's Corner.
7.0 p.m.—Gramophone Concert.

7.10 p.m.—News.

7.30 p.m.—French Lesson by Mlle. Giudicelli.

7.45 p.m.—History Talk by S. MacCathmhaoil.

8.0 p.m.—Station Orchestra.

8.15 p.m.—Baritone Solos by Robert Clotworthy.

8.30 p.m.—"Request Music," by the Station Orchestra.

8.45 p.m.—Pianoforte Solos by Kitty Pyne.

9.0 p.m.—Lorraine Dance Band.

10.30 p.m.—News, Weather Report, and Close Down.

11.40 p.m.—Police News.

12.10 p.m.—Trio Concert.

2.40 p.m.—Programme for Hospitals.

5.10 p.m.—Concert. 1. "La Cenerentola" —Overture (Rossini). 2. Sonata in E minor (Veracini).

3. Berceuse réverie (Scambiati).

4. Selection from "Iris" (Mascagni).

5. Prelude (Järnefeldt). 6. Violin Solos: (a) Romance (Rubinstein), (b) Réverie (Vieuxtemps).

7. Melody (Paderevsky). 8. Hungarian Dances Nos. 5 and 6 (Brahms).

9. (a) Minuet (Beethoven), (b) Waltz in D major (Weber).

10. Selection from the works of Grieg (arr. Urbach).

5.55 p.m.—English Lesson.

7.25 p.m.—Police News.

7.45 p.m.—Symphony Concert from the Amsterdam Concert Hall.

Talk in the Interval.

10.10 p.m.—Weather and News.

10.20 p.m.—Dancing Lesson.

11.40 p.m.—Close Down.

der Färber, (e) Solo and Chorus: Die Leineweber, (f) Chorus: Der Schneider in d. Höhle, (g) Solo and Chorus: Der Schneider Jahrestag, (h) Solo and Chorus: So machen sie's, (i) Nachtwächterlied.

9.15 p.m. (approx.)—News, followed by Cabaret Concert.

7.0 p.m.—Dance Music from the "Alcazar."

8.30 p.m.—French Lesson.

9.0 p.m.—Programme relayed by San Sebastian (EAJ8). 335 m. (895 kc); Time and Exchange Quotations, News and Surprise Concert.

11.0 p.m.—Dance Music from the "Alcazar."

11.30 p.m. (approx.)—Close Down.

MADRID (Spain)

Union Radio (EAJ7). WL. 375 m. (800 kc); 1.5 kw.
Transmits at intervals from 10.45 a.m.

6.0 p.m.—Orchestral Selections. In the interval, Talk on Art.

7.0 p.m.—Dance Music from the "Alcazar."

8.30 p.m.—French Lesson.

9.0 p.m.—Programme relayed by San Sebastian (EAJ8). 335 m. (895 kc); Time and Exchange Quotations, News and Surprise Concert.

11.0 p.m.—Dance Music from the "Alcazar."

11.30 p.m. (approx.)—Close Down.

MILAN (Italy)

Unione Radiofonica Italiana (MI).

WL. 549.3 m. (546 kc); 7 kw.

Transmits at intervals from 11.15 p.m.

5.15 p.m.—Agricultural Report.

7.0 p.m.—English Lesson.

7.50 p.m.—Time.

7.52 p.m.—"Faust"—Opera (Gounod). In the Intervals, Colossal Report and Sports Notes.

9.55 p.m.—News.

10.30 p.m. (approx.)—Close Down.

OSLO (Norway)

Kringkastingselskap. WL. 461.5 m. (655 kc); 1.5 kw. Relayed by Hamar on 555.8 m. (540 kc); Porsgrunn, 500 m. (600 kc); Fredrikstad, 434.8 m. (660 kc); Notodden, 411 m. (730 kc); and Rjukan, 448 m. (670 kc).

9.30 a.m.—German Lesson for Schools.

10.10 a.m.—Exchange.

12.0 (noon)—Gramophone Records.

12.15 p.m.—Agricultural Report and Weather.

12.30 p.m.—Exchange.

4.20 p.m.—Studio Address.

4.55 p.m.—Orchestral Concert.

5.55 p.m.—Shorthand Lesson.

6.15 p.m.—News.

6.30 p.m.—German Lesson.

7.0 p.m.—Time.

7.2 p.m.—Talk, "A Motor Tour through Germany."

7.30 p.m.—Song Recital from the Works of Kierulf.

8.0 p.m.—Cabaret Concert.

9.0 p.m.—Weather and News.

9.15 p.m.—Topical Talk.

9.30 p.m.—Probable Relay of Foreign Stations.

11.0 p.m. (approx.)—Close Down.

PARIS (France)

Ecole Supérieure (PFTT). WL. 458 m. (655 kc); 0.5 kw.

12.45 p.m.—Talk, "The Evolution of Memory and the Idea of Time."

3.0 p.m.—Orchestral Concert. 1. Les Noces de Jeannette (Masse). 2. Fortunio (Mozart). 3. Sigurd "Fantasia (Reyer)."

4.0 p.m.—Talk, "The Different Aspects of Joint Liability."

5.0 p.m.—"Radio Journal de France."

7.0 p.m.—Esperanto Lesson. Talks.

8.0 p.m.—Programme from the Salle Pleyel.

PARIS (France)

Eiffel Tower (FL). WL. 2,650 m. (113 kc); 5 kw.

7.56 a.m.—Time Signal on 32 m. (9.375 kc).

9.20 a.m.—Time Signal.

5.45 p.m.—"Le Journal Parlé," Talks on "The French Participation in the International Exhibition at Rotterdam," "Books to Read" and "New Things in Wireless," etc.

7.10 p.m.—Time Signal.

7.30 p.m.—Concert. 1. "Pièces en concert" for Cello, Flute and Pianoforte (Rameau).

2. Songs, (a) "C'est ici le berceau de notre liberté" from "Partie Paladihle," (b) Les Indes galantes (Rameau), (c) Couplets from "Mireille" (Gounod). 3. Violin Solos, (a) Romance (Lalo); (b) Intermezzo (Lalo). At 8.56 p.m. Time Signal on 32 m. (9.375 kc).

8.30 p.m.—Educational Programme. Talks on "Singing" and "Decoration of the Modern Theatre," etc.

10.26 p.m.—Time Signal.

PARIS (France)

Petit Parisien. WL. 340.9 m. (880 kc); 0.5 kw.

8.0 p.m.—Concert of Orchestral and Chamber Music. 1. "Oberon" Overture (Weber). 2. Clarinet Solo—Etude (Rose). 3. Clarinet and Pianoforte Selection—Rondo from the Sonata (Weber).

4. Minuet from the Eighth Symphony.

Programmes for Thursday.—(Cont.)

(Beethoven). 5. Quintet for Wind Instruments (Mozart). 6. Clarinet and Orchestra — Canzonetta (Pierne). 7. Adagio from the Concerto (Mozart) — Clarinet and Orchestra. 8. Alborada du Caprice Espagnol. (Rimsky-Korsakoff).

PARIS (France)

Radio-Paris (CFR). WL. 1,750 m. m. (171 kc); 3 kw. Transmits at intervals from 6.30 a.m. 11.0 a.m.—Protestant Address. 11.30 a.m.—Concert from the works of Saint-Saëns and Debussy. Part 1 (*Saint-Saëns*). 1. Phaeton—Symphonic Poem. 2. Selection from "Samson and Delilah." 3. Rêverie du soir. 4. Marche militaire. Part 2 (Debussy). 1. Petite Suite. 2. Bruyères. 3. La Fille aux cheveux de lin. 4. Danse. 12.0 (noon)—Programme for Children. News in the Interval. 12.50 p.m.—Market Prices. 2.30 p.m.—Exchange Quotations. 2.45 p.m.—"Classical" Programme. 3.45 p.m.—Exchange and News. 6.0 p.m.—Agricultural Report. 7.0 p.m.—Exchange and News. 7.15 p.m. (approx.)—Esperanto Talk. 7.30 p.m.—Concert. 1. "Un Frère" (Bassan). 2. Quintet (Fauré). 3. Argentine Melodies. 4. Hommage à Debussy—"for Cello and Violin (Ravel). 5. Argentine Melodies. News in the Interval.

PITTSBURGH (U.S.A.)

Westinghouse Electric (KDKA). WL. 315.6 m. (650 kc); 50 kw. 2.45 p.m.—Time, Exchange Quotations, Weather, News and Market Prices. 3.0 p.m.—"Dr. Royal S. Copeland Hour" from WIZ, New York. 4.0 p.m.—KDKA Household Question Box. 4.15 p.m.—KDKA Theatrical Calendar. 4.57 p.m.—Time Signals. 5.0 p.m.—Exchange Quotations, Weather and Market Prices. 8.0 p.m.—"Musical Masterpieces." 9.0 p.m.—Time, Exchange Closing Prices, Weather and Market Prices. 10.0 p.m.—Time and Market Prices. 10.55 p.m.—Time. 11.0 p.m.—University of Pittsburgh Address.

11.10 p.m.—KDKA Theatrical Calendar.

11.15 a.m.—KDKA Little Symphony Orchestra from the William Penn Hotel, Pittsburgh. 12.0 (midnight)—Time and "Automatic Agitators."

12.30 a.m. (Friday)—Variety. The following Programme from WJZ, New York. 1.0 a.m.—"Retold Tales." 1.30 a.m.—"Ampico Hour." 2.0 a.m.—"Maxwell Hour." 3.0 a.m.—"The Continentals." 4.0 a.m.—Time and Weather. 4.15 a.m. (approx.)—Close Down.

POSEN (Poland)

Polskie Radio. WL. 344 m. (872 kc); 1.5 kw. 11.30 a.m.—Talk from Warsaw. 11.30 a.m.—Children's Concert from the "Philharmonie de Varsovie." 1.0 p.m.—Exchange Quotations and News. 3.40 p.m.—Talk from Warsaw. 4.5 p.m.—Talk, "The History, Development and Importance of Fairs." 4.30 p.m.—Reading of Poems. 5.0 p.m.—Concert from the Café Wielkopolska. 5.45 p.m.—Variety. 6.10 p.m.—English Lesson. 6.35 p.m.—Talk, "The Rearing of Cattle, and Dairy-Farming." 7.0 p.m.—Finance Notes. 7.30 p.m.—Concert: 1. March (Nowowiejski). 2. Soprano Solos (Moniuszko). 3. Tenor Solos: (a) Air from "Carmen" (Bizet); (b) Air from "Eugen Onegin." 4. Chant de la patrie—Recitation (Makuszynski). 5. Two Mazurkas (Wróński). 6. Three Baritone Solos. 7. Soprano Solos: (a) Addio (Tosti); (b) La Nuit (Rubinstein). 8. Two Songs (Paganini). 9. Potpourri of Polish Melodies. 10. Recitations. 11. Mazurka (Namysowski). 9.0 p.m.—Time, Weather and News. 9.20 p.m.—Variety. 9.40 p.m. (approx.)—Close Down.

ROME (Italy)

Unione Radiofonica Italiana (IRO). WL. 448.4 m. (669 kc); 3 kw.

11.30 a.m.—Government Report. 12.30 p.m.—Concert by the Station Trio.

1.30 p.m.—Exchange Quotations and News.

3.40 p.m.—News and Exchange Quotations.

3.50 p.m.—Children's Corner.

4.15 p.m.—Agricultural Report.

4.30 p.m.—Time.

4.32 p.m.—Vocal and Instrumental Concert and Dance Music from the "Casinetta."

6.0 p.m.—Government Report.

7.0 p.m.—French Lesson.

7.30 p.m.—Time, News, Exchange Quotations and Weather.

7.45 p.m. (approx.)—"La Bayadère" Operetta (Khalman). In the First Interval, Topical Talk.

9.55 p.m.—News.

10.0 p.m. (approx.)—Close Down.

SCHEECTADY (U.S.A.)

General Electric Company (WGY). WL. 379.5 m. (790 kc); 50 kw. Programme relayed by 2XAF on 31.4 m. (9,554 kc) from 11.0 p.m. 11.45 p.m.—Exercises. 1.30 p.m.—"Cheerio" Talk and Musical Selections. 4.15 p.m.—"Radio Household Institute" Talk from New York. 4.55 p.m.—Time, Weather and Produce Report. 5.7 p.m.—"Farm Flashes." 5.30 p.m.—Stock, Cotton and Grain Market Report. 5.43 p.m.—Weather. 7.0 p.m.—Hotel van Curler Orchestra. 7.30 p.m.—A One Act Play by the WGY Matinee Players. 11.0 p.m.—Exchange and News. 11.30 p.m.—Dinner Music, from the Hotel Kenmore, Albany, N.Y. 12.30 a.m. (Friday)—Talk on "Surveying." 12.45 a.m.—Studio Programme. 10.0 a.m.—3.30 a.m.—Programme from New York. 1.0 a.m.—"Dodge" Programme. 1.30 a.m.—"Hoover Sentinels." 2.0 a.m.—Time. 2.2 a.m.—"Cabin Door." 2.30 a.m.—"Wayside Inn." 3.0 a.m.—"Hulsey Stuart Company Programme." 3.30 a.m.—Carborundum Band from Niagara Falls, N.Y. 4.0 a.m.—Dance Music from New York.

4.30 a.m.—Organ Recital from the Strand Theatre, Albany, N.Y. 5.30 a.m. (approx.)—Close Down.

STOCKHOLM (Sweden)

Radiotjänst (SASA). WL. 453.8 m. (661 kc); 1.5 kw. Relayed by Motala on 1,380 m. (217 kc); Göteborg, 416.7 m. (720 kc); Malmö, 260.9 m. (1,150 kc); and Sundsvall, 545.8 m. (550 kc).

Transmits at intervals from 11.35 p.m.

5.30 p.m.—Concert of light music.

6.15 p.m.—Talk, "The stumbling stones in the Swedish language" from Malmö.

6.35 p.m.—Talk, "The System of the Universe and Religion."

7.30 p.m.—Soprano Solos from Göteborg.

7.55 p.m.—Talk, "The River Congo."

8.15 p.m.—News and Weather.

8.40 p.m.—Pianoforte Quintet in F minor (Franck).

9.15 p.m. (approx.)—Close Down.

STUTTGART (Germany)

Süddeutscher Rundfunk. WL. 380.7 m. (788 kc); 4 kw.

Transmits at intervals from 11.30 a.m.

3.15 p.m.—Concert. 1. "Iphigenie in Aulis" Overture (Gluck). 2.

Sonata for pianoforte and violin (Mozart). 3. Paraphrase on "The Song of the Volga Boatmen" (Wenninger). 4. Variations on "Kommt ein Vogel geflogen" (Ochs). 5. Selection from the "Pearl Fishers" (Bizet). 6.

Prelude to "Der Pfeifertag" (Schillings). 7. Waltz from "Faust" (Gounod). 8. Festival March (Lachner).

5.0 p.m.—Time and Weather.

5.15 p.m.—Talk, "The Police, the Public and Traffic Regulations," from Freiburg, 575.8 m. (521 kc).

5.45 p.m.—Talk, "Recent Research and the Treatment of Diabetes."

6.15 p.m.—Chess Lesson.

6.45 p.m.—Time and Weather.

7.0 p.m.—Symphony Concert. 1.

Suite in B minor (Bach). 2. First Symphony (Beethoven). 3. Serenade (Reger), followed by Programme of German Poetry and Prose of Past Century.

9.45 p.m.—News.

TOULOUSE (France)

Radiophonie du Midi. WL. 391 m. (767 kc); 3 kw.

Transmits at intervals from 9.15 a.m.

11.45 a.m.—Accordion Concert.

7.0 p.m.—News.

7.30 p.m.—Concert.

8.30 p.m.—Concert from the Works of Mendelssohn. 1. First, Second and Third Movements from the Concerto in E minor. 2. Une Brise de Mai. 3. Midsummer Night's Dream. 4. Trio in D minor.

VIENNA (Austria)

Radio-Wien. WL. 576 and 517.2 m. (520 and 580 kc); 0.75 and 5 kw. Relayed by Innsbruck on 294.1 m. (1,020 kc) and Klagenfurt on 272.7 m. (1,100 kc).

Transmits at intervals from 10.0 a.m.

5.30 p.m.—Sports Talk.

5.45 p.m.—Esperanto Talk.

6.0 p.m.—French Lesson.

6.30 p.m.—"The Daughter of the Regiment"—Opera (Donizetti). Relayed from the Vienna Opera House.

WILNO (Poland)

Polskie-Radio. WL. 435 m. (689 kc); 0.5 kw.

Transmits at intervals from 3.0 p.m.

6.0 p.m.—Wireless News.

6.25 p.m.—Time and Variety.

6.35 p.m.—Natural Science Talk.

7.30 p.m.—Programme from Warsaw.

9.5 p.m.—News.

9.30 p.m.—Dance Music.

10.30 p.m. (approx.)—Close Down.

ZURICH (Switzerland)

Radio-Genossenschaft. WL. 588.2 m. (510 kc); 2 kw.

11.30 a.m.—Time and Weather.

11.32 a.m.—Gramophone Selections.

11.50 a.m.—News.

12.35 p.m.—Weather and Exchange.

2.0 p.m.—The Station Orchestra.

3.0 p.m.—Concert by the Carletti Orchestra from the Carlton Elite Hotel.

4.10 p.m.—Children's Corner.

4.45 p.m.—Weather.

6.30 p.m.—Time and Weather.

6.32 p.m.—Talk.

7.0 p.m.—Pianoforte Recital by Czeslaw Marek from the Works of Debussy.

7.35 p.m.—Songs from Opera and old Operettas.

8.20 p.m.—The Station Orchestra.

9.0 p.m.—Weather and News.

9.15 p.m. (approx.)—Close Down.

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WORLD-RADIO

Programmes for Friday.—(Cont.)

12.50 p.m.—Market Prices.
2.30 p.m.—Exchange Quotations.
2.45 p.m.—Literary and Musical Programme. 1. Le Tombeau de Couperin (Ravel). 2. Pianoforte Solos: (a) Les moissons (de Severac), (b) Scherzo espagnol (Geloso). 3. Talk, "André Chénier." 4. Russian Dance (Moskovsky). 5. Impressions d'Itali (Chapentier).
3.45 p.m.—Exchange and News.
6.00 p.m.—Agricultural Report.
6.45 p.m.—English Lesson.
7.00 p.m.—Exchange and News.
7.30 p.m.—Concert. News in the Interval.

PITTSBURGH (U.S.A.)

Westinghouse Electric (KDKA). WL. 315.6 m. (950 kc); 50 kw.
2.45 p.m.—Time, Exchange Quotations, Weather, News and Market Prices.
3.00 p.m.—"Dr. Royal S. Copeland Hour" from WJZ, New York.
4.00 p.m.—Time, and "New Books."
4.15 p.m.—KDKA Theatrical Calendar.
4.20 p.m.—New Orthophonic Releases.
4.57 p.m.—Time Signals.
5.00 p.m.—Exchange Quotations, Weather and Market Prices.
5.20 p.m.—Sunday School Lesson from the Central Y.M.C.A.
9.00 p.m.—Time, Exchange Closing Prices, Weather and Market Prices.
10.00 p.m.—Time and Market Prices.
11.00 p.m.—Time.
11.10 p.m.—KDKA Theatrical Calendar.
11.15 p.m.—KDKA Little Symphony Orchestra from the William Penn Hotel, Pittsburgh.
11.30 p.m.—Children's Programme from WJZ, New York.
12.00 midnight—Time, and "University of Pittsburgh Address."
12.15 a.m. (Saturday)—"Week-end Tours."
12.30 a.m.—Variety.
1.00 a.m.—3.00 a.m.—Programme from WJZ, New York.
1.00 a.m.—Godfrey Ludlow (Violinist).
1.30 a.m.—White Rock Concert.
2.00 a.m.—"Wrigley Review."
3.00 a.m.—Reymer's R.V.B. Trio.
3.30 a.m.—Time and Weather.
3.45 a.m. (approx.)—Close Down.

POSEN (Poland)

Polskie Radio. WL. 344 m. (872 kc); 1.5 kw.
12 noon.—Concert by the "Castellani" Quintet. In the interval: Exchange Quotations and Agricultural Report.
1.15 p.m.—News.
4.00 p.m.—Bulletin of the "Jeunesse Polonoise."
4.20 p.m.—Talk.
4.45 p.m.—Vocal Concert.
5.45 p.m.—Variety.
6.15 p.m.—Talk.
6.30 p.m.—Talk, "Psychological Problems."
6.55 p.m.—Finance Notes.
7.15 p.m.—Symphony Concert. Re-layed from the "Philharmonie de Varsovie."
9.00 p.m.—Time, Weather and News.
9.20 p.m.—Variety.
9.30 p.m.—Dance Music from the "Palais Royal."
11.00 p.m.—Close Down.

ROME (Italy)

Unione Radiofonica Italiana (IRO). WL. 448.4 m. (660 kc); 3 kw.
11.30 a.m.—Government Report.
12.30 p.m.—Concert by the Station Trio.
1.30 p.m.—Exchange Quotations and News.
3.40 p.m.—News and Exchange Quotations.
3.50 p.m.—Children's Corner.
4.15 p.m.—Agricultural Report.
4.30 p.m.—Time.
4.32 p.m.—Vocal and Instrumental Concert and Dance Music from the "Casinetta."
6.00 p.m.—Government Report.
7.00 p.m.—English Lesson.
7.30 p.m.—Time, News, Exchange Quotations and Weather.
7.45 p.m. (approx.)—Vocal and Instrumental Concert. 1. Orchestral Selections: (a) Marcella—Intermezzo (Giordano), (b) Settecentesca (Vittadini). 2. Selections for Mandoline and Guitar: (a) Serenata spagnola (Acton), (b) Berceuse (Arensky), (c) Salut d'amour (Elgar). 3. Soprano Solos: (a) The Swan (Grieg), (b) Romance from Act II of "Manon Lescaut" (Puccini). 4. Orchestral Selections: (a) Danza piemontese

(Sinigaglia), (b) Prelude and Finale from "La Figlia di Jorio (Franchetti). 5. "Una Sciarada" —Comedy (Varaldo). 6. Selections for Mandoline and Guitar: (a) Evensong (Schumann), (b) Minuet in D major (Mozart), (c) Nocturne No. 1, Op. 55 (Chopin). 7. Soprano Solos: (a) "Tu che di gel sei cinta" from "Turandot" (Puccini), (b) Nedda's Aria from "I Pagliacci" (Leoncavallo). 8. Lakmé—Dance Suite (Delibes).
9.55 p.m.—News.
10.00 p.m. (approx.)—Close Down.

SCHENECTADY (U.S.A.)

General Electric Company (WGY). WL. 379.5 m. (790 kc); 50 kw. Programme relayed by ZAD on 21.96 m. (13,661 kc) from 11.00 a.m.

11.45 p.m.—Exercises.

1.30 p.m.—"Cheerio" Talk and Musical Selections.

4.15 p.m.—Radio Household Institute "Talk" from New York.

4.55 p.m.—Time, Weather and Produce Report.

5.7 p.m.—"Farm Flashes."

5.30 p.m.—Stock, Cotton and Grain Market Reports.

5.43 p.m.—Weather.

7.0 p.m.—Phil Romano and his Orchestra from the De Witt Clinton Hotel, Albany, N.Y.

11.00 p.m.—"Mutual Savings Hour" from New York.

12.00 midnizht.—Exchange and News.

12.35 a.m. (Saturday)—Health Talk.

12.30 a.m.—WGY Players.

1.0 a.m.—Fro-Joy Hour by Kolin Hager (Baritone).

2.0 a.m.—Time.

2.2 a.m.—"The Anglo-Persians" from New York.

2.30 a.m.—"Cathedral Echoes" by the Mixed Quartet.

3.0 a.m.—"Palmslive Hour" from New York.

4.0 a.m. (approx.)—Close Down.

STOCKHOLM (Sweden)

Radiotjänst (SASA). WL. 453.8 m. (661 kc); 1.5 kw. Relayed by Motala on 1,380 m. (217 kc); Göteborg, 416.7 m. (720 kc); Malmö, 260.9 m. (1150 kc); and Sundsvall, 545.8 m. (550 kc). Transmits at intervals from 11.36 p.m.

6.10 p.m.—Concert of Light Music.

6.25 p.m.—Talk in English: "A

Comparison of Swedish and English Architecture," by Mr. F. A. Yerberry.

6.45 p.m.—Concert of Orchestral Music, Baritone Solos and Recitations.

8.0 p.m.—Agricultural Talk, News and Weather.

8.40 p.m. (approx.)—Close Down.

VIENNA (Austria)

Radio-Wien. WL. 576 and 517.2 m. (520 and 580 kc); 0.75 and 5 kw. Relayed by Innsbruck on 294.1 m. (1,020 kc), and Klagenfurt on 272.7 m. (1,100 kc). Transmits at intervals from 11.30 a.m.

3.15 p.m.—Concert.

1. Russian Rhapsody (Borodin). 2. Cello Solo—Liebesbewerbung (Becker). 3. Danza delle ondine (Catalani). 4. "The Crown Diamonds" (Auber). 5. Selection from "Lucrezia Borgia" (Donizetti). 6. Melodies from "Die Puppenfee" (Bayer). 7. Seid umschungen, Millionen (Joh. Strauss). 8. Die Friedensgöttin (Blankenburg).

5.0 p.m.—Time, Weather and Agricultural Notes.

5.15 p.m.—Talk, "Catholic Church Music of the 16th century."

5.45 p.m.—Agricultural Notes.

6.15 p.m.—Esperanto Lesson, Time and Weather.

6.45 p.m.—Programme Announcements for the coming week (in Esperanto).

7.15 p.m.—"The Maid of Orleans" Drama (Schiller).

9.45 p.m.—News and Sports Notes.

WILNO (Poland)

Polskie-Radio. WL. 435 m. (689 kc); 0.5 kw. Transmits at intervals from 3.0 p.m. 4.50 p.m.—Concert by Military Band. 6.0 p.m.—News. 6.25 p.m.—Time and Variety. 6.35 p.m.—The Letter Box. 7.45 p.m.—Programme from Warsaw. 9.5 p.m.—News. 9.20 p.m. (approx.)—Close Down.

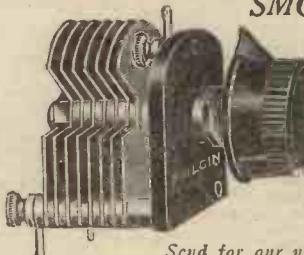
ZURICH (Switzerland)

Radio-Genossenschaft. WL. 588.2 m. (510 kc); 2 kw. 11.30 a.m.—Time and Weather. 11.32 a.m.—Orchestral Music. 11.50 a.m.—News. 12.35 p.m.—Weather and Exchange. 2.0 p.m.—Talk for Women, followed by Review of Books. 3.0 p.m.—Gramophone Selections. 4.10 p.m.—Concert by the Carletti Orchestra from the Carlton Elite Hotel. 4.45 p.m.—Weather and Market Prices. 6.30 p.m.—Time and Weather. 6.32 p.m.—Talk, "The House without Domestic Help." 7.0 p.m.—Concert by F. R. Roedemeyer and the Station Orchestra. 8.30 p.m.—Old and New Marches by the Station Orchestra. 9.0 p.m.—Weather and News. 9.15 p.m. (approx.)—Close Down.



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PROGRAMMES FOR SATURDAY

(April 14)

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

BARCELONA (Spain)

Radio Barcelona (EAJ1). WL. 344.8 m. (870 kc); 1.5 kw. 5.25 p.m.—*Sextet Selections*. 7.30 p.m.—Elementary French Lesson 8.0 p.m.—Time and Weather. 8.5 p.m.—Exchange and News. 8.10 p.m.—Orchestral Concert. 9.0 p.m.—Exchange Closing Prices. 9.5 p.m.—Programme from Union Radio (Madrid) EAJ7.

BASLE (Switzerland)

Basler - Radio - Genossenschaft. WL. 1,000 m. (300 kc); 0.25 kw. 6.30 p.m.—Programme from Zurich. 7.0 p.m.—Guitar and Mandoline Recital. 7.30 p.m.—Two Sketches—“Der fliegende Geheimrat” and “Hund im Hirn.” 8.30 p.m.—Accordion Recital. 9.0 p.m.—News and Weather. 9.10 p.m.—Dance Music. 10.0 p.m. (approx.)—Close Down.

BERGEN (Norway)

Kringkastingselskap. WL. 369.9 m. (811 kc); 1.5 kw. Transmits at intervals from 10.15 a.m. 6.0 p.m.—Children’s Corner. 6.30 p.m.—Programme for Girls. 7.0 p.m.—Talk. 7.30 p.m.—Orchestral Concert. 1. Stories of the Orient (Strauss). 2. Humoresque (Sjögren). 3. Offenbachiana (Fetras). 8.0 p.m.—Recitations. 8.30 p.m.—Pianoforte Recital. 9.0 p.m.—Weather, News and Time. 9.15 p.m.—Dance Music. 11.0 p.m.—Close Down.

BERLIN (Germany)

Königs Wusterhausen. WL. 1250 m. (240 kc); 35 kw. Transmits at intervals from 12 (noon). 3.30 p.m.—Talk: “Officials of the League of Nations.” 4.0 p.m.—Concert from Hamburg. 5.0 p.m.—Talk. 5.30 p.m.—Spanish Lesson. 5.55 p.m.—Talk: “Carl Stumpf.” 6.20 p.m.—Talk: “The Bach Passion.” 7.30 p.m.—Programme from Völklingen.

BERLIN (Germany)

Völklingen. WL. 484.6 m. (619 kc); 4 kw. Transmits at intervals from 10.10 a.m. 2.30 p.m.—Talk, “Mind and Body in Spring.” 3.0 p.m.—Talk, “In Memory of Manfred V. Richthofs.” 3.30 p.m.—Humorous Anecdotes. 4.0 p.m.—Orchestral Concert from the Hotel Adlon. 5.30 p.m.—Talk, “Children’s Drawings and Drawing Lessons.” 6.0 p.m.—Talk, “From Manuscript to the final musical production.” 6.25 p.m.—Talk, “Carl Stumpf.” 6.55 p.m.—Political Talk. 7.30 p.m.—Concert. 1. (a) “The Caliph of Bagdad” Overture (Boieldieu), (b) Boabdil—Scherzo Waltz (Moskovsky). 2. Variety. 3. Potpourri from “The Geisha” (Jones). 4. Variety. 5. Dolores—Waltz (Waldeutel). Followed by Weather, News, Time and Sports Notes. 9.30 p.m.—Dance Music. 11.30 p.m.—Close Down.

BERNE (Switzerland)

Radio-Berne. WL. 411 m. (730 kc); 1.5 kw. 2.0 p.m.—Time, Weather, Exchange, and Gramophone Records. 2.56 p.m.—Time Signal. 3.0 p.m.—The Kursaal Orchestra. 3.30 p.m.—Children’s Corner. 4.0 p.m.—The Kursaal Orchestra. 6.30 p.m.—Time and Weather. 6.35 p.m.—Talk, “Maxim Gorki.” 7.0 p.m.—Concert, Song Recital, Light Poems, Duets, Variety, and Selections by the Kursaal Orchestra. News and Weather in the interval. 9.30 p.m.—Dance Music. 11.0 p.m.—Close Down.

BRESLAU (Germany)

Schlesische Funkstunde. WL. 322.6 m. (910 kc); 4 kw. Relayed by Gleiwitz on 250 m. (1,200 kc). Transmits at intervals from 11.15 a.m. 5.30 p.m.—Spanish Lesson from Königswusterhausen.

6.25 p.m.—An Interview with the Sportswoman, Frau Batschauer Radtke. 6.50 p.m.—English Lesson by Douglas Yates, M.A.

7.30 p.m.—Variety Concert, followed by News. 9.30 p.m.—Concert and Dance Music from Gleiwitz. 10.0 p.m.—Close Down.

BRUSSELS (Belgium)

Radio Belga. WL. 508.5 m. (590 kc); 1.5 kw. 4.0 p.m.—Dance Music. 5.0 p.m.—Elementary English Lesson. 5.25 p.m.—Advanced English Lesson. 6.45 p.m.—Radio Chronique. 7.15 p.m.—Concert. Arranged by “La Meuse.” Topical Talk in the interval. 9.15 p.m.—News. 9.30 p.m. (approx.)—Close Down.

Cologne (Germany)

Westdeutscher Rundfunk. WL. 283 m. (1,010 kc); 4 kw. 9.35 a.m.—Market Prices. 12.5 p.m.—Concert. 1.30 p.m.—Household Hints. 2.45 p.m.—Wigless Talk. 3.0 p.m.—Recitations—“From the Soul of a Woman.” 3.35 p.m.—Programme from Königs-Wusterhausen. 4.0 p.m.—Programme for Women. 4.30 p.m.—See Langenberg. 5.0 p.m.—Orchestral Concert. 1. “Die Felsenmühle”—Overture (Reissiger). 2. Melodies from “The Bartered Bride” (Smetana). 3. Violin Solo with Orchestral Accompaniment. 4. The Seventh Rhapsody (Liszt). 5. Die Werber—Waltz (Lanner). 6.15 p.m.—Talk for Workers. 6.45 p.m.—Talk, “A Paradise in the Pacific Ocean.” 7.15 p.m.—See Langenberg. News, Sports Notes, Economic Report, Concert and Dance Music. 12.0 midnight—Close Down.

COPENHAGEN (Denmark)

Copenhagen Radio. WL. 337 m. (890 kc); 1 kw. Relayed by Kalundborg on 1,153.8 m. (260 kc). 6.30 a.m.—Exercises. 10.15 a.m.—Programme for Schools. 2.30 p.m.—Concert. 6.00 p.m.—French Talk, “Paul Claudel.” 6.0 p.m.—News and Exchange. 6.15 p.m.—Time and Programme Announcements. 6.30 p.m.—Talk, “Copenhagen in relation to other Danish Towns.” 7.0 p.m.—Choral and Orchestral Concert, from the works of Andersen, Nielsen, Jacobsen, Ring, Stunz, and other Danish composers, relayed from the Oddfellows Hall. 9.0 p.m.—News. 9.15 p.m.—Concert of Old Time Dance Music. 10.0 p.m.—Dance Music. 11.0 p.m.—Chimes and Close Down.

CORK (Ireland)

Cork Broadcasting Station (6CK). WL. 400 m. (750 kc); 1.5 kw. 1.30 p.m.—Weather, Stock Market Report, and Gramophone Records. 6.20 p.m.—Programme from Dublin.

CRACOW (Poland)

Polskie Radio. WL. 566 m. (530 kc); 1.5 kw. 11.0 a.m.—Fanfare from the Church of Notre Dame. Time, Weather and Gramophone Concert. 2.0 p.m.—Weather and Finance Notes. 2.30 p.m.—Programme from Warsaw. 3.40 p.m.—Talk, “Polish Beauty Spots.”

4.20 p.m.—Talk on “Songs of the Legions.”

4.45 p.m.—Children’s Corner.

6.5 p.m.—Agricultural Report.

6.15 p.m.—Variety.

6.35 p.m.—Programme from Warsaw.

7.0 p.m.—Fanfare from the Church of Notre Dame.

7.5 p.m.—Political Review.

7.30 p.m.—Programme from Warsaw.

9.30 p.m.—Concert from Katowice.

DUBLIN (Ireland)

Dublin Broadcasting Station (2RN). WL. 319.1 m. (940 kc); 1.5 kw. 1.30 p.m.—Weather Forecast and Gramophone Concert. 7.20 p.m.—News. 7.30 p.m.—Health Talk, by Mrs. Russell, M.B. 7.45 p.m.—Irish Lesson, by Seamus O’Durinne. 8.0 p.m.—Contralto Solos by Mrs. Hughes.

8.10 p.m.—Pianoforte Offerings, by Dr. Annie Brereton, M.A. 8.25 p.m.—Sketch by Jack Dwan and Company.

9.0 p.m.—Opera, “Lucia di Lammermoor,” with Station Orchestra and Opera Chorus.

10.30 p.m.—News, Weather Report and Close Down.

FRANKFURT-am-Main (Germany)

Südwestdeutscher Rundfunk. WL. 428.6 m. (700 kc); 4 kw. Relayed by Cassel on 252. m. (1,190 kc). Transmits at intervals from 1.0 p.m. 3.30 p.m.—Concert of New Dance Music.

4.45 p.m.—Reading.

5.15 p.m.—Wireless News and other Announcements.

5.30 p.m.—The Letter Box.

5.45 p.m.—Talk, “The Development of the Labour Market.”

6.15 p.m.—Shorthand Lesson.

6.45 p.m.—Talk, “The Society Play.”

7.15 p.m.—Offenbach Concert.

8.15 p.m.—Programme from Stuttgart.

9.0 p.m.—Concert from the Town Hall, Mainz.

9.40 p.m.—News.

HUIZEN (Holland)

WL. 340.9 m. (880 kc); 4 kw. (until 6.40 p.m.). Transmits from 6.40 p.m. on 1,870 m. (160 kc).

2.10 p.m.—Time and Trio Concert.

2.40 p.m.—Children’s Corner.

4.40 p.m.—Gramophone Records.

5.40 p.m.—Literary Talk.

6.10 p.m.—Gramophone Records.

6.40 p.m.—Dutch Lesson.

7.10 p.m.—Talk.

7.40 p.m.—Concert and Talk from Valkenburg.

9.40 p.m.—News.

KATTOWITZ (Poland)

Polskie-Radio. WL. 422 m. (710 kc); 12 kw.

3.20 p.m.—Economic Report.

3.40 p.m.—Talk.

4.5 p.m.—News.

4.20 p.m.—Talk on the History of Poland.

4.45 p.m.—Children’s Corner.

5.55 p.m.—Letter Box for Children.

6.15 p.m.—Announcements.

6.35 p.m.—Talk.

7.30 p.m.—Programme from Warsaw.

9.0 p.m.—Time and News.

9.30 p.m.—Concert of Light Music.

KOVNO (Lithuania)

Radio Kaunas. WL. 2,000 m. (150 kc); 15 kw.

2.30 p.m.—Trio Concert. 1. The Gipsy Baron (Strauss). 2. Silver Night—Tango (Haus). 3. Waltz (Lanner). 4. Irish Sentinel Parade (Moret). 5. April—Melody (Tosti). 6. El Irribar—Tango (Logati).

3.30 p.m.—Children’s Hour.

4.30 p.m.—Talk, “Lithuanian Customs.”

5.0 p.m.—Programme Announcements in German.

5.10 p.m.—Talk.

6.0 p.m.—Time, Weather and News.

6.30 p.m.—Relay from the National Theatre.

GRAZ (Austria)

Oest. Radio-Verkehrs. WL. 357.1 m. (840 kc); 0.5 kw.

3.5 p.m.—Concert by the Hüttl Orchestra. 1. Die Ehrenwache (Lehnhardt). 2. Aria from “Stabat Mater” (Rossini-Morena). 3. Telegramme—Waltz (Strauss). 4. “Fra Diavolo”—Overture (Auber). 5. Sizilietta (Blon).

6. Fantasia from “Aida” (Verdi).

7. (a) Slumber Song (Kahl), (b) Klingender Traum—Waltz (Percy).

8. Offenbachianer Potpourri (Conradi). 9. (a) Fahrt ins Glück—Intermezzo (Fessel), (b) Schattentanz—Boston (Josithomo).

10. Opernball Potpourri (Heuberger).

11. Glocken Serenade (Kockert).

12. Ramau Minuet (Nemethi).

13. Heimat—March (Ohlsen).

5.0 p.m.—Talk.

5.30 p.m.—Modern Care of the Home.

6.0 p.m.—Shorthand Lesson.

6.20 p.m.—Lesson in Serbo-Croatian.

6.45 p.m.—Programme from Vienna.

5.0 p.m.—Variety Concert.

5.55 p.m.—Talk, “Physical Culture.”

6.35 p.m.—Legal Talk.

6.55 p.m.—Weather.

7.0 p.m.—Variety Concert with Robert Koppel. News.

9.30 p.m. (approx.) (Hamburg and Kiel).—Concert from Restaurant Ostermann.

10.30 p.m. (Hamburg, Bremen and Kiel).—Cabaret Concert.

4.20 p.m.—Talk on “Songs of the Legions.”

4.45 p.m.—Children’s Corner.

6.15 p.m.—Variety.

6.35 p.m.—Programme from Warsaw.

7.0 p.m.—Fanfare from the Church of Notre Dame.

7.5 p.m.—Political Review.

7.30 p.m.—Programme from Warsaw.

9.30 p.m.—Concert from Katowice.

9.40 p.m.—News.

10.30 p.m. (approx.)—Close Down.

HILVERSUM (Holland)

Algemeene Vereeniging Radio-Omroep. WL. 1,069 m. (280.5 kc); 5 kw.

12.40 p.m.—Police News.

1.10 p.m.—Trio Concert.

4.30 p.m.—Italian Lesson.

5.10 p.m.—French Lesson.

5.55 p.m.—German Lesson.

6.40 p.m.—Concert: 1. “Poet and Peasant”—Overture (Suppé). 2. Noch sind die Tage der Rosen (Baumgartner). 3. Selection from “The Huguenots” (Meyerbeer).

4. (a) Berceuse (Brahms), (b) Maria Wiegenlied (Reger). 5. Faschingsskinder—Waltz (Ziehrer).

6. Piazza del popolo (Juel).

7. Minutespiele—Medley (Fetras).

8. Amoretten Ständchen (Kockert).

9. The Devil’s March (Suppé).

7.55 p.m.—Agricultural Talk.

8.25 p.m.—Police News.

8.45 p.m.—Concert and Talk, arranged by the Workies’ Radio Society.

7.0 p.m.—French Lesson.

10.30 p.m.—Talk.

11.20 p.m.—News.

11.30 p.m. (approx.)—Close Down.

MADRID (Spain)

Union Radio (EAJ7). WL. 375 m. (800 kc); 1.5 kw.

Transmits at intervals from 10.45 a.m.

6.0 p.m.—Concert by the “Arts” Orchestra. Interlude by Luis Medina.

7.0 p.m.—Dance Music from the Alcazar.

8.30 p.m.—“The Home Education of the Child.”

8.45 p.m.—Photography Talk.

9.0 p.m. (approx.)—Programme relayed by San Sebastian (EAJ8) on 335 m. (805 kc). Chimes, and Selection from the Lyrical Drama “Cádiz” (Chueca and Valverde).

11.20 p.m.—News.

11.30 p.m. (approx.)—Close Down.

MILAN (Italy)

Unione Radiotonica Italiana (MI). WL. 549.3 m. (540 kc); 7 kw.

Transmits at intervals from 11.15 p.m.

7.0 p.m.—French Lesson.

7.50 p.m.—Concert.

8.0 p.m.—Talk.

8.0 p.m.—Gala Concert from the Sorbonne, followed by Dance Music from the Coliseum de Paris.

7.50 p.m.—Concert. 1. “Sicilian Vespers”—Symphony (Verdi).

(Ponchielli). 3. Soprano Solos: (a) Aria from “Don Pasquale” (Donizetti), (b) Due stornelli Toscani (Pieraccini). 4. Bass Solo from “La Juive” (Halévy).

Sogni di Ratcliff (Mascagni). 6. Tenor Solo from “Cavalleria Rusticana” (Mascagni). 7. Tenor Solo—“Carittera siciliana” (De Luca).

8. Soprano Solo from “Lucia di Lammermoor” (Donizetti). 9. Bass Solo from “Don Carlos” (Verdi). 10. William Tell—Symphony (Rossini).

9.50 p.m.—News.

10.0 p.m.—Dance Music from the Cova Restaurant.

Programmes for Saturday.—(Cont.)

PARIS (France)

Petit Parisien. WL. 340.9 m. (880 kc); 0.5 kw.
8.0 p.m.—Concert of Limousin Airs and Dances: 1. Old Limousin Airs. 2. La Sen Lionar, Quand era cha moun Paire—Limousin Song. 3. "Le Moissonneur"—Overture. 4. Lou mousser e la jona bargeiro (Sarre). 5. La Carcalinaira—Song (Branchet-Larderet). 6. L'Archou—Overture and Scene. 7. "Le Moissonneur"—Entr'actes and Songs (Francis Casadesus). 8. Lou popier de paille—Humorous Monologue in Dialect. 9. Four Characteristic Dances. 10. Les amours d'Henri IV—Vocal Duet 11. Bourrée and Limousin Dances from "Le Moissonneur."

PARIS (France)

Radio-Paris (CFR). WL. 1,750 m. (171 kc); 3 kw. Transmits at intervals from 6.30 a.m. 11.30 a.m.—"Columbia" Concert. News in the Interval. 12.50 p.m.—Market Prices and Religious News. 2.30 p.m.—Exchange Quotations. 2.45 p.m.—Dance Music. 6.0 p.m.—Agricultural Report. 6.30 p.m.—Pianoforte Recital. 7.0 p.m.—Talk: "The Organisation of Physical Culture." 7.20 p.m. (approx.)—Exchange and News. 7.30 p.m.—Children's Programme: Talk and Concert, arranged by the "Théâtre du Petit Monde." 8.0 p.m. (approx.)—Concert arranged by Le Matin: 1. Rêve doulores (Akimenko). 2. La Veillée (Boellmann). 3. Serenata (Castera). 4. Légende (Chausson). 5. Lied maritime (d'Indy). 6. Napoletana (Mouton). 7. Sadko (Rimsky-Korsakov). 8. Euryanthe—Overture (Weber). News in the Interval.

PITTSBURGH (U.S.A.)

Westinghouse Electric (KDKA). WL. 315.6 m. (950 kc); 50 kw. 2.45 p.m.—Time, Exchange Quotations, Weather, and Market Prices. 3.0 p.m.—"KDKA" Theatrical Calendar."

4.57 p.m.—Time Signals. 5.0 p.m.—Exchange Closing Prices, Weather, and Market Prices. 11.0 p.m.—Time. 11.10 a.m.—"KDKA Theatrical Calendar." 11.15 p.m.—The KDKA Little Symphony Orchestra from the William Penn Hotel. 12 (midnight)—Time, and University of Pittsburgh Address—"America's New Industrial Revolution." 12.15 a.m.—Weekly Meeting of the Home Radio Club. 12.30 a.m.—Variety. 12.45 a.m.—"Gems of American Literature." 1.0 a.m.—"R.C.A. Radiotrons" from WJZ, New York. 2.0 a.m.—"Philco Hour," from WJZ, New York. 3.0 a.m.—Weather and Time. 3.15 a.m. (approx.)—Close Down.

POSEN (Poland)

Polskie Radio. WL. 344 m. (872 kc); 1.5 kw. 12 (noon)—Gramophone Concert. In the Interval: Exchange Quotations and Agricultural Report. 1.15 p.m.—News. 4.0 p.m.—Talk for Scouts. 4.20 p.m.—Talk, "Revenues of the State." 4.45 p.m.—Concert by the "Tambourizze" Orchestra. 5.45 p.m.—Variety Programme. 6.15 p.m.—French Lesson. 6.35 p.m.—Programme from Warsaw. 7.0 p.m.—Finance Notes. 7.30 p.m.—Concert of Light Music. 9.0 p.m.—Time, News and Weather. 9.20 p.m.—Variety. 9.30 p.m.—Dance Music from the "Carlton." 11.0 p.m.—Midnight Concert. 1.0 a.m. (Sunday)—Close Down.

ROME (Italy)

Unione Radiofonica Italiana (IRO). WL. 448.4 m. (669 kc); 3 kw. 11.30 a.m.—Government Report. 12.30 p.m.—Concert by the Station Trio. 1.30 p.m.—Exchange Quotations and News. 3.40 p.m.—News and Exchange Quotations. 3.50 p.m.—Children's Corner. 4.15 p.m.—Agricultural Report.

4.30 p.m.—Time Signal. 4.32 p.m.—Vocal and Instrumental Concert. 1. Trio No. 21 in C major for Violin, Pianoforte and 'Cello (Haydn). 2. Mezzo-Soprano Solos (a) "Piangete, o luci mie" from "Le Cid" (Massenet), (b) Vercingetorix (Fouldrain). 3. Guitar Solos, (a) Bourrée and Fugue (Bach), (b) Introduction and Caprice (Regondi). 4. Mezzo-Soprano Solos (Rossini), (a) La regata veneziana, (b) La pesca, (c) I Marinari. 5. Trio in F major, Op. 18, for Pianoforte, Violin and 'Cello (Saint-Saëns). 6.0 p.m.—Government Report. 7.0 p.m.—German Lesson. 7.30 p.m.—Time, News, Exchange Quotations, and Weather. 8.45 p.m.—"Mephistopheles"—Opera (Boito). In the interval: Science Talk. 9.55 p.m.—News. 10.0 p.m.—Close Down.

SCHENECTADY (U.S.A.)

General Electric Company (WGY). WL. 379.5 m. (790 kc); 50 kw. Programme relayed by 2XAF on 21.4 m. (9,554 kc) from 11.30 p.m. (Sunday). 11.45 a.m.—News. 1.30 p.m.—"Cheerio" Talk and Musical Selections. 4.15 p.m.—"Radio Household" Institute Talk, from New York. 4.55 p.m.—Time and Weather. 5.30 p.m.—Stock, Cotton, and Grain Market Reports. 11.30 p.m.—Dinner Music from the Hotel Onondaga, Syracuse, N.Y. 12.30-3.0 a.m. (Sunday).—Programme from New York. 1.20 a.m.—Statler's Pennsylvanians. 1.0 a.m.—The High Jinkers. 2.0 a.m.—Time. 2.02 a.m.—The Little Orchestra. 2.30 a.m.—"Twin Pairs of Harmony." 3.0 a.m.—Organ Recital from the Eastman Theatre, Rochester, N.Y. 4.0 a.m.—Dance Music from the De Witt Clinton Hotel, Albany, N.Y. 5.0 a.m. (approx.)—Close Down.

STOCKHOLM (Sweden)

Radiotjänst (SASA). WL. 453.8 m. (661 kc); 1.5 kw. Relayed by Motala on 1,380 m. (217 kc);

Göteborg, 416.7 m. (720 kc); Malmö, 260.9 m. (1,150 kc); and Sundsvall, 545.8 m. (550 kc). Transmits at intervals from 11.35 a.m. 5.30 p.m.—Concert of Folk Songs and Selections in dialect, from Göteborg. 7.0 p.m.—Talk, "Home, School and Scouts." 7.20 p.m.—Opera Selection. 8.15 p.m.—News, Weather and Topical Talk. 9.0 p.m.—Dance Music. 11.30 p.m. (approx.)—Close Down.

STUTTGART (Germany)

Süddeutscher Rundfunk. WL. 380.7 m. (788 kc); 4 kw. Transmits at intervals from 11.30 a.m. 2.0 p.m.—Concert of Opera Music. 5.0 p.m.—Time and Weather. 5.15 p.m.—Talk from Freiburg, 575.8 m. (521 kc). 5.45 p.m.—Talk, "Hippolyte Taine—on the Centenary of his Death." 6.15 p.m.—Talk. 6.45 p.m.—Agricultural Notes, Time, Weather and Sports News. 7.15 p.m.—"Bruder Straußinger"—Operetta (Eysler). 8.15 p.m.—Chamber Music. 1. Sonata in A major for Violin and Pianoforte (Franck). 2. Sonata for 'Cello and Pianoforte (Saint-Saëns). 9.45 p.m.—News.

TOULOUSE (France)

Radiophonie du Midi. WL. 391 m. (767 kc); 3 kw. Transmits at intervals from 9.15 a.m. 11.45 a.m.—Concert of Song Tangos. 7.0 p.m.—Selection from "Le Roi d'Ys," followed by Talk, "The Educational Value of the Family." 7.30 p.m.—Concert. 1. Hardanger-Waltz (Schmeling). 2. Melody (Bolzonni). 3. Humo-Tango (Bonincontro). 4. Ton Sourire. 5. Le Voyage de Suzette—Fantasia (Vasseur). 6. Aubade a Columbine (Fouldrain). 7. Rouets et Berceaux (Grumburg). 8. Violet-Sisters (Savasta). 9. Les Comères du Village. 10. "La Juive"—Fantasia (Halévy). 11. L'amour-euse poursuite (Fauchey). 12. Nocturne—Dance (Akimenko). 13. La Source—Suite (Delibes). 14. How Many Times—Foxtrot (Berlin).

8.0 p.m.—Concert. 1. Four Selections from "Rigoletto" (Verdi). 2. Selection from "The Huguenots" (Meyerbeer). 3. Selection from "Dinorah" (Meyerbeer). 9.5 p.m.—Dance Music.

VIENNA (Austria)

Radio-Wien. WL. 576 and 517.2 m. (520 and 580 kc); 0.75 and 5 kw. Relayed by Innsbruck on 294.1 m. (1,020 kc) and Klagenfurt on 272.7 m. (1,100 kc). Transmits at intervals from 10.00 a.m. 6.45 p.m.—"Wo die Lerchen singen"—Operetta (Lehár), followed by Dance Music from the Hotel Bristol.

WILNO (Poland)

Polskie-Radio. WL. 435 m. (689 kc); 0.5 kw. Transmits at intervals from 3.0 p.m. 5.15 p.m.—Literary Talk. 6.0 p.m.—Wireless News. 6.25 p.m.—Time and Variety. 6.35 p.m.—Talk. 7.0 p.m.—Programme from Warsaw. 9.5 p.m.—News. 9.30 p.m.—Dance Music. 10.30 p.m. (approx.)—Close Down.

ZURICH (Switzerland)

Radio-Genossenschaft. WL. 588.2 m. (510 kc); 2 kw. 11.30 a.m.—Time and Weather. 11.32 a.m.—Gramophone Selections. 11.50 a.m.—News. 12.35 p.m.—Weather and Exchange. 2.0 p.m.—Gramophone Selections. 3.0 p.m.—Concert by the Carletti Orchestra from the Carlton Elite Hotel. 4.10 p.m.—Concert by the Zurich Accordion Club. 4.45 p.m.—Weather and Market Prices. 6.0 p.m.—Carillon from the Zurich Churches. 6.30 p.m.—Time and Weather. 6.32 p.m.—Talk, "Theatregoers Past and Present." 7.0 p.m.—Concert by the "Orfeo" Mandoline and Guitar Club. 7.20 p.m.—Two Burlesques by Kurt Goetz: (a) "Der fliegende Geheimrat," (b) "Hund im Hirn." 8.30 p.m.—Concert by the Zurich Accordion Club. 9.0 p.m.—Weather and News. 9.10 p.m.—Gramophone Selections.

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STATIONS IN ORDER OF WAVELENGTHS AND FREQUENCIES.

EUROPEAN

M.	Kc.	
4000	75	Berlin (Königswusterhausen) AFP, 8 kw.
2900	103	Paris (Eiffel Tower), FL, 5 kw.
2650	113	Berlin (Wolff's Bureau). Intermittent News during the day.
2525	119	Berlin (Wolff's Bureau). Intermittent News during the day.
2000	150	Kovno (Lithuania), 15 kw.
1950	154	Scheveningen Haven (Holland), 2.5 kw.
1870	160	Huizen (From 5.40 p.m. till closing down).
1870	160	Kosice (Czecho-Slovakia), 5 kw. DAILY—6.30—9.0 p.m.
1829	164	Norddeich (Germany). WEEKDAYS—12.0 midnight, Weather Report.
1800	167	Angora (Turkey), 6 kw.
1750	171	Paris (Radio-Paris) CFR, 3 kw. (Aer.)
1700	176	Kharkov Narkompostchel (Russia), 1.5 kw.
1604.8	187	Daventry (5XX), 25 kw. (Aer.)
1525	196	Lahti (Finland), 10 kw. (testing). 4-5 p.m.
1450	207	Moscow (Old Komintern), RA1, 20 kw. DAILY—2.0 p.m.
1380	217	Motala (Sweden), 20 kw. (Aer.) Relays Stockholm
1250	240	Königswusterhausen (Zeesen), 35 kw. in Aerial.
1190	252	Boden (Sweden), 1 kw.
1180	254	Stamboul (Turkey) 5 kw.
1153.8	260	Kalundborg (Denmark), 7.5 kw. (Aer.)
1150	261	Ryvang (Denmark), 1 kw.
1117	269	Novosiborsk (Russia), RA 33, 4 kw. 5 p.m.
1111.1	270	Warsaw (Poland), 10 kw. (Aer.)
1100	273	De Bilt (Holland). WEEKDAYS—8.15 p.m. Weather.
1069	280.5	Hilversum (Holland) ANRO, 5 kw. (Aer.)
1000	300	Basle (Switzerland), 0.25 kw. DAILY—7.30—9.5 p.m.
995.5	301.4	Leningrad (Russia), 10 kw. WEEKDAYS—5 p.m., Lecture: 6.0 p.m., News. 6.30 p.m., Concert or Opera. SUNDAY—5.0 p.m., Lecture, 6.0 p.m., News. 6.30 p.m., Concert.
870	345	Tiflis (Russia), 4 kw.
860	349	Nijni Novgorod (Russia), 1.2 kw.
850	353	Rostov/Don (Russia), 4 kw. 3.10 p.m.
820	366	Kiev (Russia), 1 kw.
760	395	Geneva (Radio-Geneve), 0.5 kw. WEEKDAYS—7.40 p.m., Concert and News.
720	416	Ostersund (Sweden), 2 kw. Relays Sundsvall.
680	441	Lausanne (Switzerland), HB2, 1.5 kw. DAILY—8.0 p.m., Concert. Talk.
675	444	Moscow (Popoff).
688.2	510	Zürich (Switzerland), 2 kw.
576	520	Vienna (Stubenring), 0.75 kw.
575.8	521	Freiburg (Germany), 0.75 kw.
566	530	Augsburg (Germany), 1.5 kw. Relays Munich.
566	530	Bloemendaal (Holland), 0.05 kw. SUNDAYS—9.40 a.m. and 4.40 p.m., Church Service.
566	530	St. Michel (Finland).
566	530	Cracow (Poland), 1.5 kw.
555.8	540	Hamar (Norway), 0.7 kw. Relays Oslo.
555.8	540	Budapest (Hungary), 3 kw.
549.3	548	Milan, 7 kw.
545.8	550	Sundsvall (Sweden), 1 kw.
535.7	560	Munich (Germany), 4 kw. SUNDAY—10.30 a.m., Concert.
517.2	580	Vienna (Rosenhügel), 5 kw.
508.5	590	Brussels, 1.5 kw.
500	600	Aberdeen (2BD), 1.5 kw.
500	600	Uppsala (Sweden), 0.25 kw. Relays Stockholm.
500	600	Linköping (Sweden), 0.25 kw. Relays Stockholm.
500	600	Porsgrunn (Norway), 1 kw. Relays Oslo.
491.8	610	Daventry Experimental (5GB), 25 kw. in Aerial.
487.6	616	Kharkov (Russia) 4 kw.
484.6	619	Berlin (Witzleben), 1 kw.
477.7	628	Lyon (France) (La Doua), PTT, 1 kw. MON., WED., & FRI.—10.45 p.m., Concert. SUN., TUES., THURS., & SAT.—Relays Ecole Supérieure.
470	638	Langenberg (Germany), 25 kw.
462	649	Barcelona (Spain) (Radio Catalana) EAJ13, 1 kw.
461.5	650	Oslo (Norway), 1.5 kw.
453.8	655	Paris (Ecole Supérieure), FPTT, 0.5 kw.
450	668	Moscow (Trades Union), RA2, 4 kw. 3.0 a.m.—8.0 p.m.
448.4	669	Rome (IRO), 3 kw.
448	670	Rjukan (Norway), 0.1 kw. Relays Oslo.
446	672	Malmberget relays Boden.
441	680	Brünn (Czecho-Slovakia), 3 kw. DAILY—6.0 p.m., Concert and News. THURS.—4.40 p.m., Talk for Women. SUN.—10.0 a.m., Concert.
435	689	Wilno (Poland) 0.5 kw.
434.8	690	Seville (Spain) (Union Radio), EAJ5 2 kw.
434.8	690	Frederikstad (Norway), 0.7 kw. Relays Oslo.
328.6	700	Frankfurt-on-Main (Germany), 4 kw.
326.5	570	Riga (Latvia), 2 kw. DAILY—10.35—11.0 a.m. and 5.0—8.30 p.m., Concert, News. Weather.
422	710	Kattowitz (Poland), 12 kw.
416.7	720	Göteborg (Sweden), 1 kw.
411	730	Berne (Switzerland), 1.5 kw.
411	730	Notodden (Norway), 0.7 kw. Relays Oslo.
408	735	Tallinn (Reval), Estonia, 2.2 kw.
405.4	740	Glasgow (5BC), 1.5 kw.
405	741	Salamanca (Spain), EAJ22, 1 kw. DAILY—9.30 p.m., Concert. 10.30 p.m., Dance Music.
401	748	Aix-la-Chapelle (Germany) 0.75 kw.
400	750	Cadiz (Spain), EAJ3, 0.5 kw.
400	750	Mont de Marsan (France), 4 kw.
400	750	Madrid (Radio Espana) (BAJ2), 0.5 kw.
400	750	Cork (Irish Free State), 6CK, 1.5 kw.
400	750	Plymouth (5PY), 0.2 kw.
400	750	Tammerfors (Finland). Relays Helsingfors, 0.25 kw.
400	750	Bilbao (Spain) EAJ9, 0.5 kw.
396	757	Hamburg (ha, in Morse), 4 kw.
391	767	Toulouse (France) (Rad. du Midi), 3 kw. DAILY—12.40 p.m., Concert. 8.50 p.m., Concert.
384.6	780	Manchester (2ZY), 1.5 kw.
380.7	788	Stuttgart (Germany), 4 kw.
375.9	798	Helsingfors (Finland), 1.2 kw. 8.0 a.m. Exchange Quotations. DAILY—4.0—7.0 p.m., Concert.
375	800	Madrid (Union Radio), EAJ7, 1.5 kw.
370	811	Paris (Radio LL), 0.5 kw. MONDAY, WEDNESDAY AND FRIDAY—11.0 p.m., Concert.
369.3	811	Bergen (Norway), 1.5 kw.
366.3	819	Leipzig (Germany), 4 kw.
361.4	830	London (2LO), 3 kw

M.	Kc.	
357.1	840	Graz (Austria), 0.5 kw. Usually relays Vienna.
355	845	Falun (Sweden), 2 kw.
353	850	Cardiff (WA), 1.5 kw.
348.9	860	Prague (Czecho-Slovakia), 5 kw. DAILY—7.0 p.m., Concert.
344.8	870	Barcelona (Spain) Radio Barcelona. EAJ1, 1.5 kw.
344	872	Posen (Poland), 1.5 kw.
340.9	880	Paris (Petit Parisien), 0.5 kw.
340.9	880	Huizen (Holland), 4 kw. (till 5.40 p.m.).
337	890	Copenhagen, 1 kw.
335	895	San Sebastian (Spain), EAJ8, 0.5 kw.
335	895	Cartagena, EAJ16 (Spain), 1 kw.
333.3	900	Naples (INA), 1.5 kw.
330.3	908	Königsberg (Germany), 4 kw. DAILY—7.10 p.m., Concert.
326.1	920	Bourneuil (GBM), 1.5 kw.
323.9	926	Almeria (Spain) EAJ18, 1 kw.
322.6	930	Breslau (Germany), 4 kw.
319.1	940	Dublin 2RN, 1.5 kw.
312.5	969	Newcastle (5NO), 1.5 kw.
310.2	967	Marseilles PTT, 0.5 kw. WEEKDAYS—9.0 p.m. Concert.
310.5	966	Zagreb (Yugoslavia), 0.35 kw. DAILY—6.0 p.m.
310	967	Oviedo (Spain), 0.1 kw.
306.1	980	Belfast (2 BE), 1.5 kw.
304	988	Björneborg (Finland). Relays Helsingfors.
303	999	Münster (Germany) m.s. in Morse, 1.5 kw.
302	993	Paris (Radio Vitis), 1 kw. WEDNESDAYS, FRIDAYS, and SUNDAYS. From 10—11.45 p.m., Concert.
300	1000	Bratislava (Czecho-Slovakia), 0.5 kw.
297	1010	Agen (France), 0.25 kw. TUES. and FRI.—10.30 p.m., Concert.
297	1010	Liverpool (6LV), 0.2 kw.
297	1010	Varberg, 0.2 kw. Relays Göteborg.
297	1010	Jyväskylä (Finland), 0.2 kw. Relays Helsingfors.
297	1010	Hanover (Germany), 0.7 kw. Relays Hamburg.
295	1016	Rennes (France), 0.5 kw.
294.1	1020	Hull (6KH), 0.2 kw.
294.1	1020	Dundee (2DE), 0.2 kw.
294.1	1020	Stoke (6ST), 0.2 kw.
294.1	1020	Swansea (5SX), 0.2 kw.
294.1	1020	Uddevalla (Sweden), 0.25 kw. Relays Göteborg.
294.1	1020	Innsbruck (Austria), 0.5 kw. Relays Vienna.
289	1038	Lyon (Radio-Lyon), 1.5 kw. WEEKDAYS—8.15 p.m., News. WEEKDAYS (except MON.), 8.45 p.m., Concert.
288.5	1040	Edinburgh (2EH), 0.2 kw.
283	1060	Cologne (Germany), 4 kw.
278.8	1076	Trollhättan (Sweden), 1 kw. Relays Göteborg.
278	1076	Grenoble, 1 kw. WED. and SAT. only.
278	1076	Kiel (Germany), 0.7 kw. Relays Hamburg.
277.8	1080	Leeds (2LS), 0.2 kw.
275.2	1090	Dresden (Germany), 0.7 kw. Relays Leipzig.
275.2	1090	Jacobstad (Finland).
275.2	1090	Nottingham (England), 5NG, 0.2 kw.
275.2	1090	Norrköping (Sweden), 0.25 kw. Relays Stockholm.
275	1090	Bordeaux (Lafayette), PTT, 1 kw.
273	1098	Limoges (France), 0.5 kw.
272.7	1100	Sheffield (6FL), 0.2 kw.
272.7	1100	Bremen (Germany), 0.75 kw. Relays Hamburg.
272.7	1100	Danzig, 0.75 kw. DAILY—10.0 a.m., Weather. 10.30 a.m., Concert. 1.15 p.m., Exchange Quotations. 3.0 p.m., Relays Koenigsberg.
272.7	1100	Hudiksvall, 0.25 kw. Relays Stockholm.
272.7	1100	Klagenfurt (Austria), 1.5 kw. Relays Vienna.
268	1119	Strasbourg (France), 0.1 kw. TUESDAY and THURSDAY—10.0 p.m., Concert, Talk and News.
267.8	1086	Lille, 0.5 kw. PTT.
260.9	1150	Malmö (Sweden), 1 kw.
259	1160	Toulouse (France), PTT, 0.5 kw.
254.2	1190	Kalmar (Sweden), 0.25 kw. Relays Stockholm.
252.1	1190	Cassel (Germany), 0.7 kw. Relays Frankfurt.
252.1	1190	Bradford (2LS) 0.2 kw. Transmits Leeds programmes.
252.1	1190	Montpellier (France), 0.25 kw. WEEKDAYS—9.45 p.m., News. 10.0 p.m., Concert or Talk.
252.1	1190	Säffle (Sweden), 0.5 kw. Relays Stockholm.
250	1200	Eskilstuna (Sweden), 0.25 kw. Relays Stockholm.
250	1200	Gleiwitz (Germany), 0.7 kw. Relays Breslau.
250	1200	Uleåborg (Finland). Relays Helsingfors, 0.2 kw.
246	1220	Nice-Juan-les-Pins (France), 0.25 kw.
243.9	1230	Trondheim (Norway).
241.9	1240	Fürnberg (Germany), 4 kw. Relays Munich.
238.1	1260	Kiruna (Sweden), 0.25 kw. Relays Boden.
237	1265	Bordeaux, 1.5 kw.
236.7	1267	Stettin (Germany). Relays Berlin. 0.75 kw.
236.2	1270	Orebro, 0.25 kw. Relays Stockholm.
230.2	1303	Boras (Sweden), 1 kw. Relays Göteborg.
230	1304	Radio Scherbeek from 8.30 p.m.
229	1310	Helsingborg, 0.25 kw. Relays Malmö.
229	1310	Umeå, 0.25 kw. Relays Stockholm.
460	652	Belgrade (Yugo-Slavia), 2 kw. (Testing each SUNDAY at 12 noon).
220.6	1380	Karlstad (Sweden), 0.25 kw. Relays Stockholm.
217.4	1380	Luxembourg, 0.25 kw.
215.8	1390	Halmstad (Sweden), 0.25 kw. Relays Malmö.
214.3	1400	Viborg (Finland), 0.7 kw.
204.1	1470	Gävle (Sweden), 0.25 kw. Relays Stockholm.
204.1	1470	Kaiserslautern (Bavaria), 2 kw. 10.0 a.m. daily.
202.7	1480	Kristianhamn (Sweden), 0.1 kw. Relays Stockholm.
201.3	1490	Jönköping (Sweden), 0.5 kw. Relays Stockholm.
198	1515	Biarritz (Côte d'Argent, France), 0.25 kw.
198	1530	Karlskrona (Sweden), 0.25 kw. Relays Stockholm.
187.5	1600	Ornsköldsvik, 0.25 kw. Relays Sundsvall.
158	1899	Beziers (France), 0.5 kw. U.S.A.
535.4	560	Des Moines, Ia. (WHO), 5 kw.
526	570	Chicago, Ill. (KYW), 2.5 kw.
526	570	Chicago, Ill. (KFKA), 2.5 kw.
508.2	590	Omaha, Neb. (WOW), 1 kw.
497.9	600	San Antonio, Tex. (WOAT), 5 kw.
497.9	600	Fort Worth, Tex. (WBAP), 5 kw.
491.5	610	New York, (WEAF), 50 kw.
491.5	610	Portland, Ore. (KGW), 1 kw.
483.6	620	Berrien Spgs., Mich. (WEMC), 1 kw.
483.6	620	Chicago, Ill. (WCFL), 1.5 kw.

M.	Kc.	
475.9	630	Atlanta, Ga. (WSB), 1 kw.
486.5	640	Los Angeles, Cal. (KFI), 5 kw.
461.3	650	Shenandoah, Ia. (KFNF), 2 kw.
454.3	660	Bound Brook, N.J. (WJZ), 30 kw.
447.5	670	Seattle, Wash. (KFOA), 1 kw.
440.9	680	Detroit, Mich. (WJR), 5 kw.
440.9	680	Detroit, Mich. (WCX), 5 kw.
428.3	700	Cincinnati, O. (WLW), 5 kw.
422.3	710	Newark N.J. (WOR), 3.5 kw.
416.4	720	Chicago, Ill. (WLIB), 1.5 kw.
405.2	740	Minneapolis, Min. (WCCO), 5 kw.
399.8	750	Cleveland, O. (WTAM), 3.5 kw.
394.5	760	St. Col.; N.M. (KOB), 5 kw.
389.4	770	Chicago, Ill. (WBBM), 5 kw.
384.4	780	Oakland, Cal. (KGO), 5 kw.
379.5	790	Schenectady, N.Y. (WGY), 50 kw.
374.8	800	Davenport, Ia. (WOC), 5 kw.
361.2	830	Cincinnati, O. (WSAI), 5 kw.
348.6	860	Seattle, Wash. (KJR), 2.5 kw.
344.6	870	Chicago, Ill. (WLS), 5 kw.
344.6	870	Zion, Ill. (WCBD), 5 kw.
336.9	890	Nashville, Tenn. (WSM), 5 kw.
333.1	900	Springfield, Mass. (WBZ), 15 kw.
325.		



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G.W.C.J., Portsmouth.

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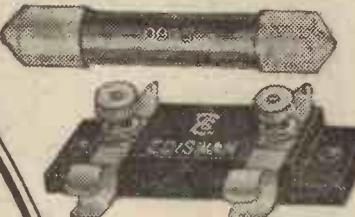
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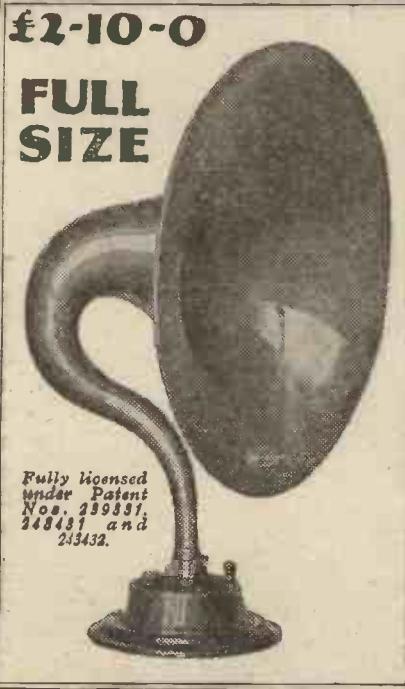


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The ONE-DER Loudspeaker is particularly good in this respect and can be used with excellent results for the reproduction of both orchestral and vocal music, in such a manner that accuracy is well maintained.

It is unusual to find a Loudspeaker which is capable of such characteristic and impressive reproduction.

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(Signed) (Professor) A. M. LOW,
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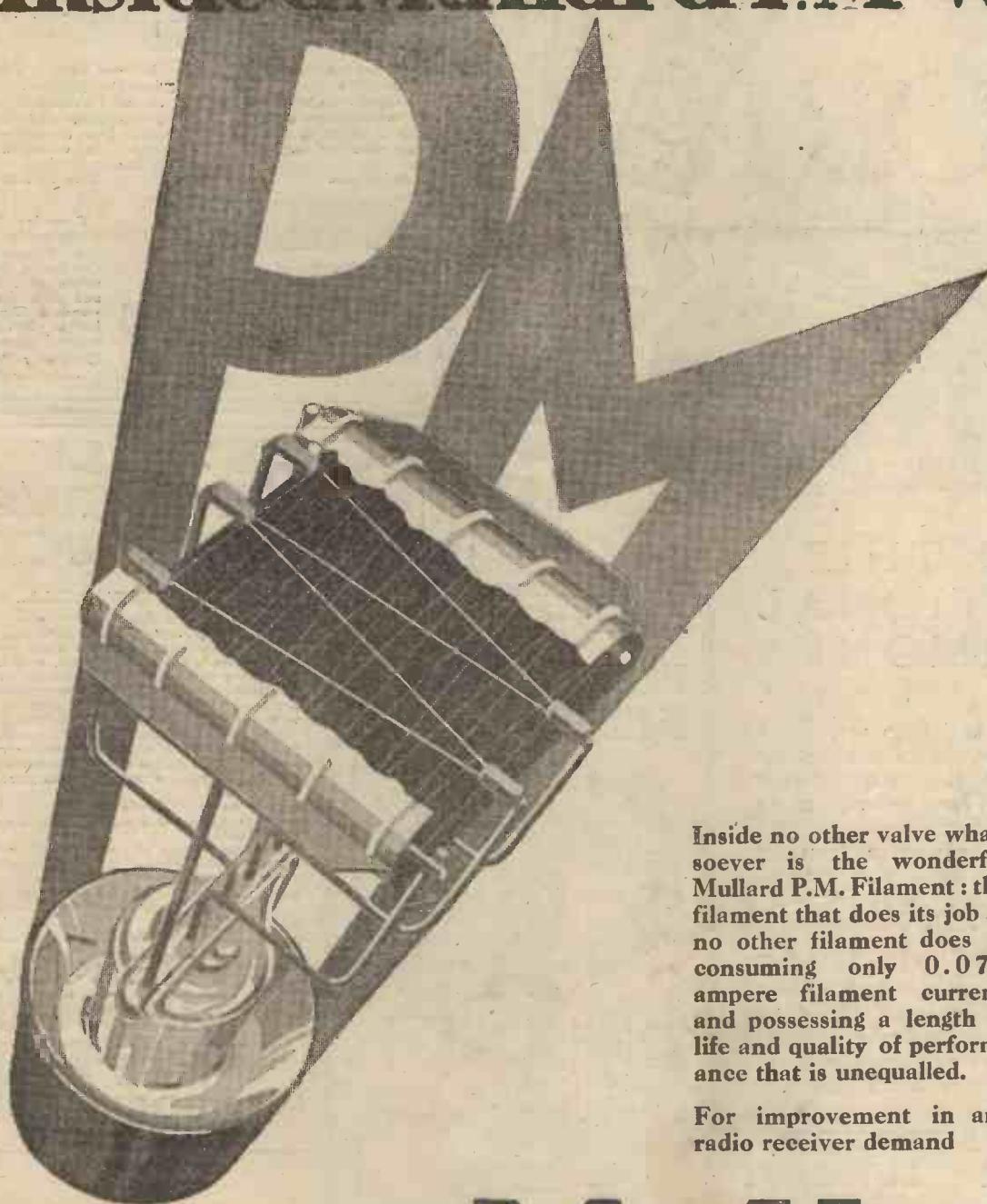
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