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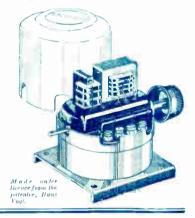
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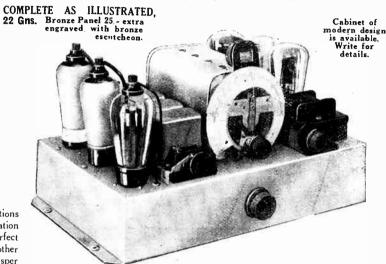
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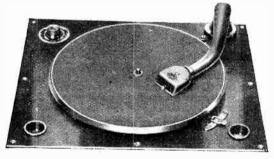
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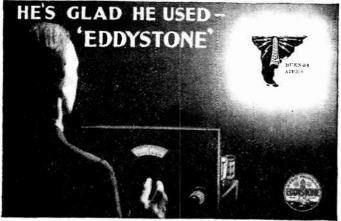
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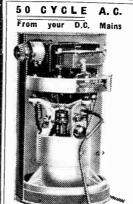
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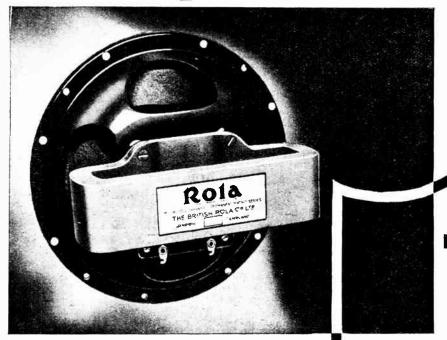
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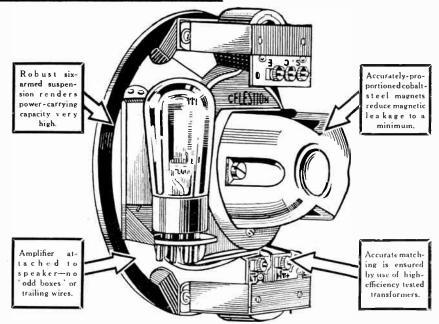
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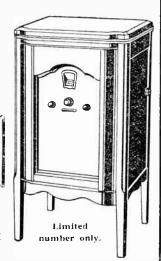
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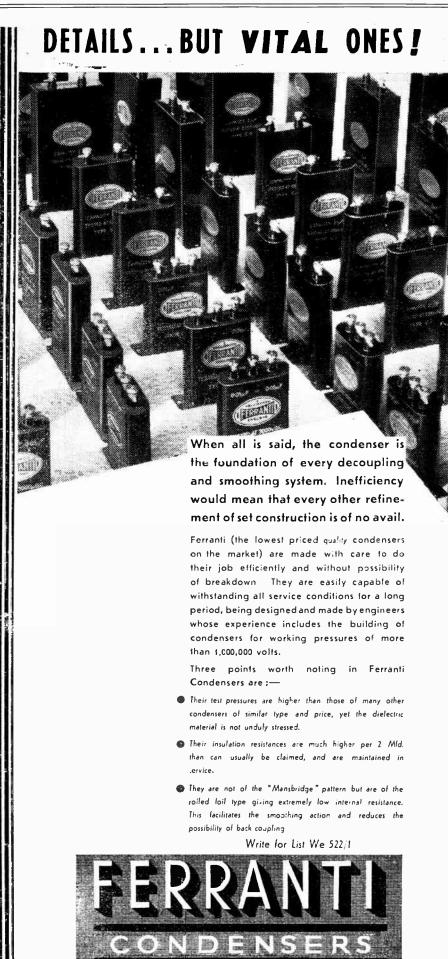
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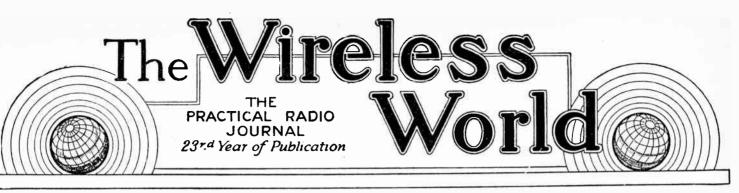
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As many of the circuits and apparatus described in these pages are covered by palents, readers are advised, before making use of them, to satisfy themselves that they would not be infringing patents.

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EDITORIAL COMMENT

Reception Under the **New Conditions**

When Droitwich Becomes the National

T is perhaps not sufficiently widely appreciated that when the new long-wave station at Droitwich takes over from Daventry next year, a material change will take place in reception conditions under the B.B.C. programme distribution arrangements which will coincide with the inauguration of that station.

Taking London as an example, here we now have alternative programmes both emanating from Brookmans Park and both on the medium band; signal strength is more or less equal for both and a comparatively small alteration in tuning of the receiver gives us one station or the other.

When Droitwich on long waves becomes the National transmitter, and Brookmans Park provides only the Regional programme on one wavelength on the medium band, the change in reception conditions is likely to be widely felt. It is well known, for instance, that small aerials, such as are often installed indoors, are very inefficient for the reception of long waves, and whilst such aerial arrangements may suffice at present for reception in the service area of Brookmans Park for the alternative programmes, they will not necessarily do when the alternative programme is transferred to long waves. Again, many sets which give adequate selectivity on the mediumwave band fail to receive on long waves without overlapping of stations.

So long as we can be sure that the new long-wave station is going to replace the National medium-band transmitters in different parts of the country with a satisfactory service,

we can feel reasonably content with the new proposals, but it must be expected that contentment in many cases will only come after rather drastic alterations to the listener's receiving arrange-

Background Mystery

A Matter for the B.B.C.

NOTE appeared in a recent under " Broadcast issue Brevities" drawing attention to the frequent presence of a background of speech or music coming Regional transmitter. the from Brookmans Park, when the set is This paratuned to the National. graph has produced so many letters from readers that it would seem to be a matter deserving of close investigation by the B.B.C. engineers. The letters are, for the most part, from readers who have obviously a good technical knowledge and wide experience and are well aware of the effects produced by cross-modulation, which is the explanation which the B.B.C. has put forward to some of them when they have made enquiries as to the cause. We feel fairly confident that if cross-modulation were the reason, most of these readers would have been aware of it.

If the B.B.C. engineers are satisfied that induction between lines is not the cause, it would seem necessary to look elsewhere for an explanation. As a pure conjecture, we might suggest that a common earth at the transmitters might be responsible.

Whatever the reason, it is an intensely irritating phenomenon. Whilst a few listeners would be interested in knowing the cause of the trouble, the vast majority of the B.B.C.'s audience care little for the cause, but would welcome elimination of the effect.

The Wireless World

A.V.C. STRAIGHT FOUR

Conclinded from page 404 of last week's issue

Building and Operating the New A.C. Mains Receiver

THE theoretical consider-

HE layout of the components of any receiver is a matter of importance, but this particularly the case with a two-H.F. straight set, otherwise serious difficulty from instability may be found. In order to facilitate the retention of that layout which has been found experimentally to be the best, therefore, the receiver is constructed on a metal chassis which is obtainable with all holes ready drilled. There is thus no possibility of error in positioning the components, and the drawings which accompany this article will serve as an aid in identifying the various holes.

It is important to remember that the coil assembly must be mounted before the gang condenser, and the two I mfd. condensers C16 and C19 before the L.F. transformer. The remaining components, however, may be screwed down in any convenient order. The fixing bolts are used for earth connections in many cases, and the frame of the gang condenser is earthed only by its contact with the chassis. Good connections at all these points are very important, and as the chassis is cellulose finished it is a wise plan to scrape off the enamel beneath the bolts in question, and not to rely entirely upon the screws cutting through of their own accord. The gang condenser is particularly important, and here a good connection at all four of the mounting legs is

Apart from these points, no special difficulty should present itself, and the wiring is quite straightforward. As far as possible, this should be carried out in the manner of the original receiver, and it is

essential that grid and anode leads be kept short and well away from one another, otherwise instability will be inevitable. No. 20 or No. 22 gauge wire will be found most convenient for wiring, and if desired may be used throughout. A somewhat more rigid construction, however, will be obtained by using No. 16 gauge for a few leads, of which the chief are the earthing connections to the fixed condensers. Certain leads are screened, and it is important that the correct material be used; large diameter metal braided sleeving should be employed with a thin internal wire, not thick rubber covered metal braided leads nor motor-car armoured cable.

The Loud Speaker

It should be pointed out that although most of the components screwed to the chassis are at the same potential as the chassis, in one or two cases insulation is required. The aerial terminal and one of the pick-up terminals must be insulated by using the washers supplied with them. The 30-ohms Hum-Dinger R20 must also be insulated from the chassis, otherwise a short-circuit of the output valve grid bias will result, with a detrimental effect on the output valve.

The loud speaker used with this receiver must have a field resistance of 5,000 ohms and be rated for a field current of 50 mA. It should also have a 6-watts power handling capacity, and be suitable for matching the P.P. 5/400 output valve which requires a load impedance of 2,700 ohms. The Baker's Selhurst Radio Speaker specified meets all these requirements and has

ations underlying the design of "The Wireless World" A.V.C. Straight Four appeared in last week's issue, and the present article deals with the construction and initial adjustment of the receiver. Some notes upon the performance to be expected are also included.

a bass response unusually free from resonances; moreover, the high frequency response is maintained at an even level up to at least 5,000 cycles. Since the speech coil is of the high impedance type, and a choke-condenser output circuit is used, no output transformer is required.

It should be pointed out that the cone develops quite a large amplitude of vibration at low frequencies, and in consequence, there is a possibility of accoustic reaction between the speaker and the receiver if both are mounted on the same cabinet. Such reaction, of course, would introduce a bass resonance, or in a bad case, a sustained howl. It is a wise plan, therefore, to mount the receiver chassis upon blocks of sponge rubber so that it can float freely.

When first setting up the receiver, some check on the voltages and currents should be made, and this should be done with the Local-Distance switch set to distance and with the set tuned to no signal. The anode potential of the H.F. valves, measured between the chassis and the valve anodes, should be about 190 volts, and the screen potential about 190 volts.

The A.V.C. Straight Four

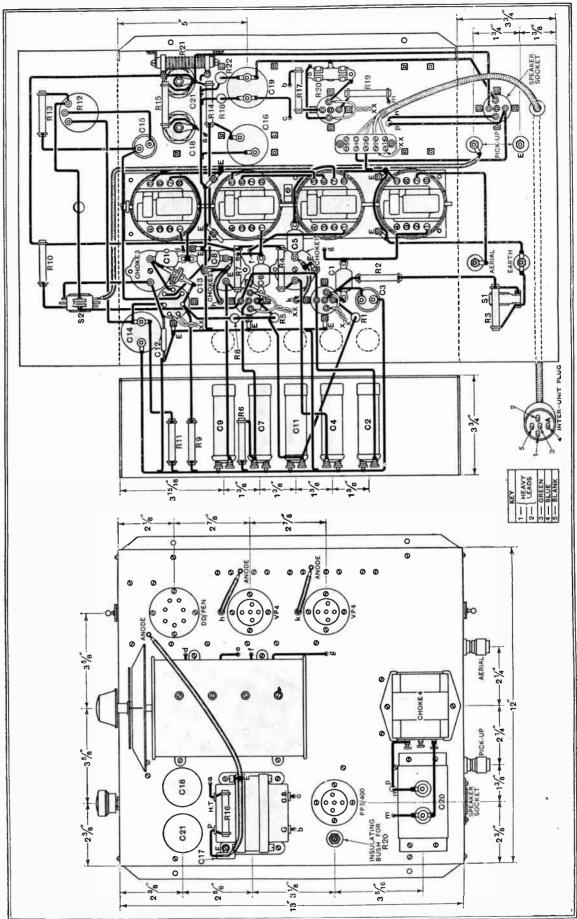
The grid bias of these valves, measured between the chassis and cathodes, should be about 2.6 volts and the anode current about 3.7 mA. In the case of the detector, the measured anode voltage will be about 24 volts only, while the screen potential is about 120 volts. When a signal is tuned in, the anode voltage rises considerably. The no-signal anode current is about 8 mA, and falls on tuning in a station to such a degree that on a local station it may drop to 4 mA. A milliammeter connected in the anode circuit of this valve, therefore, can be used as a tuning indicator. The output valve passes an anode current of about 58 mA, and the voltage measured between the chassis and the valve anode is 410 volts; the bias between the chassis and the slider of R20 is 28.5 volts. The speaker field current should be about 48 mA. It must not be expected, of course, that these figures will be reproduced exactly in different receivers, and the results obtained will necessarily depend somewhat upon the meter employed; nevertheless, quite good agreement should be found.

Gramophone Operation

Since the radio-gramophone switch is arranged to open-circuit the screen supply on gramophone, there will be no break-through of radio signals. The manual volume control is operative on gramophone, so that a pick-up is the only additional apparatus required. The volume control, however, is of higher resistance than that needed by many pick-ups, for this is dictated by the radio requirements. It may be found necessary, therefore, to shunt the pick-up with a resistance in order to maintain the correct tone. This is best found experimentally, but a resistance value of some 50,000 ohms to 100,000 ohms will meet most cases.

On radio the chief adjustments necessary are those to the ganging. This should be carried out at a low wavelength and on a very weak station, unless a milliammeter is available to

THE WIRING DIAGRAM OF THE RECEIVER

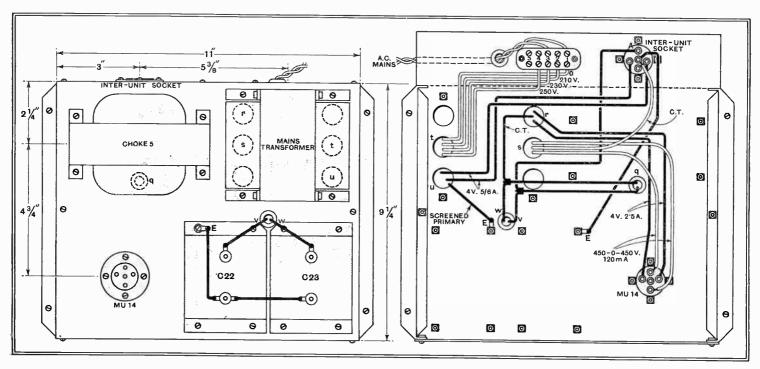


The greater part of the wiring is carried out on the underside of the chassis, and but few wires pass through to the upper side.

act as a tuning indicator. It is useless to attempt to gang on a strong signal without a meter, since the action of A.V.C. will make the optimum trimmer

settings very difficult to determine. Trimming is carried out for maximum signal strength, whether as indicated by the ear on a weak signal or by minimum anode

PRACTICAL WIRING PLAN OF THE ELIMINATOR



The wiring of the mains unit is extremely simple and it should be noted that both the mains transformer and the choke are fitted with leading-out wires instead of terminals

current of the controlled valves—the DD/Pen and the two H.F. stages.

Having tuned in some station on a wavelength below 250 metres, adjust each trimmer in turn for maximum signal

strength. If it be found that this leads to one or more trimmers being fully screwed home or fully unscrewed, the capacities of all other trimmers must be reduced or increased respectively. If a

An underview of the receiver chassis. It will be noted that the coils are mounted directly beneath the gang condenser in order to keep the connecting leads as short as possible.

very low wavelength station cannot be obtained at the first attempt, a rough adjustment of the ganging should be made on a higher wavelength station, after which no difficulty should be found in tuning in a station on a really low wavelength. The dial is calibrated in wavelengths, but whether this holds good in practice depends upon the precise values of trimmer capacity used in ganging. Small adjustments to correct for this are probably most conveniently made by slightly slipping the dial on the condenser shaft, but if the discrepancies are large a combination of this with the reganging of the circuits for different trimmer capacities will probably enable correction to be obtained.

Performance

The only further adjustment required is to R20, which must be set to the position of minimum hum. Distant stations spaced by 9 kc/s should be receivable clear of one another except for a certain amount of sideband splash which is inevitable in any receiver which reproduces the upper audible frequencies.

The receiver has been tested in the heart of London and gave a very good account of itself. The spread of the local stations was confined to two or three channels, and on the long waveband it proved easily possible to receive Deutschlandsender clear of Daventry National and

A full-size blue print combining the wiring diagrams of the receiver and power-unit is available from the Publishers. Price 1/6, post free.

The A.V.C. Straight Four

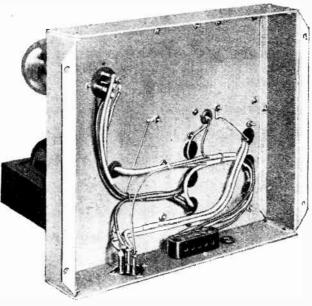
Radio-Paris, although it is a much weaker signal. The sensitivity proved adequate

for most requirements, and with a reasonably efficient aerial should permit good reception of all the stronger Continental stations. It is not so high, however, as to necessitate the inclusion of an inter-station noise suppressor, and the Local-Distance switch is intended only for local reception. Automatic volume control has a sufficiently wide range of action to counteract the volume variations of fading, provided, as always, that the signal does not fade so badly that it falls below the A.V.C. threshold. The range of control, however, is not sufficiently great to keep local stations at the same level as the Continental, so that if the locals appear stronger than

other stations, it should not be thought that A.V.C. is not functioning correctly. The use of the Local-Distance switch, or a slight readjustment of the setting of the manual volume control will correct for this.

The quality of reproduction was found on test to be of a high order and the volume adequate for all normal require-Mains hum was completely ments. absent, in spite of the unusually good bass response. Incidentally, it should be pointed out that if full advantage is to be taken of the bass response, it is necessary for the speaker to be fitted with a large baffle or be used in a cabinet of large dimensions. If hum is to be avoided, it is necessary to keep the climinator unit away from the receiver; in particular, at

some distance from the L.F. transformer. In general, therefore, the receiver should be mounted on one shelf of a radio-gramo-



This view of the mains unit shows the few connections that are needed. A connecting block is fitted for the mains leads.

phone cabinet, with the loud speaker and eliminator on another.

It will be as well to point out here a slight discrepancy between the circuit and the practical wiring diagrams. The resistance R10 is shown in the former as connected on the screen side of the switch S2, whereas on the latter it appears between the switch and the H.T. line. This has no effect on the performance of the set, and whichever way it be wired it will function equally well.

A sample receiver built to the specifications described in this article will be available for the inspection of readers at 116, Flect Street, London, E.C.4.

speaking, of course, of the set) whilst searching for European stations, and for listening to transatlantic transmissions it is a heavensent boon. Tone-control, the next big advantage of up-to-date sets, makes all the difference in the world to one's reception of both Continental and American broadcasts.

American Wonder Station

Reception of both North and South American stations is now wonderfully good, and appears to be getting better as week follows week. On good nights stations such as WCAU, WKAQ, WTIC, and WBZ are as easy to find as Continentals, and they come in so strongly and steadily that one can listen with real pleasure to the programmes that they are sending out. world's wonder station is WIOD of Miami, Florida, which has a genuine output power rating of 1 kilowatt. I first heard this station five or six years ago. When I was rash enough to mention the fact in print I was called all kinds of things, though none of my correspondents suggested George Washington as an appropriate pen-name. Since then thousands of listeners have re-corded reception of WIOD not as a whisper, but at full loud-speaker strength. When conditions are at all favourable WIOD can be as strong as, say, Florence and Heilsberg. WIOD's one kilowatt does not belong to the same family as Fécamp's official 700 watts. The Federal Radio Board keeps a close watch on power outputs, and drops like the proverbial ton of bricks on any station engineer who exceeds the permitted rating.
On the long waves conditions are none too

good at the moment. Radio-Paris and Zeesen are the best stations, with Warsaw, Motala, and Kalundborg as runners-up. On the medium waveband Vienna, Rome, Lyons Doua, Langenburg, Leipzig, Strasbourg, the Poste Parisien, Breslau, Heilsberg, Hörby, and Trieste are the most reliable.

D. EXER.

New B.B.C. Wavelengths

THE B.B.C. announces that in accordance with the Lucerne Wavelength Plan the following will be the frequencies and wavelengths to which the British transmitters will change on January 15th, 1934:

Station. Kc/s. Metr Daventry National (5XX) 200 1,56 North Regional . 668 449 Midland Regional . 767 391 Scottish Regional . 804 373 London Regional . 977 342 West Regional . 977 307 North Regional . 1,013 296 Scottish National Belfast . 1,122 267 London National West National West National Feet States . 1,149 261	00 1. 1. 1.
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North Regional 1,013 296 Scottish National 1,050 285	ı.
Scottish National 1.050 285	. 1
	.2
	.7
London National)	-
West National 1,149 261	
Aberdeen 1,348 222	.6
Newcastle 1,429 209	.9
Plymouth Bournemouth \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	

The B.B.C. is attempting to make other arrangements for Aberdeen, and, therefore, the wavelength on which this station will work, as shown above, may be modified.

It will be noticed that, with the possible exception of Bournemouth, the changes in the wavelengths of the British transmitters are small.*

* A special announcement concerning further changes in the B.B.C. wavelengths appears in "Broadcast Brevities."

DISTANT RECEPTION NOTES

The Boon of Automatic Volume Control

R EADERS have probably noticed a considerable increase in the volume obtainable from Strasbourg-or perhaps it would be better to write that a good deal more use has to be made of the volume control when Strasbourg is being received. I understand that Strasbourg is now using about three times the power with which the station is officially credited, and that a further increase to 75 kilowatts is to take place within the next few weeks. It was probably on account of the alterations that are being made that Strasbourg indulged now and then in silent nights.

There is no question that both Mühlacker and Munich are now using their old transmitters with a power rating of 1.5 kilowatts in both cases. Why they should have continued using high power for so long after the official date of the closing down of the big stations I cannot say, but there is no doubt that they did so, for no diminution of the field strength of either was noticeable.

Kalundborg appears to be using very much less than its full 60 kilowatts. During the daytime it is not, as a rule, so well heard

now as in the days when it was a mere 8-kilowatt station.

Those who have not automatic volume control are doubtless making the discovery that fading is appearing once more. Curiously enough, it is at its worst at present in the middle of the medium wave-band. The stations that have been chiefly affected are Toulouse Midi. Leipzig, and Athlone. It has not yet been of the very violent kind in which the transmission becomes horribly distorted, as it drops towards the minimum and sometimes disappears altogether for some seconds. Actually, there has so far been nothing that the automatic volume control cannot take charge of quite satisfactorily, though it is probable that fading of the severer kind will be in evidence, particularly towards the bottom of the medium waveband, during the next week or

Never has the long-distance enthusiast been so well equipped for indulging in his hobby as he is this year. Automatic volume control, besides counteracting fading to a great extent, also prevents blasting (I am

UNBIASED

Solving the Dial Problem

THE Editor's stern remarks the other week (Opus No. 740, Nov. 3rd, 1933) castigating the set manufacturers on the general awkwardness of their knob and dial layout interested me exceedingly, for it showed that I have at least one faithful reader. For I see by reference to back numbers that it was upwards of two years ago that I commenced hammering away at this problem, and now that he has joined me there are hopes that something will be done about it.



Fig. r.-Before and . . .

Not that the Editor and I are playing a lone hand in this game, for our correspondence bags have revealed otherwise, at least two readers and a rather doubtful third being in agreement with us.

One of the two stalwarts I have mentioned, a well known R.A., is, in fact, so enthusiastic about the whole matter that he has sent me in two sketches, the first of which shows him in the agonies of tuning_or rather, attempting to tune_a console receiver by a well-known firm whose name is a byword for the sort of thing shown in Fig. 1.

The two sketches are really illustrative of a sort of "! efore and after" business, as Fig. 2 shows the solution of the problem at which he has finally arrived, and which he warmly recommends to readers. I myself have not the slightest hesitation in strongly endorsing his advocacy of this method, for although I shall maintain my campaign with the stubborness for which we English are so justly famous, I really know in my heart that I am only beating my head up against a brick wall to expect the manufacturers to do anything about it.

I have not received permission to publish reproductions of these two sketches, nor to raffle the signed originals, although I have done the first and propose to do the second very shortly in aid of the Free Grid Christmas Charities Fund which, by the way, will soon be opened for public subscription.

Dressing to Suit

I AM very pleased to learn of the dress suit edict recently issued by the B.B.C. It is now commanded that all performers, save those taking character parts, must wear dress suits, while the latter must dress and make up for their rôles with as much care as if they were going to appear on the stage. "Dress suits," said a well-known B.B.C. official in an interview, "key up a performer."

I fully agree. From the very beginning I have always made it a rule to don full morning or evening dress before sitting down to write my weekly notes, and I have invariably found that the quality of my work suffers visibly on those occasions when some emergency has caused me to leave off my collar and tie.

Just lately I have been even more particular, and am cultivating the habit of dressing for the particular item concerning which I am writing, and, in addition, to acquire as much local colour as I can. Thus, when writing a recent paragraph about boxing, I not only stripped to the requisite degree, but even assumed the recumbent position so beloved of some of our heavyweights.

Spice of Life
WHILE enjoying many of the talks provided by the B.B.C. I must confess that I am not infrequently bored by the foolish vapourings of speakers with whose opinions I disagree. "Audi alteram partem" is the motto which appears on my family coat of arms, and it is high time, I think, that the B.B.C. adopted it in place of their present one, whatever it is.



Fig. 2.-. . after.

Instead of permitting so-called leaders in politics and other matters to come to the studio and deceive us with half-truths, surely it would be better to carry the microphone to Hyde Park and hear vox populi naked and unashamed. One can obtain in the short space of an hour more really startling information there, to say nothing of entertainment, than the

By FREE GRID

B.B.C.'s band of timid milk and water socalled controversial speakers are capable of giving in half a life-time.

In Hyde Park there is infinite variety, which the B.B.C. could bring into our homes by the simple expedient of having a microphone fitted at every speaker's platform and flitting from one to the other by means of the ever-handy stud switch. Thus there would be something to offend everybody, no matter what the colour of his shirt or flag, and after all, is not the taking of offence the very spice of life to the average citizen?

This Sun Bathing

THE great sport in Brighton at the present moment is, it seems, attempting to pick up the wireless messages radiated from Police Headquarters to the various constables in that district who, as most people know, now carry radio sets complete with call bell inside their hel-



Much difficulty it is stated, has been experienced in finding out the exact wavelengths on which these transmissions take place. This is surely rather a bitter commentary on the degenerate times in which we live, for in my young days nothing would have been thought of knocking off a policeman's helmet and investigating the matter at first hand.

What really does perturb me, however, is a letter from an acquaintance in that area who tells me that real trouble is brewing for the local police, insomuch that certain irresponsible practical jokers have conspired together to construct a transmitter to send bogus messages to the constables in question.

The idea is to get the whole of the police force up to one part of the beach by means of a spurious transmission relating to a sunbather, thus leaving the town to the mercy of any bandits who may be minded to execute a smart smash-andgrab raid.

Whether this be irresponsible practical joking or an underworld plot, as my acquaintance suggests, I think all licence holders should band themselves together to stamp out this threatened menace to the good name and amenities of this Naples of the North.

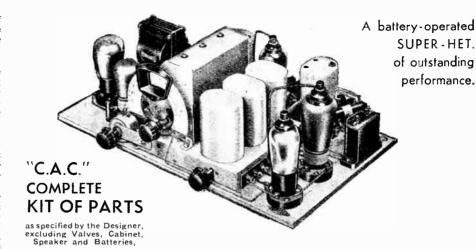
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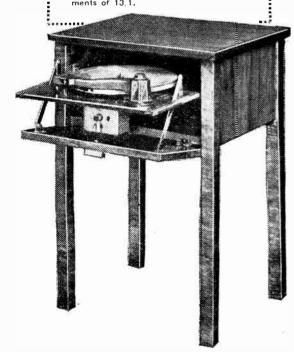
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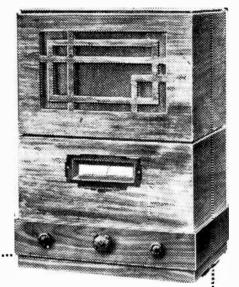
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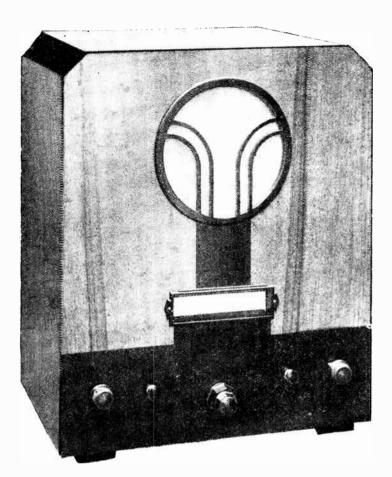
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writes:
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Practical HINTS AND

IT is easy enough to connect in series a chain of valve heaters or filaments when all take the same heating current. But, if valves of mixed L.T. ratings are to be used, various expedients must be adopted in order that some of the elements may

Supplementary Heating Current

not be overrun or under-heated; in practice it is usual to connect a parallel resistance across each

heater or group of heaters taking less than the maximum current.

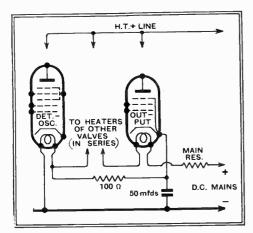


Fig. 1.—Combining 0.3 and 0.25 amp. valves in a D.C. set. Anode current of the output valve flows through the heater of the detector-oscillator.

Other ways of overcoming this minor difficulty have been described from time to time, and now a particularly ingenious solution of the problem is put forward by a reader who is using it in a D.C. mains superheterodyne. His problem was to employ a 6A7 pentagrid frequency changer (with a heater requiring 0.3 amp at 6.3 volts) in series with ordinary British D.C. valves requiring 0.25 amp only. The 6A7 valve therefore requires 0.05 amp (or 50 milliamps) more than the remaining valves.

Now for the solution of the problem. All the heaters are wired in series in the ordinary way, but the cathode circuit of the output valve is so connected that the anode current of this valve is diverted through the heater of the 6A7 valve, and is thus additive to that normally flowing in the heater circuit. As the output valve is a DPT, passing an anode current of 40 milliamps, the frequency changer is working at almost its full rated current, and results are stated to be excellent.

Fig. 1 shows the circuit arrangement actually employed, bias for the output valve being obtained from the drop in voltage across the 100-ohm resistance in series with the heater of the 6A7. By using a 50-mfd. dry electrolytic by-pass condenser in the position shown, the output grid circuit is effectively decoupled, and apparently hum is avoided.

It seems probable that the principle of

AIDS TO BETTER RECEPTION

using anode current as a supplement to the ordinary heating current might have other useful applications.

A SCIENTIFICALLY designed lowpass filter, such as that described in The Wireless World of November 10th, adds considerably to the number of stations that can be received without interference; at the same time, it does not

Anti-Heterodyne Filter seriously affect quality of reproduction, but can always be switched out of circuit when receiving stations not

subject to interference.

It is generally, and probably rightly, considered that this type of filter is mainly applicable to highly sensitive long-range sets, although it would undoubtedly improve the performance of many others. Take the "local station" type of receiver, in which everything has been sacrificed to quality, and which will normally have an exceptionally good high-frequency response; this type of set is usually so insensitive that it seldom suffers from intelligible interference from other stations, but after dark reproduction is often marred by a continuous high-pitched whistle. This whistle, due to heterodyning by a distant station operating in the adjacent channel, may not be very strong, but is nevertheless annoying; its presence is a testimony to the good high-note response

of the receiver, provided both local and interfering stations are on their proper wavelengths.

Here is a case where the whistle filter is invaluable. When interference of the type under consideration becomes evident, it can be switched into circuit in a moment, but the characteristics of the set are not permanently impaired, as full advantage may be taken of its exceptional high-note response as soon as the interference disappears

Many of these high-quality sets include resistance-coupled L.F. amplifiers, to which the filter should be fitted in the manner shown in Fig. 2. It is desirable that the detector valve should have an impedance in the order of 10,000 ohms, and that the coupling resistance should be

of the same value; alterations to satisfy this requirement may generally be made to existing sets without impairing performance in other directions.

TIPS

A diode detector requires a load of high ohmic resistance, and so the filter unit cannot well be used in direct association with it. Where this form of rectification is employed, it is best to place the filter after the L.F. amplifier which immediately succeeds the diode.

It is fortunate that breakdowns of insulation between the heater and cathode elements of indirectly heated valves are becoming more rare. Faults of this nature are by no means easy to trace, partly because the defect may manifest it-

Testing Indirectly Heated Valves

self only after the valve has been working for some time, and is in consequence fully warmed up.

It is probably most satisfactory, when a defect of this nature is suspected, to test the valve *in situ* rather than to remove it and to set up a special testing circuit. Almost all indirectly heated valves are now biased by the insertion of a resistance in the cathode lead; if there has been a breakdown of heater-cathode insulation, this resistance will in effect be short-circuited, and so the valve will be working at zero bias. It therefore follows that excessively high anode current will suggest a breakdown of this nature; the fact can be confirmed by imposing a momentary short-circuit across the bias resistor, a

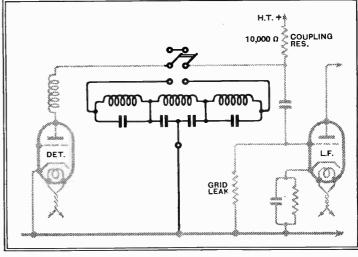


Fig. 2.—Adding a low-pass whistle filter to a receiver with resistance coupling.

milliammeter being at the same time inserted in series with the anode. If the short-circuit produces no change in anode current, it is fairly certain that the fault in question exists, at any rate, if the insulation of the usual parallel by-pass condenser can be depended upon.

Universal Output Transformer

Constructional Details of a Multi-ratio Component

By H. B. DENT

HE importance of correctly matching the output valve and the loud speaker has been emphasised so often in these pages that it would seem hardly necessary to comment further on it here. But it is well to bear in mind that strict adherence to this practice is just as important when trying out experimental circuits, for otherwise many promising schemes may be written down as unsatisfactory, their performance falling far short of expectations possibly because an unsuitable output transformer ratio was employed.

While it is not always possible to achieve the ideal condition, at least a very good compromise can be made with a universal type transformer, but to be of any value as an experimental component it should provide a large number and wide range of ratios. One that has proved very useful in this respect is illustrated here. Its windings are arranged as shown diagrammatically in Fig. 1; the secondary is in four sections interleaved with the primary, thereby obtaining a tight coupling and keeping the leakage inductance as low as possible.

Push-pull Circuits

The design allows for anode currents of the order of 60 mA, to be handled, and the maximum A.C. output is about six watts. By making use of tappings on the primary winding twelve ratios can be obtained with but four secondary sections. The primary tappings are located equidistant from the centre, and as this is also brought out to a terminal, the transformer can be made to serve for push-pull circuits as well as for the more orthodox output system.

Of the twelve possible variations, two happen to give the same ratio, yet the eleven that result will meet most requirements, for they range from 75 to 1 to 12.5 to 1. With the whole of the primary in use the inductance is 52 henrys, and with 60 mA. of D.C. flowing it falls to about 39

even so this will be adequate for most occasions.

The construction of the transformer will require a little care, although on the whole it is not difficult. It is very necessary, however, to keep a check on the beginning and finish of the various sections, and a good plan is to thread different coloured insulated sleeving on the leads as the coils are completed.

The windings are carried on two bobbins, each 3\{\frac{1}{2}\text{in.} \times 1\{\frac{1}{2}\text{in.}\text{ wide overall with a centre hole measuring 1\{\frac{1}{2}\text{in.}\text{ square. Both are wound exactly the same, but in the final assembly one is turned round so that the

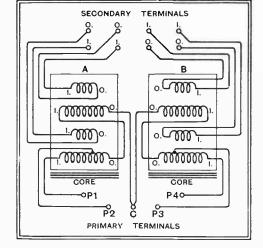


Fig. 2. The relative position of the windings, inter-coil connections and wiring to terminal board is clearly shown by this schematic layout.

direction of the winding is opposed to that of its companion. It is for this reason that all leads should be clearly marked during the winding process so as to avoid

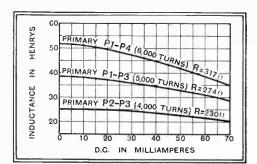
mistakes when it comes to joining them to their respective terminals. The actual arrangement of the windings is shown diagrammatically in Fig. 2; here they are displayed as in the final assembly, the inners and the outers of each being marked

and the inter-section connections and the wiring to the terminals shown. If this diagram is studied in conjunction with that

of Fig. 1, there will be no difficulty in comprehending the general layout of the transformer.

One point in particular requires special attention—when assembling the bobbins, and this is to ensure that the external leads joining the two primary sections of bobbins A and B where their cheeks butt do not short circuit, a cheek of thin presspahn, empire cloth, or any other good insulating material should be interposed between them as a safety measure.

The winding is carried out as follows: first 1,000 turns of No. 32 enamel wire is wound on evenly, a tapping is then brought out and this section completed by the addition of a further 500 turns. Two turns of empire cloth or waxed paper then follow, and the first secondary section, consisting of 80 turns of No. 20 enamel wire put on. Follows a further applica-



That an adequate primary inductance is available under all conditions is seen from these curves.

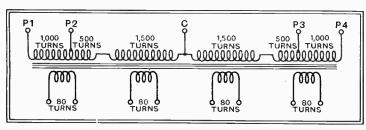


Fig. 1. Theoretical arrangement of the transformer showing the symmetrical disposition of the windings.

henrys. The two inside tappings, P2 and P3, reduce the primary to 4,000 turns and its inductance then falls to 25 henrys;

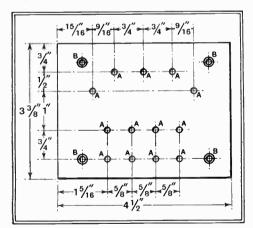
Universal Output Transformer-

tion of insulating material as before and the second primary section of 1,500 turns of the No. 32 enamel wire follows. To complete this bobbin two layers of insulation are required, and then the next secondary section of 80 turns can be wound. The finished bobbin may be covered to protect it by overwinding with a few layers of the insulating material or any other that may be handy. The second bobbin is wound in exactly the same way.

If bobbin A in Fig. 2 is taken as an

example it will be seen that the beginning and finish of both secondary seccome tions out through the same cheek, and on this side is brought out as well the start of the first primary section and its tapping. The end of this section, also the beginning and the finish of section two of the primary, pass through the opposite cheek where they fall most convenient for joining together. To obviate any likelihood of the thin primary wires being broken or damaged, either during the winding process or during the final assembly, the

leads that come out through the bobbins' cheeks should be of heavier gauge wire, or, better still, thin flex. Pieces about a foot long soldered to the wire before, and also



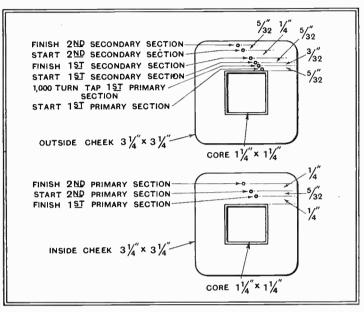
Drilling details of terminal boards; sizes of holes are: $A=\frac{5}{32}$ in. dia.; $B=\frac{5}{32}$ in. dia. countersunk for 4BA screws.

after, winding, with one or two turns taken round the bobbin to take the strain, will serve this purpose. A word of warning may not be amiss here: use a non-corrosive flux!

Remains now but to assemble the core, for which about 90 pairs of Stalloy No. 33 stampings will be needed. They are arranged with all like-shape pieces on one side, for an air gap is required in the core as comparatively large D.C. currents may

be passed through it. The "T" pieces must be packed as tightly as possible into the centre hole of the bobbin, and incidentally it is a wise plan to fit a few before winding so as to ensure that the hole is free from obstructions at all parts to pass the tongue-piece without binding. If not, clean out the inside with a file until an easy fit is obtained.

Little more remains now to be done than to insert, at the three points where the "T" and the "U" laminations abut, a distance piece o.o.in. thick. This is



In addition to giving the position of the holes in the bobbins this drawing serves as a winding identification chart.

equal to three thicknesses of the paper on which this is printed or twice the thickness of the cover of *The Wireless World*. Cast aluminium end plates should be obtained for clamping the core, after which a terminal board, laid out with 4BA screws and nuts to serve as terminals, is prepared and fixed in position.

*Round-headed screws are used with soldering tags threaded on between the head and the panel. The ends of the various coils are then soldered to the tags in the order given in Fig. 2. An alternative method of anchoring the leads would be to loop the wires round the screws below the panel and secure by means of locknuts.

The position of the holes marked B on the drawing of the terminal board is purposely left vague, as these can only be determined a c c u-rately after the transformer is assembled.

From the table of ratios the connections for the primary and for the secondaries can be obtained, while in Fig. 3 a few examples have been taken and the terminal connections filled in. The first, marked (a),

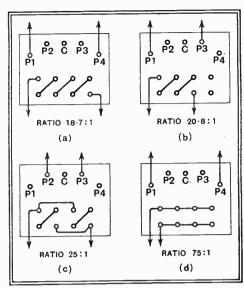


Fig. 3.—The output terminals joined as in (a) place all four sections in series; (b) gives three sections connected in series; (c) two in series and two in parallel, while (d) shows the four sections in parallel.

shows a series arrangement of the four secondaries; in (b) we have three secondaries joined in series, while in (c) two on each bobbin are joined in series and the two sets connected in parallel. Finally, diagram (d) shows the connections when all four sections are required to be joined in parallel.

Material Required. 90 Pairs of Stalloy No. 33 stampings Jas. Sankey & Sons, Sound Sales Sound Sales 3 in. × 3 in. × 15 in.in. with 1 in. × 1 in. hole. 1 Pair aluminium end-clamps 1 lb. No. 32 S.W. G. enamelled wire; lb. No. 20 S.W. G. enamelled wire; unpire cloth; quantity insulated sleeving, various colours. 13 4BA in. brass screws, round head, with like number of soldering tags and washers. 4 4BA in. countersunk screws; 30 4BA nuts.

Although the holes in the side cheeks of the bobbin can be drilled as the winding progresses if care is exercised, it would, on the whole, be better to prepare the bobbin beforehand. Drilling details of the bobbin are given, therefore, on this page. All holes should be about \$\frac{1}{8}\$ in. diameter to allow for slight discrepancies in winding. This drawing will serve, also, as an identification chart, for against each hole is marked its respective lead.

TABLE OF RATIOS AND CONNECTIONS

Ratio.	Primary Connections.	Secondary Connections.	Secondary Resistance.
*12.5 : 1 15.6 : 1 *16.6 : 1 *18.7 : 1 20.8 : 1 *25 : 1	P2 and P3 P1 and P3 P2 and P3 P1 and P4 P1 and P3 (1) P1 and P4	Four sections in series Four sections in series Three sections in series Three sections in series Three sections in series (1) Three sections in series (2) Two sections series	1.76 ohms. 1.76 ohms. 1.32 ohms. 1.76 ohms. 1.32 ohms. 1.32 ohms.
31.2 : 1	(2) P2 and P3 P1 and P3	Two sections parallel Two sections series Two sections parallel	0.44 ohms.
*37.5 : 1	Pl and P4	Two sections series }	0.44 ohms.
*50 : 1 $^{62.5}$: 1 *75 : 1	P2 and P3 P1 and P3 P1 and P4	Four sections in parallel Four sections in parallel Four sections in parallel	0.11 ohms. 0.11 ohms. 0.11 ohms.

^{*} These ratios can be used for push-pull.

NEWS of the WEEK

Current Events in Brief Review

100 Kilowatts from Hamburg

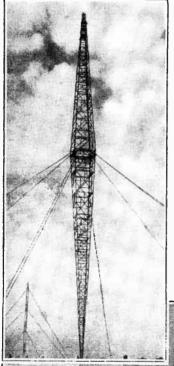
HAMBURG'S new 100-kW broadcasting station is to be inaugurated on January 15th, 1934, using its Lucerne wave-length of 331.9 metres.

Russian Radio House

TWENTY-FOUR designs for a Radio House for Moscow are now being considered by the Soviet Broadcasting Authorities. It is stated that the building will be second only in size to Radio City, New York.

The Wireless League

THE annual general meeting of the Wireless League, will be held on Friday, December 15th, at 3.15 p.m., at 12, Grosvenor Crescent, Hyde Park Corner, London. The chief business will be the annual report and accounts and the election of and accounts, and the election of committee for the ensuing year. In the chair will be Sir Arthur Stanley, Chairman of the League, and all members are cordially invited to attend.



Japanese Honour

MARCHESE MARCONI, on the occasion of his visit to Japan, has been presented with the Grand Cordon of the Order of the Rising Sun by His Imperial Majesty the

Prison for German Pirates

THE number of wireless pirates in Germany is increasing. During the period from July 1st to September 30th last, it is officially stated, 245 persons have been fined for not paying their radio licence fees. The number during the corresponding period last year was only 165. In eight cases the offender has been sent to prison.

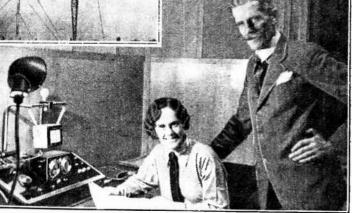
A Pleasant Surprise

BELGIAN wireless pirates have received a pleasant surprise in having their confiscated sets turned to them by the Post Office authorities. Contrary to expectation, the receivers appear to have been treated with the utmost care, and, according to a correspondent, "have been found in the most per-fect working order." It would almost seem that the Post Office engineers had considered it the courteous thing to repair any sets which were not functioning as they ought.

Budapest To-morrow

TO-MORROW (Saturday) sees the opening of the new 120 kW, broadcasting station at Lakihegy, near Budapest, which owns the world's highest wireless aerial and, incidentally, the loftiest structure in Europe. This loftiest structure in Europe. This cigar-shaped mast is 314 metres high and thus exceeds the height of the Eiffel Tower by 14 metres. Actually, the mast itself is 284 metres high, but a steel rod projecting from the top can be expected to a maximum of to metres. tended to a maximum of 30 metres in order to tune the aerial to exactly the desired wavelength.

The station is built on the 100 per cent. spare system, i.e., everything is duplicated—even the crystal oscillator—in readiness for emergencies. In the last stage



RADIO-BUDAPEST. Miss Lily Flotas, the announcer at the new highpower station at Budapest, which opens to-morrow with a power of 120 kilowatts. On the right is Mr. Eduard von Scherz, the world's first announcer, who was superintending Budapest's wired broadcasting programmes in 1893. (Above) The 314-metre mast.

four 120-kW, valves are used in push pull.

An interesting novelty is the provision of a switch which, in case of emergency, will cut out all current supply, closing down the station in a fraction of a second. Naturally, this "brake" must only be used in very special cir-cumstances, as such a drastic cutoff is a great strain on the equip-

ment The present 20-kW, transmitter at Budapest is continuing operations four hours a day with an alternative programme.

Late Programmes from Germany

SPECIAL programmes for listeners who are unable to tollow the programmes during normal hours are now provided by the Stuttgart, Frankfurt, and Trier group of German stations. These interesting late night concerts are sometimes continued till 12.30 a.m. The announcements are in German, Italian, Spanish, French, and English.

"Music from the Air"

LT.-COL. ASHLEY SCAR-LETT, of the Golders Green and Hendon Radio Scientific Society, writes to express his regret that a number of Wireless World readers were unable to obtain admission at the So ciety's recent meeting for the

THE ANNUAL PROBLEM.

Next week's issue of The Wireless World will be a special CHRISTMAS NUMBER incorporating seasonal ideas both for presents and entertainment.

ORDER YOUR COPY TO-DAY.

Reports, Please!

mark the opening of the TO mark the opening of the Budapest transmitter, Hungary is holding a radio week from to-morrow onwards with an official banquet in the evening and an exhibition sponsored by the Post Office, the Radio Industry, and Army Communications.

British listeners are cordially in-

vited to send us reports compar-ing the relative merits of the old

and new transmissions

Why They Switched Off
WHY do people give up listening? An interesting table published by the German Broadcasting Organisation announces the reasons why licence holders have omitted to renew their subscriptions. Apparently, only 1.5 per cent. during 1933 ceased to listen on account of discontent with the programmes. 1 per cent became defaulters because reception was bad, 3.35 per cent. because of man-made interference, and 37-41 per cent, for "economic reasons." The remaining 56.74 per cent, switched off for the last time for "miscellaneous reasons,"

Background Noise

"THE Spontaneous Background Noise in High-gain Re-ceivers Due to Thermal Agitation and Schrott Effects" is the title of the paper to be given by Messrs. E. B. Moullin, M.A., and H. D. M. Ellis, B.Sc., at the meeting next Wednesday, December 6th, of the Wireless Section of the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, Lon-don, W.C.2. The meeting opens at 6 p.m.

last month brought hundreds of enquiries for the free booklet on Polish history, will again broadcast this evening, Friday, from Warsaw, at 9.40 p.m. (G.M.T.), with a special message to the six hundred or more British listeners who wrote to him.

demonstration of electronic music. The meeting was announced in these columns, and, partly in consequence of this publicity, the hall, which holds only 280, was filled five minutes before the opening of the meeting.

The moral is that readers who wish to attend meetings announced in *The Wireless World* should arrive at least ten minutes before the stated hour of opening!

Short Waves from Belgium SHORT-WAVE relays of the Brussels transmissions are to begin very shortly, writes our Belgian correspondent. gian correspondent. The trans-missions will be made by one of the Ruyssclede stations on a wavelength of 29.04 metres, starting each day at 6 p.m. (G.M.T.). The transmissions are intended primarily for the Belgian Congo.

Radio-Paris: Official

A DECREE signed by the President of the French Republic and published in the Journal Official of November 22nd, announces that Radio-Paris becomes a State transmitter during this

The governing board will consist

of thirty members.

Part of the programme time is to be devoted to "the radiation of French thought abroad."

A Radio Medal

THE annual award for the clearest radio diction, awarded by the American Academy of Arts and Letters, goes this year to Jimmy Wallington, an announcer on the National Broadcasting Company's network and famous for his work on Eddie Cantor's programmes.

An Illicit Transmitter

A NEW secret broadcasting station has broken in upon the ether at Enschede, Holland, its object apparently being to attack all political parties except the Independent Socialist group. The authorities have started a "round up," but have not yet run the fox to earth.

The Wireless World

CREIGN

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres; and Cork, 1,337 kc s, 224.4 metres.—1.0 to 4.0 p.m., Programme by the I.B.C. (Ireland), Ltd. 1.0, Dance Music. The Gold-Digger's Song; This Time it's Love; I can't remember; I raised my Hat; Smoke Rings; Jeadonsy; When Work is through; Puss, Puss, 1.30, Concert of Dance Music. Isn't it Heavenly; Carry me back to green, green Pastures; Shadow Waltz; Lazybones, 1.45, Light Music. Acclamations Waltz (Waddeufel); Kesa-ko (Chapuni); Xylophone Solo; Tarantella (Byng); Spanish Gipsy Dance (Marquia), 2.0, Accordion Music. Accordion Joe (Wimbrow); Waltz, Petite Mimi (Raptiste); Marche joyense (Phillips); Dimah (Lewis), 2.15, Concert of Popular Music, Signature Tune; Home Sweet Home; Waltz Medley (arr, Simpkin); Song; Love's Old Sweet Song (Molloya; Yip-I-addy-I-ay (Cobb); Selection from The Belle of New York (Kerker); Song; Silver Threads among the Gold (Bingham); The Old Rustic Bridge by the Mil (arr, Wood); The Bells of St, Malo (Rimmer); Further Selection of Waltzes (arr, Simpkin); Signature Tune; Home Sweet Home, 2.45, Military Band Music, Martial Moments (arr, Winter); Bells across the Meadows (Ketelbey); Whistling Rufus (Kerry); The Wedding of the Rose (Jessel), 3.0, Tony Reddin and his Radiolians, Signature Tune: The Gold Digger's Song; The World is waiting for the Sunrise; Chloc; Hylton Stomp; Medley of Melodions Foxtrots; Torpedo Jin; Selection from Queen High; Moonstruck (Coslow); The Monky on the String; Antonio; The Three Trees (Pow H); Horses (Modern arrangement); Are you thinking of me tonight? Selection from London. 8.45, Carillon Recital by Dr. Staf Gebruers, relayed from St. Column's Cathedral, Cobb. 9.0, Concert by St. Joseph's Brass and Reed Band and Frank Calaged (Gom London. 8.48, Carillon Recital by Dr. Staf Gebruers, relayed from St. Column's Cathedral, Cobb. 9.0, Concert by St. Joseph's Brass and Reed Band and Frank Calaged (Gom London. 8.48, Carillon Recital by Dr. Staf Gebruers, relayed from St. Column's Cathedral,

BARCELONA

BARCELONA

EAJ1, 860 kc.s, 349.6 metres; 8 kW.—11.0 a.m., Chimes from the Cathedral and Weather, 1.0 p.m., Gramophone Records. In the interval at 1.30, Theatre Review, 2.0, Sextet Concert, 3.0, Programme for Hospitals and other Benevolent Institutions, with Gramophone Records, 4.0, Interval, 5.30, Agricultural Talk, followed by Gramophone Records, 6.0, Part Relay of an Opera from the Gran Teatro del Lieco, 9.0, Gramophone Music. 10.45, Chess Lesson, 11.0 (approx.), Close Down.

BARI

1,112 kc s, 269.8 metres; 20 kW.—9.0 to 9.45 a.m., See Roma. 9.45, Agricultural Talk. 10.10 to 11.0, See Turin. 11.30, See Rome. 11.45 to 1.15 p.m., See Turin. 3.0 till Close Down, Rome

BASLE.-See Schweizerischer Landessender.

BERLIN

BERLIN

DEUTSCHLANDSENDER REICHSSENDER,
183.5 kc s, 1,635 metres; 60 kW.—9.0 a.m.,
Ceremony for the Installation of the Reichsbischof in Berlin Cathedral, A Cantata
(Bach); Congregational Singing; Address
by Hindenburg; Sermon by the Reichsbischof; A Cantata (Bach), 10.0 a.m.,
Talk on Art. 10.15, Weather, 10.30, See
Leipzig, 11.0, Orehestral Concert, conducted
by Gustav Havenann, relayed from the
Wintergarten. Soloist: Walther Ludwig
(Tenor), and Erna Berger (Soprano), 11.40,
Helmut Wegener reads from his own Works,
11.55, Time Signal, 12 Noon, Concert (contd.),
1.0 p.m., Reading: A Soldier's Reminiscences,
1.15, Programme for Children. 2.0, Christ-

DECEMBER THE THIRD

mas Songs and Music. 3.0, Gramophone Records of Famons Choirs.

4.15, Report of the Second Half of the International Football Match: Germany v. Poland, relayed from the Poststadion. 5.0, Karl Röttger reads from his own Works. 5.20, Relay of the Ceremony for the Installation of the Reichsbischof in Berlin Cathedral (on Gramophone Records). A cantata (Bach): Congregational Singing: Sermon by the Reichsbischof; A Cantata (Bach). 6.20, Welddings—Two Sketches (on Gramophone Records). 6.50, Sports Notes. 7.0, Orchestral Conpert, conducted by Hans Hörner. Soloist: Luise Gmeiner (Pianoforte). 8.20, Waldfrieden—Comedy (Ludwig Thoma). 9.0, News. 9.45, Weather. 10.0, See Stuttgart. 11.0 (approx.), Close Down.

BERLIN

BERLIN

FUNKSTUNDE, 716 kc/s, 419 metres; 1.5 kW. Relayed by Zeesen, DJC, DJA, DJD, DJB and DJE.—10.30 a.m., See Leipzig. 11.0, See Heiisberg. 1.0 p.m., Programme for Children. 1.15, Reise ins Schlaraffenland (Travels in the Land of Cockaigne)—Play (Glinther Eich). 2.0, See Berlin (Deutschlandsender). 3.0, Concert by the Berlin Station Orchestra, conducted by Helmar Kähler. 5.0, An Advent Programme. 5.30, Concert of Chamber Music by the Mahlke String Trio. 6.30, Report from the Manicipal Opera House of Haus Pitzner conducting the Rehearsal of his Opera, The Christmas Fairy (on Gramophone Records). 6.50, Sports Notes. 7.0, Annonucement. 7.5, Concert from Hamburg. In the interval from 8.0 to 8.10, Topical Talk. 9.0, News. 9.30, Concert from Hamburg. 11.0 (approx.). Close Down.

BERNE.-See Schweizerischer Landessender. BEROMUNSTER. - See Schweizerischer Landessender.

BODEN.-See Stockholm. BODO.-Ser Oslo.

BRATISLAVA

BRAIISLAVA
1,076 kc/s, 279 metres; 11 kW.—11.15 a.m.,
Concert by the State Police Band, conducted by Obruca. 12.30 p.m., Agricultural
Talk. 12.45, Hydrographic Report. 12.50,
Interval. 3.0, See Moravská-Ostrava. 4.30,
Recitations. 4.50, Concert by the Station
Orchestra, conducted by Dyk; Sobist; Lisa
Fuchsova (Fianoforte). 6.0, See Prague.
7.15, See Brno. 8.0, See Moravská-Ostrava.
9.0, See Prague. 10.0 (approx.), Close
Down.

BREMEN.-See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—10.30 a.m., 8cc Leipzig. 11.0 to 1.0 p.m., 8cc Munich.
1.0 p.m., News. 1.10, Gramophone Music.
2.0, 8cc Berlin (Deutschlandsender). 3.0, 8cc Leipzig. 4.40, Talk: Frederick the Great and the Peasants. 4.55, Talk on the Education of Women. 5.15, Concert by the Bruinier Quartet: Quartet in D (Mozart): Quartet in C minor, 0p. 18, No. 4 (Becthoven). 6.5, Radio Report of the International Football Match, Germany v. Poland, relayed from the Poststadion, Berlin (on Gramophone Records). 6.50, Weather and Announcements. 7.0, 8cc Munich. 9.0, 8cc Leipzig. 920, Time and Local News. 9.35, 8cc Leipzig. 12 Midnight, Close Down.

BRNO

BRNO

878 kc/s, 342 metres; 35 kW.—10.0 a.m., Concert by the Station Orchestra, conducted by Janota; Soloist: Rudolf Walter (Recitation). 11.0, See Prague. 11.15, See Bratislava. 12.30 p.m., Talk: Bee-Keeping. 12.45, Interval. 3.0, See Moravská-Ostrava. 4.30, Talk: Christmas Books. 4.40, Gramophone Music. 5.0, German Transmission. Concert by the Station Orchestra, conducted by Bakala; Soloists: Alex (Viola). 6.0, See Prague. 7.15, Saint Nicholas' Day—Programme of Songs and Bances. 8.0, See Moravská-Ostrava. 9.0, See Prague. 10.0 (approx.), Close Down.

BRUSSELS (No. 1)

BRUSSELS (No. 1)

1.N.R., 589 kc/s, 509.2 metres; 15 kW.—9.45 a.m., Gardening Notes. 10.0, Concert by the Small Station Orchestra, conducted by Leemans. 11.0, Gramophone Concert of Classical Music. 12 Noon, Orchestra; Concert, conducted by André Felleman, relayed from the Grand Hotel. 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Radio Orchestra, conducted by André. Soloist: Mme. Morissen (Songs); Prehude (Rachmaninov); Polka, Adam and Eve (Reynaud); Air from Sadko (Rimsky-Korsakov) 1.30, Un beau rôle—Sketch (Jean Dess). 1.40, Orchestral Concert (contd.). 5.0, Concert by the Radio Orchestra, conducted by Franz André. 5.30 capprox.). Football Results. 6.0, Trio. No. 1 in B Flat, Op. 99 (Schubert), on Gramophone Records. 6.30, Programme for Children. 7.0, Gramophone Music. 7.15, Religious Address. 7.30, Medical Talk. 8.0, Thats—Opera in Three Acts (Massenet), relayed from the Opera House, Liège. In the intervals, Recitations, Le Journal Parlé and Gramophone Records.

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.I.R., 888 kc/s, 337.8 metres; 15 kW.—Programme in Flemish.—10.0 a.m., Gramophone Music. 11.0, Concert by the Small Station Orchestra, conducted by Leemans. Soloist: Wigy (Violin). 12 Noon, Concert by the Station Orchestra, conducted by André. Soloist: Mine. Morissen (Songs), and Bethine (Violin). 1.0 p.m., Le Journal Parlé. 1.10, Orchestral Concert, conducted by Felleman, relayed from the Grand Hotel, Autories of Soloist: Mine. Music, relayed from the Plaza. In the interval at 5.30, Sports Notes. 6.0, Contes et ballades (Bénoit), played by Jef van Hoof (Pianaforte). 6.15, Granophone Music, 6.30, Concert by the Small Station Orchestra, conducted by Leemans, 7.15, Religious Address, 7.30, Le Journal Parlé. 7.55, Music Notes. 8.0, Concert by the Symphony Orchestra, conducted by Menlemans. Soloist: Durlet (Pianoforte). In the interval at 8.45, A Humorous Story. 10.0, Le Journal Parlé. 10.10, Dance Music by Robert de Kers and his Cabaret Kings.

BUDAPEST

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW.—Also relayed on 840 metres from 6.45 p.m. till close Down. 11.20 a.m., Weather and Tiles Report. 11.25, Concert by the Budapest Concert Orchestra, conducted by Ferdinand Meszlenyi. 1.0 p.m., Lottery Results, 1.15, Gramophone Music. 2.0, Agricultural Tatk. 2.45, Concert by the Stefan Bertha Chamber Orchestra. 3.30, Folk Song Recital. 4.30, Programme, relayed from the Academy of Music. 6.30, Sports Notes and Racing Results: 6.45, Reading. 7.15, Concert of Hun-

garian Folk Songs and Cigány Music. 8.50, News. 9.0, Pannoforte Recital by Margarete Laszloffy. 9.40, Chamber Music and Jazz Music, relayed from the Café Bodo.

CASSEL.-See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc 's, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc 's, 1,153 8 metres; and Skamleback, OXY, 9,520 kc s, 31.51 metres.—11.0 a.m., Time and Chimes from the Town Hall. 11.5, Concert by Louis Preil's Instrumental Ensemble. 12 Noon, Talk in English: The Grand Tour of Scotland. 12.20 p.m., Talk in German. 12.40, Talk in French. 1.0, Divino Service, relayed from the Holmens-Kirke. 2.25, Gramophone Music. 3.0 to 5.0, Concert, relayed from the Town Hall. 5.50, Weather and Announcements. 6.0, News and Sports Results. 6.15, Time Signal. 6.30, Talk. 7.0, Chimes from the Town Hall. 7.5, The Hausen Family—Sketch (Locher). 7.15, Concert by the Station Orchestra, conducted by Gröndaht. Soloists: Dietzmann ('C'ello), Andersen (Pianoforte), and Munck (Ohoe). 8.10, Talk and Song Recital by Per Knulsen. 9.0, News. 9.10, Operetta Music by the Station Orchestra, conducted by Gröndaht. 10.0, Dance Music, relayed from the Palace Hotel. In the interval at 11.0, Time and Chianes from the Town Hall. 11.30 (approx.), Close Down.

CORK .- See Athlone. DANZIG .- See Heilsberg. DRESDEN .- See Leipzig.

FECAMP

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—8.45 a.m. to 12 Noon, Programme in English by the I.B.C. 8.45, Orchestral Concert: The Piccanimies' Pienic (Squire); La Serenata (Braga); Gold and Silver (Lehâr); Gavotte, Stephanie (Uzibulka); Pianoforte Solo: Rustle of Spring (Sinding); Intermezzo from Cavalleria rusticana (Masagni); Moonlight on the Alster (Fétras); Her First Dance (Heyken); Violin Solo: Spanish Dance (Falla); Barcarolle from The Tales of Hoffmann (Offenbach); Air de Ballet (Herbert); Artist's Life (Strauss). 9.30, Military Band Concert: Tipperary (Williams); Ribbon Dance; March, Stars and Stripes (Sonsa); Valse triste (Sibelius); Ca c'est Paris (Padila); Selection from The Belle of New York (Kerker); The Policeman's Holiday (Ewing). 10.0, Dance Music: Signature Thne; Bells of Normandy; Dear Stranger (Hausen); Si, Si (Remy); A Couple of Pals (Gilbert); Selection from Dinner at Eight (Fields); Won't you stay to Tea? (Revel); Lover (Rodgers); Sing another Line (Carson); Isn't this a Night for Love (Burton); Everyone loves my Margnerite (Woods); Moths around the Candle Flame (Randab); The Last Round Up (Hill); Solitario (Burli); Live, Laugh and Love (Leigh); It was a Night in June (Gordon); Pink Elephants (Woods); Dance Pretty Lady (Strauss); Signature Time; 11.0, Happy Hour. Part 1—Orchestral Concert: Signature Time; Overture, Figaro (Mozari); Selection from Tamhäuser (Wagner); Violin Solo: Air on the G String (Bach); Morning from Peer Gynt Suite (Grieg); Slav Dance No. 10 (Ovorák); Round my Heart (Oh, what a Life; Yon've got me Baby. Part II—Orga Recital: Potted Overtures (Engleman); Selection from Les Millions d'Arlequin (Drigo); Chant sans paroles (Tchalwoysky); Berceuse de Jocelyn (Godard); Schön Rosmarin (Kreisler); The Swirl of the Kilt (Ewing); Signature Time. 12 Noon, French Programme, 2.0 to 7.30 p.m., Programme in English by the I.B.C. 2.0, Broadcast of Dance Music: Gridiron Club March (Sousa); She's a new kind of Old-fashioned Girl (Rose); Waltz, Destiny (Baynes); Tony's Wife (Adamson); Selec

Wireless

DEC. 3rd

SUNDAY

continued

Musette (Alexander); C'est l'amour (Pierre); Accordion Joe (Wimbrow); The Best of the Eunch (Alexander). 2.0, I.B.C. Good-night Melody and Close Down.

FLENSBURG.-See Hamburg

FLORENCE.—See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel and Trier, 1,157 kc/s, 259.3 metres.—10.30 a.m., See Leipzig, 11.0, See Langenberg, 12 Noon, See Stuttgart, 12.15 p.m., Gramophone Concert of Light Music. 1.25, Dialogue: The Work of the Peasant in Winter. 1.35, Talk on Advent. 2.0, See Berlin (Deutschlandsender). 3.0, Concert by the Station Orchestra, conducted by Hans Rosband. Soloist: Josef Peischer (Violin). Part 1: Fugue for String Orchestra (Ermatinger); Concerto in D for Violin and Orchestra (Mozart); Symphony in D. Op. 36, No. 2 (Beethoven). Part 11: Johann Strauss Music. Overture, Prince Methuselah; Waltz, Schwungräder; Polka, Liebes-Postillon; Indigo-Marsch; Waltz, Morgenblätter; Polka-Mazurka, Der Klügere gibt nach; Prelude to the Third Act of Jabuka; Spanish March. 5.0, See Stuttgart. 5.30, Programme arranged by Paul Laven. 6.9, Variety Programme. 6.30, Reading (Arnold Littmann). 6.45, Talk: A German Student travels to Eastern Asia as a Steward. 7.0 to 9.0, See Stuttgart. 9.30, Local News, Weather and Sports Notes. 9.45 till Close Down, See Stuttgart. 1.0 a.m. (Monday), Close Down.

FREDRIKSSTAD.-See Oslo. FREIBURG .-- See Stuttgart.

GENEVA .- See Radio-Suisse Romande.

GENOA .- See Turin.

GLEIWITZ .- See Breslau.

GOTEBORG .-- See Stockholm.

GRAZ.-See Vienna.

HAMAR.-See Oslo.

Some of these Days (Brooks); The Butterfly (Bendix); Song, My Romance (Young); Oh wasn't that a Wide. Wide Ribber; The Coon among the Chickens (dives); Xylopine, Solo: (dipt); And A. M. Mariel Trip. Solo: (dipt); Bland (direct); Miland (the Clera); Once on the Rhine (Ostermann); The Blue Danube (Joh. Strauss); Oh. Zuyder Zee; Norwegian Dance No. 2 (Grieg); March of the Russian Hussars. 3.30, Concert of Gramophone Records: La Paloma (Yradier); The Fairy Garden (Ravel); The Girl next Door (Everett); Balloons (Magine); You die everything for the Comnelly); You die everything for the Comnelly); You die everything for the Comnelly. You die everything for the Connelly. You die everything for t

HAMBURG

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg and Hanover, 1,319 kc/s, 227.4 metres; and Kiel, 1,292 kc/s, 232.2 metres.—11.0 a.m., See Heilsberg. In the interval at 11.55, Time and Weather. 1.0 p.m., Programme by the Hitler Jugend. 2.0, Concert of Music for Strings. 2.40, Reading of Unpublished Poems. 3.0, See Berlin (Funkstunde). 5.0 (from Kiel), Opening Ceremony for the Flensburg Heinrich Schütz Year in St. Nicholas Church, Flensburg. Choral, Orchestra and Soloist Concert. 6.0, Concert of Popular Music by a Mandoline Orchestra, Conducted by Richter, 7.0, Concert of Light Music by the Philharmonic Orchestra, conducted by Richter, relayed from the Musikhalle. Soloist: Erna Kroll-Lange (Soprano). First General News in the interval. 9.0, Light Music by the Small Station Orchestra, conducted by Gerhard Maasz. Part I.—Concert. Part II—Dance Music. 11.0 (approx.), Close Down.

HANOVER .- See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—10.15 a.m., Introductory Talk to the following Transmission. 11.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken. In the interval at 11.55, Sports Notes. 1.0 p.m., Talk on Chess, followed by Chess Lesson. 1.35, Programme for Young People. 2.0, See Berlin (Deutschlandsender). 3.0, See Berlin (Funkstunde). 4.15, See Berlin (Deutschlandsender). 5.0, Concert of Chamber Music for Advent. 6.0 (from Danzig), Talk: The Sphinx of Eastern Asia. 6.25, Concert by the Dresden String Quartet. 7.25, Sports Notes. 7.30, Concert by the Königsberg Opera House Orchestra, conducted by Wolfgang Brückner. 9.0, News. 9.30, Concert from Hamburg. 11.0 (approx.), Close Down.

HILVERSUM

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW. up to 5.40 p.m., and 20 kW. from 5.40 p.m.—8.40 to 11.40 a.m., Programme of the Workers' Radio Society (V.A.R.A.). 8.40, Announcements and Football Notes. 8.43, Horticultural Talk. 9.10, Orchestral Concert. In the intervals at 9.50, Recitation, and at 10.40, Gramophone Records. 11.40 to 4.40 p.m., Programme of the General Broadcasting Society (A.V.R.O.). 11.40, Concert by the Station Orchestra, conducted by Nico Treep. 1.40, Weskly Book Talk. 2.10, Concert relayed from the Concertgebouw, Amsterdam. The Concertgebouw Orchestra, conducted by Eduard van Beinum. Soloist: Vladimir Horowitz (Pianoforte). 3.40, Gramophone Records. 4.25, Football Results. 4.40 to 5.40 V.A.R.A. Programme. Concert by a Children's Choir. In the interval at 4.55, Programme for Children. 5.40 to 7.40, Programme of the Liberal Protestant Radio Society (V.P.R.O.). 5.40, Book Review. 6.25, Divine Service relayed from a Church in

Beverwijk. 7.40 till Close Down, A.V.R.O. Programme. 7.40, Time and News. 7.55, Concert by the Station Orchestra, conducted by Nico Treep. Soloists: Helene Cals (Soprano) and Jas v. d. Woude (Violin). 8.40, Talk by Mr. Vogt. 8.50, Gramophone Records. 9.25, Popular Music by Kovaes Lajos and bis Orehestra. 10.10, Gramophone Records. 10.25, Popular Music by Kovaes Lajos and his Orehestra. 11.10, Gramophone Records. 11.40 (approx.), Close Down.

HORBY.-Sec Stockholm

HUIZEN

HUIZEN

1,875 metres; 7 kW. until 3.40 p.m.
Transmitted from Kootwijk on 50 kW. from
3.40 p.m.—9.10 to 11.55 a.m., Programme
of the Christian Radio Society (N.C.R.V.).
9.10, Organ Recital by Leenders: Prelude
(Brosig). 9.35, Divine Service relayed from
the Oranjekerk, Etrecht., After the Service,
Gramophone Concert of Sacred Music.
11.55, Concert by the K.R.O. Boys, conducted by Lustenhouser 12.40 p.m., Educational Talk. 1.0, Concert (contd.). 1.50,
Literary Talk. 2.10, String Quartet in D
(Mozart). by the Waleson Quartet No.
2 (Kodaly). 3.40, Programme for Invalids.
4.40 to 7.25, N.C.R.V. Programme. 4.40,
Sacred Song Recital by Mime. de WolfWuite (Contralto) and Vellinga (Tenor).
5.30, Divine Service relayed from the
Raphaëlkerk, Amsterdam. After the Service, Gramophone Music. 7.25 till Closs
Down, K.R.O. Programme. 7.25, Football
Results. 7.30, Talk. 7.55, Variety Programme by the K.R.O. Orchestra and
Soloists. In the interval at 10.0 (approx.),
News. 10.20, Choral Epilogue. 10.40
(approx.), Close Down.
INNSBRUCK.—See Vienna.

INNSBRUCK .- See Vienna.

JUAN LES PINS

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—8.0 p.m., sports Notes and Amusement Guide. 8.15, Radio Concert. In an interval at 9.0, News. 10.0, Request Half-hour. 10.20 till 1.0 a.m. (Monday), Programme in English by the I.B.C. 10.30, Light Orchestral Concert: Melodious Memories (Finck); The Grasshopper's Dance (Bucalossi); Song: The Temple Bells (Woodforde-Finden); Roses from the Sonth (Strauss); Lazy Pete (Kernsten); Vienna, City of My Dreams (Sieczynsky-Lockton); Serenade (Heykens). 11.0 p.m., Instrumental Concerto; The Blue Danube (Strauss); Pianoforte Solo: Selection from The Cat and the Fiddle (Kern); Accordion Band: Accordion Nights; Violin Solo: Sonvenir (Drdla); Organ Solo: Caprice Viennois (Kreisler); Xylophone Solo: The Skaters' Waltz (Waldteufel); Hawaiian Guitars: Dream Girl of Yesterday; Turkey in the Straw (Guion). 11.30, Concert of Gramophone Records; Military Band: Marche Militaire (Schubert); Song: Rochdale Hounds (Cliffe): Liebe straum (Liszt); Organ Solo: My Wishing Song (Burke); Song: With a Song (Valerie May); John Henry's Night Out (Henry); Jollification (Reeves). 12 Midnight, Bance Music: What a Perfect Combination; Butterflies in the Rain! Look What You've Done! Street of Dreams; My Heart's to Let; I can't remember; Moon Song; Maybe I Love You too much; Waltzing in a Dream; Isn't it Romantic?; It's within your Power; In the Valley of the Moon; Love will find a Way; Harlenn Fuss: When You've Fallen in Love; Dip Your Brush in the Sunshine. 1.0 a.m. (Monday), I.B.C. Goodnight Melody, and Close Down.

KALUNDBORG.—See Copenhagen.

KALUNDBORG.-See Copenhagen. KIEL.-See Hamburg.

KLAGENFURT.—See Vienna. KOSICE .- See Prague.

LANGENBERG

LANGENBERG

645 kc/s, 473 metres; 60 kW.—11.0 a.m., Chamber Music. Hildegard Sprotte (Soprano), Walter Schneiderhan (Violin), August Schreiber ('Cello), and Egbert Grape (Pianoforte); Pianoforte Trio, Op. 11 (Beethoven); Soprano Solos (Richard Strauss); (a) Du meines Herzens Krönelein, (b) Seitdem mein Aug' in deines schaute; Pianoforte Solos: (a) Pastorale (Scarlatti), (b) Caprice (Scarlatti), (c) Glocken (Grieg); Two Songs (Richard Strauss): (a) Winterweihe, (b) Heinikehr; Sonata in A for Violin and Pianoforte (Handel); Pianoforte Solos: (a) Poissons d'or (Debussy), (b) Waltz from Faust (Gounod-Liszt). 12 Noon, See Stuttger and Willy Schneider (Bass), and Willi Jansen (Bandonion). 1.45, Talk for Parents and Children. 2.0, See Berlin (Deutschlandsender). 3.0, Sre Frankfurt. 5.0, See Stuttgert. 5.30, Talk: December in the Garden, the Animal World, the Countryside and the Heavens. 6.0, Ilumorous Programme with Musical Interludes. 6.45, Sports Notes. 7.9, Concert by the Station Orchestra, conducted by Buschkötter. Soloist: Hermann

Kreisel (Saxaphone), 7.30, Variety Programme. 8.20, Concert by the Station Orchestra, conducted by Buschkötter, and the Station Choir, conducted by Brener. Soloist: Hans Haass (Pianoforte); Overture, L'amore medico (Wolf-Ferrari); Selection from The Flying Dutchmann (Wagner); Procession of the Women to the Minster from Lohengrin (Wagner); Romantic Scenes (Granados); Suite, Autumn (Glazunov). 9.0, See Frankturt. 9.20, See Stuttgart. 9.30, News. 9.45 till Close Down, See Stuttgart. 1.0 a.m (Monday), Close Down.

LAUSANNE.-See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

170 kg/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kg/s, 319 metres.—10.30 a.m., Nun komm, der Heiden Heiland—Cantata (Bach), by the Municipal and Gewandhaus Orehestra, the Choir of St. Thomas' and Soloists, 11.0 to 1.0 p.m., See Munich. 1.0 p.m., Weather and Time. 1.5, Programme for Children. 1.30, Programme Announcements. 2.0, See Berlin (Dautschlandsender). 3.0 (from Dresden), Concert. 4.15, See Berlin (Deutschlandsender). 5.0, Talk: Encounters with Animals. 5.30, Community Singing of Christmas Carols, relayed from Weissenfels. 6.0, Advent in the Exgebirge—Programme of Zither Music, with Songs to the Lute, and Reading of Short Stories, relayed from Scheibenberg. 7.0, See Munich. 9.0, News. 9.20, Radio Report of the Berlin-Leipzig Swimming Contest. 9.35 (from Dresden), Dance Music. 12 Midnight (approx.), Close Down.

LINZ.—See Vienna.

LINZ.-See Vienna.

LUXEMBOURG

LUXEMBOURG

252 ko/s, 1,191 metres; 200 kW.—12 Noon, Concert by the Radio Orchestra, conducted by Henri Pensis. 1.0 p.m., Gramophone Concert. 1.30, English Dance Music. 7.0 till Close Down, English Evening. 7.0, Symphony No. 5 in E Minor—from the New World (Dvorak), by the Royal Albert Hall Orchestra, conducted by Sir Lundon Ronald (on Gramophone Records). 7.45, Concert by the Station Orchestra, conducted by Henri Pensis: Soloist: Hector Clockers; Carnival Overture (Glazunov); La Folia (Corelli); Prélude et Danse (De Sutter); Polovtsians Dances (Borodin); Havanaise (Saint-Saëns). 8.50, News in French. 9.0, Concert of English Music by the Station Orchestra, conducted by Henri Pensis: Four Indian Love Lyries (Woodforde-Finden); Cherry ripe (Scott); Penguin's Piculic (Beechfield-Carver); Frills and Frivolities (Bath). 9.30, English Music on Gramophone Records. 9.45, News in German. 9.55, Gramophone Concert: Selection from Aida (Verdi-Tavan); Selection from Martha (Flotow); Selection from La Bohème (Puccini). 10.20, Dance Music on Gramophone Records.

MADRID

MADRID

ARANJUEZ EAQ, 10,000 kc/s, 30 metres; 20 kW.— 10.30 p.m., Programme relayed from Madrid (EAJ7), followed by Radio Chronicle and Medical Talk. 12 Midnight to 1.0 a.m. (Monday), Programme arranged by the International Broadcasting Company (Ireland). Ltd. Signature Tune: Come back to Erin. Dinner at Eight (Fields); Tick, Tock (Vienna); Solitario Tango (Burli); I bring a Song (Young); Isn't this a Night for Love? (Burton); My Kingdom for a Smile from you (King); Blue Cloud (Hargreaves); Mademoiselle (Nesbitt); Signature Tune: Come back to Erin. 12.30 a.m. (Monday), Orchestral Concert. Hungarian Medley (arr. Leggatt); Minuet (Boccherini); The Cuckoo Waltz (Jonasson); Moment musical (Schubert); Hungarian Dance No, 6 (Brahms); Gavotte from Mignon (Thomas); Snacks in Bars (Egerer); The Clock is Playing (Pierre). 1.0, 1.B.C. Good-night Melody and Close Down.

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—8.0 to 9.0 a.m., Topical Review. 11.30, Concert by the Municipal Band, relayed from the Retiro. 2.0, Chimes, Time, Theatre Notes and Popular Music. 4.0 to 7.0, Interval. 7.0, Chimes, Announcements and Dance Music. 8.30 to 9.30, Interval. 9.30, Chimes and Time. 9.35 (approx.). Cabaret Programme. After the Programme, Pianoforte and Baritone Song Recital in connection with the Music Competition. 12 Midnight, Chimes. 1.0 a.m. (Monday) till Close Down, Programme in English by the I.B.C. 1.0, I.B.C. Concert of Military Music: Medley of British Songs; El Abanico (Javaloyes); The Thunderer (Sousa); Song: The Sweepers (Elgar); Distant Greeting (Loring); Light of Foot (Latann); Music from Coward's Cavalcade. 1.30, I.B.C. Concert of Light Music: Selection from The Land of Smiles (Lehár); Sweet Dreams, Pretty Lady (Downey); Waltz, Morella (Charlier); Sundown in a Little Green Hollow (Whiting); Roll up the Carpet (Hoffmann); Waltz, Si petite (Gaston); Down in the Valley (Harrington); It's Sunday down in Caroline (Symes). 2.0, I.B.C. Goodnight Melody and Close Down.

MALMO.—See Stockholm.

MALMO.-See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—3.0 p.m. Concert by the Station Orchestra, conducted by Plichta. 4.30, See Prague. 7.15, See

DEC. 3rd

SUNDAY

continued

Brno. 8.0, Concert of Popular Music by the Station Orchestra, conducted by Plichta. 9.0 till Close Down. See Prague. 10.0 (approx.), Close Down.

MOTALA.-See Stockholm. MUHLACKER.—See Stuttgart.

MUNICH

MUNICH

563 kc/s, 533 metres; 1.5 kW. Relayed by Augsberg and Kaiserslautern, 536 kc/s, 550 metres; and Nürnberg, 1,256 kc s, 239 metres; and Nürnberg, 1,256 kc s, 239 metres. 10.15 to 11.0, See Leipzig. 11.0, Concert from the Feldherrnhalle. 12 Noon, Concert by the Small station Orchestra, conducted by Erich Kloss. 1.0 p.m., Time, Weather and Programme Announcements. 1.10, Chess Lesson. 1.40, Gramophone Music. 2.0, See Berlin (Deutschlandsender). 3.0, See Leipzig. 4.15, See Berlin (Deutschlandsender). 5.0, Sancta Barbara, Scenes from the History of the Artillery (arr. Alfons von Czibulka). 5.40, Part Relay of the Opening Ceremony for the Flensburg Heinrich Schütz Year, from Hamburg. 6.5, Das goldene Augsburg (arr. Franz Weichenmayr). 6.55, Weather and Sports Notes. 7.0, Concert by the Station Orchestra conducted by Hans Winter: Soloists, Irnigaard Proehl (Soprano). Heinrich Knote (Tenor) and Stuhlfauth (Violin); Overture, Die Abreise (d'Albert); Selection from The Valkyrie (Wagner); German Dances (Schubert); Aria from The Magic Flute (Mozart); Allegretto scherzando and Tempi di menuetto from The Eighth Symphony (Beethoven); Hungarian Melodies, for Violin anl Orchestra. (Ernst); Movement from the Faust Symphony (Liszt). Aria from The Merry Wives of Windsor (Nicolai); The Nutcracker Suite (Tchaikovsky); Two Songs: (a) Legend of the Grail from Lohengrin (Wagner), (b) Aria from The Mastersingers (Wagner); Overture, Der Freischütz (Weber). 9.0, See Leipzig. 9.20, News and Sports Notes. 9.35, See Leipzig. 12 Midnight, Close Down. NAPLES.—See Rome.

NAPLES .- See Rome.

NOTODDEN.-See Oslo

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; and Riukan, 671 kc/s, 447.1 metres; and Riukan, 671 kc/s, 447.1 metres; and Jeloine, 6,990 kc/s, 42.92 metres.—
9.15 a.m., News and Weather. 9.20, Gramophone Concert. 9.50, Chimes and Divine Service from the Garrison Church. 4.0 p.m., Light Music on Gramophone Records. 5.0, Tarjei Vesas reads from his own Works. 5.30, Talk: Country Fêtes. 5.50, Sacred Song Recital by Madame Cally Monrad. 6.15, Weather and News. 6.30, Talk: Hans Nielsen Hauge. 7.0, Time. 7.1, Concert by the Station Orchestra, conducted by Hugo Kramm. Overture, Nachtklänge aus Ossian (Gade); The London Symphony, No. 2 (Haydn); Norwegian Suite (Ulfrstad); Nocturne in E Flat (Chopin); Suite from A Midsumner Night's Dream (Mendelssohn). 8.40, Weather. News and Topical Talk. 9.15, Variety Programme, relayed from Bergen, 224 kc/s, 364 metres. 10.0, Dance Music (on Gramophone Records). 11.0 (approx.), Close Down.

OSTERSUND.-See Stockholm.

PALERMO

PALERMO

556 kc/s, 539.5 metres; 3 kW.—9.25 a.m.,
Bible Reading. 9.40, Sacred Music. 10.5,
Agricultural Talk. 11.45, Giornale Radio.
12 Noon to 1.0 p.m., Light Music. In the interval at 12.30, Time, Announcements and Weather. 4.30 to 5.30, Gramophone Music.
7.0, Dopolavoro Announcements and Giornale Radio. 7.20, Gramophone Music. In the interval at 7.25, Sports Notes. and at 7.30, Time and Announcements. 7.45, Concert of Opera Music. In the interval, Reading (Pascoli). 10.0, Giornale Radio.

PARIS

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on. 2,650 metres) at 9.26 a.m. and 10.26 p.m., (Preliminary and 6-dot Signals).—12.30 p.m., (Concert by the Jean Ibos Orchestra. In an interval at 1.0, News and Press Review. 5.45, Le Journal Parlé. 7.15, Weather and News. 7.30, Gramophone Concert: Part I—Extracts from Cavalleria Rusticana—Opera (Mascagni). Part II—Variety Music. In an interval at 8.0, News. 9.0 (approx.), Close Down.

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—10.0 a.m., Gramophone Music. 10.5, Sponsored Talk. 10.10, Press Review. 10.30, Gramophone Music. 10.45, Sponsored Gramophone Concert of Duets from Operettas. 11.0, Sponsored Gramophone Concert. 11.30, Gramophone Music. 12.15 p.m., Sponsored Concert of Music from Sound Films. 12.45, Sponsored Programme. 12.50, Half-an-Hour of Fantasy by Paul Weil. 1.20, Interval. 1.30, Sponsored Gramophone Concert. 2.0, Interval. 7.0, Le Journal Parié. 7.5, Ex-

tracts from Encore 50 Centimes—Operctta (Yvain-Christiné). 7.20, Sports Notes. 7.30, Catholic Review. 8.0, Fauré Songs (on Granophone Records). 8.10, Programme for the Anniversary of Death. 9.0, Interval. 9.20, Gramophone Concert. 10.30, News.

PARIS

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725
metres; 75 kW.—12 Noon, Religious Address. 12.20 p.m., Sacred Music. 12.30,
Bilboquet as an Oculist. 12.45, Gramophone
Music. 1.0, Concert. 3.0, Concert arranged
by Ex-Servicemen, relayed from the Palais
de la Mutualité. 5.30, Gramophone Music.
6.0, Jazz Music. 8.0, Opera Music. Part I.
Act II of La Juive (Halévy); Part II.
Act III of Robert le diable (Meyerbeer).
In the interval at 8.30, Raeing Results,
Sports Notes, News and Weather aud at
9.15, Press Review and News.

DITTERRIDICAL

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—5.30 to 6.30 p.m., Radio City Concert, from New York. 7.0, Bar-X Ranch, from New York. 7.30, Programme to be announced. 8.0 to 9.30, New York Relay. 8.0, International Tid-bits. 8.30, Variety Programme. 9.0, True Railroad Stories. 9.15, Morin Sisters. 9.30, Vesper Services. 10.30, Grand Hotel, from New York. 11.0, Sweet Rhythm Quartet, from New York. 11.15, Weather and Sports. 11.30, Ernie Holst's Orchestra. 11.45 to 2.45 a.m. (Monday), New York Relay. 11.45, True Engineering Stories. 12 Midnight, Vincent Lopez Orchestra. 12.30, Joe Penner. 1.0, Egon Petri and Orchestra. 2.0, Gulf Headliners. 2.30, Walter Winchell. 2.45, Marvellous Melodies. 3.0, Orchestral Concert, from New York. PORSGRUND.—See Oslo.

PRAGUE

PRAGUE

Chimes. 11.5, News. 11.15, See Bratislava.

12.30 to 12.40 p.m., Announcements. 3.0, See Moravská-Ostrava.

4.30, Reading. 4.45, Gramophone Music. 5.0, German Transmission: Announcements of the Music Programmes of the Czecho-Slovak Stations, followed by Concert of Theodor Veidl's Music by the Station Orchestra, conducted by the Composer. After the Concert. News.

6.0, News. 6.5, Military Band Concert.

7.0, Travel Talk. 7.15, Song Recital by Zuzana Karin. 7.45, Recitations. 8.0, See Moravská-Ostrava. 9.0, Time, News and Sports Notes. 9.20, Variety Programme.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and
Geneva, 400 kc/s, 749.9 metres.—8.55 a.m.,
Chimes. 9.0, Protestant Service, relayed from
Neuchâtel. 10.0 (from Lausanne), Gramophone Concert.
11.40 (from Lausanne), Gramophone Concert
(contd.). 1.0 p.m., Interval. 2.0 (from Lausanne),
Concert by the Small RadioLausanne Orchestra, conducted by Moser.
4.0, Programme by the Philharmonic Society,
relayed from Lugano. 5.15 (from Lausanne),
Concert Version of Lohengrin—Opera in
Three Acts (Wagner), on Gramophone Records. 6.0 (from Lausanne), Catholic Address. 6.30 (from Lausanne), Ports Talk.
7.0 (from Lausanne), Concert by the Pro Arte
Double Quartet, with Readings by Paul
Pasquier. 8.0, Concert by the Radio-Suisse
Romande Orchestra, conducted by Echenard,
Overture, La Princess Jaune (Saint-Saöns);
Norwegian Rhapsody (Svendsen); Piccolino
(Guiraud); Selection from Aida (Verdi); Potpourri, Wiener Spezialitäten (Hruby), 9.0,
News and Weather, 9.15 (approx.), Close
Down.

RJUKAN.-See Osio.

ROME

ROME
Call 1R0; 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453 metres, from 7.45 p.m.; and 2R0, 11,810 kc/s, 25.4 metres.—9.0 a.m., News, Sports Notes, and Amusement Guide. 9.30, Agricultural Report. 9.45, Bible Reading. 10.0, See Turin. 11.0 to 11.30, Interval. 11.30, Gramophone Music. 11.45 to 1.45 p.m., See Turin In the interval at 1.0, Time Signal. 2.0, See Turin. 4.0, Vocal and Instrumental Concert. Football Report in the interval. 5.30 to 5.40 (approx.). Weather. 6.30, Sports Notes, Dopolavoro Report, and News. 7.0, Time and Announcements. 7.5, Soprano Songs. 7.30, Topical Talk. 7.45, Stenterclio—Operetta in Three Acts (Cuscina). In the interval, Reading of Poems. Giornale Radio after the Operetta.

SALZBURG.—See Vienna.

SCHENECTADY

WCY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAB on 15.56 metres.—7.0 to 9.0 p.m. (approx.), New York Relay. 7.0, Gene Arnold and the Commodores. 7.30, Looking Over the Week, by John B. Kennedy, 8.0, Wayne King's Orchestra. 8.30, Musical Pro-

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SUNDAY DEC. 3rd

continued

gramme. 12.45 to 2.45 a.m. (Monday), New York Relay. 12.45, Popular Programme with Wendell Hall. 1.0, Variety Programme. 2.0, Merry-Go-Round. 2.30, American Album of Familiar Music. 3.0, Jack Benny; Frank Black's Orchestra. 3.30, Popular Programme. 3.45, Seth Parker, from New York, followed by Programme Résumé.

SCHWEIZERISCHER

LANDESSENDER

LANDESSENDER
BEROMUNSTER, 653 kc s, 459 metres; 60 kW.; Basle, 1,229 kc s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres, 9.0 a.m. (from Basle), Protestam Service, 9.45 (from Basle), Mozart Concert, relayed from the Conservatoire, 10.50 (from Basle), Reading, 11.20 (from Basle), Gramophone Music, 11.30, Time, Weather and News, 11.40 (from Zorich), Concert by the Radio Orchestra, conducted by Neppach, 12.30 p.m. (from Basle), Agricultural Talk, 1.0 (from Basle), Programme to be announced, 1.30, Interval, 2.0, Sec Torin, 4.0 (from Basle), Theodorés Church, 1.50 (from Basle), Reading in French, 6.0 (from Basle), Time, and Sports Notes, 6.5 (from Zurich), Provincial Programme, relayed from Stebnen, In the interval at 8.0, News, 9.15 (from Zürich), Sports Notes and Close Down.

SOTTENS.-See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257 metres; Motala, 222.5 kc s, 1,348 metres; Ostersund, 402 kc·s, 746.2 metres; and Sundsvall, 554 kc·s, 542 metres;—8.0 a.m., Rural Programme. 8.30, Gramophone Music. 9.10, Talk in Esperanto. 9.30, Talk for Workers, 10.0 (from Göteborg), Divine Service. 11.45, Weather and Iee Report. 12 Noon, Sports Talk relayed from Lahti. 1.30 (from Boden), Orchestral Concert conducted by Pedersen. A Male Voice Choir and Otto Lindgren (Baritone). 2.30, Talk in Winter Sports. 3.0, English Lesson. 3.30, Gramophone Music. 4.5, Concert of Light Music with Introductory Talk, relayed from Karlstad, 1,382 kc, s, 217 metres; Rut Levien and Fritz Lundgren (Songs). In the Interval, Reading. 5.0 (from Sundsvall), Divine Service. 6.30, Reading. 7.0, Concert by the Stockholm Concert Society, 8.45, Weather and News. 9.0 (from Göteborg), After the Fire—Drama (Strindberg). 10.0 (approx.), Close Bown.

STRASBOURG

STRASBOURG

869 kc's, 345 metres; 11.5 kW.—10.30, Concert of Chamber Music. 11.30, Catholic Service. 12 Noon, Variety Music on Gramophone Records. 12.45 p.m., News. 1.0, Time Signal. 1.1, Gramophone Concert of Light Music. 2.0, Agricultural Talk. 2.15, Light Music on Gramophone Records. 3.0, Interval. 3.30, Light Music on Gramophone Records. 4.30, Symphony Concert by the Passdebupt Concert Society, relayed from the Théâtre des Champs-Elysées. 6.30, Medical Talk in German. 6.45, Sports Notes. 7.0, Gramophone Music. 7.15, Literary Talk: Jean Richepin. 7.30, Time and News., 7.45, Gramophone Music. 8.0, Press Review in German, Lottery Results, and Announcements. 8.30, Britannieus—Tragedy in Five Acts (Racine). In the interval, Press Review, 10.30, Dance Music, relayed from the Savoy. 12 Midnight, Close Down.

STUTTGART

STUTTGART

MUHLACKER, 832 kc's, 360.5 metres; 1.5 kW. Relayed by Freiburg, 527 kc's, 570 metres, -10.30 a.m., See Leipzig, 11.0, See Langenberg, 12 Noon, Topleal Talk, 12.15 p.m., Gramoglone Concert of Opera Music, 1.15, Agrieutural Talk, 1.30, Winter at the Door—A Sequence on Gramoglone Records, 2.0, See Berlin (Deutschlandsender), 3.0, See Frankfurt, 5.0, Revitad by the Gregorian Choir of Beuron Monastry, 5.30, Variety Programme of Music and Literature, 6.30, Sports Notes, 7.0 to 9.0, See Langenberg, 9.0, Time and News, 9.20, Topleal Talk, 9.30, Local News, Weather and Sports Notes, 9.45, Gramophone Music, 10.0, Concert of Folk Music for Mandoline, Zitter and Accordion, 11.0, Screnade, 1.0 a.m. (Monday), Close Down, SUNDSVALL,—See Stockholm,

TOULOUSE

TOULCUSE

RADIOPHONIE DU MIDI, 779 kc's, 385
metres; s kw.-11.0 a.m., Dance Music.
11.30, Orchestral Concert. 12 Noon, Operetta
Arias. 12.15 p.m., Organ Recital. 12.30,
Catholic Service. 12.45, Light Music. 1.0,
Amusement Guide, Market Prices and Time.
1.5, Opera Music. 1.15, Military Music. 1.30,
Chansennettes. 1.45, Protestant Service.
2.0, Operetta Music. 2.15, Agricultural Report. 2.30, Accordion Solus. 2.45, Light
Music. 3.0, Concert of Waldtenfel Waltzes.
3.30 (approx.), Opera Music. 4.0, Orchestrad
Music: Selection from The Merry Wives of
Windsor (Nicolai); Pourrice fantasque Cha
brier); Extracts from The Fair at Sorochinsk (Monssorgsky). 4.15, Extracts from

Sound Films. 4.30, Music by an Argentine Band. 4.45, Light Music. 5.0, The dansant 5.45, Chansomettes. 6.0, News. 6.15, Operetta Music. 6.30, Recitations. 6.45, Light Orenestral Music. 7.0, Russian Sengs and Balalaika Music. 7.15, News. 7.30, Programme of Music from the Tyrol. 7.45, Military Music. 8.0, Opera Music. 8.15, Music by a Viennese Orchestra. 8.45, Chansomettes. 9.0, Concert Version of Cavalleria rusticana—Opera (Mascagni). 9.45, Light Music. 10.0, Songs. 10.15, News. 10.30, Concert for Listeners in Morocco. 11.0, Accordion Solos. 11.15, Tango Songs. 11.30, Two-step Music. 11.45, Operetta Music. 12 Midnight, News. 12.5 a.m. (Monday), Orchestral Music. 12.30 (approx.), Close Down.

TRIESTE

1,21i kc s, 247.7 metres; 10 kW. 8.40 a.m., Programme from Turin. 8.55, Wass from the Cathedral of San Giusto, 10.0, Religions Address, 10.20, Agricultural Report. 11.0 till Close Down, See Turin, TRONDHEIM.—See Oslo.

TURIN

TURIN

1.096 kc s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc s, 332.2 metres; Genoa, 959 kc s, 501.6 metres.—10.0 to 11.0, Mass, from the Church of the Annunciation, Florence, 11.0 to 11.15, Bible Reading, 11.30, Gramophone Music, 11.45, Gramophone Records, 12 Noon, Time and Annonneements, 12.2 to 1.15 p.m., Concert conducted by Tito Petralia, 2.0 (from Florence), Report on the International Football Match—1taly v, Switzerland, 3.0, Gramophone Music and Sports Notes, 4.0, Concert, conducted by Tito Petralia. In the intervals, Sports Report, 5.6, Sports Review, 5.15 to 5.20, Weather, 6.0, Time, Football Report, and Dopolavoro Announcements. 6.15, Gramophone Music, 6.50, News, Sports Notes and Gramophone Music, 7.30, Topical Talk, 7.40, Talk on the following transmission, 7.45, La giornata di Marcellina—Opera in Three Acts (Attilio Parelli), conducted by the Composer, Talk and Theatre Notes in the intervals. Giornale Radio after the Opera.

VIENNA

Radio after the Opera.

VIENNA

580 kc s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc's, 352.1 metres; Innsbruck, 1,058 kc's, 245.3 metres; Klagenfurt, 662 kc s, 453.1 metres; Linz, 1,220 kc's, 245.9 metres; and Salzburg, 1,373 kc's, 218.5 metres.—11.0 a.m., Concert by the Volksoper Orchestra, conducted by Weirich; Soloists, Erika Rokyta (Soprano), and Fritz Branner (Violin). 1.0 p.m., Interval. 1.35, Time, Programme Announcements, Exchange and News Review of the Week. 1.45, Talk: Indoor Cultivation of Mushrooms. 2.5, Review of New Books of Poetry. 2.30, Concert by the Prix Quartet: String Quartet in A Minor. Op. 41 (Schumann); String Quartet in E Flat Minor. Op. 30 (Tchaikovsky). 3.30, Talk: The Moluccas. 4.0, Concert by the Wiener Symphoniker, conducted by Holzer, 5.10, Relay of the Vienna Fencing Championship from the Konzerthaussaal. 5.30, Franz Baumann reads from his own Works. 6.0, Violin Recital by Francis Arauyi. 6.50, Time, Sports Notes and Programm: Announcements. 7.0, Spanish Nights-Variety Programme, with Introductory Talk. Part I: Pictures and Music; Part II: Night-Watcher's Internezzo-Play (Azana), translated by Mantner. 8.30, News and Exchange. 8.45, Concert by the Wiener Symphoniker, conducted by Holzer. After the Programme, Announcements.

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW. 8.0 a.m., Time Signal and Sacred Music. 8.5, Gymnastics. 8.20, Gramophone Music. 8.35, Radio Journal. 8.40, Gramophone Music. 8.35, Radio Journal. 8.40, Gramophone Music. 8.50, Hints for Housewives. 8.54, Programme Amounteements. 9.5, Divine Service, relayed from Poznan, 897 kc/s, 334.4 metres. 10.45, Sacred Music on Gramophone Records. 10.57, Time Signal and Fanfare from 84. Mary's Church, Cracow. 11.15, Concert of Russian Music by the Warsaw Philharmonic Orchestra, conducted by Mazurkiewicz; Soloist, Anno Mund (Pianoforte). 12 Noon, Talk, 1.0 p.m., Talk, My Impressions of the Poultry-Keepers' Congress at Rome. 1.15, Agricultural Prices. 1.25, Folk Songs by a Young People's Choir, 2.0, Talk, 2.20, Edith Lorand and her Orchestra ton Gramophone Records). 3.0, Programme for Children, relayed from Lwów, 788 kc/s, 381 metres. 3.30, Gramophone Records of Wolff (Violin). 3.45, Reading. 4.15, Programme by a Village Choir, relayed from Lwów, 4.55, Announcements. 5.0, Programme to be announced. 5.40, Song Recital by Czaplicki. 6.0, Programme. Lwów. 4.55, Announcements. 5.0, Review of the Weck's Events for Young People. 6.45, Art Notes. 6.50, Light Music by the Station Orchestra. 7.50, Radio Journal. 8.0, Topical Talk. 8.15, Humorons Programme, relayed from Lwów. 9.15, Sports Notes. 9.25, Dance Music from the Italia Café. In the interval at 10.0, Weather and Police Notes.

ZURICH.-See Schweizerischer Landessender.



DECEMBER THE FOURTH

ATHLONE

ATHLONE

725 kc s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc's, 217 metres; and Cork, 1,337 kc s, 224.4 metres.—1.30 to 2.30 p.m., Time Signal, Weather Report. Stock Report and Gramophone Concert. 6.6, Programme for Children, 6.45, News. 7.0, Gaelie Talk. 7.15, Ponlitry Talk. 7.30, Time Signal. 7.31, Concert by the Station Orchestra. 8.0, Soprano Solos by Mollie Phillips. 8.15, Pianoforte Solos by Mollie Phillips. 8.15, Pianoforte Solos by Mollie Phillips. 8.15, Pianoforte Solos by Marie Muleahy. 8.30, Concert by a Vocal Quartet. 9.0, Talk: The Catholie Heritage in English Literature, by Padraic Gregory. 9.30 to 10.30, Programme by the L.B.C. (Ireland), Ltd. 9.30, Variety Music: Selection from The Glissy Princess (Kälmán); Violin Solo: Fandango (Godowsky); Soug: Little Brown Owl (Sanderson); Waltz, Over the Waves (Rosa.). 9.45, Dance Music: Lazybones; Can't we meet again? If you'll say Ves, Chérie; There's a new Day comin'. 10.0, Concert of Light Music arranged by the International Broadcasting Company (Ireland), Ltd.; Her First Dance (Heykens); Song: Come out Vicuna (O. Straus); Accordion Solo: Petit Jean (Civeller); Raeing Commentary; Waltz, Si Petite (Clarel); Jovial Jasper (Green); Never too old (Allan). Snacks in Bars Company (Freland), Ltd.: Her First Dance (Heykens); Song: Come out Vieuna (O. Straus); Accordion Solo; Petit Jean (Cuvelier); Raeing Commentary; Waltz, Si Petite (Claret); Jovial Jasper (Green); Sover too old (Allan); Shacks in Bars (Egreer), 10.30, LB.C. Goodnight Melody, followed by News and Weather, 10.40, Pipe and Fiddle Recital by P. Brophy and P. J. (CBrien, 11.0 (approx.), Close Down.

BARCELONA

BARCELONA

EAJ1, 860 kc s, 349.6 metres; 8 kW.—6.0 p.m., Trio Concert. 7.0, Request Gramophone Records, 7.20, Sports Notes, 7.30, Exchange and Talk in Catalan. 8.0, Gramophone Music. 8.30, Catalan History Lessons, followed by News. 9.0, Chimes from the Cathedrad, Weather and Exchange. 9.5, Humoron. Review of the Week in Verse. 9.15, Concert of Sardanas, 10.0, Mendelssohn Concert by the Station Orchestra. Soloist: Jarque (Violin. Song: Andante from the Violin Concert: Spring Song; Overture, Fingal's Cave. 10.30, Catalan Radio Gazette. 11.0, Press Review followed by Dance Music from the Casa Libre. 12 Midnight, Close Down.

BARI

1,112 kc's, 269.8 metres; 20 kW.—3.30 p.m., Gremophote Music. 3.55 (approx.) to 7.0, See Rome. 7.0, News in Albanian. 7.15 (approx.), Interval. 7.30, See Rome. 7.45, Concert by the De Vito-Masotti-Ruggero Trio; Trio, Op. 1, No. 3 (Beethoven); Trio, Op., 100 (Schubert). 8.45 till Close Down, See Rome.

BASLE.-See Schweizerischer Landessender.

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHSSENDER); 183.5 ke s. 1,635 metres; 60 kW.—11.5 a.m. (approx.), Grantophone Records of Marches and Damees; Turkish March (Mozart); Persian Damee (Musards); Oriental Damee (Glazumov); Slav Damees Nos. 3 and s. (Dvoráke); Hungarian March (Berlioz); Four Norwegian Damees (Grieg); Hungarian Damee No. 2 (Brahms). 11.55, Time Signal, 12 Noon, Interval, 12.45 p.m., News. 1.0, Gramophone Records of Famous Conductors; Prelinde to Tristan und Isolde (Wagnee), conducted by Furtwangler; Dause macabre (Saint-Saéns), conducted by Erich Kleiber; Suite from L'Arleisheine (Bizet), conducted by Leopold Stokowski; Invitation to the Damee (Weber); Overture, Der Rosensavalier (Richard Strauss), conducted by Richard Strauss; Schetzo from A Midsummer Night's Dream (Mendelssohm), conducted by Toscanini, 2.0, Talk for Women, 2.30, Weather and Exchange, 2.45, Review of Books, 3.0, Topical Talk, 3.10, Concett from Brestau, 4.0, Talk; The Student and the University, 4.25, Song, Violin, and Pianoforte Recital of Contemporary Music, by Tiny Debuser (Songs) and Engen Moris (Violin) (Reinhold Beck and Hans Maria Dombrowski); Variations; Suite for Violin and Pianoforte (Hanns-Klans Langer), with the Composer at the Pianoforte, 5.0, Poens, 5.5, Talk on Sport, 5.15, Radia Report from the Exhibition of German Art in the Old Kunstgewerle Muscom, with Music by the Harlan Trio, 5.45, Weather and Annonneements, 6.0, Transmission for all German Stations, telayed from Leipzig, 7.0, To-day's Motto, 7.5, Talk on Skining, 7.15, Illustrated Talk on my Music Underding, 8.0, Love without Words A Sketch (Gerte Hling), 8.30, Brahms and Hugo Wolf Song Recital by Hans Hermann Nissen; Four Songs (Brahms) (a) Feldein-annkeit, (b) Verrai, (c) Auf dem Kirchhof, (d) Von ewiger Liebe, (e) Verborgenbeit, (d) Verschwiegene Liebe, (e) Verborgenbeit, (d) Der Rattenfinger, 9.0, News, 9.25, Talk; The Racing Calendar, 1933, 9.45, Weather, 10.0, See Munich, 11.0 (approx.), Close Down.

BERLIN

BERLIN

FUNKSTUNDE, 716 kc s, 419 metres; 1.5
kW. Relayed by Zeesen, DJC, DJA, DJD,
DJB and DJE.—12 (Noon), Gramophone
Recents of Emmi Bettendorf (Soprano Solo:
Caro mio ben (Giordano); Baritone Aria
from Don Giovanni (Mozart); Duet from
Don Giovanni (Mozart); Duet from The
Magic Flute (Mozart); Aria from The
Magic Flute (Mozart); Aria from Il Trovatore (Verdi), 12.20 p.m., Musical Pro-

gramme from Hamburg. 1.15, Weather, News and Tides Report, 1.40, Dialogue between a Painter and a Poet, 2.0, Exchange, 2.20, Talk on Music, with Hlustrations, 3.0 to 5.0, See Heilsberg, 5.0, Recital of Songs by Contemporary Composers, by Georg Höllger (Baritone); Four Songs (Hams Renner); (a) Seemorgen, (b) Einsam, (c) Meine Furcht, (d) Es fiel ein Stern herab; Wacht anf (Reuss); Two Songs (Sehmalstich); (a) Liebster auf deinen Locken, (b) Du; Stilles Lied Nos, I and 2 (Richard Trunk); Two Songs (Richard Stranss); (a) Die Nacht, (b) Zueignung, 5.30, Funkstunde informs its Listeners. . . . 5.35, Reading by Count Luckner, 6.0, Transmission for all German Stations relayed from Leipzig, 7.0, Announcements, 7.5, Concert of Music by Contemporary Composers, by the Station Orchestra, conducted by the Composers, Soloist; Fritz Düttbernd (Baritone), Part I, Kurt von Wolfurt; Triple Figne for Orchestra, Op. 16; Songs; (a) Ballade vom Floh, (b) Auf den Tod eines Freundes, (c) Zigennerfied, Part II, Hans Bullerian; Alte Musiken II, Op. 72; Sinfonietta for Chamber Orchestra in One Movement, Op. 36, 8.5, Ghosts, Hob-

ner), 4.30, Talk: German Script. 4.50, Recital on two Pianofortes: Rondo for two Pianofortes, Op. 73 (Chopin); Suite (Rachmaninov), 5.10, Market Prices, followed by Radio Report from a Barracks. 5.50, Programme Announcements. 6.0, Transmission for all German Stations, relayed from Leipzig. 7.0, See Leipzig. 7.10, See Munich. 8.10, See Leipzig. 9.40, Local News. 10.0, See Munich. 11.0 (approx.), Close Down.

BRNO

DRINU

878 kc, s, 342 metres; 35 kW, 5.25 p.m.,
German Transmission: News and Two Talks.
6.0, See Prague. 6.10, See Bratislava. 6.25,
Around the Universe Radio Revue. 7.25,
See Moravská-Ostrava. 8.0, Mass (Jamaeck)
relayed from the Stadium. The National
Theatre Orchestra, a Mixed Choir, and
Soloists. 8.50, See Prague. 9.30 (approx.),
(lose Down. Soloists, 83 Close Down.

BRUSSELS (No. 1)

I.N.R., 589 kc s, 509.2 metros; 15 kW. 12 Noon, Concert by the Radio Orchestra, conducted by Walpot. Soloist: Rubeau (Tenor). Entry March of the Gladiators (Fucik); Waltz, Tont Paris (Waldteufel);

BUDAPEST ON HIGH POWER. British listeners will grow more familiar with the programme features of Radio Budapest now that it is working on 120 kilowatts. Here are the "Gipsy Radics," a popular small string orchestra with czembalo accompaniment.

goblins and Apparitions Programme arranged by Harald Braun. 9.0, News. 9.30, Dance Music from the Zoological Gardens. 11.0 (approx.), Close Down.

BERNE .- See Schweizerischer Landessender. BEROMUNSTER. - See Schweizerischer

BODEN. See Stockholm. BODO.--Sec Oslo.

BRATISLAVA

1,076 kc s, 279 metres; 14 kW.-5.0 p.m., Concert by a String Trio; Trio in D minor, Op. 29 (Volkmar); Seremade, Op. 10 (Dolmanyi), 5.55, Hints for Housewives, 6.0, See Prague, 6.10, Talk: Negotiations between Checho-Slovakia and the Vatican, 6.25, See Brno, 7.25, See Moravska-Ostrava, 8.0, Mammon Play in One Act (Dokoupi), 9.0, See Prague, 9.15 (approx.), Close Down, BREMEN. See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—11.0 a.m., Concert by the Station Orchestra, conducted by Topicz; Overture. Findine (Lortzing); Selection from The Geisha (Lones); Thermenwalzer (Joh. Strauss); Grieg Reminiscences (Urbach); Waltz, Hereinspaziert (Zichrer); Overture. Waldmeister (Joh. Strauss). 12.15 p.m., Programme from Leipzig. 1.20, Piannoforte Recital, 1.40, Programme arranged by the Post Office, with Gramophone Records, 2.0, Shipping, Evchanze and Market Prices. 2.20 (from Gleiwitz), Miners Songs by the Ostlandquartett, 3.0, Concert by the Station Orchestra, conducted by Rischka; Overture in D, in Italian Style (Schubert); Schection from Manon (Massemet); Die Flöte von Sanssonei (Graener); Silection from Manon (Massemet); Die Flöte von Sanssonei (Graener); Silection from Kandarina (Tinel); Träumerei am Kamin (Richard Strauss); Overture, Rienzi (Wag-

Overture, Jean de Paris (Boieldien); Selection (fonn I Pagliacei (Leoneavallo); Seduction (Ganne); Tenor Solos; Ballet Music from Le Cid (Massenet); Suite sahariemie (Ackermans); Selection from Les eloches de Corneville (Planquette); Tenor Solos; By the Blue Hawaiian Waters (Ketelbey); Xylophone Solo; Verbiage (Fetras); Spanish Suite, La féria (Lacôme). In an interval at 1.0 p.m., Le Journal Parlé, 2.0, Broadcast for Schools, 5.0, Dance Music, relayed from the 8t. Sauveur Palais de Danses, 6.0, Talk. 6.15, Concert given by the Wind Instrument Society, 6.45, Reading of Poems, 7.0, Gramophone Music, Slav March (Tchaikovsky); Hungarian Rhapsody No. 10 (Liszt); Prologue and Polonaise from Boris Godmov (Mussorgsky). 7.30, Theatre and Film Review, 8.0, Symphony in G (Haydn), on Gramophone Records, 8.15, The Death of Prometheus One-Act Play (Henrion), with Incidental Music by René Barbier, 9.0, Dance Music, relayed from the St. Sauveur Palais de Danses. 10.0, Le Journal Parlé, BRUSSELS (No. 2)

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.1.R., 888 kc/s, 337.8 metres; 15 kW.—Programme in Flemish. 12 Noon, Mephistopheles Opera (Boito), on Gramophone Records. In the interval at 1.0 p.m., Le Journal Parlé, 2.0, Educational Programme, 5.0, Concert by the Radio Orchestra, conducted by Walpot. March (Westenberg); Valse triste (Sitelius); Rhapsody No. 14 (Liszt); Selection from The Pearl Fishers (Bizet); Joyens retour (Baryens). 5.45, Programme for Children. 6.30, Gramophone Music. Overture, Die Felsemuhle (Reissiger); Popular Sougs; La Jeggierezza (Liszt); Hungarian Folk Times (Bartock); Selection from Blue Roses (Carter); Brahms Potpourri 7.15, Talk. 7.30, Theatre Review, 8.0, Concert by the Symphony Orchestra, conducted by Meulemans. Part I, Gilson Music. Commemoration March; Rhapsody for Strings, A la marcia; Humoresque; Suite

pastorale. 8.45, Talk by the Man in the Street. 9.0, Concert (contd.), Part 11, Soloist: Mile, Legrain (Songs), Overture, Benvenuto Cellini (Berlioz); Pastorale Soloist: Mile, Legrain (Songs), Overture, Benvenuto (Cellini (Berlioz); Pastorale mystique (Massenet); Two Songs (Baeyens) aecompanied by the Composer: (a) Rozen-lied, (b) Avondbloemen; Spanish Suite (Albeiniz); Dances (Granados); España (Turina); Two Spanish Dances (Falla); March (Alperts), 10.0, Le Journal Parlé.

BUCHAREST

BUCHAREST
760 kc/s, 394.7 mstres; 12 kW. 4.0 p.m.,
Concert by the Station Orchestra. Overture,
The Secret Marriage (Cimarosa); Valse
triste (Nedbal); Kol Nidrei (Brueb); Selection from La Juive (Halévy); Selection from
White Horse Inn (Stolz-Benatzky); Ballet
Music from The Dennon (Rubinstein); Love
Song (Woodford-Finden). In the interval at
5.0, Radio Journal and at 5.15, Song Recital,
6.0, Educational Talk. 6.20, Gramophone
Music, 6.45, Talk. 7.0, Sonata for Horn
(Camille Horn). 7.30, Talk. 7.45, Song
Recital, 8.15, Quintet in G Minor (Mozart),
8.45, Radio Journal, 9.0, Popular Romanian
Music by the Station Orchestra, conducted
by Dinico.

BUDAPEST

BUDAPEST

845 kc s, 550.5 metres; 18.5 kW.—Also relayed on 840 metres from 6.40 p.m. till Close Down.—4.0 p.m., Grannophone Concert. 4.50, German Lesson. 5.20, Tello Recital by Aurel Karpathy. 6.0, Lottery Results. 6.40, Recthoven Concert by the Philharmonic Orchestra, conducted by Ernst Dolmanyi, relayed from the Opera House. Soloist: Alfred Hoelm (Pianoforte). Symphony No. 4; Pianoforte Concerto in E. Plat; symphony No. 5. 8.40, Press Review. 9.0, Cigány Band Concert, relayed from the Café Spolarich. 10.0, Talk in German: A Tour Round Bundapest. Budapest,

CASSEL.—See Frankfurt,

COPENHAGEN

CASSEL.—See Frankfurt.

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,154.8 metres; and Skamleback, 0XY, 9,520 kc/s, 31.51 metres.—11.0 a.m., Time and Chimes from the Town Itall. 11.5, String Ensemble Concert, relayed from the Hotel Angleterre, 1.0 p.m., Interval. 2,20, Talk for Housewives, 2.30, Concert by the Station Orchestra, conducted by Grömdahl, Overture, Marco Spada (Aubber); Overture, Boris Gudmov (Mussorgsky); Valse des blondes (Gaume); Prelude and Allegro for Strings (Thieleman); Overture, Faust (Gomnod); Overture, Eva (Lehar); Invocation (Ganbert); Minnet and Gavotte from the Suite, Masques et hergamasques (Faure); Spanish Waltz (Rosey); March (Duphy). In the interval at 3.15, Danish Reading, 4.30, Exchange and Fish Market Prices, 4.45, Talk: Economic Crises, 5.15, English Lesson, 5.45, Weather, 5.54, Annomecements, 6.0, News, 6.15, Time Signal, 6.30, Talk, 7.0, Time, 7.2, Concert of Contemporary Scandinavian Music by the Radio String Orchestra, conducted by Reesen, Suite champétre (Sbelius); Extracts from the Suite Pastorale (Palmgren); Canzonetta and Fantastic Gig from the Elegiac Suite (Rangström); Polka from the Suite on Swedish Folk Melodies (Rosenberg), 7.30, Pictures of Everyday Life: A Factory Accident, 8.0, Gramonphone Music, 8.15, Reading, 8.45, Nows. 9.0, Concert of Contemporary Danish Music. The Radio Symphony Orchestra, conducted by Reesen; Concert Overture Op. 9 (Senstins): Efteraar saften for Speaking Voice and Orchestra (Nielson); Orchestral Suite, Italia (Salonon); Variations on a Theme of Chopin (Bentzon), 10.0, Dance Music by the Jans Warny Band from the Smib Restaurant. In the interval at 11.0, Time and Chimes from the Town Hall. 11.30 (approx.), Close Down. CORK.—See Athlone.

CORK .- See Athlone. DANZIG .- See Heilsberg. DRESDEN.-See Leipzig.

FECAMP

FECAMP

1,328 kc s, 225.9 metres; 10 kW.—11.0 a.m.

131 12 Noon, Programme in English by the

1.B.C. 11.0, Happy Hour. Part I. Orches
tral Conceit: Signature Tune; Siren Magic

(Waldteufel); The Rose Beetle goes a-woo
ing (Armandola); Song, Up from Somerset

(Sanderson); The Clock and the Dresden

Figures (Ketelbey); Beautiful Spring

(Lincke); Song, I bring a love song (Rom
berg); Serchade (Pierne); Selection. Die

Fledermans (Joh. Stranss). Part II. Dance

Music: Swingy little thingy (Green); You've

got everything (Donaldson); The Three

Trees (Powell); When Autumn comes around

(Silver); Moont this time next week

(Haden); Everyone loves my Marguerite

(Woods); Goofus (King); Experiment

(Porter); Signature Tune. 12 Noon, Pro
gramme in French, 3.30 to 6.0 p.m., Pro
gramme in English by the I.B.C. 3.30,

Chichester and Bognor Concert. Part I.

Orchestral Concert: Morgenblätter (Joh.

Stranss); The Bnitterfly (Nevin); Spanish

Gipsy Dance (Marquia); Sanctuary of the

Heart (Ketelbey); The Wedding of the Rose

(D ssel); Searf Dance (Chaminade); The

Maid of the Mountains (Fraser-Simpson).

Part II. Dance Music: Who's afraid of the

Big Bad Wolf?: Sweet Breams, Pretty Lady;

A One-Horse Town; Si, Si; Dinner at eight;

If you'll say "Ves," chèrie; Oh. Johanna;

What a perfect combination, 4.30, The I.B.C.

Nursery Corner—Birthday Greetings. 5.0,

MONDAY continued DEC. 4th

Hastings and Eastbourne Concert. Part I. Light Music: Whispering Flowers (Blon); Waltz from The Gipsy Princess (Kálmán); Song, The Roaming Yodeller (Norton); After the Ball (Harris); The Arabian Nights (Joh. Strauss); Song, Letting in the Sunshine (Gay); La Paloma (Yradier); The Fairies' Gavotte (Kohn). Part II. Gramophone Records: Hollyhock (Mayerl); A smoking Concert; Pas des Fleurs, from Naila (Delibes); Iland ine down my walking cane (Nelson); A Cuckoo in the Nest (Sievier); Milano (Le Clerq); Good-night but not good-bye (Roberts); Second Serenade (Heykens); Signature Tune. 6.0, Programme in French. 10.0 (approx.) till Close Down. Programme in English by the L.B.C. 10.0 (approx.). Hawaiian Guittar Band: Honolulu Bay (Earl); Tango des roses (Scherler); Naughty Hawaii (Carlo); On the Beach at Waikki (Trad.); Tiptoe through the Tulips (Dubin); Hawaiian Hotel (Trad.); Song of the Islands (King); On a Little Street in Honolulu (Sherman). 10.30, Dance Music: Signature Tune: The Bells of Normandy; Don't blame me; A Couple of Pals; Elvira; Moths around the eandle flame: My Moonlight Madouna; Lan't it Heaveniy?; You're an old Smoothie; Cornflowers and Poppies (Waldteufel); Signature Tune. 11.0, Talkie Time—Tunes from the Talkies and Shows: Signature Tune, gittin' in the Dark; After you; Butterfly Song (Strauss); The Gold Olggers' Song (Dubin); Selection from Give me a Ring (Broones); I live for Love (Abraham); Let me give my happiness to you (Posford); My lucky Day (Par-Davies); Signature Tune. 11.30, Special Club Concert for Icelandic Listeners. Part I. Icelandic Music: Signature Tune, The Chum Song; Come back to Erin; Valse des fleurs, from the Nutcracker Suite (Tchaikovsky); Sprettur (Sveinbjormsson); Krikjuhvoll (Thorsteinsson); Anitra's Dance, from the Mathy Marguerite; Ding, Dong, Ding; Signature Tune. 12.30 a.m., Dance Music: Lay your head on my shoulder; Tve found the right girl; The Three Trees; Everyone loves my Marguerite; Ding, Dong, Ding; Signature Tune. 12.30 a.m., Dance Music: Lay your head on my shou

FLENSBURG.—See Hamburg. FLORENCE.—Sec Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel and Trier, 1,157 kc s, 259.3 metres. 12.15 p.m., Time and News. 12.25, Local News and Weather. 12.35 p.m., See Langenberg. 1.40, Talk: Germany's Provinces in Folk Song—Talk, with Gramophone Illustrations. 2.30, Weather. 2.40, Time and Exchange. 3.0, See Stuttgart. 5.35, Talk: Old German Advent Customs. 5.50, Weather, News, Exchange. Programme Announcements and Time Signal. 6.0, Transmission for all German Stations, relayed from Leipzig. 7.0, Topical Talk. 7.10, Recital of Student Songs by Franz Baumann (Tenor): Student sein, wenn die Veilchen blühen; In jedem vollen Glase Wein; Auf den Bergen die Burgen; Ich war zu Heidelberg Student. 7.25, Zock has lost at honsand Marks—Sketch (Jo Hanns Rösler). 7.40, Recital of Popular Songs by Franz Baymann (Tenor): Die alten Strassen; Ich bin so gern daheim; Ein Vöglein sang im Lindenbaum; Wilde Rose. 8.0, A Radio Sequence. 8.30, Symphony in D Minor, Op. 120, No. 4 (Schumann), by the Station Orehestra, conducted by Hans Roshaud. 9.0, News. 9.20, See Stuttgart. 9.30, Local News and Weather. 9.45 till Close Down, See Langenberg. 12 Midnight, Close Down. FREDRIKSSTAD.—See Oslo.

FREIBURG,-See Stuttgart. GENEVA.-Sec Radio-Suisse Romande, GENOA.—Sec Turin. GLEIWITZ.-Sce Breslau. GOTEBORG.—See Stockholm. GRAZ.—See Vienna. HAMAR.-See Oslo.

HAMBURG

HAMBUKU

Bremen, 1,112 kc/s, 259.8 metres; Flensburg
and Hanover, 1,319 kc/s, 227.4 metres; and
Kiel, 1,292 kc/s, 232.2 metres.—6.0 p.m.,
Transmission for all German Stations, relayed from Leipzig. 7.5 to 9.0, See Berlin
(Funkstunde). 9.0, Time and News. 9.30,
Dance Music from Berlin (Funkstunde).

HANOVER.—See Hamburg.

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed hy Danzig, 671 kc/s, 447.1 metres.—12.5 p.m., Gramophone Concert, Part I: Lincke Music. March, Berliner Luft; Indra-Walzer; Selection from 1m Reiche des Indra; Luna-Walzer;

Selection from Nakiris Hochzeit; Rheinländer, Ein kleines bisschen Liebe; Glow-Worm Idyll; O Frühling, wie bist du so schön; March Potpourri. Part 2: Lehär Music. Selection from Frederica Waltz, Ballsirenen; Hab nur dieh allein; Ich bin ein Wiener Kind; Waltz from Gipsy Love; Warum hast du mich wachgeküsst; Luxembourg Waltz; Selection from Schön ist die Welt; Selection from Frederica; Volga Song from The Czarevitch. In the intervals at 12:20 and 1.0 p.m., News. 1.40, Programmo for Boys. 2.0, Market Priecs. 2.30, Talk; Bells of East Prussia and their Inscriptious. 3.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken. Overture, Anacreon (Cherubini); Cradle Song (MacDowell); Valse romantique (Debussy); Cau casian Fantasia (Elukhen); Variations on A Carnival in Venice (Ritzan); Melody (Fauchey); Melodies (de Taeye); Dance of the Flowers, from Naila (Delibes). 4.0, Variety Programme, the Small Station Orchestra and Soloists. 5.0, Talk; Birds of Prey in Winter. 5.15, Agricultural Notes. 5.25, Twelve Etudes, Op. 10 (Chopin), played by Hermann Hoppe. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Leipzig. 7.0, News and Weather. 7.5 to 9.0, See Berlin (Funkstunde). 9.0, News and Weather.

HILVERSUM

HILVERSUM

1,013 kc s, 296.1 metres; 7 kW. up to 5.40 p.m., and 20 kW. after 5.40 p.m. Programme of the General Broadcasting Society (A.V.R.O.). -11.40 a.m., Time Signal, followed by Light Music by Kovacs Lajos and his Orchestra. 1.10 p.m., Santa Claus Programme. 1.40, Gramophone Records. 1.55, Interval. 2.10, Concert of Chamber Music by the Gertler Quartet: Quartet in G minor. Op. 74, No. 3 (Haydn); Quartet in C (Hermann). 2.55, Gramophone Music. 3.40, Pianoforte Recital by Judith de Leeuw; Scherzo No. 3 in C flat minor. Op. 39 (Chopin); Etude. Op. 52 (Saint-Saëns); Polonaise No. 2 (Liszt). 4.10, Talk, with Gramophone-Hustrations: Liszt and his Rhapsodies. 5.10, Variety Concert by a Mandoline Band. Pierre Palla (Organ), and Henk Viskil (Tenor). Organ: Overture. The Thieving Magpie (Rossini); Three Songs for Tenor and Organ: (a) Kashmiri Love Song (Woodforde-Finden), (b) Japanese Song (Woodforde-Finden), (c) Hent' macht hab' ich geträumt von Dir (Kålmän); Mandoline-Band and Organ; Overture in B flat minor (Wölki); Organ: Internezzo from Cavalleria rusticana (Mascagni); Mandoline-Band March (Bogert); Organ: Münchner Spielnhr (Palla); Three Songs for Tenor and Organ; (a) Amor and Psyche (D'Albert), (b) Rio Rita (Tierney), (c) Schön ist jeder Tag (Meisel); Mandoline Band and Organ: (a) Am Spinnrand (Translateur), (b) Medley. The Big Parade (Tak-Palla). 6.40, Talk. 6.55, Gramophone-Music. 7.10, Violin Recital by Alexander Moszkovsky: Suite (Sinding); Meditation and Melody from Op. 42 (Tchaikovsky): Souvenir de Moscou (Wieniavski). 7.40, Time, Wcather and News. 7.45, Concert by Members of the Italian Opera. The Wireless Orchestra, conducted by Marini. In the intervals, Gramophone Records. 9.40, August 24th, 1872.—Play (Moerkerken). 0.26, Down.

HORBY .- See Stockholm.

HUIZEN

HUIZEN

1,875 metres; 7 kW. until 3.40 p.m. Transmitted from Kootwijk on 50 kW. from 3.40 p.m.—Programme of the Christian Radio Society (N.C.R.V.).—11.40 a.m., Police Notes. 11.55, Gramophone Music. 12.10 p.m., Organ Recital by Zwart. 1.40, Broadcast for Schools. 2.15, Gramophone Music. 2.25. Talk for Women. 2.55, Dressmaking Lesson. 3.25, Interval. 3.40, Bible Reading with Songs and Organ Solos. 4.40, Gramophone Music. 4.55, Song and Planoforte Recital by Hagenbeck (Soprano) and Kamp (Contralto). Duet from Judas Maccabaeus (Handel); Lost is my quiet (Purcell); Shepherd, Shepherd, leave decoying (Purcell); Bas Weilmachtskonzert (Böddecker); Gramophone Records; Herbstlied (Schumann); An den Abendstern (Schumann); La vierge à la crêche (Franck); Les danses de Lormoùt (Franck); Six Songs (Weckerlin); Gramophone Records; Three Pieces (Rennes) 6.10. Answers to Correspondence, 6.40, Police Notes. 6.55, Religions News. 7.10 (approx.). Answers to Correspondence (contd.). 7.40, Orchestral Concert, conducted by Spaanderman. In the interval at 8.40, Recitations and at 9.40, News, 10.10, Gramophone Music. 11.10 (approx.). (lose Down.

INNSBRUCK.—See Vienna.

JUAN LES PINS

1,205 kc/s, 243 metres; 0.8 kW.—8.0 p.m., Amusement Guide, Financial Notes, Racing Results and News. 8.10, Sports Notes. 8.20, Radio Concert. 9.0, News and Weather. 9.15,

"L'Honneur professionnel "-One Act Play (E. Picard).

KALUNDBORG.-See Copenhagen

KAUNAS

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—6.30 p.m., Concert. 7.0, Lithuanian Lesson. 7.30, Vocal Duets. 7.50, Political Review. 8.10, String Quartet (Mozart). 8.40, Sports Notes. 8.45, Concert: Overture, Semiranis (Rossini); Selection from La Bohème (Puccini); Waltz from The Arabian Nights (Joh. Strauss); Phantom Melody (Ketelbey). 9.30 (approx.), Close Down.

KIEL.—See Hamburg. KLAGENFURT.—See Vienna. KOSICE.—See Prague.

LANGENBERG

LANGENBERG

635 kc s, 473 metres; 60 kW.—12.35 p.m.,
Vocal and Instrumental Concert. 1.30, Meat
Market Prices. 2.0, Discussion: The Provision of Work by means of Government
Loans, 2.15, Gramophone Records of Dance
Music. 2.30, Exchange. 2.50, Political Annonnecments. 3.0, See Stuttgart. 5.35,
The Spring Sonata (Mozart) on Gramophone Records. 5.45, Announcements. 6.0,
Transmission for all German Stations, relayed from Leipzig. 7.0, See Frankfurt. 8.0, Review of the Week. 8.30,
See Frankfurt. 9.20, See Stuttgart. 9.30,
News. 9.45, Concert of Contemporary
Rhemish and Westphalian Music by the
Fröhliche Fünt. 10.45, Report of the Cologne
Six Days' Racing. 11.0, Gramophone Concert of Wagner Music: Overture to, and
Music from, Tannhäuser; Third Act of Siegfried (Wagner). 12 Midnight, Close Down,
LAUSANNE.—See Radio-Suisse Romande.

LAUSANNE.-See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metros; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—12.15 p.m., News. 12.25, Grantophone Concert. 1.0, News. 1.10, Notes on Art. 1.20, Reading. 2.0 (from Dresden), Violin and Flute Recital. 2.30, Topical Talk. 2.45, Exchange. 3.0 to 5.10, See Breslau. 5.10, Talk on Thomas Münzer. 5.25, Light Music on Gramophone Records. 5.45, Exchange. 6.0, Transmission for all German Stations: Der grosse Gabentisch—a Sequence of Radio Reports from the Central German Christmas Goods Industries, 7.0, News. 7.10, See Munich. 8.10, Symphony Concert by the Leipzig Symphony Orchestra, from the Gewandhaus. 9.20, News. 9.40, Local News. 10.0, See Munich. 1.10 (approx.). Close Down.

LINZ.-See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—6.0 p.m., Gramophone Music. 6.30, News for Foreigners. 7.0, Gramophone Music. 7.30, Relay from the Opera House, Belgrade. In the interval, Weather and News.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—7.0 p.m., Gramophone Concert. Fantasia and Fugne (Bach) by the London Symphony Orchestra, conducted by Albert Coates; Selection from The Damnation of Fanst (Berlioz) by the "Orchestra de l'Association des Concerts Lamoareux," conducted by Albert Wolff; L'Apprente sorcier (Dukas) by the Société des Concerts du Conservatoire, conducted by Philippe Gaubert. 7.40, Chopin Pianoforte Recital, by Félicia Blumenthal. 8.10, Polish Concert by the Station Orchestra; conducted by Henri Pensis, Soloist; Ernest Eichel (Violin). Overture, Halka (Moniuszko); Violin Concerto No. 2 (Wieniawski); 8.50, News in French. 9.0, Concert by the Radio Orchestra, conducted by Henri Pensis, Overture, Martha (Flotow); Humoresque (be Tacye); Caprice Italica (Tchafkowsky); Danse des Bayadères (Rubinstein); Selection from No. 10., Nanette (Youmans). 9.50, News in German. 10.0, Gramophone Music, Selection from The Maid of the Mountains (Frasser-Simson); Selection from Broadway (Gottler, Mitchel and Conrad). 10.15, Dance Music (on Gramophone Records).

LYONS

LYONS
LA DOUA, 644 kc/s, 465.8 metres; 15 kW.
7.40 p.m., Radio Gazette for Lyons and the
South East. 8.30, Musical Programme. 8.50,
Orchestral Concert. Soloists: Mne. Yvonne
Brothier (Songs), Lespès (Flate) and Bonnal
(Horn); Screnade No. 6 (Mozart): Les
Danseuses de Delphes (Debussy); Serenade
for Flute, Horn and Orchestra (Titl); Musical Snuff Box (Liadov); French Sonatina
No. 4 (Koechlin); Incidental Music to The
Merchaut of Venice (Raband); Divertissements for Thirteen Solo Instruments
(Busch); Overture to an Imaginery Operetta
(Respighi); Songs by Mozart, Campra,
Delage and Saint-Saëns. After the Concert, News. Delage and cert, News.

MADRID

ARANJUEZ EAQ, 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Light Music, 10.45, Radio Chronicle. 11.0, Catalonian Pro-

gramme. 12 Midnight to 1.0 a.m. (Tuesday), Concert arranged by the International Broadcasting Company of London. 12 Midnight, Dance Music: Wild Goose Chase; Learn to Croon; Blue Prelude; Moonstruck; Two Tickets to Georgia; You're charming; It's time to sing Sweet Adeline again; Margle. 12.20, Military Band Music: Scottish Patrol (Williams); The Mill in the Black Forest (Ellenberg); The Wedding of the Rose (Jessel); March: Entry of the Gladiators (Fneik); Bells across the Meadows (Ketelbey); The Phantom Brigade (Myddleton); The Whister and his Dog (Pryor); The Gladiator's Farewell (Blankenburg). 1.0, I.B.C. Goodnight Melody and Close Down. burg). 1.0, Close Down.

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange, Topical Talk and Dance Misic. 8.15, Radio Journal. 8.30 (approx.), Close Down.

MALMO.-See Stockholm.

MILAN .- Sce Turin.

MORAVSKA-OSTRAVA

MORAVSKA-OSTRAVA

1,437 kc s, 263.8 metres; 11 kW.—3.0 p.m.,
Concert of Light Music by the Station Orchestra, conducted by Musil. 3.50, See
Prague. 4.50, Talk on Money. 5.5, Sports
Notes. 5.15, See Prague. 5.30, German
Transmission: Talk and Theatre and Film
Review. 6.0, See Prague. 6.10, See Bratislava. 6.25, See Brno. 7.25, Military Band
Concert of Moravian Dances, with Introductory Talk. 8.0, Concert of Overtures by the
Station Orchestra, conducted by Musil. 9.0,
See Prague. 9.15 (approx.), Close Down.

MOTALA—See Stockholm

MOTALA.-See Stockholm.

MUHLACKER,-See Stuttgart.

MUNICH

MUNICH

563 kc's, 533 metres; 1.5 kW. Relayed by Augsburg and Kaiserslautern, 535 kc's, 550 metres; and Nürnberg, 1,256 kc's, 239 metres.—3.0 p.m., See Breslau. 5.10, Review of Books. 5.30, Gramophone Records of Julins Patzak (Tenor): Aria from The Magic Flute (Mozart); Aria from A Masked Bail (Verdi): Aria from Der Instige Krieg (Joh. Stranss); Ständehen (Richard Stranss); 5.45, Time. Weather, and Agricultural Prices. 6.0, Transmission for all German Stations. relayed from Leipzig. 7.0, See Leipzig. 7.10, Anstria . . 7.30, Lisbeth—A Short Operetta (Dolinge-Wirth). 8.10 to 9.20, See Leipzig. 9.40, Local News and Sports Notes. 10.0, Serenade by the Station Orchestra. conducted by Karl List. 11.0 (approx.), Close Down.

NAPLES.—See Rome.

NAPLES .- See Rome.

NOTODDEN.-See Oslo.

OSLO

OSLO

277 kc/s, 1,683 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 358.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Adv. 1 metres, 1 metres; Adv. 1 met

OSTERSUND .- See Stockholm,

PALERMO

PALERMO

556 kc/s, 539.5 metres; 3 kW.-7.0 p.m.,
Dopolavoro Announcements. Tourist Report.
Agricultural Notes, Report of the Royal
Geographical Society and Giornale Radio,
7.20, Gramophone Music. In the interval at
7.30, Time and Announcements. 7.45, Concert of Chamber Music. G. Scala (Pianoforte, Helt Di Gregorio (Soprano), and E.
Castagna (Bassoon). Pianoforte Solos: (a)
Prelude (Scriabin), (b) Evening (Blumenfeld), (c) Improvviso (Napoli); Soprano
Solo: Aquarellen-Walzer (Jos. StraussGross); Sonata for Bassoon and Pianoforte
(Saint-Saërs); Soprano Solo: LiebesliederWalzer (Joh. Strauss-Gross); Romance and
Burlesque for Bassoon and Pianoforte (Tillmitz); Polonaise in A flat for Pianoforte
(Chopin). After the Concert. Light Music
on Gramophone Records. 10.0, Giornale
Radio.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 matres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—5.45 p.m., Le Journal Parlé. 7.15, Weather and News. 7.20, Symphony Concert, conducted by Flament. Soloist: Geneviève Lacroix (Pianoforte: Selection from Les Erynnies (Massenet). 8.0, Political Review. 8.15, Concert (contd.): Paysages Flamands (de Taeye); Sarabande (Lacroix); Phalènes (Philipp); Idylle (Chabrier); Symphony (Mozart). 9.8 (approx.), Close Down.

PARIS

PAKID

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Gramophone Records. 7.5, Medical Talk. 7.15, Le Journal Parlé. 7.30, Hot Jazz on Gramophone Records. 8.0, Talk on Motor Cars. 8.10, Interval. 8.30, A Humorous Programme by Max Régnier and his Company. 9.0, Interval. 9.20, Sponsored Gramophone Concert. 10.30, News.

PARIS

PARIS

RADIO-PARIS; Call CFR; 174 kc/s, 1,725
metres; 75 kW.—12 Noon, Gramophone Concert. Part I, Brailowsky: Concerto in E
Flat (Liszt); Lotte Lehmann: (a) Arias
from Tannhäuser (Wagner), (b) Ewige Liebe
(Brahms), (c) Aria from Fidelio (Beethoven); Yehndi Menuhin: (a) Scottish Pastorale (Saenger), (b) Spanish Songs (Samazenille), (c) Adagio from the Concerto in G
(Mozart), (d) Sarabande and Tambouria
(Leclair-Casadesus); Albert Lambert: Scene
from Act IV of Polyeutet (Corneille); Madeleine Grey: Chants d'Auvergne (Canteloube);
Emile Sauer: (a) Etude in C Sharp (Chopin),
(b) Impromptu in F Sharp (Chopin),
(c) Frisson de Feuilles (Sauer); (d) Galop de
concert (Sauer). Part II, Selection from
Gipsy Love (Lehdr); Songs from Louis XIV
(Paress-van Parys); Si tu passes par la Bourgogne (Gnettinguer); Sentimiento gaucho
(Canaro); Two Melodies (Burke); Margaritina (Martinez); Foxtrot from Nina Rosa
(Romberg). In the intervals at 1.0 and 1.30,
Exchange. 2.0, Exchange. 3.45, Exchange
and Market Prices, 6.20, Weather and Agricultural Report. 6.45, Film Review. 7.0,
Book Review. 7.20, Gramophone Music. 7.45,
Commercial Notes, News, and Talk on
Horticulture. 8.0, Variety Programme. 8.30,
News, Weather, and Sports Notes. 8.45,
Music Hall Programme, Conducted by
Maurice André, Overture, Fra Diavolo
(Aulber); Teddy Bear's Pienic (Brotton);
Damiajin, his Repertory; Potpourri of
Popular Songs; (a) Dans le chemin creux
(Berthier), (b) La Coquille (Poncin), (c) Le
coffret (Privas), (d) Fanchette (Perat);
Morning and Anita's Dance from the Peer
Gynt Suite (Grieg); Marie Dubas in her
Repertoire; Selection from La Roussotte
(Lecocor); Wine, Woman, and Song (Joh.
Strauss). In the interval at 9.15, Press Review and News.

PITTSBURGH

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—7.0 p.m., Musical Originalities from New York. 7.30, KDKA Home Forum. 8.0 to 9.30, New York Relay. 8.0, Radio Guild. 9.0, Betty and Bob. 9.15, Rhythmic Screnade. 9.30, Business News and Markets. 9.45, Words and Music. from New York. 10.0, Uncle Tom and Betty. 10.15, KDKA Kiddies' Klub. 10.30, The Singing Lady. from New York. 10.0, News-Receler, Pat Haley. 11.15, Sports. Programme Preview. 11.30, Evensong. 11.45 to 12.45 a.m. (Tuesday), New York Relay. 11.45, Lowell Thomas. 12 Midnight, Amos 'n' Andy. 12.15, Baby Rose Maric. 12.30, Potash and Perlmutter. 12.45, What would you do? 1.0, Side Show, from New York. 1.30, The Silver Toppers. 1.45 to 3.0, New York Relay. 1.45, Red Davis. 2.0, Sinchair Minstrels. 2.30, Mclody Moments. 3.0, Programme to be announced. PORSGRUND.—See Oslo. PORSGRUND.-See Oslo.

PRAGUE

PRAGUE

614 kc s, 488.6 metres; 120 kW.—3.0 p.m., see Moravská-Ostrava. 3.50, Programme for Children. 4.5, Talk: American Schools. 4.15, Gramophone Music. 4.35, Elementary English Lesson. 4.50, Gramophone Music. 5.5, Agricultural Talk. 5.15, Talk for Workers. 5.25, News in German. 5.30, German Transmission: Medical Talk and Talk on fee-Vachting in Czechsłovakia. 6.0, Time News and Weather. 6.10, See Brac. 7.25, See Moravská Ostrava. 8.0, See Brno. 7.25, See Moravská Ostrava. 8.0, See Brno. 8.50, Toccata for Pianoforte (Alois Hába) by Karel Reiner. 9.0, Time, News, Review of the Day and Sports Notes. 9.15, News in German and Talk on Economics. 9.30 (approx.). Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Geneva, 400 kc/s, 7493 metres; --6.0 to
6.15 a.m. (from Lausagne), Gymnastics.
11.28, Time Signal from Nenchâtel
Observatory. 11.30, News and Weather.
11.40 (from Lausanne), Gramophone Concert,
12 Noon (from Lausanne), Gramophone Concert (coutd.). 1.0, Interval. 2.58, Time
Signal from Nenchâtel Observatory. 3.0,
See Schweizerischer Landessender. 4.5,
Gramophone Records of Richard Tauber and
Dajos Béla. 5.0 (from Lausanne), Talk on
Metallurgy. 5.30 (from Lausanne), Programme for Children. 5.55 (from Lausanne),
Medical Talk. 6.45 (from L

DEC. 4th MONDAY

Suite (Frey); Two Pieces (Fornerod); (a) Air, (b) Guitar; Three Pieces (Blanchet); (a) Etude in A Flat, Op. 7, (b) Prelude in C Sharp, Op. 10, (c) Ptelude in D; Etude caprice (Ganz); Two Carnival Miniatures (Stierlin-Vallon). 8.0 (from Lausanne), On baptise—Sketch with Music (Lonis Vittoz). 9.0, News and Weather. 9.10 (approx.),

RJUKAN.-See Oslo

ROME

ROME

Gall 1R0, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigontino), 652 kc/s, 453.1 metres from 7.45 p.m.; and 2R0, 11,810 kc/s, 25.4 metres.—
12 Noon to 1.15 p.m., Gramophone Records of Opera and Variety Music. In the intervals from 12.30 to 12.45, Giornale Radio and Exchange, and at 1.0, Time and Announcements, 3.30, Children's Radio Review. 3.55, Giornale Radio and Exchange. 4.10, Weather, 4.15, Talk: The First Italian Journey to the Far East, 4.30, 'Cello Recital by Benedetto Mazzacurati, relayed from the Royal Philharmonic Academy. 5.40 (Naples), Shipping and Sports Notes, 5.45, Dopolavoro Report and Tourist Review. 6.10, Wheat Market Report. 6.20, News in Foreign Languages, 6.40, Giornale Radio, 7.0, Time and Announcements, 7.30, Giornale Radio and Sports Notes, 7.45, Violin Recital by Arrigo Serato, Artalo Satta at the Pianoforte: The Fifth Sonata, Op. 24 (Beethoven); Chaconne for Violin and Pianoforte (Vitali); Sonata for Pianoforte and Violin, Op. 36 (Busoni), 8.45, Talk, 9.0 (approx.), Orchestral Concert of Light Music, conducted by Culotta. 10.0, Giornale Radio.

SALZBURG.-See Vienna.

SCHENECTADY

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW.
Relayed at intervals by W2XAF on 31.48
metres and by W2XAD on 19.56 metres.—
7.30 p.m., Revolving Stage, from New York.
8.0, Health Hunters, Sketch. 8.15 to 8.30
(approx.). Soloist, from New York. 12.45
a.m. (Tuesday), Stock Reports. 1.0 to 4.0,
New York Relay. 1.0, Soconyland Sketch.
1.30, Voice of Firestone, 2.0, A. and P.
Gipsies. 2.30, Del Monte Ship of Joy. 3.0,
Contented Programme. 3.30, K-7 Secret
Service Spy Story. 4.0, Programme Resumé.

SCHWEIZERISCHER

LANDESSENDER

LANDESSENDER
BEROMUNSTER, 653 kc s, 459 metres; 60 kW.; Basie, 1,229 kc s, 244.1 metres; and Berne, 1,220 kc s, 245.9 metres.—5.50 to 6.5.

2.m. (from Zurich), Gymnastics, 11.0 (from Basie), Songs to the Late and Zither Music on Gramophone Records, 11.29, Time Signal from Neuchatel Observatory, Weather and News, 11.40 (from Basie), Concert with Symphonic Jazz Music; Conductor; Carl Thoms, 12.25 p.m. (from Basie), Time, Weather and Exchange, 12.30 (approx.), Interval, 2.30 (from Basie), Programme for Women, 3.0 (from Basie), Programme for Computer of Tauber (Tenor) and Dajos Béla, 5.0 (from Basie), Talk; Diogenes in the Tub, 5.30 (from Zürich), Programme for Children, 6.0, Time and Weather, 6.5 (from Zürich), Gramophone Music, 6.20 (from Zürich), Gramophone Music, 6.20 (from Zürich), Gramophone Music, 6.20 (from Zürich), Nocturne (Othmar Schoeck), 8.0, Weather and News, 8.10, King Nicholas—Play (Wedekind), 9.45 (approx.), Close Down.

SOTTENS .--- See Radio-Suisse Romande

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 322 metres; Hörby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres; Ostersund, 402 kc/s, 746.2 metres; and Sundsvall, 554 kc/s, 542 metres.—12 Noon to 12.25 p.m., Broadcast for Schools. 4.5, Sextet Concert of Light Music: Military March (Rune); Selection from Le Petit due (Lecocq); Waltz, Wienerblut (Joh, Strauss); Solveig's Song from Peer Gynt (Grieg); March from Boccaccio (Suppé). 4.40, Recital of Loewe Ballads by Gmunar Heyman-Björn: Archibald Douglas; Nächtliche Heerschan; Edward. 5.0, Reading (Ivan Bunin). 5.25, Gershwin Songs, Sung by Greta Torpadic-Bratt: The Man I Love; I'll build a stairway to Paradise; Liza; Do. do. do; My one and Only; Do it again: Swance. 5.45, German Lesson. 6.15, Weather and News. 6.30, Violin Recital by Vasa Prihoda, relayed from Malmö, 1,301 kc/s, 230.6 metres. Sonata in F, Op. 57 (Dvorak): At Home, Extract from My Country (Smetana): Caprice (Prihoda); Zephyr (Hulsay). 7.15, Sports Talk, relayed from Lahti, 167 kc/s, 1,796 metres. 8.15, Talk on Photography, relayed from Uppsaia, 662 kc s, 453.1 metres. 8.45, Weather and News. 9.0, Grannophone Music. 10.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.39 a.m., Variety Music on Gramophone Records. 12.45

p.m., News. 1.0, Time and Exchange. 1.5, Light Music on Gramophone Records. 2.0, Interval. 5.0, Orchestral Concert, conducted by Roskam: Spanish Quick Step. Belle of Barcelona (Payne, Campbell and Connelly), Slow Waltz. Viens (Monnot and Jekyll); String Quintet: Chanson d'amour (Nouguès); Here's to the Next Time (Hall); Selection from Miss Decima (Audran); My Darling (Myers); Brother, can yon spare a Dime? (Gorney); Oboe, Clarinet and Pianoforte: Dans la calme unit (Gabriel-Marie); Melody (Spoliansky); Waltz Potpourri on Themes of Strauss and Lanner (Borchert); Salut d'amour (Elgar); Air from Countess Maritza (Kálmán); One Step. Carombolina, Carabolette (Kálmán). 6.0, Film Review, 6.15, Review of the Weck. 6.30, Concert by the Metz Concert Society, relayed from M8tz. Conductor: Ehrmann. Overture, Zampa (Hérold); Waltz, Pomona (Waldtenfel); Selection from Carmen (Bizet); Aubade printanière (Lacombe); Selection from Laponpée (Audran); Minuet, Gracieux Page (Delaunay); Selection from Les Saltimbanques (Ganne). 7.30, Time and News. 7.45, Gramophone Music. 8.0, Press Review in German, Lottery Results and Announcements. 8.30, Concert by the Cercle artistique de l'Est, relayed from the Victoir Poirel Hall, Nancy. Pianoforte Solos: (a) Impromptu No. 2 (Fauré). (b) Impromptu in F Sharp (Chopin) Violin Solo: Rondo capriccioso (Saint-Saüns); Song, Novembre (Trémisot); Aria from Sappho (Massenet); Talk: The Lorraine Muscum; Two Uello Solos: (a) Largo from Concert No. 3 (P. E. Bach), (b) Waltz (Widor); Bass Aria (Burchude); Recitations: (a) La marche nuptiale (Nohain), (b) A propos de gants (Rivoire), (c) La Bongie et la Bobèche (Nohain); Pianoforte Solos: Concert Etude (Pierné); Two Songs: (a) Bercense (Fauré), (b) Schön Rosmatin (Kteisler); Two Songs from Chansons de Miarka (Georges): (a) Soleil, (b) Nuages; Cavatina from The Queen of Sheba (Gomod), In an interval at 9.30 (approx.), Press Review: 1.30 (a

continued

STUTTGART

STUTTGART

MUHLACKER, 832 kc s, 360.5 metres; 1.5 kW. Relayed by Freiburg, 527 kc s, 570 metres.—12.35 p.m., See Langenberg. 1.30 to 2.30, Interval. 2.30, Talk: The Central German Market Gardening District. 3.0, Concert by the Station Orchestra, conducted by Gostav Görlich. Spanish Comedy Overture (Keler-Bela); Selection from Das Spielzeug lhrer Majestäf (Königsberger); Waltz. Winter Storms (Fuck); Interhide on Gramophone Records; (a) Aria from Das Veilchenmädel (Hellmesoerger), (b) Quintet from Casanova (Joh, Strauss); Overture, Fra Luna (Lineke); Operetta Potpourri (Robrecht); Interlude on Gramophone Records; (a) Song from Schön ist die Welt (Lehär), (b) Song from Der Instige Krieg (Joh. Strauss); March of the Tin Soldiers from Andersen (Nedbal); Waltz, In lauschiger Nacht (Zichrer); March, Mein Schlesierland (Lineke). 5.0, French Lesson. 5.20, Talk: E. T. A. Hoffmann, the Poet and Composer, 5.35, Talk on Ready Reckoning. 5.45, Time, Market Prices and Weather. 6.0, Transmission for all German Stations, relayed from Leipzig. 7.0 to 9.20, See Frankfurt. 9.20, Topical Talk. 9.30, Local News and Weather. 9.45 to 12 Midnight, See Langenberg. 12 Midnight, Close Down.

SUNDSVALL.-See Stockholm.

TOULOUSE

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Light Music by a Viennese Orchestra. 6.30, Operetta Music: Arias from Pagauini (Lehâr); Suzanne (Paladilhe); Begonia (Mercier-Pujol), and Monsieur Beaucaire (Messager). 6.45, Light Music. 7.0, Songs. 7.15, News. 7.30, Cello Recital: Internezzo (Lalo); Dolly (Fauré); Prelude to Le Deluge (Saint-Saëns); Simple aven (Thomé). 7.45, Opera Music: Selection from Méphistopheles (Boito); Arias from Don Giovanni (Mozart) and The Magic Flute (Mozart). 8.0, Military Music. 8.15, Accordion Solos. 8.30, Extracts from Sound Films. 8.45, Music by an Argentine Band. 9.0, Concert by the Station Orchestra, conducted by Espy; Overture, Light Cavalry (Suppé): Oriental Suite (Popy); Two Pieces in Old Style (Trespaille); Selection from Le petit duc (Lecocq); La petite amic (Dumas); Selection from Lohengria (Wagner); Two Step: Don Quichotte. In the interval. Chansonettes and Light Music. 10.15, News. 10.30, Concert for Listeners in Morocco. Part I: Operetta Music; 11.15, Dance Music; 2 Midnight, News. 12.5 a.m. (Tuescay), Music by a Viennesc Orchestra. 12.15, Opera Music: Chorus from Alda (Verdi); Aria from Pon Quixote (Massenet). 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—4.10 p.m. till ('lose Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

TURIN
1,096 kc/s, 273.7 metres; 7 kW. Relayed by
Milan, 903 kc/s, 332.2 metres; Genoa, 959
kc/s, 312.8 metres; and Florence, 598 kc/s,
501.6 metres.—4.10 p.m., Orchestral Concert,
conducted by Tito Petralia. 5.0 to 5.5,
Weather. 5.40, Giornale Radio, Dopolavoro
Report and Gramophone Music. 6.0, Time,
Tourist Report and Gramophone Music. 6.10,
Wheat Market Report. 6.20, News in Foreign
Languages. 6.40, Gramophone Records. 7.6,
Giornalc Ranio and Weather. 7.15, Request
Gramophone Concert. 8.15, Concedy in One
Act. 8.45, Organ Recital by Ulisse Matthey,
with the collaboration of Paola delle Torre
(Songs) and Ercole Rovere (Violin). 9.30,
Dance Music on Gramophone Records. 10.0,
Giornale Radio. Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in Italian. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

VIENNA

S80 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; 1nnsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres; -11.0 a.m., Concert by the Chamber Orchestra, conducted by Rudolf Pchm. Ballet Music from Faust (Gounod); Pieces in Old Style (Pahm); (a) Aria and Allegro, (b) Prince Eugen Gavotte; Sercnade (Dvorak); Two Songs (Elgar); (a) Chanson de nuit, (b) Chanson de natin; Wedding Day on Troldhaugen (Grieg); Waltz. Schallwellen (Joh. Strauss). 12 Noon, Time, Weather and Announcements. 12.10 p.m., Gramophone Records of Famous Artists. Jacques Thiband: Violin Solo from La vida breve (Falla); Galli-Cunei: Polonaise from Mignon (Thomas); Gaspar Cassado: 'Cello Solo. Song without Words (Hendelssohn): Aureliano Pertile: Song from Manon Lescant (Puccini); Yehudi Menuhin (Violin): Sarabande and Tambourin (Leclair-Sarasate); Jeritz: Aria from Joan of Art (Tchaikovsky); Artur Rubinstein (Pianoforte): La Cathédrale englontie (Debussy); Aria from L'Africaine (Meyerbeer); Chaliapin: Serenade from Fanst (Gounod); Carnso: Campane a Sera (Billi). 1.0 to 2.0, Interval. 2.0, Time, Announcements and Exchange. 2.15, Agricultural Talk. 2.25, Programme for Children, 2.50, New Gramophone Records. Foxtrot, Lazy Bones; Song: Meine Braut, die Wilhelmine (Kreuzberger); Foxtrot: Ich möcht so gerne wissen, ob sich die Fische küssen; Couplet. Todo comprendito; Song, Parlami d'aunore Mariu (Xero-Bixio); Foxtrot, Wenn du cinen Schilling siehst (Katscher): Song (Ařlen); Valsette (Bazant-Schachner): Ayer se la llevaron (Diaz-Giles-Rocha); Scottish Highland Patrol (Amers). 3.35, Talk for Yonng People. 4.0, Talk: The Future of Symphony Music. 4.25, Song and Fianoforte Recital by Leoty Persche (Soprano), and Richard Hauser. 5.5, Talk: Austrian Art. Seot. Talk. 8.50, Elementary English Lesson. 6.0, Talk: Austrian Art. Song (Arlen); Valsette (Bazant-Schachner): Ayer se la llevaron (Diaz-Giles-Rocha); Scottish Highland Patrol (Amers). 3.35,

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW,—10.57 a.m.,
Time Signal and Fanfare from St. Mary's
Church, Cracow. 11.5, Popular Music on
Gramophone Records. 11.30, Radio Journal,
11.35, Weather, 11.38, Popular Music (coutd.).
12 Noon, Interval. 2.25 p.m., Announcements
and Economic Notes. 2.40, Notes for Boy
Scouts. 2.45, Aviation Notes and Anti-Gas
Drill. 2.55, Gramophone Records of Songs.
3.10, Cello Recital by Ginsburg: Cantabile
(Cui); Chansonette (Godard); Song of the
Troubadours (Glazunov); Papillon (Popper);
Sonvenir (Sevrais); Arab Melody (Glazunov);
Andalusia (Casella). 3.40, Elementary French
Lesson. 3.55, Light Music by the Cygancria
Theatre Orchestra. Soloist: Mme. Makowska
(Songs). Foxtrot (Szilagui-Laszlo); Waltz,
Flora (Leopold); Slow Foxtrot (Connelly);
Boston, Opium (Gold); Foxtrot, Santa Maria
(Zak); Tango Songs (Wars); Boston (Gorzynski); Foxtrot. Peter Peter (Connelly).
4.50, Agricultural Correspondence. 5.0, Talk,
relayed from Cracow, 959 kc/s, 312.8 metres.
5.20, Military Programme. 5.45, Programme
Announcements. 5.50, Miscellaneous Items.
6.10, Talk on Music relayed from Ludow, 788
kc/s, 381 metres. 6.25, Sports Notes. 6.40,
Beethoven Concert from Budapest. In the
interval, Radio Journal. 8.45, Talk: The
Spanish Basques. 9.0, Pance Music from the
Gastronomia Café. In the interval at 10.0,
Weather and Police Notes.

ZURICH.-See Schweizerischer Landessender.

ATHLONE

DECEMBER THE FIFTH

ATHLONE

725 kc/s, 413 metres; 00 kW. Relayed by Dublin, 1,382 kc/s, 217 inetres; and Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.30 p.m., Time Signal, Weather Report. Stock Report and Gramophone Concert. 6.0, Programme for Children. 6.40, News. 7.0, Gaelic Reading. 7.15, Talk. 7.30, Symphony Concert. conducted by Dr. V. O'Brien. 9.30 to 10.30, Programme by the I.B.C. (Ireland), Ltd. 9.30, Music by a Gipsy Orchestra; Signature Tune, Choo Choo (Baxter); March of the Russian Hussars; Come Zigany, from Countess Maritza (Kalman); violin Solo: Humgarian Dance in G Minor (Brahms); Black Eyes (Tschernia); Signature Tune, Choo Choo. 9.45, Dance Music: My Lucky Day Oh, Johanna; Niagara Moon; Symphony of the Breeze. 10.0, Concert of Dance Music arranged by the international Broadcasting Company (Ireland), Ltd.: Morning, Noon and Night; Smoke Rings; Lying in the Hay; Racing Commentary; Gipsy Fiddles; Two Tickets for Georgia; Waltzing alone with you; Lay your Head on my Shoulder. 10.30, LB.C. Goodnight Melody, followed by News and Weather. 10.40, Traditional Fiddle Solos by F. O'lliggins. 11.0 (approx.), Close Down.

BARCELONA

BARCELONA

EAJI, 860 kc/s, 349.6 metres; 8 kW.—6.0, p.m., Trio Concert: Melody (Chaminade); Selection from Le roi d'Ys (Lalo); Largo from the Quartet No. 12 (Haydn); Sercnade (Laisné); Selection from Lucia di Lammermoor (Donizetti); Canto aspasionado (D'Azzurro); Magyar Czardas (Michiels). 7.0, Request Gramophone Records. 7.30, Exchange and Talk in Catalan. 8.0, Gramophone Music. 8.15, Football Notes. 8.30, Catalan Educational Programme: Geography and History Lessons, followed by News. 9.0, Chimes from the Cathedral, Weather, Messages to Seamen, and Exchange. 9.5, Sponsored Concert. 9.30, Part Relay of an Opera from the Gran Teatro del Liceo. In the interval at 11.0, News.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—3.30 p.m., Quintea Concert. 3.55 (approx.), to 7.0, See Rome. 7.0, News in Albanian. 7.15 till Close Down, See Rome.

BASLE.—See Schweizerischer Landessender.

BELGRADE

DELLYKADE

OF kc/s, 430.4 metres; 2.8 kW.—5.55 p.m.,
Time and Programme Announcements. 6.0,
Nicolo-Crampus—Radio Play. 6.30, Gramophone Music. 7.0, Pctar Petrovic-Njegos Programme; Talks and Recitations. 8.0, Concert
by the Radio Orchestra. 8.30, Popular Songs,
with Orchestral Accompaniment. 9.0, Time,
News, and Gramophone Music. 9.40, Dance
Music from the Zanatzki Dom Restaurant.

BERLIN

BERLIN

DEUTSCHLANDSENDER (REIGHESSEND-ER), 183.5 kc/s, 1,635 metres; 50 kW.—1.0 p.m., Gramophone Concert: Folk Song, Das Liebe bringt gross Freud'; Serenade (Stranss); Ich liebe dich (Grieg); Verschwiegene Liebe (Wolf); Folk Song, Es waren zwei Königskinder; Dein gedenk Ich, Margarethe (Meyer-Helmund); Serenade (Schubert); Es gibt nur eine Liebe (Künneke); Il bacio (Arditi); Waltz Serenade, Liebesglocken (Woitschach); Du bist mein Tranm (Strauss); Liebeslieder-Walzer (Strauss); Melodie der Liebe (Engelberger); Folk Song, Morgen muss Ich fort von hier. 2.0, Talk for Women. 2.30, Weather and Exchange. 2.45, Talk on the German Book Fair. 3.0, See Munich. 4.0, Handwork for Young People. 4.20, Variety Programme—A Curio Cabinet. 5.0, Poems. 5.5, Talk: The Sceret of the Externstein in the Teutoburger-Wald. 5.25, Political Press Review. 5.45, Weather. 6.0, Transmission for all German Stations, relayed from Leipzig. 7.0, Talk by General Lieutenant von Metzsch: German Happiness and Security. 7.10, A German Calendar—December. 8.0, Pianoforte Recital by Conrad Hansen, relayed from the Lessing-Hoehschule: Toccata (Casella); Two Movements from the Pianoforte Sonata No. 4 (von Arnim); 25 Abbreviations (Oboussier). 8.30, Dance Music by Robert Gaden and his Band. 9.0, Weather and Sports Notes. 9.30, Talk: The Stars and Our Destinies. 9.45, Weather. 10.0, Dance Music (contd.). 11.30 (approx.), Close Down.

BERLIN

BERLIN

FUNKSTUNDE, 716 kc/s, 419 metres; 1.5 kW. Relayed by Zeesen, DJC, DJA, DJD, DJB and DJE.-10.30 a.m., Midday Concert from the Moka Efti Cafe at the Zoo. Overture, II re pastore (Mozart); Violetta (Rust); Selection from Faust (Gounod); Dort drunten in der Lobau (Strecker); Liebesbrief (Brenner); Selection from Die Fledermans (Strauss); Afschied von Neapel (Murzilli); Liebeslied (Kick-Schmidt); Manchurian Sketches (Glan); Waltz. Blumen der Liebe (Rust). In the interval at 11.5, Agricultural Notes. 12 Noon, Music from Operettas on Gramophone Records. Selection from Three Old Maids (Kollo); A Wandering Minstrel, from The Mikado (Snilivan); Tango (Benatzky); Song from Musik um Liebe (Müller); Waltz from Der Opemball (Henberger). 12.20, See Hamburg. 1.15, Weather and News. 1.35, Gramophone Recital of Songs by Hugo

Wolf. Der Rattenfänger; Auftrag; Der Feurreiter; Storchenbotschaft; Italian Screnade. 2.0, Exchange. 2.20, Gramophone Concert. Soprano, Tenor and Baritone Solos. 2.35, Programme for Children. 3.0, See Heilsberg. 4.0, See Hamburg. 5.0, Reading. 5.30, Station Notes. 5.35, Talk. 6.0, Transmission for all German Stations, relayed from Leipzig. 7.0, See Berlin (Deutschlandsender). 7.15, Bach-Brahms-Beethoven—Concert hy the Wireless Orchestra, conducted hy Otto Frickhoeffer: Suite in D (Bach); Pianoforte Concerto in B Flat, Op. 53 (Brahms); Symphony No. 7, Op. 92 (Beethoven). 9.0, News. 9.30, Dance Music from the Delphi-Palast. 11.0 (approx.), Close Down.

BERNE.-See Schweizerischer Landessender. BEROMUNSTER. - See Schweizerischer

BODEN.-See Stockholm.

BODO.-See Oslo.

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—6.15 p.m., Radio Journal. 6.35, News and Exchange. 6.40, Programme for Women. 7.55, Lottery Results. 8.0, Talk on Pines. 8.15, News. 8.30, See Paris (Eiffel Tower).

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—5.25 p.m., Talk: Example, the best method of Teaching. 5.40, Lesson in Telegraphy. 5.55, Hints for Housewives. 6.0, See Prague. 6.30, See Brno. 7.0, See Prague. 8.0, See Brno. 8.30, See Prague. 10.0 (approx.), Close Down.

BREMEN.-See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—11.0 a.m., Programme from Munich. 12.15 p.m. to 1.20, Programme from Leipzig. 1.20, Gramophone Concert. 1.00, Programme arranged by the Post Office, with Gramophone Records. 2.0, Market Prices. 2.15, Listen Everyhody. 2.30, Programme for Children. 3.0, See Munich. 5.10, Agricultural Prices and Book Talk. 5.20, Talk on Peasant Colonization. 5.50, Programme Announcements and Meat Market Prices. 6.0, Transmission for all German Stations, relayed from Leipzig. 7.0, See Berlin (Deutschlandsender). 7.10, See Leipzig. 7.30, See Munich. 9.0, Programme to be announced. 9.20, Time, Weather and News. 10.0, See Leipzig. 11.0, Gramophone Music. 12.15 a.m. (Wednesday), Also on Zeesen, 31.38 metres, Concert by the Station Orchestra, conducted by Rischka. Soloist: Bruno Jagielski (Tenor); Overture on Glatz Folk Melodies (Koschińsky); Four Tenor Songs with Orchestral Accompaniment (Rischka); Variations and Rondo on a Song from the Silesian Isergebirge (Zielowsky). In the interval at 12.35, Dialogue. 1.0 (approx.).

BRNO

BRNO
878 kc/s, 342 metres; 35 kW.—3.55 p.m., See
Prague. 4.15, Graunophone Music. 4.25,
Talk: The Four Hundredth Anniversary of
the Accession of Ivan the Terrible. 4.35, See
Prague. 4.50, Graunophone Music. 5.0, Review of Music. 5.15, Talk: Olympic Games,
5.25, German Transmission: News, Agricultural Talk and Literary Notes. 6.0, Nee
Prague. 6.30, Reading of Poetry. 7.0, See
Prague. 8.0, Programme in Memory of Jan
Uher—Talk and Recitations. 8.30, Nee
Prague. 10.0 (approx.), Close Down.

BRUSSELS (No. 1)

BRUSSELS (No. 1)

1.N.R., 589 kc/s, 509.2 metres; 15 kW.—12 Noon, Concert Version of Mignon—Opéra-Comique (Thomas) on Gramophone Records, 1.0 p.m., Le Journal Parlé, 1.10, Song Recital by Lucy Defrance. 1.25, Concert by the Smail Station Orchestra, conducted by Pierre Leomans, 5.0, A Journey to the Land of Make-Believe—Concert by the Radio Orchestra, conducted by Walpot: Aux iles d'or (Capponi); Parade d'éléphants (de Basque); Pageant March (Inck); In a Fairy Realm (Ketclbey); Ronde des Intins (Razigade); Nights of Gladness (Ancliffe). 5.30, Programme for Childrén. 6.45, Reading of Poems. 7.0, Sonata in C (Mozart) for Pianoforte. 7.15, Medical Taik, 7.30, Programme for Women and Art Notes. 8.0, Concert by the Station Symphony Orchestra, conducted by Jean Kumps. Soloist: Berthe Serwir (Songs). Selection from Les petits riens (Mozart); Aria from The Seasons (Haydu); Minuet and French March (Mozart); Song, Shéhérazade (Ravel); Mother Goosc Suite (Ravel). 8.45, Interview with M. Demarteau, President of the Union of Catholic Journals. 9.0, Concert by the Radio Orchestra, conducted by Walpot: Träumerei (Schumann);

Les petits soldats de plomb (Pierné); Ballet Music from The Romance of a Munmy (Tcherepnin); Melody (R. Stranss); Three Songs: (a) Pour endornin' Fenfant (Bruneau), (b) Ouvrez aux enfants (Bruneau), (c) Complainte de St. Nicolas (Périlhou); Serenade (Huë); Melody (Moszkowsky); Danse Humoresque (Palungren); Autrefois (Sibelius); La chère maison (Dalcroze). 9.55, Christus Vincit (Liszt). 10.0, Le Journal Parlé.

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.1.R., 888 ke/s, 337.8 metes; 15 kW. Pro gramme in Flemish.—12 Noon, Concert by the Small Station Orchestra, conducted by Leemans: Overture, Cigale et Magali (Casadesus); Waltz, The Three Graces (Gaillemyn); Petite suite (Busser); Tendresse et passion (Lagarde); Selection from Fleur de thé (Lecocq); Violin Solo, Vision (Drdla); Ballet Music from Le miracle (Hué); Berceuse (Boellmann); Grotesque March (Sinding). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Music: Selection from Blue Roses (Carter); The harp that once through Tara's Hall (Balfe); Melody (Liddle); Selection from The Gold Diggers of Broadway (Burke); Blackbird Song (Scott); A Spring Morning (Cary); When the guards go marching by (Bertar); Father O'Flynn (Stanford); Broadway (Gottler). 5.0, Concert by the Symphony Orchestra, conducted by Kumps: Overture, Gwendoline (Chabrier); The fête à Aranjuez (Demersseman); A Night in Madrid (Glinka); Gramophone Record of Riehard Tauber; Aria from Eine Nacht in Venedig (Strauss); Viennese Rhapsody (Schmitt); Spanish Suite, La feria (Lacôme). 5.45, Programme for Children. 6.30, Concert by the Small Station Orchestra, conducted by Leemans: Overture, Die Frau Meisterin (Suppé): Selection from La mascotte (Audran); Selection from Eugene Onegin (Tchaikovsky); Jewish Rhapsody (Manfred); Danza illirica (Escobar); Waltz from The Sleeping Beauty (Tchaikovsky); Zo, Russian Choral Songs (on Gramophone Records). 7.15, Talk: The Plight of the Middle (Lasses. 7.30, Tourist Notes. 8.0, Concert by the Radio Orchestra, conducted by Walpot: Soloists, Julia Belloy (Songs) and Louis Belloy (Humorous Items); Einheitslied (Eysler); Overture, Fra Diavolo (Auber); Selection from Carmen (Bizet); Humorous Items: Flemish Sketches (Brusselmans); Three Songs; Flemish Dances (Blochx), 9.0, A Play (Suls). 10.0, Le Journal Parlé.

BUCHAREST

Concert by the Station Orchestra, conducted by Alessandresco, Soloist, Madeleine Concert by the Station Orchestra. In the interval at 5.0, Radio Journal. 6.0, Educational Talk, 6.20, Gramophone Music. 6.45, Talk on the Composer, Gabriel Musicesco. 7.0, Musicesco Concert by the Carmen Choir. 7.30, Concert by the Station Orchestra, conducted by Alessandresco, Soloist, Madeleine Cocorascu (Pianoforte): Ballet Suite (Rameau-Mott); Ballet Suite (Mihalovici); Pianoforte Concerto in B Flat Minor (Tchaikovsky): In the interval at 8.0, Talk. 8.45, Radio Journal.

BUDAPEST

BUDAPES 1

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on 840 metres from 6.30 p.m. till Close Down.—4.0 p.m., Programme by the Karl Bura Cigány Band. 5.0, Report from a Kindergarten School. 5.30, Recital by Margarete Nagy and Ludwig Laurisim. 6.30, Provincial Programme. 7.15, Extracts from a Sound Film (Lauri Volkp). 7.45, Gala Programme for the Birthday of the Regent, Horthy de Nagyhanya. 8.45, News. 9.0, Concert by the Simi Kurima Cigány Band. 9.30, Concert by the Budapest Concert Orchestra, conducted by Fridl.

CASSEL.-See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres,—11.0 a.m., Time and Chimes from the Town Hall. 11.2, Concert by the Bendix String Ensemble, relayed from the Wivex Restaurant. 1.0 p.m., Interval. 2.0, Concert by Mogens Hansens Instrumental Ensemble: Overture, Orphens in the Underworld (Offenbach); Waltz, Dolores (Waldtenfel); Overture, The Gipsy Princess (Kalman); Melody. In Sogno (Catalani) Swedish Folk Melodies (Petersen-Berger); Overture, Lodolska (Cherubini); Intermezzo, Eine Frühlingsmärchennacht (Krome): Viennese Waltz (Burell); Barcarolle (Murzilli); Two Pieces (Benatsky); Overture, The Land of Smiles (Lehar). In the Interval at 2.48 (approx.), Reading. 4.0, Talk for Young People. 4.30, Exchange and Fish Market Prices. 4.45, Talk: The Scandinavian Peasantry. 5.15,

German Lesson. 5.45, Weather. 5.54, Announcements. 6.0, News. 6.15, Time. 6.16, Talk. 6.45, Introductory Talk. with Musical Hlustrations, to the following Transmission. 7.0, Acts 1 and 2 of Rigoletto, Opera in Four Acts (Verdi), relayed from the Royal Theatre. 8.0, Talk: Anecdotes about Martin Luther. 8.20, Johan Ernst Hartmann Concert, by Leo Hansen (Violin), Ingeniam Palmhöj (Violin), Volimer Norup ('Cello) and Folmer Jensen (Harpsichoral): Trio Sonata in E Flat, Op. 1, No. 4; Minnet from the Trio Sonata in A, Op. 1, No. 2. 8.40, A Philospher at Home, An Imaginary Conversation with Ludwig Holberg (Möller). 8.55, News. 9.10, Concert by the Radio Orchestra, conducted by Mahler: Nocturnein C (Haydn); Three German Dances (Mozart); March in C (Mozart); Ballet. Music from Rosamunde (Schubert); Overture in Italian Style (Schubert). 10.0, Dance Music, relayed from the Lodberg Restaurant. In the Interval at 11.0, Time and Chimes from the Town Hall. 11.30 (approx). Close Down.

CORK .- See Athlone.

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—6.0, Programme Aunouncements. 6.5, Tecluical Talk. 6.20, Miscellaneous Items. 6.25, See Warsaw. In the intervals at 6.40, Sports Notes. 10.30 (approx.), Close Down.

DANZIG .- See Heilsberg.

DRESDEN.-See Leipzig.

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—10.30 a.m. till 12 Noon, Programme in English by the I.B.C. 10.30 a.m., Concert: Signature Tune, It beats as st sweeps as it cleans; Parade of the Tin Soldiers (Jessel); Vilja (Lehār); Lily of Laguna (Stuart); Let's put out the lights and go to sleep (Hupfeld); Avalon (de Rose); Violin Solo, Indian Love Call from Rose Marie (Friml); Isn't it heavenly (Meyer); Second Serenade (Heykens); Signature Tune. 11.0, Happy Hour. Part I—lawaiian Band; Signature Tune; Manila (Gaston); Land of the Might Have Been (Aderler); That little Lock of Hair (Verrill); Southern Serenade (Norman); That's my Love Song (Colville); Maui Giri (Libornio); Kasschamola (Trad.); Honolulu Bay (Trad.). Part 2: Dance Music: How could, we be wrong?; Shadows on the Swanee; The Wedding of Mr. Mickey Mouse; The Cage in the Window; Symphony of the Breeze; Did my Heart Beat?; If you'll say Yes, Chéric; Tick, Tock; Signature Tane. 12 Noon, Programme in English by the I.B.C. 3.30, Concert for Torquay and Exeter Listeners. Part L-Instrumental Solos: Invitation to the Waltz (Weber); Dianoforte Solo: Marigold (Mayerl); Banijo Solo: Darktown Dandies (Moirey): Valse Septembre; Violin Solo: Tambourin chinois (Kreisler): The Dripping Well (Abbey); Mandoline Solo: Capriceio Mazurka (Arienzo); Orchestra: The Whistler and his Dog (Pryor). Part II—Dance Music: Everyone loves my Marguerite; Adios Goodbye; Who do you love?; It's the Talk of the Town; A (ouple of Pals; Night and Day; Por Love Time; The Three Trees. 4.30, The I.B.C. Nursery Corner. 5.0, Concert for Plymonth and Devonport Listeners. Part I—Orchestral Concert: Her First Dance (Heysless); The Coon annong the Chickens (Heysless); The Coon annong the Chickens (Heysless); The Coon annong the Chickens (Heysless); The Open annong the Chickens (Heysless); Signature Tune. 5.45, Concert: Under a Blanket of Blne (Symes); Oh Johanna (Lawrence); Sentimental Gentieman from Georgia (Perkins); Mary Rose (Parr-Davies), 6.0, Programme in French. 10.0, p.m. till Close Down, Programme in E



DEC. 5th TUESDAY continued

kalani); Sing another Line (Carson); Adorable (Whiting); Lazybones (Mercer); Lover (Rodgers); Who's afraid of the Big Bad Wolf? (Churchill); Caminito del Taller (Castillo); Ah, but its love (Harburg); Sweet Dreams, Pretty Lady (Downey); Signature Tune. 1.0, Organ Recital; Reminiscences of dilbert and Sullivan; The Parade of the Tin Soldiers (Jessel); Song, Come out Vienna (Joh, Strauss); My Wishing song (Burke); The Organ Grinder (Stept); Song, Throw open wide your Window (Calson); Life on the Ocean (Binding). 1.30, Tango Band: Toujours, toujours (Manilla); La Palonia (Yradier); Madrid (Rotter); Will you dance through Life with me? (Swabach); Old Vienna Moon (Lebert); Little Lady (Wheller); Rammo de la Noche (Piccioni); A Girl like Nina (Hammerstein). 2.0, I.B.C. Goodnight Melody and Close Down.

FLENSBURG.—See Hamburg.

FLENSBURG.-See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel, 1,220 kc/s, 245.9 metres; and Trier, 1,157 kc/s, 259.3 metres.—12.15 p.m., Time and News. 12.25, Local News and Weather. 12.35, See Langenberg. 1.40, Hints for Housewives. 2.30, Weather. 2.40, Time and Economic Notes. 3.0, See Stuttgart. 5.0, Italian Lesson. 5.20, Legal Talk. 5.55, Talk: The World Trade in German Toys. 5.50, Weather and News. 6.0, Transmission for all German Stations, relayed from Leipzig. 7.0, See Berlin (Deutschlandsender). 7.10, See Stuttgart. 8.10, See Langenberg. 9.0, Time and News. 9.20, See Stuttgart. 9.30, Local News and Weather. 9.45, Light Music. 10.0, Unfamiliar Dances of Lanner and Strauss, by the Station Orchestra, conducted by Rosbaud. 11.0 (Also on Zeesen, 31.38 metres), Die Winterreise, Song Cycle (Schubert). 12 Midnight, Close Down.

FREDRIKSSTAD.-See Oslo.

FREIBURG.—See Stuttgart.

GENEVA.-See Radio-Suisse Romande.

GENOA.-See Turin.

CLEIWITZ .- See Breslau.

GOTEBORG.—See Stockholm.

GRAZ,-See Vienna.

HAMAR.-See Osio.

HAMBURG

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg and Hanover, 1,319 kc/s, 227.3 metres; and Kiel, 1,292 kc/s, 232.2 metres.—11.5 a.m., Market Prices. 11.10, Time, Weather and shipping Notes. 11.20, Café Concert from Berlin (Funkstunde). 12 Noon, Exchange. 12.10 p.m., Weather. 12.20, Light Music. 1.15, News. 1.35, Gramophone Concert; Solos by Dusolina Giannini: Aria and Duet from Madame Butterfly (Puecini); Intermezzo from Cavalleria rusticana (Mascagni) by the Berlin State Opera Honse Orchestra; Duet from Cavalleria rusticana (Mascagni), sung by Giannini and Benjamino Gigli. 2.0, Exchange. 2.40, Shipping and Air Mail Notes. 2.50, Ice Report. 3.0, See Heilsberg. 4.20 p.m., Concert by the Hamburg Philharmonic Orchestra, conducted by Maass: Rhapsody on Swedish Folk Songs (Elindbergh); Austrian Dances (Bittner); Romanian Dances (Bela-Bartok); Fantasia on German Folk Songs (Blumer). 5.0, Gramophone Music. 5.45, Frankfurt Exchange and Hamburg Market Prices. 5.50, Weather. 6.0, Trausmission for all German Stations, relayed from Leipzig. 7.5, See Berlin (Doutschlandsender). Prices. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Leipzig. 7.5, See Berlin (Deutschlandsender). 7.15, See Berlin (Funkstunde). 9.0, News. 9.30 till Close Down, See Berlin (Funkstunde).

HANOVER.—See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—12.5 to 1.30 p.m., Grainophone Concert; Part 1. Loewo Ballads: Tom der Reimer; Heinrich der Vogler; Die Uhr; Friderikus Rex; Odins Meeresritt; Der heilige Franziskus; Archibald Douglas; Süsses Begrähnis; Prinz Engen; Part H, Christinas is coming; Deutsches Weihnachtsspiel (von Dürre); Auf Bethlehens Fluren (von Vogt); Herbei o ihr Gläubigen (Vogt); Die Weihnachtsglocken in der Ostmark (Kirchl); Christmas Potponiri (Nagans). In the intervals at 12.20 and 1.0, News. 1.30, Programme arranged by the Post Office, with Gramophone Records. 2.0, Market Prices. 2.20, Talk for Women. 2.30. Musical Play for Children. 3.0, Gypsy Life—Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture. Der Wolgazigenner (Spialek); Gypsy Idyll (Piercy); Gypsy Festival (Heykens); Selection from Gypsy Love (Lehár); Zigennersehnsucht (von Nicklass-Kemper); Pusztalegenden (Lindsay-Theimer); Gypsy Czardas, Hungarian Wine (Muhr). 4.0 to 5.0, See Hamburg. 5.0, Book Review. 5.15, Market Prices. 5.25, Programme for Workers. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Leipzig. 7-0, News. 7.15, See Berlin (Funkstunde). 8.15, Military Band Concert, relayed

from the Town Hall, Königsberg: Königs-Marsch (R. Strauss); Extracts from Sigurd Jorsalfar (Grieg); Hallorenmarsch (Kámpfert); Saxon March; Hessian March; March of the Time of Frederick the Great; Badenweiler March (Fürst). 9.15, News. 9.30, Talk: Germany's Ilappiness and Security (on Gramophone Records).

HILVERSUM

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW. up to 5.40 p.m., and 20 kW. from 5.40 p.m. Programme of the General Broadcasting Society (A.V.R.O.).—11.10 a.m., Light Music by the Rentmeester Eusemble. In the intervals, Gramophone Records. 12.40 p.m., Concert by the Wireless Orchestra, conducted by Nico Treep; Soloist: Toos Schleijer (Soprano): Overture, Das Nachtlager von Granada (Kreutzer); Soprano Solos: (a) Aria from Die Freischütz (Weber), (b) Aria from Das Nachtlager von Granada (Kreutzer); Soprano Solos: (a) Aria from Faust (Gounod), (b) Tales from the Vienna Woods (Joh. Strauss); Selection from Tunnhäuser (Wagner); Soprano Solos: (a) Aria from Faust (Gounod), (b) Tales from the Vienna Woods (Joh. Strauss); Selection from The Geisha (Jones); Serenade (Tosti); March, King Cotton (Sousa). 1.55, Interval. 2.10, Concert (contd.): Ballet Music from Faust (Gounod); Waltz, Over the Waves (Rosas); Entry March of the Gladiators (Fucik). 2.40, Fashion Talk. 3.40, Pianoforte Recital. 4.10, Songs by a Children's Choir. 4.40, The Children's Hour. 5.10, Talk. 5.40, Concert by the Wireless Orchestra, conducted by Nico Treep: Fantasia on Christmas Songs (Samehtimi); March, The Juggler (Rosey); Oriental Suite (Popy); Waltz, Wiener Burger (Ziehrer); Syncopation (Kreisler); Interlude of Gramophone Records: Selection from Countess Maritza (Kälmán); Waltz, The Wedding of the Winds (Hall); American Cake Walk (Lincke); Waltz, España (Waldteufe). 7.10, Advanced English Lesson. 7.40, Time, Weather and News. 7.45 to 10.40, Santa Claus Programme. 7.45, Gramophone Music. 7.55, Dance Music by Kovacs Lajos and his Band. 9.15, Song Recital by Hollander. 9.35, Gramophone Music. 9.50, A Play. 10.10, Dance Music by Kovacs Lajos and his Band. 10.40, News. 10.50, Gramophone Music. 11.40 (approx.), Close Down.

HORBY,-See Stockholm.

HUIZEN

HUIZEN

160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m.
Transmitted from Kootwijk on 50 kW. from
3.40 p.m.—Programme of the Catholic Radio
Society (K.R.O.). 11.40 a.m., Police Notes.
11.55, Concert by the K.R.O. Sextet, conducted
by Lustenhouwer: March of the Dwarfs (Grieg); Humoresque No. 8 (Dvorak); A
Wedding Day on Troldhangen (Grieg); Spanish Dances (Moszkowsky); Vergangene
Zeiten (Urlach); Was Blumen träumen
(Translateur); Gramophone Records; Selection from Phi-Phi (Christiné); Prelude
(Rachmanmov); Roses from the South (Joh.
Strauss); Hallo 1830 (Borchert); Serenāde
(Haydn); Finale. 1.40, Programme for
Women. 2.40, Gramophone Music. 3.10,
'Cello and Pianoforte Recital by Kwast and
Boshart: Sonata in F (Corelli); Adagio (Bargiël); At the Fountain (Davidov). 3.25, Recitations. 3.40, Interval. 3.55, Gramophone
Music. 4.10, Recitations (contd). 4.25,
'Cello and Pianoforte Recital (contd.):
Sacred Melody (Kwast); Spanish Screnade
(Gramados); Variations on a Rococo Theme
(Tehaikovsky). 4.40, Grumophone Music.
4.55, Concert by the K.R.O. Orchestra, conducted by Gerritsen: Overture, La chasse
du Jeune Henri (Méhul); Selection from Les
Erynnies (Massenet); Eight Russian Melodies: Overture. The Magic Flute (Mozart);
Ballet Music from Prometheus (Beethoven);
Italian Serenade (Wolf). In the interval at
5.40, Talk. 6.40, Police Notes. 6.55, Medical
Talk. 7.15, Gramophone Music. 7.25, Talk,
7.40, Saint Nicholas Programme—Recitations,
Songs and Variety Items. In the interval
at 8.10 and 10.10, News. 11.40 (approx.),
Close Down.

INNSBRUCK.-See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—8.0 p.m., Amusement Guide, Financial Notes, Racing Results and News. 8.10, Agricultural Talk, 8.20, English Lesson. 8.35, Radio Concert. In the interval at 9.0, News and Weather.

KALUNDBORG.-See Copenhagen.

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—6.0 p.m., Time, Weather, Announcements, Exchange and Programme Announcements, 6.30, Don Giovanni—Opera (Mozart) relayed from the State Theatre. In the intervals, Aunounce-ments and Sports Notes.

KIEL.-See Hamburg.

KLAGENFURT .- See Vienna.

KOSICE.-See Prague.

LANGENBERG

LANGENBERG

835 kc/s, 473 metres; 60 kW.—12.25 p.m.,
News and Weather. 12.35, Opera Music on
Gramophone Records: Selections from Il
trovatore (Verdi); Carmen (Bizet); Cavalleria rusticana (Mascagni); Hansel and
Gretel (Humperdinck). 2.0, Reading (Fritz
Reuter). 2.30, Market Prices. 2.50, Political
Address. 3.0, See Stuttgart, 5.0, See
Frankfurt. 5.45, News. 6.0, Transmission
for all German Stations, relayed from
Leipzig. 7.0, See Berlin (Deutschlandsender).
7.10, See Stuttgart. 8.10, Dance Music by
the Station Band, conducted by Kühn. 9.0,
See Frankfurt. 9.20, A Flying Visit. 9.35,
News, Weather and Sports Notes. 9.45 till
Close Down, See Frankfurt. 12 Midnight,
Close Down.

LAUSANNE-See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—12.25 p.m., Gramophone Music. 1.0, News. 1.10, Review of Christmas Books. 2.5, Reading (Timmermanns): St. Nicholas in Need. 2.25, Recital of Contemporary Organ Music by Georg Winkler; Two Choral Preludes (Kickstat): (a) Du meine Seele, sings, (b) Wachet auf; Passacaglia and Fugue in D Minor, Op. 38b (Schindler). 2.45, Market Prices. 3.0 to 4.50, See Munich. 4.50, Recital by Lisny Bühler (Soprano). 5.10, Reading; Kämpfe für Recht and Freiheit (Ulrich von Hutten). 5.30, Reading from Sturn 33 (Maikowski). 5.45, Economic Notes. 6.0, Trausmission for all German Stations; Concert of Weber Chamber Musie: Wollgandt (Violin), Herrmann (Viola), Eichhorn (Cello), Bartuzat (Flute), Beilke (Soprano), and Schmidt (Bass); Conductor: Blumer (Pianoforte); Sonatina in F for Violin and Pianoforte; Op. 10, No. 1; Soprano Solos, with Pianoforte Accompaniment: (a) Wiegenied, (b) Liebe-Güühen, (c) Das Veilchen im Tale, (d) Elfeulied; Trio in G Minor, Op. 63, for Flute. (Cello and Pianoforte; Baritone Songs with Pianoforte Accompaniment: (a) Was zieht zu deinem Zauberkreise, (b) Sind es Schmerzen, sind es Frenden, (c) Ballad: Was stürmet die Heide herauf; Extracts from the Pianoforte Quartet, Op. 8. 7.0, See Berlin (Dautschlandsender), 7.10, Review of the Day's Events. 7.20, See Munich. 8.30, Dance Music by the Emiga News. 10.0, Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber: Champagne Overture (von Banssern): Suite No. 1 from L'Arlésienne (Bizet): Seven Dances (Kienzl): Selection from Aida (Verdi); Waltz from Serenads No. 2 (Volkmann); Rhapsody in D (Lacombe); Czardas from Ritter Pasman (Joh. Strauss); Waltz from Der Opernball (Heuberger). 11.0 (approx.), Close Down.

LINZ .- Sec Vienna.

L JUBL JANA

522 kc/s, 574.7 metres; 7 kW.—6.0 p.m.,
French Lesson. 6.30, Educational Programme. 7.0, Talk on Music, with Orchestral Illustrations. 7.30, Landscapes—Instrumental Concert. 8.30, Weather and News. 8.50, Vocal Concert. 9.30 to 10.0, Programme in English by the I.B.C.: International Broadcasting (Plub Concert: Blaze Away; Wine, Wonsu and Song; Berceuse de Jocelyn; An Old Violin; Romance; The Blue Danube; Träumerei; On the Mall.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—Belgian Evening. 7.0, Gramophone Concert: Concert in A Minor, Op. 16 (Grieg), by Arthur De Greef and the Royal Albert Itall Orchestra, conducted by Sir Landon Ronald. 7.35, Viola d'amore Recitat by P. L. Neuberth: Sonate in D (Loeillet); Largo (Leclair); La Girouete (François du Val); Sarabande et Tambourin; Sonata in B flat. 8.5, Gastromonical Talk. 8.15, Belgian Concert by the Radio Orchestra, conducted by Henri Pensis: Tableaux grees: (a) Mirologuc, (b) Danse attique (Marsick); Sur la Campagne endormie (Dupuis); Jour de Récolte (Dupuis); Suite pastorale (Vreuts). 8.50, News in French. 9.0, Concert by the Station Orchestra, conducted by Henri Pensis: Overture, Oberon (Weber); Suite variée (Pierné); Cortège oriental (Leemans); Liszt Potpourri (Urbach); Un peu d'amour (Silesu); Marche anicale (Zeh). 9.45, News in German. 9.55, Accordion Music by Jean Meder. 10.25, Dance Music by the Radio Jazz Band, conducted by Ferry Jusa.

LWOW

788 kc/s, 381 metres; 16 kW.—6.25 p.m., See Warsaw. 6.45, Sports Notes. 6.47, See Warsaw. 6.55, News. 7.0, See Warsaw. 10.5, Grumophone Music. 10.30 (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 15 kW.

—7.40 p.m., Radio Gazette for Lyons and
the South East. 8.30, See Paris (Eiffel
Tower). After the Relay, News.

MADRID

MADRID

ARANJUEZ, EAQ, 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Concert of Popular Music. In the interval at 10.48, Radio Chronicle. 12 Midnight to 1.0 a.m. (Wednesday), Concert arranged by the International Broadcasting Company of London, 12 Midnight, Dance Music: Oh, Peter; I called to say Good-night; Let's all be happy together; A Woman should stick to her Man; My Wishing Song; Under a Blanket of Blue; Let's try again; Love is the Thing. 12.30 a.m. (Wednesday), Accordion Band Music; Coal Black Mannny (St. Helier); La Tourterelle (Dantaré); Țango de Paques (Cuvelier); Swanee (Gershwin); March (Lucassi); Javanette (Alexander); Petit Jean (Cuvelier); Volante March (Alexander). 1.0, I.B.C. Good-night Melody and Close Down.

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres 2 kW.—7.8 p.m., Chimes, Exchange, Topical Talk and Dance Music. 7.30, Talk by Joaquin España Cantos, Talk on Hygiene and Dance Music (contd.). 8.15, Radio Journal. 8.30 to 9.15, Interval. 9.18, English Les on. 9.30, Chimes, Time and Radio Journal. 9.45 (approx.). A Musical Comedy. 11.45, Radio Journal. 12.0 Midnight, Chimes. 1.0 a.m. (Wednesday) till Close Down, Programme in English by the I.B.C. 1.0, Light Music: My Gipsy Rhapsody (Altman); Lovey (Goodhart); Reflections in the Water (Loeb); I've told every little Star (Hammerstein); Headin' for a Weddin' (Adamson); Swanee (Gershwin); Song: Shipmates o' Mine (Sanderson); We belong together (Hammerstein); Friend o' mine (Sanderson); Stay on the Right Side of the Road (Bloom); That's Georgia (Young); Waltzing in a Dream (Crosby); From me to you (Conney); 13th December Stomp (van Beeck); Let's call it a Day (Hemterson). 2.0, I.B.C. Good-night Melody and Close Down.

MALMO.-See Stockholm.

MILAN .- See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—6.0 p.m., See Prague. 6.30, See Brno. 7.0, See Prague. 8.0, See Brno. 8.30 tili Close Down. See Prague. 10.0 (approx.), Close

MOTALA.—See Stockholm.

MUHLACKER.-See Stuttgart.

MUNICH

MUNICH

563 kc/s, 533 metres; 1.5 kW. Relayed by Augsberg and Kaiserslautern, 536 kc/s, 559 metres; and Nürnberg, 1,256, 239 metres.—
12.25 p.m., Gramophone Concert. 1.0, See Leipzig. 1.10, Weather, Agricultural Report, Exchange and Programme Notes. 1.20, Songs of the Nazi Movement. 1.50, Programme for Hoasewives, 2.30, Military Talk. 2.50, Weather and Agricultural Report. 3.0, Orchestral Concert, conducted by Irich Kloss. Overture, Cagliostro in Wien (Joh. Strauss); Hungarian Rhapsody, No. 5 (Liszt) Selection from Li-tai-Pe (Franckenstein); Serenade and Spanish Waltz, Rosita (Steinberger); Bailet Suite (Kark); Lawendel-Walzer (Reindl); Serenade, 11 bacio (de Micheli); Selection from Der Obersteiger (Zeller). 4.30, Reading (Czibulka). 4.50 (from Nürnberg), Brahms Recital. Lissy Bühler (Contralto), Wilhelmine Holzinger-Rau (Pianoforte) and Paul Gröber (Viola); Two Pianoforte Pieces, Op. 76: (a) Caprice in C Sharp Minor, (b) Caprice in B Minor; Songs with Viola and Pianoforte Accompaniment: (a) Gestillte Sehnsucht, (b) Geistliches Wiegenlied. 5.10, Talk for Young People. 5.30, Light Music on Gramophone Records. 5.45, Time, Weather and Agricultural Report, 6.0, Transmission for all German Stations, relayed from Leipzig. 7.0, See Berlin (Doutschlandsender). 7.10, See Leipzig. 7.30, A Winter's Tale—Comedy (Shakespeare), with Incidental Music by Karl List. 8.40, Dance Music from Leipzig. 9.20, See Leipzig. 9.40, Weather, Agricultural Report, Exchange and Sports Notes. 10.0, See Leipzig.

NAPLES .- See Rome.

NOTODDEN.—See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Rjukan, 671 kc/s, 447.1 metres; and Jelöy LCL, 6,990 kc/s, 42.92 metres.—10.40 a.m., Broadcast for Schools. Gramophone Music. 4.0, Recitations, 4.30, Gramophone Music. 5.0, Programme for Housewives. 5.45, Accordion Solos by Toralf Tollefsen. 6.0, Announcements, Weather and News. 6.30, English Lesson. 7.0, Time. 7.2, Concert by the Station Orchestra, conducted by Hugo Kramm: Pavane (Pouget); Les Tricotets (Pouget); Allemande (Corelli);



Sarabande (Corelli); Bouirée (Bach); Gavotte (Rameau); Minnet (Mozart); Gigne (German); Rondino (Beethoven); Contradanse (Beethoven); Kuss-walzer (Joh. Strauss); French Polka (Joh. Strauss); Mazurka and Waltz-Boston (Wieniawsky); One-step (Braham); Rumba (Gilbert). 8.10, Literary Review. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Saxophone Solos. 9.45 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

856 kc/s, 539.5 metres; 3 kW.—7.0 p.m., Dopolavoro Announcements, Tourist Report, Agricultural Notes and Giornale Radio. 7.20, Gramophone Music. In the interval at 7.30, Time and Announcements. 7.45, Othello—Opera in Four Acts (Verdi), on Gramophone Records. In the intervals, Talk and Announcements. 10.0, Giornale Radio

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m., (Preliminary and 6-dot Signals).—5.45 p.m., Le Journal Parlé. 7.15, Weather and News. 7.30, Light Music on Gramophone Records. 7.45, Talk on the History of Art. 8.0, Science Talk. 8.15, Political Review. 8.30, Romeo and Juliet.—Opera (Berlioz).

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Granophone Music. 7.5, Sponsored Presentation of a Film. 7.15, Le Journal Parlé, 7.30, Sponsored Gramophone Concert. 8.0, Legal Talk. 8.5, Film Review. 8.15, Interval. 8.35, Concert by the Station Orchestra, conducted by Théo-Dore Mathieu. 10.30, News.

PARIS

PARIS

RADIO-PARIS; Call CFR 174 kc/s, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture, 7.30, Weather and Physical Culture (contd.). 7.45, Gramophone Music. 8.0, Weather and Press Review. 12.0 Noon, Gramophone Concert. Part I. Opera Music: Extracts from Don Jiovanni (Mozart) and Marouf (Rabamd). Part II. Opera-Comique: Selection from L'amant jaloux (Grétry) zemire et Azor (Grétry) and Lakmé (Delibes). Part III, Operetta Music: Selection from Les monsquetaires an convent (Varney): Le jour et la nuit (Lecocq). La grande duchesse de Gerolstein (Offenbach). Dédé (Christiné). Sidonie Panache (Szulc). and New Moon (Romberg). In the intervals at 1.0 and 1.30, Exchange. 2.0, Exchange. 2.5, Announcements. 3.45, Exchange and Market Prices. 4.30, Elementary English Lesson. 6.20, Weather and Agricultural Talk. 6.40, German Lesson. 7.0, Talk on Art: Despiau, a Great Sculptor. 7.20, Gramophone Music. 7.45, Review of the Anglo-Saxon Press, Commercial Notes and News. 8.0, Two Comedies: (a) La ménagère apprivoisée (Veber). (b) Les uns chez les autres (Giafferi). In the interval, News, Weather and Review by Pierre Scize. 9.15, Press Review and News. 9.30, Musical and Literary Programme.

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—7.0 p.m., Four Acrs. 7.15, Musical Originalities, from New York. 7.30, KDKA metres.—7.0 p.m., Four Acrs. 7.15, Musical Originalities, from New York. 7.30, KDKA Home Forum. 8.0, Rochester Orchestra, from New York. 9.15, Congress of Clubs. 9.30, News and Markets. 9.45, Brown Palace Orchestra, from New York. 10.15, KDKA Kiddies' Klub. 10.30, Singing Lady, from New York. 10.45, Orphan Annic, from New York. 11.0, News, Pat Haley. 11.15, Sports, Programme Preview. 11.30, Evensong. 11.45, Lowell Thomas, from New York. 12 Midnight, Amos 'n' Andy, from New York. 12.15 a.m. (Wednesday), Marvellons Melodies. 12.30, Lois Miller, Organist. 12.45, Programme to be announced. 1.0 to 2.30, New York Relay. 1.0, Crime Clues. 1.30, Adventures in Health. 1.45, Trade and Mark. 2.0, Musical Memories. 2.30, Ortiz Tirado, from New York.

PORSGRUND.—See Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.-3.0 p.m.,
Concert for Children by the Czech Philharmonic Orchestra, conducted by Stapka, relayed from the Smetana Hall: Slovak Saite,
Op. 32 (Novák); Peer Gynt Snite (Grieg),
3.55, Programme for Young People. 4.15,
Topleal Talk for Workers. 4.35, German
Conversation Lesson. 4.50, Gramophone
Music. 5.5, Agricultural Talk. 5.15, Topical
Talk for Workers. 5.25, News in German,
5.30, German Transmission: Talk, Modern
Christian Art. 6.0, Time, News and Weather.
6.10, Talk: The Changing World. 6.30, Concert by Pupils of the Prague Institution for
the Education of Blind Children: Introductory Talk; Andante from the Pianoforte
Trio, Op. 36 (Friml); Fantasia on Themes
from La Traviata (Verdi-Popp); Ave Verum
for Four French Horns (Mozart). 7.0, Karel
Moor Concert by the Station Orchestra, con-

DEC. 5th TUESDAY continued

ducted by Otakar Parik. Soloists: Vera Zychová (Recitations) and Lev Uhlir (Songs).
8.0, Songs on Grannophone Records. 8.30, Lecture Recital: The Development of the Pianoforte Sonata; Sonata Quasi una Fantasia in C sharp minor, Op. 27, No. 2 (Beethoven); Sonata in F minor, Op. 57—the Appassionata (Beethoven). 9.0, Time, News, Review of the Day and Sports Notes. 9.15, Grannophone Music. 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc s, 403 metres; 25 kW; and Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15 a.m. (from Lausanne). Gymnastics. 11.28, Time Signal from Neuchâtel Observatory. 11.30, News and Weather. 11.40 (from Lausanne), Gramophone Concert. 12 Noon (from Lausanne), Financial Notes. 12.10 p.m. (from Lausanne). Financial Notes. 12.10 p.m. (from Lausanne). Gramophone Concert (contd.). 1.0, Interval. 2.58, Time Signal from Neuchâtel Observatory. 3.0 (from Lausanne). Concert by the Small Radio-Lausanne). Concert by the Small Radio-Lausanne Orchestra, conducted by Moser. Part I: French and Viennese Operetta Music. In the interval. Waltz Songs by Mme. Talalaev. Part II: Folk Music. Part III: Jazz Music. 5.0 (from Lausanne), Talk for Women. 5.30 (from Lausanne), German Lesson. 6.20 (from Lausanne). Talk on the Poet. Louis de Courten. 6.45 (from Lausanne), Concert by the Small Radio-Lausanne Orchestra, conducted by Moser, 7.30 (from Lausanne). Talk on the Poet. Louis de Courten. 6.45 (from Lausanne), Concert by the Small Radio-Lausanne Orchestra, conducted by Moser, 7.30 (from Lausanne). Talk on the Poet. Louis de Courten. 6.45 (from Lausanne). Talk on the Poet. Louis de Courten. 6.45 (from Lausanne), Concert by the Small Radio-Lausanne Orchestra, conducted by Moser, 7.30 (from Lausanne). Les Fourberies de Scapin—Comedy in Three Acts (Molière). 9.0, News and Weather. 9.10, Dance Music, relayed from the Hungaria Restaurant, Montreux. 10.0 (approx.), Close Down.

RJUKAN.-See Oslo.

ROME

ROME
Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres from 7.15 p.m.; and 2RO, 11,810 kc/s, 25.4 metres—12.5 (approx.) to 1.15 p.m., Concert from Turin. In the intervals from 12.30 to 12.45, (Giornale Radio and Exchange and at 1.0, Time and Announcements. 3.30, Children's Radio Review. 3.55, Giornale Radio and Exchange. 4.10, Weather. 4,15 to 5.0, Orchestral Concert. 5.40 (Naples), Shipping and Sports Notes. 5.45, Lesson in Morse and Dopolavoro Report. 6.0, Tourist Report. 6.10, Wheat Market Report. 6.20, News in Foreign Languages. 6.40, Giornale Radio. 7.0, Time and Announcements. 7.15, Choral Concert. 8.0, Becthoven Concert. Soloist: Margherita Cossa (Soprano). Leonora Overture No. 3; Five Scottish Songs, with Violin, Pianoforte and 'Cello accompaniment. 8.45, L'ignota—Comedy in One Act (Ossip Felyne). 9.15 (approx.), Variety Music and Dance Music. 10.0, Giornale Radio.

SALZBURG.-See Vienna.

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAD on 19.56 metres.—12.45 a.m. (Wednesday), Stock Reports. 1.0 to 3.45, New York Relay. 1.0, Popular Programme. 1.30, Wayne King's Orchestra. 2.0, Ben Bernie's Orchestra. 2.30, Fire Chief Programme. 3.0, Lives at Stake. 3.30, Madanne Sylvia of Hollywood. 3.45, Plano Pals, followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 69 kW: Basie, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—5.50 to 6.5. a.m. (from Berne), Gymnastics, 9.20 to 9.50 (from Zürich), Broadcast fer Schools, 11.0 (from Zürich), Talk for Honsewives, 11.5 (from Zürich), Light Orchestral Music, 12.25 (from Zürich), Light Orchestral Music, 12.25 (from Zürich), Concert by the Small Station Orchestra, conducted by Max Scherbaum, 3.0, See Radio-Suisse Romande, 5.0 (from Berne), Grieg Concert (on Granophone Records), 5.30 (from Berne), Talk: The Feast of St. Nicholas, 6.0 (from Berne), Talk: The Cast of St. Nicholas, 6.0 (from Berne), Snow Report, 6.20 (from Berne), Talk on Bach and Handel Music with Illustrations by Alice Ehlers (Harpsichord), 6.50 (from Berne), Introductory Talk to the Following Transmission, 7.0 (from Berne), Halka—Opera (Moniuszko), relayed from the State Theatre, In the interval at 8.20 (approx.), Weather and Nows, 10.0 (dapprox.), Close Down In the interval at 8.20 (approx.). We and News. 10.0 (approx.), Close Down.

SOTTENS.-See Radio-Suisse Romande.

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres;

Ostersund, 402 kc/s, 746.2 metres; and Sundsvall, 554 kc/s, 542 metres.—4.5 p.m., A Play for Children. 4.45, Gramophone Music. 5.45, French Lesson. 6.15, Weather and News. 6.30, Talk: Self-Government in sweden. 7.0, Concert. 8.15, Literary Review, relayed from Malmö, 1,301 kc/s, 230.6 metres. 8.45, Weather and News. 9.0, Concert of Chamber Music; Karin Juel (Songs), Roman Dukstulsky ('Cello), and Sune Waldimit Engström and Gustav Kjellberg (Pianoforte): Three Songs; 'Cello Solos: (a) Nocturne (Tchaikovsky), (b) Serenade (Borodin), (c) Tonadilla (de Laserna); Five Songs; 'Cello Solos: (a) Spanish Dance (Granados), (b) Hymu to the Sun (Rimsky-Korsakov), (e) Gopak (Mussorgsky). In the interval, Reading (Selma Lagerlöf). 10.0 (approx.), Close Down.

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.30 a.m., Gramophone Concert. 12 Noon, Concert by the Station Orchestra, conducted by de Villers, Part I. Mozart Music for the Anniversary of the Composer's Death. Overture, II Re pastore; Violin Concert in D; Ballet Music from Les petits riens. 12.45 p.m., News. 1.0. Time and Exchange. 1.5, Concert (contd.). Part II. A Midsummer Night's Dream (Mendelssohn); The Moldan (Smetana); Divertissement (Lalo); Spanish Dances (Granados). 2.0, Interval. 4.45, Talk on the Colonies: Industry and Art in Sahara. 5.0, Orchestral Concert, conducted by Roskam. Selection from Polenblut (Nedbal); Sous boi. (Staub); Ballad for 'Cello and Pianoforte (Bron); Dynamiden-Walzer (Jos. Strauss); Minuet fleuri (Ganne); Suite, Sur le mode mineur (Gabriel-Marie); Overture, Princess Rosina (Lineke). 6.0, Talk; French Canadians. 6.15, Talk; Topical Problems, 6.30, Extracts from Figaro—Opera (Mozart) for the Hundred and Forty-Second Anniversary of the Composer's Death, 7.30, Time and News, 7.45, Gramophone Music. 8.0, Press Review in German, Lottery Results and Announcements. 8.30, See Paris (Eiffel Tower). 10.30 (approx.), tlose Down.

STUTTGART

SUNDSVALL.—See Stockholm.

TOULOUSE

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385
metres; 8 kW.—6.0.p.m., News. 6.15, Opera
Music: Overture. Benvennto Cellini (Berlioz); Overture. Don Giovanni (Alozart);
Arias from Manon (Massenet), and Mirella
(Gounod); Duet from La Bôheme (Puccini);
Aria from Mignon (Thomas), 6.45, Talk;
French Colonies in Africa, 7.0, Tango
Songs, 7.15, News. 7.30, Overture, Le roi
d'Ys (Lalo), by the Symphony Orchestra,
7.45, Chansonnettes, 8.0, Light Music, 8.15,
Operetta Music: Selection from Nina Rosa
(Romberg); Aria from The Merry Widow
(Lehár); Waltz (Shigret); Aria from
Véronique (Alessager), 8.30, Orchestral
Concert: Désirs d'amour (Michiels); Liebeslied (Strauss); Melody (Oscheit); Bourée
fantasque (Chabrier); Coronation March
(Krgtschimer); Selection from The Secret
Marriage (Cimarosa); Old Spanish Song
(Aubert), 9.0, At the Music-Hall, a Radio
Fantasy, 9.30, Sound Film Music, 9.45,
Opera Arias: Arias (rom The Damnation of
Faust (Berlioz), Lohengrin (Wagner), La
Favorita (Donizetti) and Prince Igor (Borodin), 10.0, Military Music, 10.15, News,
10.30, Concert for Listeners in Morocco:
Part I, Accordion Solos: Part II, Songs,
11.0, Music by the Petit Ensemble: Pianoforte Duet, Variations on a Theme (Beethoven); Melody (Blon); Moonlight on the
Alster (Fetras), 11.15, Dance Music, 12
Midnight, News, 12.5 a.m. (Wednesday),
Light Music, 12.15, Orchestral Music: Selection from Die schöne Galathee (Suppé)
and Stradella (Elotow), 12.30 (approx.),
Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.-4.10 p.m. till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

1.096 kc's, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 598 kc s, 501.6 metres.—4.10 p.m., Dance Music. 5.0 to 5.5, Weather. 5.40, Giornale Radio, Dopolavoro Report and Gramophone Music. 6.0, Time, Report of the Royal Geographical Society and Gramophone Music. 6.10, Wheat Market Report. 6.20, News in Foreign Languages. 6.40, Gramophone Music. 7.0, Giornale Radio, Weather and Gramophone Records. 7.15, See Rome. 8.0, A Kiss in Spring—Operetta (Kalman). Talk and Notes on Art in the intervals. Giornale Radio after the Operetta.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in English. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 552 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 248.9 metres.—11.0 a.m., Concert by the Wiener Symphoniker, conducted by Josef Holzer: Arminen-Marsch (Zuber); Overture, Indigo und die vierzig Räuber (Joh. Strauss); Selection from Aphrodite (Oberleithner); Violin Solo: Berceuse (Wetchy); Waltz, Etincelles (Waldtenfel); Gavotte, Blondköpfeben (Pauspertl); Waltz Song: 's Herzel der Wienerin (Jurck); Humoresque Für jeden etwas (Landi); Intermezzo from The Count of Luxembourg (Lehár). 12 Noon, Time, Weather and Announcements. 12.10 p.m., Concert (contd.); March, Vaterlandstrene (Stilp); Song. Du warst mein ganzes Glück (Beeth); Russian Melodics (Hpinksy); Waltz, An mein Wien (Ertl); Entracte, La Sylphide (Schmeling); Sercnade (Ibol Dauber); Potpourri, Strefflichter (Morena). 2.0, Time, Weather and Market Prices. 2.15, Programme for Children. 2.40, Talk: Winter Sports. 2.55, Song and Pianoforte Recital by Dora Erwald (Mezzo-Soprano), Johann Santha (Bass) and Berta Engel-Miller (Pianoforte): Four Pieces (Frank Mitter); (a) Kann dir keine Rosen bringen, (b) An der Maros, (c) Liebe, (d) Der letzte Tanz; Mezzo-Soprano Solo: Sehnsucht (Pamer); Four Pianoforte Solos from Waldszenen (Schumann); Die Türken (Othmar Wetchy); Odins Mecresritt (Löwe); Song from The Golden Cross (Brüll). 3.25, Programme for Children. 3.55, Talk on Art. 4.20, Gramophone Concert. Part I: Records of Alexander Girardi (Songs): Songs from Schützenlies! Puffer! Zigennerprimas. Künstlerblut, Heimliche Liebe, Wiener Frauen, Rieche Mädchen and Der Versehwender. Part II: March Potpourri (Kaiser). 5.0, Talk: Fifty Years of International Post-Graduate Courses of the Vienna Faculty of Medicine. 5.10, The Mitterndorf (Christmas Play, relayed from Mitterndorf, Co, Topical Talk, 6.15, Time, Weather and Programme Announcements. 6.25, Tiefdand-Opera in Two Acts and a Prelude (d'Albert), relayed from the V

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—10.57
a.m., Time Signal and Fanfare from St.
Mary's Church, Cracow. 11.5, Gramophone
Music. 11.30, Radio Journal. 11.35,
Weather. 11.38, Gramophone Records of
Orchestral Music. 12 Noon, Interval. 1.25
p.m., Announcements and Economic Notes.
1.40, Orchestral Concert. 3.25, Announcements. 3.40, Polish Lesson. 3.55, Pianoforte Recital. relayed from Gracow, 959
kc/s, 312.8 metres. 4.25, Song Recital by
Mme. Pomorska: Arias from Tosca
(Puccini): The Bartered Bride (Smetana);
Manon (Massenet): Phidyte (Dupare): Mandoline (Debussy); Song (R. Strauss); C'est
le printemps qui Uentoure (Gorski); Les
plus belles chansons (Karlowicz). 4.50,
Agricultural Correspondence. 5.0, Talk:
Modern Poland. 5.20, Music Correspondence.
5.35, Opera Music on Gramophone Records.
6.0, Programme Announcements. 6.5, Miscellaneous Items. 6.25, Topical Talk. 6.40,
Sports Notes. 6.47, Radio Journal. 7.0,
La fille de Madame Angot, Operetta in Three
Acts (Lecocq). In the Interval, Reading.
9.15, Dance Music from the Oaza. In the
Interval at 10.0, Weather and Police Notes.

ZAGREB

977 kc/s, 307 metres; 0.75 kW.—6.25 p.m., Announcements and News. 6.55, Educa-tional Talk. 7.15, Gramophone Concert, 7.45, Concert by the Radio Orchestra. 8.45 Dance Music. 9.0, News, Weather and Pro-gramme Announcements. 9.15, Dance Music 30.0 (approx.) (Jose Doyne gramme Announcements. 9. 10.0 (approx.), Close Down.

ZURICH.-See Schweizerischer Landessender.



ALGIERS

ALGIERS

825.5 kc/s, 363.3 metres; 13 kW.-7.0 p.m.,
Financial Notes, 7.10, Shipping Notes,
7.15, Agricultural Notes and Weather Report, 7.20, Chaliapine Song Recited on
Gramophone Records, 7.55, News, 8.0,
Time Signal, 8.2, Lottery Results, 8.10,
Messager Concert by the Station Orchestra,
conducted by Henry Defose, In the interval at 8.35, News and Light Music, 9.40,
News, 9.45, Tyrolian Songs, 9.55, News.

ATHLONE

ATHLONE

| 725 kcs, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres; and Cork, 1,337 kc/s, 224.4 metres,—1.30 to 2.30 p.m., Time Signal, Weather Report. Stock Report and Gramophone Concert. 6.0, Programme for Children, 6.45, News. 7.0, Gaelie Talk. 7.15, German Lesson, 7.30, Time Signal, 7.31, The Messiah—Oratoria (Handel), relayed from the Town Hall, Sign. 9.30 to 10.30, Programme by the 1.B.C. (Feland). Ltd. 9.30, Dance Music: This time it's Love; Moonstruck; Sweet Dreams, pretty Lady; Mississippi Basin. 9.45, Dance Music: Signature Time: There's a new Day comin'; The School Song; Ding, Dong, Ding; Remember my Forgotten Man; Don't Glame me; Signature Tune: There's a new Day comin'; Wareless World Announcement, 10.0, Concert arranged by the International Broadcasting Company (Freland), Ltd.: Orchestral Music; Potpourri. Mehodions Memories (Finck); Ständehen (Heykens); Smilm through (Penn) Raeing Commentary; Selection from Waltzes from Vienna (Joh. Strauss-Korngold); Xylophone Solo: Looping the Loop (Gaston); Glowworm's Idyll (Siche); The Merry Widow Waltz (Lehár). 10.30, LB.C. Gnodnight Melody, followed by News and Weather. 10.40, Pianoforte and Violin Reeitat by Posy Shreider and Helen Vates. 11.0 (approx.), Close Down.

BARCELONA

BARCELONA

EAJ1, 860 ke/s, 348.8 metres; 8 kW. 6.0 p.m., Trio Concert. 7.0, Request Gramonhone Records. 7.30, Exchange, Relay from the Ayuntamiento and Gramophone Music. 8.30, Gramophone Music. 8.30, Cataban Educational Programme: Geography and History Lessons, followed by News. 9.0, Chimes, Weather and Exchange, 9.5, Concert by the Station Orchestra: Two Step. Mi Triana (Mora); Waltz. Un doux poème (Waddteufel); A Spanish Legend (Rust); Internezzo (Torrandell); Barcarolle (Moszkovsky); Pièce (Antiga); Overture, Prometheus (Beethoven). 10.0, La Casa de Quiros—Faree in Two Acts (Arniches). In the interval at 11.0, News. 12 Midnight, Close Juwn

1,112 kc s, 269.8 metres; 20 kW. 3.30 p.m., Programme for Children, 3.55 to 7.0, See Rome. 7.0, News in Albanian, 7.15, Sec Turin, 7.30 till Close Down, See Rome.

BASLE,-Ser Schweizerischer Landessender.

BELGRADE

DELIGRADE

697 kc/s, 430.4 metres; 1.8 kW.-5.55 p.m.,
Time and Programme Announcements. 6.0,
Gramophone Music. 6.30, Talk. 7.0 to 9.0,
Concert from Ljubljana, 522 kc s, 574.7
metres. 7.0, Vocal and Orchestral Music.
7.45, Pinnoforte Recital, 8.30, Vocal Quartets.
9.0, Time and News, 9.5 (approx.), Concert
by the Radio Orchestra.

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHSSENDER), 183.5 kc s, 1,635 metres; 60 kW, 12.45 p.m. News, 1.0, Gramophone Concert: Overture, Il Seraglio (Mozart); Selection from Hausel and Greet (Humperdinek); Overture, Cosi fan Intte (Mozart); Air from Mignon (Thomas); Overture, The Secret Marriage (Cimarosa); An jenem Tag, from Raus Heiling (Marschner); Overture, Fra Diavolo (Anther); Air from Lakuné (Delibes), 1.30, Children's Songs, 1.45, Programme for Children, 2.0, Talk for the Housewife, 2.30, Weather and Exchange, 2.45, Talk; The German Book Fair, 3.0, Concert from Frankfurt, 4.0, Topical Programme, 4.20, Lied dinterm Schält A Immorous Play, with Music, 5.0, Poems, 5.5, Organ Recital by Karl Linder-Heidelberg; Introduction and Passacaglia in E Minor (Rasch); Plassamezo Variations (Renter). In the interval, Address by Alfred Bierschwale, 5.30, German for Germans, 5.50, Weather and Announcements, 6.0, Transmission for all German Stations, relayed from Stuttgart, 7.0, Today's Motto, 7.5, Concert in Aid of the Winter Relief Fund; The Berlin Philharmonic Orchestra, conducted by Edwin Lindner; Soloists: Rosalind von Schirach (Soprano) and Haus Fidesser (Temor); Overture, Oberon (Weber); Soprano Aria from Legend of the Grail, from Lohengrin (Wagner); Soprano Aria from Der Friedensengel (Siegfried Wagner); Befreites Deutschland (Reznizek); Les Préludes (Liszt); Prelude to Act IV of Carmen (Bizet); Innet from Carmen (Bizet). In the Interval at 7.50 (approx.), Topical Talk; Tales from the Vienna Woods (Stranss). 8.45, Santa Claus Programme, 9.0, News and Sports Notes, 9.30, Wireless Technical Talk, 9.45, Weather, 10.0, Concert from Breslau. 11.0 (approx.), Close Down.

DECEMBER THE SIXTH

BERLIN

BERLIN
FUNKSTUNDE, 716 kg s, 419 metres; 1.5 kW. Relayed by Zeesen, DJG, DJA, DJD, DJB, and DJE. 4.0 p.m., 81. Nicholas' Programme. 4.30, Pianoforte Sonata in B minor (Liszt), by Margarete Ausorge. 6.0, Transmission for all German Stations, relayed from Stuttgart. 7.5, See Hamburg. 9.0, News. 9.30, See Hamburg. 11.0 (approv.), Close Down.

BERNE,-See Schweizerischer Landessender. BEROMUNSTER. -- See Landessender, Schweizerischer

BODEN.—See Stockholm.

BODO,-See Oslo.

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW. 6.15 p.m., Radio Journal. 7.35, News. 7.40, Dramatic Criticisms. 7.55, Lottery Results. 8.0, Agricultural Talk. 8.15, News. 8.30, Gramo-phone Music. 9.0, Orchestral Concert

BRATISLAVA

1,076 kc s, 279 metres; 14 kW, -3.0 p.m., Concert by the Station Orchestra, conducted by Schimpel; Overture, Semiramis (Rossini); Spanish Dances, Nos. 1 and 5 (Moszkowski); Slay Dance, No. 2 (Dvorak); Miniature by Schimplel; Overture, Semiramis (Rossini); Spanish Dances, Nos. 1 and 5 (Moszkowski); Slav Dance, No. 2 (Dvorak); Miniature Eelogue (Ridky), 3.50, Programme for Children, 4.20, Gramophone Music, 4.40, Talk for Children, 4.55, Hungarian Programme: Talk, with Gramophone Huntrations Franz Erkel, the Founder of Hungarian National Music, 5.55, Hints for Honsewives, 6.0, See Prague, 7.0, See Brno. 9.0, See Prague, 9.15 (approx.). Close Down.

BREMEN.-See Hamburg.



A CONCERT FROM BRUSSELS. M. Désiré Defauw, the celebrated conductor, who will direct this evening's orchestral concert from Brussels No. 1.

BRESLAU

BRESLAU

923 kc s, 525 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—1.20 p.m., Gramophone Concert. 1.40, Programme arranged by the Post Office, with Gramophone Records. 2.0, Market Prices and Exchange. 2.15, Reading (Schäfert. 2.25, Educational Talk. 3.0 to 5.10, Sec Leipzig. 5.10 (from Gleiwitz). Agricultural Prices and Poetry Reading. 5.35, Talk by an Unemployed Man. 5.50, Programme Annotacements and Market Prices. 6.0, Transmission for all German Stations, relayed from Stuttgart. 7.0, Sec Leipzig. 7.10, The Upper Silesian Cantata (Strecke). Gerda Specht (Mezzo-Soprano). Gerhard Bertermann (Garitones, Hermann Gamp (Speaker), the Station Choir, and the Silesian Philharmonic Orchestra, conducted by Ernst Prade. 8.30, Upper Silesian Folk Songs. Käte Helbig (Soprano), Käte Prans-Thiemann (Contralto), Herbert Heidrich (Tenor) and the Radio Orchestra and Choir, conducted by Ernst Prade. 9.0, Sec Leipzig. 9.20, Time and News. 9.30, Concert of Operetta Music by the Silesian Philharmonic Orchestra, conducted by Ernst Josef Topitz, Soloists: Herma Kaltner (Soprano) and Hans Schnöck (Tenor): Overture, Das Modell (Suppé); Sledge Aria from Fatimitza

(Suppé); Soprano and Tenor Duct from Donna Juanita (Suppé); Selection from Les Cloches de Corneville (Planquette); Soprano Song from La Pompée (Audran); Soprano Song from La Pompée (Audran); Soprano and Tenor Songs from Das Veilchemmädel (Hellmesberger); Overture and Duct from Gasparone (Millöcker); Tenor Song from Der Obersteiger (Zeller); Soprano Songs from Der Obersteiger (Zeller); Soprano Songs from Don Cesar (Dellinger); Duct from The Arabian Nights (Joh. Strauss); Overture, The Gisy Baron (Joh. Strauss).

BRNO

BRNO
878 kc s, 342 metres; 35 kW. 5.25 p.m., German Transmission: News, Stories for Young People, and Talk for Workers. 6.0, See Prague, 7.0, Concert by the National Guards Band, conducted by Skladal: March (Zoloteo); Waltz (Kmoch); Overture, Raymond (Thomas): Serenade (Uzbulka); Potpourri of Croat Songs (Sebek); Parade of the Gnomes (Noack); March (Jonas), 7.50, Reading, 8.0, Concert by the Station Orchestra, conducted by Bakala, 8.50, Gramophone Music. 9.0, See Prague, 9.30 (approx.), Close Down.

BRUSSELS (No. 1)

BRUSSELS (No. 1)

I.N.R., 589 kc/s, 509.2 metres; 15 kW.—12
Noon, Orchestral Concert, conducted by André Felleman, relayed from the Grand Hotel, Antwerp. Soloist; Arthur Mache (Violin); St. Nicholas March (Ronfosse); Une surprise pour nos petits (Douliez-Felleman); Violin Solo; Conte (Zwyson); J'aime tant me reposer dans Therbe verte (Rotter); Fantasia on Old Wallon and Flemish Airs. Le tour de Belgique en Trente Minutes (Douliez); Song Interludes, 1.0 p.m., Le Journal Parlé, 1.10, Concert by the Small Station Orchestra, conducted by Pierre Leemans; March, Alaska (Michiels); Preinde (Beaume); Spanish Dance No. 8 (Sarasate); Selection from Dédé (Christine); Cello Solo; La cinquantaine (Gabriel-Marie); Humorous Piece, Tom Thumb (De Jocker); Selection from Hans the Flute Player (Ganne); Dances from Midnight Taugo (Komjati), 5.0, Concert by the Radio Orchestra, conducted by Franz André; Suite, Joyons Youth (Coates); Internezzo, Lazy Bones (Franklin); Dance of the Sylphs (Westenberg); Foxtrot, Baby's Birthday Party (Ronell); Three Dances from Tom Jones (German); Potpourri (Salabert); Tendre Sérénade (Boland); Zoubie (Mooney); Foxtrot, What about it? (Hamy); Melody (Albéniz); Suite No. 3 (de Michell). 6.0, Talk: Albard I. Olivier, a Belgian Painter, 6.15, Gramophone Music, Lapoupée d'Arleauin (Darsy); A Toy Symphony (Haydn); Ballet Music, Lapoupée d'Arleauin (Darsy); A Toy Symphony (Raydn); Ballet Music, Lapoupée d'Arleauin (Darsy); A Toy Symphony (Raydn); Postrot, What about it? (Hamy); Combier Danchea Brans (Pianoforte): Symphonic Ole (Raway); Pianoforte Concerto (Coate); Symphony (Schostakovitz); Steaka Razin (Glazmov), 10.0, Le Journal Parlé.

BRUSSELS (No. 2)
N.I.R., 888 kc s, 337.8 metres; 15 kW. Pro-

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.I.R., 888 kc's, 337.8 metres; 15 kW. Programme in Flemish. 12 Noon, Concert by the Small Station Orchestra, conducted by Lecmans. 1.0 p.m., Le Journal Parlé. 1.10, Concert relayed from the Grand Hotel. Antwerp: Spanish Legend (Rust): Songs from White Horse Inn (Benatzky): 'tello Solo: Le Cygne (Saim-Saöns); Sousaphone and Piecolo Duct: The Elephant and the Gaat (Kling): Potpourri of Vicnnese Operetta Music (Hruby). 5.0, hance Music, relayed from the Plaza. 6.0, Gramophone Records of the Aldershot Searchlight Tattoo. 6.15, Book Review. 6.30, Concert by the Small Station Orchestra, conducted by Lecuans: Parade March (Ratez); Suite, Scenes hubbancomes (Sarly); Suite of Viennese Waltzes (Gilson); Selection from Le Jour et la Nuit (Lecocq); Meditation for Violin (Maes); Selection from Die Puppenfee (Bayer); March (Kricka). 7.30, Le Journal Parlé. 8.0, Concert by the Radio Orchestra, conducted by André, Soloists; Thelma (Baritone) and Durand (Trumpet). Foxtrot, The Queen was in the Parlour (Myers); Two Rhapsodies (Coates); Selection from Frederica (Lehar); Two Songs; Petite Suite de Concert (Coleridge Taylor); Waltz, Lügmich micht am (Mann and Weiss); Taugo, Despojos (Battistella); Hylton Stonq (Ternent). 8.45, Reading (Jack Lomion). 9.0, Concert (contd.); I wanna be blue (Packay); Big Blue Eyes (Mongin); Selection from Passionnément (Messager); Two Songs; Selection from The Circus Princess (Kálmán); Trumpet Solos; (a) Extract from Cydalise et le Chèvrepied (Pierné), (b) Air from The Gipsy Baron (Joh, Strauss); Dansed orienne (Guitard); Marionnetten and den Spiehthr (Armandola); Suite, Minnelada (Coleridge Taylor), 10.0, Le Journal Parlé.

BUCHAREST

BUCHAREST

760 kc/s, 394.7 metres; 12 kW.—4.0 p.m.,
Concert by the Station Orchestra. Solost:
Popesco (Fitue): Overture, Mignon (Thomas);
Suite from Carmen (Bizet): Selection
from The Bird Fancier (Zeller); Legend
No. 4 (Dvorák): Slav Rhapsody No. 2
(Dvorák): Potpourri, From A to Z (Geiger):
Concert Waltz (Leopold); Melody for Flute
(Suppé): Torch Danse No. 1 (Meyerbeer);
Persian March (Joln, Strauss). In the interval at 5.0, Radio Journal. 6.0, Educational
Talk. 6.20, Grannophone Music. 6.45, Talk.
7.0, Suite for Harp, Flute and Viola (Rohosinski)). 7.30, Talk. 7.45, Song Recital by
Alda Helta. Three Songs (R. Strauss): (a)
Morgen. (b) Ich trage meine Minne, (c)
Ständelben; Am Kirchhofe (Brahms); Der
Schnied (Brahms). 8.15, Violin Recital by
Anton Sarvas: Andantino (Martini); Sonata in D (Tartini); Madrigal (Kreisker);
Caprice viennois (Kreisler). 8.45, Radio
Journal. 9.0, Popular Romanian Music by
the Station Orchestra.

BUDAPEST

545 kc s, 550.5 metres; 18.5 kW. Also relayed on 840 metres from 6.30 p.m. till Close Down, 3.0 p.m., Concert by the Berend Chamber Orchestra, 4.40, Talk, 5.10, Concert, 5.50, Recitation of Poems, 6.30, Gala Programme from the Royal Opera House, 9.30, News, 9.40 (approx.), Music by the Toll Cigány Band, 10.15, Talk with Gramophone Records; The Tenth Anniversary of the Finnish Republic.

CASSEL.—See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc s, 1.153.8 metres; and Skambleback, OXY, on 31.51 metres.—11.0 a.m., Time and Chimes from the Town Hall.

11.15, German Lesson for Schools, 11.45, Interval, 12.15 p.m., Talk on Music for Schools, 2.0, Gramophone toncert, 2.30, Concert by the Radio Orchestra, conducted by Reesen: Entry March of the Gladiators (Fucik); Waltz, Tesoro mio (Beeneci); Overture, Nebuchadnezzar (Verdi); Ballet Music from Les petits riens (Mozart); Romanian Folk Dance (Bela Bartok); Overture, William Tell (Rossini); Erotic Dance (Mascagni); Ballet Suite (Rydahl); The Flight of the Bumble Bec (Rinsky Korsakov); Moment, musical (Schubert); Rakovzy March (Schubert); In the interval at 3.15 (approx.), Talk for Women, 4.30, Exchange and Fish Market Prices, 4.45, Talk, 5.15, French Lesson, 5.45, Weather, 5.54, Amonuncements, 6.0, News, 6.15, Time Signal, 7.2, String Quartet in B Flat, Op, 67 (Brahms), 7.30, Old and Modern Bible Histories, 8.0 to 1.0 a.m. (Thursday), Radio Ball for the Younger Generation, 8.0, Dance Music by Lonis Preil's Band, In the interval at 9.0, News, 10.15, Dance Music from the Riz Restaurant, 1.0 time, from the Riz Restaurant, 12 Midnight, Dance Music by Jons Warny and lis Band, relayed from the Nimb Restaurant, 1.0 a.m., Close Down, CORK.—See Athlone. CORK .- See Athlone.

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.- 6.0 p.m., Miscellaneous Items. 6.5, Talk: Old Cracow. 6.20, Programme Amouncements. 6.25, See Warsaw. In the interval at 6.40, Sports Notes. 9.5, see Warsaw. 10.30 (ap-prox.), Close Down.

DANZIG .- See Heilsberg.

DRESDEN.-See Leipzig.

FECAMP

FECAMP

1,328 kc s, 225.9 metres; 10 kW, 11.0 a.m., till 12 Noon, Programme in English by the LB.C. 11.0, Happy flour. Part I. Request, Programme: Signature Tame; March, Stars and Stripes (Sonisa); Just an Echo in the Valley (Woods); Second Screnade (Heykens); Trees (Rusbach); The Bine Dambe (Joh, Strauss); The Flight of Ages (Bevan); In the Valley of the Moon (Schmister); In a Monastery Garden (Ketelbery). Part II; When the Shepherd leads the Sheep; So Long; Fiesta; If I hadn't been so sure of you; Łooking in the Looking Glass; I only want one Girl; Who's Afraid of the Big Bad Wolf?: Good-night, Little Girl of my Dreams; Signature Tame. 12 Noon, Programme in French. 3.30 to 6.0 p.m., Programme in French. 3.30 to 6.0 p.m., Programme for Wight Listeners. Part I. Military Band Music; Sussex by the Sca (Ward Higgs); Returning Home; Jolly Fellows (Vollstedt); Cornet Solo: The Lost Chord (Sullivan); Birthday Screnade (Liucke); The Bullfighters March (Kottann); Hobomoko (Reeves); Golden Jubilee March (Sousa). Part II. Dance Music: Dear Stranger; If I had Someone to Love; Ramo de la noche; The Cage in the Window; The Man on the Flying Trapeze; Well done, Gordon; I'm getting Sentimental over you. 4.30, The LB.C. Nursery Corner. Birthday Greetings. 5.0, Concert for Portsmouth and Southsea Listeners. Part I. Gramophone Records; Selection from Patience (Sullivan); Mazurka (Wienawsky); Violin Solo: Sicilienne and Rigandon (Francœur-Kreisler); Poor Man's Garden (Russell); In a Country Lanc (Coates); Poor me, poor you (Bestor); The Organ Grinder (Stept); The Girl next Door (Everett). Part II. Orchestral Concert;

DEC. 6th WEDNESDAY continued

Regenlied (Marx); Abendmusik (Förster); Selection from Le bourgeois Gentilhomme (R. Strauss); Marionettes (Liadov); Hella-fest-Marsch (Hunperdinck); Tanz des Zigeuners (Königsherger); Valse d'Amour (Reger); Little Suite No. 3 (de Micheli); Potpourri (Egg). HANOVER .-- See Hamburg. **HEILSBERG**

HEILSBERG

1,085 kg/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—12.5 p.m., Gramophone Concert: Bavarian Foik Dance; O du mein Edelweis (Röhricht); Folk Melody, Kirchdorfer Ländler; Folk Melody, Von meinen Bergen muss ich scheiden; Am Wörther See (Koschat); Oberbayrischer Schnackl-Walzer (Winkler); Two Bavarian Folk Melodies; Innsbruck ich muss dich lassen (Isaac); Echo der Welt (Zimmer); Vindobonda (Leopold); Volkslieder Walzer (Egg); Eysler Potpourri (Eysler); March Potpourri (Robrecht). In the intervals at 12.30 and 1.0, News. 1.30, Programme arranged by the Post Office, with Gramophone Records. 2.0, Agricultural Report. 2.20, Talk for Housewives. 2.30, Programme for Children. 3.0, Concert by the Königsberg Opera House Orchestra, conducted by Wolfgang Brückner: Overture, Mariotta (Gade); Catalonian Suite (Alhéniz); Selection from Der Stier von Olivera (d'Albert); Ilungarian Dances Nos. 1, 3 and 10 (Brahms). 4.0 to 5.0, See Berlin (Funkstunde). 5.0, Long Live Hitler:—An Italian talks of his Experiences in the German Nationalist Revolution. 5.15, Agricultural Report. 5.25 (from Danzig), Medical Talk. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Stuttgart. 7.0, News. 7.5, See Hamburg. 9.0, News. 9.30, See Hamburg. 11.0 (approx.), Close Down.

HILVERSUM

HILVERSUM

1,013 ke/s, 296.1 metres; 7 kW. up to 5.40 p.m. and 20 kW. from 5.40 p.m.—Programme of the Workers' Radio Society (V.A.R.A.). 11.40 a.m., Concert by the Guaroni Trio: Overture, La fille de Madame Angot (Lecocu); Waltz, Frühlingsstimmen (Joh. Strauss); Starry Night (de Micheli); Sapahn-tou (Brunel-Mouton); Andante (Dvorák); Gramophone Music; Selection from Madame Butterfly (Puccini-Aider); Gipsy Serenade (Nachez): Troika (Tchaikovsky); Gramophone Records; Selection from The Land of Smiles (Lehar); Melody (Carste); Man sagt, ich liebe dich (Grothe); March (Metz). 1.10, Concert conducted by Wins: Accelerationen (Strauss); Gipsy Song (Renée); Mélodie enchanteresse (Ackermans); Piece (Cavlor); Tango (Leopold); Cœur brisé (Gilbet); Mein Schatz tanzt so gern (Grothe); Sierra Nevada (Lucches). 1.40, Interval. 1.55, Dressmaking Lesson. 2.40, Programme for Children. 5.10, Gramophone Music. 5.40, Concert conducted by vin de Horst. 6.10, Talk on the League of Nations. 6.40, Organ Recital by Steyn: Romanesca (Leoneavallo); Conchita (Staub); Un peu d'amour (Silésu); Potpourri of Lucienne Boyer's Songs (Steyn). 7.0, Talk. 7.20, Song Recital by Oostra. 7.38, S.O.S. Messages. 7.40, (concert by the V.A.R.A. Orchestra. conducted by de Groot: Overture, has Modell (Suppé): Scènes gitanes (Infante); Barcarolle (Arensky); Cantabile (Cui). 8.10, Het zevende gebod (Tho Seventh Commandment)—Play (Heyermans). 8.55, Concert (contd.): Larghetto from the Clarinet Quintet (Mozart); Overture. The Thieving Magpie (Rossini); La plus belle (Waldteufel); Nocturne No. 3 (Liszt); Serenade (Tosti); Selection from Rose Marie (Friml); Two Guitars (Gorlick); Polonaise (Liszt). 9.40, News. 9.55, Concert (contd.): Selection from The Black Domino (Auher); In lauschiger Nacht (Ziehrer): Sérénade d'amour (Paderewski); Gavotte tendre (Ganne); Pesther-walzer (Lanner); Selection from White Hovse Inn (Stolz-Benatzky). 10.40, Gramophone Music. 11.40 (approx.), Close Down.

HORBY.-See Stockholm.

HUIZEN

HUIZEN

160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m.
Transmitted from Kootwijk on 50 kW. from
3.40 p.m.—Programme of the Christian
Radio Society (N.C.R.V.). 11.40 a.m., Police
Notes. 11.55, Gramophone Music. 12.10 p.m.,
Organ Recital by Mac Crafford. Träumerei
(Schumann); Frühlingserwachen (E. Bach);
Chanson triste (Tchaikovsky); Ich liebe dich
(Grieg); Caro mio ben (Giordani); Vorrei
morire (Tosti); Russian Song (Smith); Salut
d'amour (Elgar); Serenade (Widor); An der
Weser (Pressel); Extase Ganne); Narcissus
(Nevin). 12.55, Violin Recital by Kalif; Sonata in A Minor (Benda); Violin Concerto in
G Minor (Vivaldi); Gramophone Music; Arietta (Bosmans); Prelude (Bosmans); Au
jardin de Lindaraja (Nin). 1.40, Gramophone
Music. 2.10, Talk for Young Stamp Collectors. 2.40, Concert by a Flute Quintet; Suite
in Old Style (Lovelock); Sonata (Mozart);
Three Duets for Two Flutes (Kuhlau). 3.25,
Interval. 3.40, Concert (contd.): Pianoforte:
Jeux d'enfants (Bizet); Allegro militaire
(Andersen); Gramophone Music; Pianoforte:
(a) Etude in A Flat (Chopin), (b) Romance

(Schlegel); Quartet, Op. 184 (Kronke). 4.40, Programme for Children. 5.40, Agricultural Talk. 6.10, Programme to be announced. 6.40, Police Notes. 6.55, Ecclesiastical Notes. 7.10, Talk. 7.40, Concert by the Choir of the Dutch Folk Sonig Society, and Soloists. Conductor: Spoel. 8.40, Talk. 9.10, Choral Concert (contd.). In the interval at 9.40, News. 10.10, Gramophone Music. 11.10 (approx.), Close Down.

INNSBRUCK.—See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—8.0 p.m., Amusement Guide, Financial Notes, Racing Results and News. 8.10, Oceanographic Re-port. 8.20, Radio Concert. In the interval at 9.0, News and Weather.

KALUNDBORG.-See Copenhagen.

KAUNAS

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—6.0 p.m.,
Time, Weather, Announcements, Exchange
and Programme Announcements. 6.30, Song
Recital. 6.50, Talk, 7.10, Programme for
the Anniversary of the Finnish Independence. Talk followed by Sibelius Concert:
Suite from Pélleas et Mélisande; Romance;
Elfeyy; Nocturne and Musette; Findandia;
Finnish Folk Songs (on Gramophone
Records). 8.30, Programme for Housewives.
8.50, Concert. 9.30 (approx.), Close Down.

MIFL—See Hamburg.

KIEL.—See Hamburg. KLAGENFURT.—See Vienna.

KOSICE .- See Prague.

LANGENBERG

LANGENBERG
635 kc/s, 473 metres; 60 kW.—12.35, Concert by the Station Orchestra, conducted by Buschkötter. Soloist: August Schreiher ('Cello): Overture, William Tell (Rossini); Romance for 'Cello and Orchestra (Ramrath); Woodland Sketches (MacDowell); Norwegian Artists' Carnival (Svendsen). 1.30, See Stuttgart. 2.30, Market Prices. 2.50, Political Announcements. 3.0, See Frankfurt. 5.0, German for Germans. 5.20, Talk on Race. 5.35, Reading from Albrecht Dürer's Diaries. 5.45, Announcements. 6.0, Transmission for all German Stations, relayed from Stuttgart. 7.0, See Frankfurt. 7.10, Programme from Berlin (Deutschlandsender). 9.0, See Frankfurt. 9.20, See Stuttgart. 9.30, News and Sports Report. 9.45, See Stuttgart. 10.0, Report on the Six Days; Racing in Cologne. 10.15, Programme from Stuttgart. 12.50 a.m. (Thursday), Close Down.

LAUSANNE-See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—12.15 p.m., News and Programme Announcements. 12.25, Gramophone Records. 1.0, News. 1.10, Review of Books for Children. 1.45, Reading of Scandinavian Legends. 2.15, Recital by the Hildebrand High School Choir. 2.30, Santa Claus Programme for Children. 2.45, Market Prices. 3.0, Concert of German, Italian, and French Opera Music: The Leipzig Symphony Orchestra, conducted by Theodor Blumer: Soloist: Willy Zilken (Tenor): Overture, Oberon (Weber): Extract from Tannhäuser (Wagner); Selection from A Masked Ball (Verdi); Arias (Wagner) from (a) Lohengrin, (b) The Valkyrie; Selection from Carmen (Bizet); Selection from Andréa Chénier (Giordano); Prelude to Mignon (Thomas). 4.30, Talk: The Visigoths. 4.50 (from Dresden), Violin and Pianoforte Recital by Hans Rokohl and Ruth von Haldenwang: Pianoforte Solo: (a) Mädchens Wunsch (Chopin-Liszt), (b) Ständchen (Schubert-Liszt); Am Rande einer Quelle (Liszt); Spanish Dance No. 8 for Violin and Pianoforte (de Sarasate); Tango, Op. 165 (Albeniz-Kreisler); Dance from La vida breve (Palia-Kreisler); Dance from Stuttgart. 7.0, To-day's News. 7.10 to 9.0, See Breslau. 11.0 (approx.), (Close Down.

LINZ.—See Vienna. LINZ .- See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—6.0 p.m., Topical Talk. 6.30, Literary Review. 7.0, Vocal and Orchestral Music. 7.45, Pianoforte Recital. 8.30, Vocal Quartets. 9.0, Weather, News and Dance Music.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—7.0 p.m.,
Symphony No. 1 in C Minor, Op. 68 (Brahms)
on Gramophone Records, by the London
Symphony Orchestra, conducted by Abendroth. 7.45, Concert for Children. by the
Radio Orchestra, conducted by Henri Pensis.
Soloist: Marie-Thérèse Grosfils-De Cuyper
(Songs). 8.50, News in French. 9.0, Concert
by the Station Orchestra, conducted by
Henri Pensis: Overture, The Bartered Bride
(Smetana); Selection from Hansel and
Gretel (Humperdinek); Bereeuse (Godard);
Grossmütterchen (Lange); Selection from

Die Puppensee (Bayer). 9.50, News in German. 10.0, Variety Concert on Gramophone Records. 10.15, Dance Music on Gramophone

LWOW

788 kc's, 381 metres; 16 kW.—6.55 p.m., News. 7.0, See Warsaw. 9.5, Adam Mickiewicz Programme, relayed from Wilno, 530 kc.s, 566 metres. 10.0, See Warsaw. 11.0 (ap-prox.), Close Down.

LYONS

LYONS

LA DOUA, 644 kg/s, 465.8 metres; 15 kW.—
7.40 p.m., Radio Gazette for Lyons and the South East. 8.30, Quintet Concert: Marche Dauphinoise (Marin); Violin Solo and Quartet, Cavatina (Raff); Havanese Dance (Zimmer); Serenade (Pierne); Selectioi from The Daunuation of Faust (Berlioz); Aubade (Danglas); Scène de la czardas (Lederer); Sextet from Lucia di Lammermoor (Donizetti); Finale of the Surprise Symphony (Haydn). 9.15, De Séverác Concert by Mile. Dupeuple (Songs), Mme. Dufresne (Pianoforte), and Mme. Gaillard (Violin); Commentary by M. Fellot. 10.0, Quintet Concert (contd.). Music by Lecocq Audron and Ganne. After the Concert, News.

MADRID

MADRID

ARANJUEZ, EAQ, 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Concert of Popular Music. In the interval at 10.45, Radio Chronicle. 11.45, Light Music. 12 Midnight to 1.0 a.m. (Thursday), Programme arranged by the International Broadcasting Company (Ireland), Ltd. 12 Midnight, Variety Music: Signature Tune: Come back to Erin; Lou'siana Lullaby (Newman); Morning, Noon and Night (Swanstrom); African Lament (Lecuona); Don't blame me (Fields); Lover's Lane (Aliller); I've found the right girl (Lupino); I've got to pass your House (Brown); Wood Violets (Fetras). 12.30, Light Music: Pour Little Blackberries; Lena (Norton); Jovial Jasper (Green); Mother Machree (Ball); Marilyn (Alter); The Huntsman (Nelson); A Yodelling Love Song (Norton); Rose Dreams (Shannon). 1.0, I.B.C. Goodnight Melody and Close Down.

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange, Topical Talk, Dauce Music and Interludes by Ramon Gomez de la Serna. 8.15, Radio Journal. 8.30 to 9.30, Interval. 9.30, Chimes, Time, and Radio Journal. 9.45 (approx.), Concert by the Madrid Symphony Orchestra, conructed by Enrique Fernández Arbós. 11.45, Radio Journal. 2 Midnight, Chimes and Close Down.

MALMO.-See Stockholm.

MILAN .- See Turin.

MORAVSKA-OSTRAVA

MURAY SAA-OSIRAYA

1,137 kc/s, 263.8 metres; 11 kW.—5.25 p.m.,
Talk: Saint Nicholas. 6.0, See Prague. 6.10,
Technical Talk. 6.25, See Prague. 7.0, See
Brno. 8.0, Concert by the Station Orchestra,
conducted by Plichta: Strauss-MillöckerSuppe Potpourri (Zichrer): Military Walt(Waldteufel); Moravian Polka (Labsky);
Potpourri of Popular Songs (Tichy); Vampire Dance (Smatck); Intermezzo (Leopold);
Polka (Kovarovic). 9.0, See Prague. 9.15
(approx.), Close Down.

MOTALA.-See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

MUNICH
563 kc's, 533 metres; 1.5 kW. Relayed by
Augsburg and Kaiserslautern, 536 kc's, 560
metres; and Nürnberg, 1,256 kc's, 523
metres.—3.0 to 5.10 p.m., See Leipzig. 5.10,
Illustrated Talk: Old Germanic Music. 5.30,
Songs on Gramophone Records: Edvard
(Loewe); Hindu Song from Sadko (RintskyKorsakov): Von ewiger Liebe (Brahms);
Heimliche Anfforderung (R. Strauss). 5.45,
Time, Weather and Agricultural Report. 6.0,
Transmission for all German Stations, relayed from Stuttgart. 7.0, See Leipzig. 7.10,
Concert by the Station Orchestra, conducted
by Hans Winter. Soloist: Emmy Braun
(Pianoforte): Rhapsody (Franckenstein);
Pianoforte Concerto in C minor (Rachmaninov); Swedish Dances (Graener); Overture,
Tannhäuser (Wagner). 8.30, See Breslau.
9.0, See Leipzig. 9.20, Weather, News. Exchange and Sports Notes. 9.30, See Breslau.
11.0 (approx.), Close Down.
NAPLES.—See Rome.

NAPLES .- See Rome.

NOTODDEN.-See Oslo.

OSLO

OSLO
277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Rjukan, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; and Jeiöy, LCL, 6,990 kc/s, 42.92 metres.—10.40 a.m., Broadcast for Schools. 40 p.m., Orchestral Concert, relayed from the Hotel Britannia, Trondheim. 5.0, French Lcsson. 5.30, Programme for Boys. 6.0, Announcements, Weather and News. 6.30, Talk: The Origin of the Old Testament. 7.0, Time. 7.1, Concert of Opera and Operetta Music by the Station Orchestra, conducted by Hugo Kramm. 8.30, Agricultural Report. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Reading. 9.45, Dance Music on Gramophone Records. 11.0 (approx.), Close Down. OSTERSUND.—See Stockholm. OSTERSUND .- See Stockholm.

FLENSBURG.—See Hamburg.

Selection from White Horse Inn (Stolz);
Little Yvonne (Schwartz); Pianoforte Solo:
Dancing Butterfly (Young); My Lady Dainty
(Hesse); Song, My Mother's Garden
(Hanley); Dance of the Nymphs (Birch);
Heartaches (Klenner); I do like to be beside
the Senside (Glover); Signature Tune. 6.0,
Programme in French. 10.0 (approx.) till
Close Down, Programme in English by the
LB.C. 10.0, Request Programme: Rhapsody
in Blue (Gershwin); Ev'rybody's goin' but
me (Robison); Get away, Old Man (Crumit);
No more Love (Friend); Waltz from A
Waltz Dream (O. Straus); Will the Angels
play their Harps for me?; The Song of the
Nightingale (Ailbout); Old Sam. 10.30, Dance
Music: Signature Tune, The Bells of Normandy; When Autumn comes around; Blue;
A Couple of Pals; Lazybones; Si Si; Oh,
Johanna; My Moonlight Madonna; Aloha
Oe. 11.0, Talkie Time. Tunes from the
Talkies and Shows: Signature Tune, Sittin'
in the Dark; One Alone (Romberg); A nons
ia liberté (Auric): Let me give my Happiness to you (Posford); Black Moonlight
(Coslow); Look what you've done (Kalmar);
Experiment (Porter); Selection from College
Humour (Coslow); The Shadow Waltz
(Dubiu); Signature Tune. 11.30, LB.C. Club
Concert for Dorchester Listeners. Part I.
Orchestral Concert: Signature Tune, The
Chum Song; Waltz, Tales from the Vienna
Woods (Joh, Strauss); Selection from He
wanted Adventure (Waller); Irish Song
Medley (arr. Griffiths); Destiny Waltz
(Baynes): Indian Love Call (Friml); Rose
moussc (Bosc); Wedgwood Blue (Ketelbey);
Regimental March of the Dorsetshire Regiment. 12.5 a.m., Late News Bulletin in
English. 12.10 (approx.), Club Concert.
Part II. The Three Trees (Powell); I've
got to get up and go to Work (Hupfeld);
Ninon (Moretti); Rosa Mia (Fisher); Everyone loves my Marguerite (Woods); Signature
Tune. 12.30, Dance Musie: If you'll say
"Yes," Chéric; Shadows on the Swanee;
The Last Round up; You're an Old Smoothie;
Don't blame me; Ninue; The Wedding of
Mr. Mickey Mouse; Mi Amor esta en el
Valle. 1.0, Dauce Musie: Come out, Vienna;
Isn't this a Night fo FLORENCE.—See Turin. **FRANKFURT**

FLORENCE.—Sec Turin.

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel and Trier, 1,157 kc/s, 259.3 metres. 12.15 p.m., Time and News. 12.25, Local News and Weather. 12.35, See Langenberg. 1.30, Sec Stuttgart. 2.30, Weather Forecast. 2.40, Time and Market Prices. 3.0, Concert by the Station Orchestra. Soloists: Willy Renner (Pianoforte): Anita Franz (Soprano), Hans Büppler (Baritone) and Hans Finken Pianoforte). Part II—conducted by Rosbaud: Pianoforte Concerto in D minor (W. F. Bach. Renner). Part HI—Hermann Löns Songs for Soprano and Baritone, with Pianoforte Accompaniment (Finkel); Wegewarte; Leonore; Vogelorakel; Extract from Mein grünes Buch; Die Nachtigall; Verspruch; Extract from Aus Forst und Flur; Das bittersüsse Lied; Das Fensterlein; Das stille Wasser. Part III—conducted by Fritz Holtzwart: Rakoczy Overture, Op. 76 (Kéler-Béla); Minuet (Elgar); Orientalische Marsch-Szene (Holtzwart); Pictures from Ireland (Ansell); Intermezzo. Fraurenther Porzollan-Püppchen (Lineke); Gabriele-Walzer (Suppé); Sommerabend (Holtzwart); Neapolitan Song (d'Ambrosio); Overture, Light Cavalry (Suppé); Waltz, Trifolen (Joh. Jos. and Edward Strauss); Lustiger Marsch (Roland). 5.0 to 5.36, Programme from Langenberg. 5.35, Talk; Santa Claus, 5.50, News and Time. 6.0. Transmission for all German Stations relayed from Stuttgart. 10, Topical Talk. 7.5, See Berlin (Deutschlandssender). 9.0, Time and News. 9.20, See Stuttgart. 9.30, Local News and Weather. 9.45, Santa Claus comes—Radio Picture relayed from Freiburg. 10.0, See Langenberg. 10.15 till Close Down, See Stuttgart. 12 Midnight, Close Down.

FREDRIKSSTAD.—See Oslo. FREIBURG .- Sce Stuttgart. GENEVA.-See Radio-Suisse Romande. GENOA.-See Turin. GLEIWITZ .- See Bresiau. GOTEBORG.-See Stockholm.

GRAZ .- See Vienna,

HAMAR.-See Oslo. HAMBURG

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by

8remen, 1,112 kc/s, 269.8 metres; Flensburg

and Hanover, 1,319 kc/s, 227.4 metres, and

Kiel, 1,292 kc/s, 232.2 metres.—6.0 p.m.,

Transmission for all German Stations, relayed from Stuttgart. 7.5, Die Schneider von

Schonau—Comic Opera in Three Acts

(Brandts-Buys). 9.0, Time and News, 9.30,

Concert by the Small Station Orchestra,

conducted by Gerhard Mass: Prelude and

Waltz from As you like it (Zilcher); Seren
ade from Don Juans letztes Abenteuer

(Graener); Waltz Serenade (Reznieck);

Poësie de Soir (Fauchey); Japanisches

PALERMO

PALERMO

556 kc/s, 539.5 metres; 3 kW.—7.0 p.m., Dopolavoro Annonneements, Tourist Report, Agricultural Notes, and Giornale Radio. 7.20, Gramophone Music. In the interval at 7.30, Time and Announcements. 7.45, Orehestral Concert. Soloist: S. Lojacono (Violin) and A. Gonzaga (Soprano): Largo (Handel); Violin Concerto in A minor (Bach); Tramonto in Liguna (Bettinelli); Soprano Solos (Santoliquido): (a) Supremo sonno. (b) Nel giardino; Two Intermezzis (Spagnoli); Spanish Dance (Gramados); En bateau (Debussy); Soprano Solos: Recitative and Aria from I Pagliacci (Leoncavallo); Baba jaga (Liadov). In the interval, Confessions befor the Microphone. After the Concert, Light Music on Gramophone Records. 10.0, Giornale Radio.

PARIS

E1FFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals), 5-45 p.m., Le Journal Parié. 7.15, Weather and News. 7.45, Programme for Children. 8.15, Symphony Concert, conducted by Flament: String Quartet (Gibbs); Selection from The Valkyrie (Wagner); Norwegian Rhapsody (Svendsen). 9.0 (approx.), Close Down.

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Gramophone Music. 7.15, Le Journal Parlé. 7.30, Gramophone Music. 8.0, Insurance Societies Report. 8.10, Interval. 8.30, La petite chocolatière—Play (Paul Gaveau). 10.30, Sponsored Orchestral Concert, relayed from the Restaurant des Champs-Elysées. 11.0, News.

PARIS

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725
metres; 75 kW.—12 Noon, Educational
Talk. 12.15 p.m., Gramophone Music.
12.30, Organ Recital, relayed from Gaumont Palace. 1.0, Exchange, News, and
Weather, 1.5, Gramophone Music (contd.).
In the interval at 1.30, Exchange, 2.0, Exchange, 3.0, Exchange and Market Prices,
6.20, Weather and Agricultural Talk. 6.45,
Gramophone Music. 7.0, Medical Talk. 7.20,
Gramophone Music: Le printemps (Milhand); Scherzo from Quartet No. 1 (RimskyKorsakov); Aprés un tève (Fauré); Melody
(Genek-Kreisler). 7.35, Popular Music. 7.50,
News, Weather and Fashion Review, 8.45,
Symplomy Concert, conducted by Engène
Bigot, Soloists; Merckel (Violin), Charles
Panzera (Songs) and Jean Doyen (Pianoforte). Iberia (Debussy); Poem for 'Cello
and Orchestra (Chausson); La queste de
Dien from La Légende de Saint-Christophe
(d'Indy); Songs; (a) Aria from Figaro
(Mozart), (b) Nocturne (Franck), (c) Sur
un vieil air (Bordes), (d) Noël des enfants
qui n'ont plus de maison (Debussy); Pianoforte Concerto (Ravel); Le chasseur maudit
(Franck). In the interval at 9.15, Press Review and News. (Franck). In the view and News.

PITTSBURGH

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—7.0 p.m., Musical Originalities, from New York. 7.30, KDKA Home Forum. 8.0, Southern Symphonies, from New York. 8.15, Happy Days in Dixie, from New York. 8.45, Human Values. 9.0, Betty and Bob, from New York. 9.15, Utility Hall. 9.30, Frances Ingram. 9.45, News and Markets. 10.0, Uncle Tom and Betty. 10.15, KDKA Kiddies' Klub. 10.30, The Singing Lady. from New York. 10.45, Orphan Annie, from New York. 11.0, News, Pat Haley. 11.15, Sports, Programme Preview. 11.30, Evensong. 11.45 to 12.45 a.m. (Thursday), New York Relay. 11.45, Lowell Thomas. 12 Midnight, Amos 'n' Andy. 12.15 a.m. (Thursday), Gens of Melody. 12.30, Potash and Pearlmutter. 12.45, Programme to be announced. 1.0 to 3.30, New York Relay. 1.0, Crime Clues. 1.30, Dangerous Paradise. 1.45, Red Davis. 2.0, Warden Lawes. 2.30, John McCormack and Orchestra. 3.0, Pedro Via's Orchestra.

PORSGRUND.—See Oslo.

PRAGUE

PRAGUE

614 kg/s, 488.6 metres; 120 kW.—3.0 p.m., See Bratislava. 3.50, Programme for Children, from Brno. 4.35, Gramophone Music. 4.5, Talk on Toys. 4.55, Gramophone Music. 6.5, Agricultural Talk. 5.15, Talk for Workers, 5.25, News in German. 5.30, German Transmission. Talk: Programme for Workers, and Labour Market Report. 6.0, Time, News, and Weather. 6.10, Advanced French Lesson. 6.25, Two Sketches (Václav Gutvirt). 7.0, Talk on the following Transmission. 7.5, Concert by the Czech Philharmonic Orchestra, conducted by Václav Talich, relayed from the Smetana Concert Hall. Soloist: Anna Pecirkova-Mykysova (Songs). Overture, Carnaval romain (Berlioz); Symphonic Poem, Souvenirs, Op. 62 (d'Indy); Songs (Ravel); Symphony No. 3 (Roussel), 9.0, Time, News, Review of the Dny, and Sports Notes, 9.15, News in French, 4.30 (approx.), Close Down.

DEC. 6th WEDNESDAY continued

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 ke/s, 403 metres; 25 kW.; and Geneva, 400 kc s, 749.9 metres.—6.0 to 6.15 a.m (from Lausanne), Gymnastics.

11.28, Time Signal from Neuchâtel Observatory. 11.30, News and Weather. 11.40 (from Lausanne), Gramophone Concert. 12 Noon (from Lausanne), Financial Notes. 12.10 p.m. (from Lausanne), Gramophone Concert. 1.0, Interval. 2.58, Time Signal from Neuchâtel Observatory. 3.0, Sce Schweizerischer Landessender. 5.0 (from Geneva), Programme for Children. 6.0 (from Geneva), Talk: Ultra-Violet Rays and Artificial Sunlight. 6.20, Talk: Radiology in Modern Therapeutics. 6.30 (from Geneva), Weather Report. 7.0 (from Geneva), Concert of Sacred Spanish Music of the Sixteenth Century by the Orlova Choir, conducted by Maroussia Orlova. 7.20 (from Geneva), Talk Optimism. 7.35, Concert by the Suisse Romande Orchestra, conducted by Ansermet, relayed from the Victoria Hall. In the interval, News and Weather. 9.10 (approx.). Talk: The Work of the League of Nations. 9.30 (approx.).

REYK JAVIK

250 kc's, 1,200 metres; 21 kW.—8.0 p.m.,
Musical Programme 8.10, Weather. 8.20,
Musical Programme to be amounced. 9.0,
Chines and Concert by the Radio Trio.
9.30, Reading. 10.0, News. 10.30, Gramophone
Concert of Bach Music: Choral Prelude,
Brandenburg Concerto, Passacaglia.

RJUKAN. -- See Oslo.

ROME

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres, from 7.45 p.m.; and 2RO, 11,810 kc/s, 25.4 metres.—12 Noon, Orchestral Concert of Light Music. In the intervals from 12.30 to 12.45 p.m., Giornale Radio and Exchange; and at 1.0 p.m., Time and Announcements. 1.15 (approx.) to 3.30, Interval. 3.30, Children's Radio Review. 3.55, Giornale Radio, Exchange, and Report of the Royal Geographical Society. 4.10, Weather. 4.15, Orchestral Cencert: Lyrie in Blue (Escobar); Tornamo le mictitriei (Guarino); Selection from The Dubarry (Millöcker-Mackben); Un'altra volta (Vidale); Marisetta (Brancucci); Hungarian Dance No. 6 (Brahuss); Jananita (Hamud), 5.0 to 5.40, Interval. 5.40 (Naples), Dopolavoro and Tourist Report. 5.45, Dopolavoro Announcements and Tourist Report. 5.57, Report of the International Institute of Agriculture (in Halian and English). 6.10, Wheat Market Report. 6.20, News in Foreign Languages. 6.40, Giornale Radio and Sports Notes. 7.45, Ramuntcho-Opera in Three Acts (Donaudy). In the intervals: Talk on Literature and Art. and Annonneements. Giornale Radio after the Opera.

SALZBURG.-See Vienna.

SCHENECTADY

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW.—Relayed at intervals by W2XAF on 31.48 metres, and by W2XAF on 19.56 metres.—7.30 to 8.0 p.m. (approx.). Milady's Matinée, from New York. 12.45 a.m. (Thursday), Stock Reports. 1.0 to 3.30, New York Relay. 1.0, George Olsen's Orchestra. 1.30, Waltz Time—Frank Munn (Tenor). and Orchestra. 2.0, Ipana Troubadours. 2.30, Leo Reisman's Orchestra. 3.0, Popular Programme. 3.30, Variety Programme from New York, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

LANDESSENDER

BEROMUNSTER, 553 kc/s, 459 metres; 60 kW.; Basle, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—5.50 to 6.5 a.m. (from Zürich), Gynnasties. 11.0, Symphony in D minor (Glazunov) on Gramophone Records. 11.29, Time Signal from Neuchatel Observatory, Weather and News. 11.40 (from Berne), Operetta Music on Gramophone Records. 12.25 p.m. (from Berne), Time, Weather and Exchange. 12.30 (approx.). Interval. 2.30 (from Berne). Light Music on Gramophone Records. 3.0 (from Berne), Concert by the Radio Orchestra. 3.30 (from Berne), Programme to be Announced. 4.30, Chamber Music by the Schiffman String Quartet. 5.0 (from Zürich), Programme for Children. 5.30 (from Zürich), Talk: Books to give Children for Christmas. 5.50 (from Zürich), Gramophone Concert. 6.0 (from Zürich), Time, Weather and Market Prices. 6.5 (from Zürich), An Interview with Walter Mittelholzer. 6.20 (from Zürich), English Lesson. 6.50 (from Zürich), Othello—(pera in Four Acts (Verdi), relayed from the State Theatre. In an interval at 7.40 (approx.), Vose Down.

SOTTENS.—See Radio-Suisse Romande.

SOTTENS .- See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

889 kc/s, 436 metres; 55 kW. Relayed by

80den, 242 kc/s, 1,239.5 metres; Göteborg,

932 kc/s, 322 metres; Hörby, 1,167 kc/s,

257 metres; Motala, 222.5 kc/s, 1,348 metres;

90tersund, 402 ko/s, 746.2 metres; and

Sundsvall, 554 kc/s, 542 metres.—4.5 p.m.

470 (framophone Music. 5.15, Educational

Talk relayed from the University, Uppsala,

652 kc/s, 453.1 metres. 6.0, Choral Music

on Gramophone Records. 6.15, Weather and

News. 6.30, Prince X—Comedy (Rybrant).

8.45, Weather and News. 9.0, Dance Music

relayed from Bern Hall. 10.0 (approx.),

(lose Down. Close Down,

STRASBOURG

Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.30 a.m., Gramophone Concert. 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Gramophone Music. 2.0, Interval. 4.45, Taik: Progress in Electric Lighting. 5.0, Concert by the Station Orchestra, conducted by Roskam: March (Borgman); Overture. Im Reiche des Indra (Lincke); Vocal Foxtrot (Heymann); Cello Solo: Voj che sapete (Mozart); Fox trot, There's a Ring around the Moon (Lewis, Goodhart and Nelson); Waltz, Toujours on jamais (Waldteufel); Selection from The Daughter of the Regiment (Donizett); Joey the Clown (Reaves and Myers); A Birthday Serenade (Lincke); Waltz, Dixie Night (Repper); March, The Gladiators Farewell (Blankenburg). 6.0, Trio Concert, relayed from Lille, 1,128.5 kc/s, 265.8 metres. 7.0, Talk: The Origin of Nursing. 7.15, Talk in German. 7.30, Time and News. 7.45, Programme for Chiddren, relayed from Paris (Eiffel Tower). 8.15, Press Review in German, Lottery Results and Announcements. 8.30, Concert by the Municipal Orchestra, relayed from the Palais des Fêtes. Conductor: Munch. Soloist: Mile. Andrée Faivre (Pianoforte). Symphony No. 2 in D (Mchul); Pianoforte Concerto in D (Mozart); Symphony No. 1 in B flat. Op. 38 (Schumann). In the interval at 9.30, Press Review. 10.30, Light Music relayed from the Grand Kleber Taverne: March. Per Aspera ad Astra (Urbach); Waltz Suite, Roses from the South (Joh. Strauss); Baby Parade (Manfred); Overture, Raymond (Thomas); In the interval at 9.30, Press Review. 10.30, Light Music relayed from the Grand Kleber Taverne: March. Per Aspera ad Astra (Urbach); Waltz Suite, Roses from the South (Joh. Strauss); Baby Parade (Manfred); Overture, Raymond (Thomas); In the interval at 16.0 kaftman). Italiand (d'Albert); Selection from Ilest charmant (Moretti); Vibraphone Solo; March, Coliscum (Kalkman). 11.30 (approx.). Close Down.

STUTTGART

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 1.5 kW. Relayed by Freiburg, 527 kc/s, 570 metres.—12.35 p.m., See Langenberg. 1.30, Programme for Young People. 2.30, Wolfgang Hermann reads from his own Works. 3.0, See Frankfurt. 5.0 to 5.35, See Langenberg. 5.35, Time, Agricultural Notes, and Weather. 5.45, Talk: The Origin of Christmas Tree Decorations. 6.0, Transmission for all German Stations: Santa Clause-Variety Programme for Young and Old. 7.0. See Frankfurt. 7.5 (approx.). See Berlin (Deutschlandsender). 9.0, See Frankfurt. 9.20, Topical Talk. 9.30, Local News. Weather, and Sports Notes. 9.45, Gramophone Music. 10.0, See Langenberg. 10.15, The Banjo and the Marimba—South American Music with Commentary (on Gramophone Records). 11.0, Serenade. 12.50 a.m. (Thursday) (Also on Zeesen, 31.38 metres), The Swabians' Sauta Claus—Programme of Songs and Ancedotes. 1.5, Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

TOULOUSE

779 kc/s, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Music by an Argentine Band. 6.30, Operetta Music. 5.50, Orchestral Music: Ständchen (Schubert); Extase (Ganne). In the interval, Talk. 7.15, News. 7.30, Stranss Operetta Music by the Orchestra. 7.45, Sound Film Music. 8.0, Accordion Solos. 8.15, Orchestral Music. 8.30, Songs. 8.45, Light Music by a Viennese Orchestra. 9.0, Concert Version of The Dannation of Faust—Opera (Berlioz). 9.30, Military Music. 9.45, Chansonnettes. 10.0, Light Music. 10.15, News. 10.30, Concert of Opera and Operetta Music for Listeners in Morocco. 11.0, Request Music. 11.15, Dance Music. 12 Midnight, News. 12.5 a.m. (Thursday), Sound Film Music. 12.15, Light Orchestral Music: From the Rhine to the Danube (Rhode): My Sonvenirs (Nicholls); Rhapsody in Blue (Gershwin). 12.30 (approx.), Close Down.

TRIESTE

1,211 kc's, 247.7 metres; 10 kW.-4.10 p.m. till Close Down, See Turin. TRONDHEIM.-See Oslo.

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 598 kc/s, 501.6 metres.—4.10 p.m., Song Recital. 5.0 to 5.5, Weather. 5.40, Giornale Radio. Dopolayoro Report and Gramophone Music. 6.10, Wheat Market Report. 6.20,

News in Foreign Languages.
phone Music 7.0, Giornale
Weather. 7.15, Medical Talk.
phone Music. 7.45, Dramatic
After the Programme: Dance
Giornale Radio.

VATICAN CITY

15,120 kc s, 19.84 metres (Morning), and 5,969 kc, s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in Spanish 7.0 to 7.15 p.m., Religious Information in Italian.

5,969 kc, 5, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in Spanish. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 652 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—10.30 a.m., Orchestral Concert: March, Schwert in die Scheide (Trauner); Prelude to Percholdsdorf (Folba); Waltz, Wo unsere Wiege stand (Taborsky); Selection from The Mikado (Sullivan); Brigade-Roth-Marsch (Ischa); Polka - Mazurka Elfenreigen (Sturm); Gavotte, Im Schönbrunnerpark (Lilienau); Overture, Lysistrata (Lincke); Waltz, Vera Violetta (Eysler); Der Steffel feiert Geburtstag (Weinstabl); Schlosswache der Ameisen (Rathke); Potpourri, Ernst und heiter fürs Wiener Herz (Richter); March, Puchbergheim (Kodidek). In the interval at 10.55, Weather. 12 Noon, Time and News. 12.10 p.m., Grannophone Records. 1.0, Interval. 2.0, Time, Weather, and Exchange. 2.15, Talk on Photography. 2.25, Programme for Children. 2.55, Sound-Film Music on Grannophone Records. 3.20, Talk: Mother Gerhardinger and her Work. 3.35, Talk: Students and Working Class Youth. 3.50, Educational Talk. 4.5, Talk: Modern Vienna. 4.25, Alban Berg and Anton Webern—Concert of Contemporary Austrian Music by the Galinar Quartet, and Ruzena Herlinger (Soprano) and Rita Kurzmann (Pianoforte); Part I, Berg: Pianoforte Sonata, Op. 1; Songs: (a) Schlafen. schlafen, (b) Kahl reckt der Baum, (c) Welt der Gedanken, (d) Der Tag ist vergangen, (e) Gleich und Gleich; Six Bagatelles for String Quartet, Op. 9. 5.10, Talk: Sports for Women. 5.35, Talk for Workers, 6.0, Concert by the Wiener Symphoniker, conducted by Josef Holzer: Overture. Flotte Bursche (Suppé): Volksliedehen (Komzak); Märchen (Komzak); Waltz from Die geschiedene Frau (Fall): Potpourri. Elhairata (Lehär); Air from Der Opernball (Heuberger); Potpourri, Ein lustiger Marsch durch Wien (Stilp). In the interval at 6.35, Time, Weather,

WARSAW

WARSAW

212.5 kc's, 1,411 metres; 120 kW—10.57
2.m., Time Signal and Fantare from St.
Mary's Uhurch. Cracow. 11.5, Concert relayed from Lwów, 788 kc's, 337 metres. In
the interval at 11.30, Radio Journal and
Weather. 12 Noon, Interval. 2.25 p.m., Announcements and Economic Notes. 2.40,
Song Recital by Mme. Zubowicz: Plaisir
d'amour (Martini): La Zingara (Paisiello):
Pastorale (Stravinsky): Silence de la fôret
(Wieniavski): Three Songs (Maliszewski).
3.0, Gramophone Music. 3.10, Programme
for Young People. 3.40, Answers to Correspondence. 3.55. Light Music by the Station
Orchestra, conducted by Nawrot. Soloist:
Krukowski (Songs): Suite. Scaramouche
(Messager-Street): Songs; Waltz. Etincelles
(Waldtenfel): Schnick-Schnack (Löhr):
Songs; Polka (Strauss): March, Mississippi
(Fucik). 4.50, Agricultural Correspondence.
5.0, Talk. 5.20, Dance Music on Gramophone
Records. 6.0, Programme Announcements.
6.5, Miscellancous Items. 6.25, Reading.
6.40, Sports Notes. 6.47, Radio Journal. 7.0,
Concert of Contemporary Polish Music by
the Polish String Quartet. with Szabranska
and Szaleski (Songs). String Quartet No. 1,
Op. 37 (Szymanowski): Four Folk Songs
(Szopski): Three Songs (Friemann): Four
Songs (Niewladomski). 8.0, Reading. 8.15,
Planoforte Recital by Jules Wolfsohn:
Variations in C Minor (Beethoven): Six
Pieces (Chopin): (a) Fingue in A Minor, (b)
Prelude in A Flat, (c) Mazurka in A Flat,
(d) Etude in C Sharp Minor, (e) Waltz in
G Flat, (f) Scherzo in G Minor: The Death
of Isolde (Wagner-Liszt): Three Pieces
(Wolfsohn): (a) Chant d'amour, (b) Danse
de fête, (c) Danse nuptiale. 9.5, Programme
relayed from Wilno, 530 kc/s, 556 metres.
10.0, Weather and Police Notes.
10.5, Dance
Music on Grauophone Records.

ZAGREB

977 kc's, 307 metres; 0.75 kW.—4.30 to 5.30, Relay of a Sound Film. 6.15, Fashion Review. 6.30, Announcements and News. 7.0 to 9.0, Concert relayed from Liubijana, 522 kc, s, 574.7 metres. 9.0, News, Weather and Programme Announcements. 9.15, Dance Musie. 10.0 (approx.), Close Down. ZURICH.-See Schweizerischer Landessender.

ALGIERS

825.5 kc/s, 363.3 metres; 13 kW.—7.0 p.m., Financial Notes. 7.10, Shipping Notes. 7.15, Weather Report. 7.20, Operetta Arias. 7.55, News. 8.0, Time Signal. 8.2, Lottery Re-sults. 8.10, Talk. 8.30, News. 8.35, Non lieu —One-Act Play (de Marsan). 9.0, Request Gramophone Music. In the interval at 9.15, A Sketch and News. 9.55, News. 10.0, Con-cert of Oriental Music.

ATHLONE

ATHLONE

725 kc, s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres, and Cork, 1,337 kc, s, 224.4 metres.—1.30 to 2.30 p.m., Time Signal, Weather Report. Stock Report and Gramophone Concert. 6.0, Programme for Children. 6.40, News. 7.0, French Lesson. 7.15, Readings. 7.30, Time Signal. 7.31, Concert by the Chilwisk (hoir and Roy Henderson (Baritone), relayed from the Metropolitan Hall, Dublin. 9.0, Ballads by the Station Orehestra. 9.20, Recital of Montague Phillips' Songs by Edith McKenna. 9.30 to 10.30, Programme by the I.B.C. (Ireland). Ltd. 9.30, Light Music: Persian March (Friml); Song: Maire my Girl (Aitken); The Coon among the Chickens (Ives); Waltz, The Blue Danube (Joh. Strauss). 9.45, Organ Recital: Selection of Family Favourites (arr. Ewing); The Penguin's Patrol (Reaves): The Whistler and his Dog (Pryor); The Swirl of the Kilt (Ewing). 10.0, Concert arranged by the International Broadcasting Company (Ireland). Ltd.: Dance Music; The Last Round Up; Don't be late in the Morning; Did my Heart beat?: Racing Commentary; The Day you came along; It's within your Power; Everyone loves my Marquerite; Yvonne. 10.30, I.B.C. Good-night Melody, followed by News and Weather. 10.40, Traditional Fiddle Solos by J. J. Doolin. 11.0 (approx.), Close Down.

BARCELONA

EAJ1, 860 k/s, 349.6 metres; 8 kW.—6.0 p.m., Trio Concert. Sclection from Don Lucas del Cigarral (Vives); Serenade (Ceballos Farpon): Gitano (Brecton); Los dos chavalillos (Orejón); Nocturne (Granados); Dance of the Captives (Barrios); Selection from El mal de amores (Serrant). In the interval, Talk. 7.0, Request Gramophone Records. In the interval, Exchange. 8.0, Gramoplone Music. 8.30, Catalan Educational Programme: Geography and History Lessons, followed by News. 9.0, Chimes. Weather, and Exchange. 9.5, Part Relay of an Opera from the Gran Teatro del Licco.

BARI

1,112 kc's, 269.8 metres; 20 kW.—3.30 p.m., Programme for Women. 3.50 to 7.0, See Rome. 7.0, News in Albanian 7.15 to 7.30, Interval. 7.30 till Close Down, See Rome.

BASLE .-- See Schweizerischer Landessender.

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—5.55 p.m., Time and Programme Announcements, 6.0, Gramophone Music, 6.10, Talk, 6.30, Gramophone Music, 7.0, Polish Song Recital by Mme. Pipinska, 7.30, Concert by the Belgrade Philharmonic Orchestra; Soloist, Manen, In an interval at 9.0, Time and News, After the Concert, Dance Music (on Gramophone Records).

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHSSEND-ER), 183.5 kc/s, 1,635 metresffi 60 kW.—12.45 p.m., News. 1.9, Chamber Music on Gramophone Records: Movements Nos. 1 and 2 from the Pianoforte Trio in C (Brahms); String Quartet in E flat (Dvorak); Adagio from the Violin Concerto in E (Bach); Adagio from the Violin Concerto in E (Bach); Adagio from the Violin Concerto in D (Brahms). 1.45, Programme for Children. 2.39, Weather and Exchange. 2.45, Talk: The German Book Fair. 3.0, Concert relayed from Breslau. 4.0, Talk. 4.20, Contralto Song Recital by Irina Drummer: Was ist deum so wehe (Knah); Morgendammerung (Knah); Nachts (Knah); Die Einsame (Pfleiner); In Herbst (Pfleiner); Nachts (Knah); Die Einsame (Pfleiner); Orleimarsch (Reger); Frühlingsmorgen (Reger). 4.45, Pianoforte Trio in D (Haydn). 5.0, Poems. 6.5, A (Hobe-Trotter from Saxony-a Humorous Programme with Hans Schaufuss. 5.30, Talk by Dr. Döring. 5.50, Weather and Annonneements. 6.0, Transmission for all German Stations relayed from Breslau. 7.0, To-day's Motto. 7.5, Interesting Scenes on Gramophone Records with Commentary by Gerd Frieke. 8.15, Dance Music. 9.0, News and Sports Notes. 9.30, Talk: German Football. 9.45, Weather. 10.0, See Langenberg. 11.30 (approx.), Close Down.

BERLIN

FUNKSTUNDE, 716 kc/s, 419 metres; 1.5 kW. Relayed by Zeesen, DJC, DJA, DJD, DJB, and DJE.—5.0 p.m., Programme for Women: A Father, a Mother, and a Child at the Microphone. 5.30, The Funkstunde informs its Listeners. . 5.35, Topical Programme. 6.0, Transmission for all German Stations, relayed from Breslau. 7.5 to 11.0, The Washerwomen's and the Cabmen's Ball in Old Vienna. The Station Orchestra, con-



ducted by Franz Schönbaumsfeld, the Dietrich Schrammel Quartet, the Austro-German Song Society, and Soloists, in interval at 9.0 (approx.). News and Sports Notes. 11.0 (approx.). Close Down.

BERNE .-- See Schweizerischer Landessender. BEROMUNSTER. - See Schweizerischer Landessender.

BODEN .- See Stockholm.

BODO.-See Oslo.

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—6.15 p.m., Radio Journal. 7.35, News and Exchange. 7.40, Talk. 7.55, Lottery Results. 8.0, Talk on Wines. 8.15, News. 8.30, Le Prince d'Aurec—Comedy in Three Acts (Lavedan).

BRATISLAVA

1,076 ks/s, 279 metres; 14 kW.—5.5 p.m., Violin Recital by Pauliny: Prelude (Handel-Burmester); Two Pieces (Hubay): (a) Extract from The Violin Maker of Cremona, (b) Zephyr; Sercuade (Burmester). 5.30, Talk. 5.45, Graunophone Music. 6.0, See Prague. 8.0, See Brno. 9.0, See Prague. 10.0 (approx.), Close Down.

BREMEN .-- See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—1.20 p.m., Programme arranged by the Post Office, with Gramophone Records. 2.0, Market Prices and Exchange. 2.15, Book Review. 2.30, Programme for Children. 3.0, Concert by the Station Orchestra, conducted by Gerhard Ewald Rischka. Symphonic Prelude to Schirin and Gertraude (Graener); Selection from La Montagne noire (Holmes); Serenade, Op. 7 (R. Strauss); Norwegian Dances (Grieg); Ochsenmennett (Haydn); Herbstrosen-Walzer (Jos. Strauss); Pantastie Suite (Gabriel-Marie); March of the Finnish Cavalry. 4.30, Talk: Race Politics and the Divine Law. 4.50, Trio for Planoforte, Violin and Cello, Op. 8 (Brahms). 5.10, Agricultural Prices and Programme to be announced. 5.40, Hints for Short Wave Amateurs. 5.50, Programme Announcements. 6.0, Transmission for all German Stations. Concert of Classical Music by the Silesian Philiharmonic Orchestra, conducted by Hermann Matzke. Soloists: Ernst Tschiruer (Flute) and Bruno Schäfer (Harp); Overture in D (Haydu); Concerto in C for Flute, Harp and Orchestra (Mozart); Symphony No. 1 in C. Op. 21 (Beethoven). 7.0, See Leipzig. 7.30, See Munich. 9.20, See Leipzig. 9.40, Time and News. 9.50, See Leipzig. 11.0 (approx.), Close Down.

BRNO

878 kc s, 342 metres; 35 kW. -5.25 p.m., German Transmission: News and a Play. 5.0, See Prague. 6.15, Talk: Italian Universities. 6.30, See Prague. 8.0, The First and the Last—Tragedy in Two Seenes (Galsworthy): Czech Transhation by Titera. 9.0, See Prague. 10.0 (approx.), Close Down.

BRUSSELS (No. 1)

BRUSSELS (No. 1)

1.N.R.; 589 kc/s, 509.2 metres; 15 kW.—12

Noon, Concert by the Small Station Orchestra, conducted by Pierre Leemans; March, Salut à la France (Mezzaeapo); Suite, Jeux d'enfants (Bizet); Chanson triste (Tchai-kovsky); Selection from Rip (Planquette); Polonaise for Pianoforte (Chopin); Waltz, Dance away the Night (Thompson and Stamper); Hymne à l'amour (Guillenyn); Intermezzo, Tamyris (Mambour); Selection from Lá-hant (Yvain). 1.0 p.m., Le Journal Parlé. 1.10, Granophone Concert. 5.0, Gramophone Music; Butterflies in the Rain (Reaves-Myers); Selection from Nippy (Exton and Mayerl); Drink, Brothers Drink (Lindeman); Melody (Lchár); Selection from The Country Girl (Monekton); Baby's Birthday Party (Ronell). 5.30, Programme for Children. 6.0, Medical Talk. 6.15, Gramophone Concert: Lcháriana (Geiger); Pimpinella (Tchaikovsky); Selection from Les Cloches de Corneville (Planquette); Foxtrot, Blue Away (Selters); Saxophobia (Wiedoeft); With a Song in my Heart (Rodeft); With a Song in my Heart (Rodeft); Valse Erica (Wiedoeft); Quadrille from Orpheus in the Underworld (Offenbach); Les yeux noirs. 7.15, Talk for Workers. 7.30, Sports Notes. 8.0, Concert by the Station Symphony Orchestra, conducted by Jean Kumps. Soloist: Delcour (Pianoforte), Part I. Lizzt Music: Hungarian Rhapsody; Pianoforte Concerto in A; Hamilet. 8.46, Medical Talk. 9.0, Orchestral Concert (contd.).

Part II. Rapsodie cambodgieune (Ducoud-ray); L'apprenti sorcier (Dukas); Basque Rhapsody, Ramuntcho (Pierué); Gramo-phone Musie; Petite suite (Busser); Valses romantiques (Chabrier). 10.0, Le Journal

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.I.R., 888 kc/s, 337.8 metres; 15 kW. Programme in Flemish.—12 Noon, Gramophone Concert. 12.40 p.m., Organ Recital by Clément d'Hooghe, relayed from the Roxy Theatre, Antwerp: Grieg Potpourri; The Blue Dannhe (Joh. Strauss); Fantasia No. 3 (Benoit); Operetta Potpourri; Selection from The Desert Song (Romberg); Fugue in D (Bach); Waltz and Nocturne (d'Hooghe); Sound Film Music. In the interval at 1.9, Le Journal Parlé. 1.30, Concert by the Small Station Orchestra, conducted by Pierre Leenians: Overture, La dame blanche (Boieldien); Canzonetta (Memelessolm); Russian Rhapsody, Moskowa (Leemaus); Waltz. Snowhalls (Zielirer); Spanish Dances (Abéniz). 5.0, Concert by the Radio Orchestra, conducted by Franz André: Marche des petits soldats de plomb (Pierné); Spanish Suite, La Feria (Lacôme); Spanish March, Granados (Garcia). 5.30, St. Nicolas Festival Programme. 6.45, Concert by the Small Station Orchestra, conducted by Leemans: Marche lorraine (Ganne); Overture, Pique Dame (Suppé); Hindu Song from Sadko (Rimsky-Korsakov); Minnet (Mozart); Minnet (Paderewsky); La caravane passe (Letorey). 7.10, Announcements. 7.15, Talk for Workers. 7.30, Talk for Women. 8.0, Concert of Sacred Music, relayed from St. Martin's Church, Courtrai. 9.0, Concert by the Radio Orchestra, conducted by Franz André; Soloist, Toutenel (Baritone); Polka from Die Fledermaus (Joh. Strauss); Waltz from Le Roi Cambrinus (Metra); Four Songs: The Bine Dannbe (Joh. Strauss); Polka-Mazurka, Heimat (Strauss); Invita-Giou to the Waitz (Weber); Gallop, Tik-Tak (Strauss). 9.55, Evening Prayer. 10.0, Le Journal Parlé.

BUCHAREST

760 kc s, 394.7 metres; 12 kW.—4.0 p.m., Concert of Variety Music by the Dinico Orchestra. In the interval at 5.0, Radio Journal. 6.0, Educational Talk. 6.20, Talk. 6.40, An Opera on Gramophone Records. In the intervals, Reading and Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on 840 metres from 7.0 p.m. till Close Down.—4.30, Concert by the Opera House Orchestra, conducted by Ratjer, 5.30, English Lesson, 6.0, Humour at the Pianoforte—Recital by Fischer and Szendy, 6.45, Political Review, 7.0, Humorous Talk, 7.45, Concert by the Moczanyi and Lakos Chamber Orchestra, 9.0, News, 9.20, Military Band Concert conducted by Friesny, CASSEI, Son Eraphfurt

COPENHAGEN

CASSEL .-- See Frankfurt.

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres; and Skamlebask, 9,250 kc/s, 31.51 metres.—11.0 a.m., Time and Chines from the Town Hall. 11.5, String Ensemble Concert, relayed from the Hotel d'Angleterre. 1.30, Rending. 2.0, Orchestral Music, relayed from the Wivex Restaurant. 3.45, Programme for Boys. 4.30, Exchange and Fish Market Report. 4.45, Talk: The Iron and Steel Trade. 5.15, English Lesson. 5.45, Weather. 6.15, Time. 6.16, Talk. 6.45, Danish Lesson. 7.10, Concert by the Station Symphony Orchestra. conducted by Hans Weisbach; Soloist, Anni Konetzni (Songs): Brandenburg (Concerto No. 3 in G (Bach); Aria from Fidelio (Beethoven); Symphony in C. No. 97 (Haydn); Overture. The Flying Dutchman (Wagner); Ballad from The Flying Dutchman (Wagner); Introduction to Parsifal (Wagner); Scene from The Dusk of the Gods (Wagner); 9.15, News. 9.30, Reading. 10.0, Dance Music, relayed from the Wivex Restaurant. 11.0, Time and Chimes from the Town Hall.

CORK.-See Athlone.

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.-6.0 p.m., Miscellaneous Items. 6.5, The Letter Box. 6.20, Programme Announcements. 6.25, See Warsaw. In the interval at 6.40, Sports Notes. 11.0 (approx.), Close Down.

DANZIG .- See' Heilsberg. DRESDEN .- See Leipzig.

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—10.30 a.m. to 11.30 a.m., Programme in English by the I.B.C. 10.30, Happy Hour. Part I. Willtary Band Music: Signature Tune; 1812

Overture (Tchaikovsky); Selection from Lohengrin (Wagner); Ballet Music from La Source (Delibes); The Hunt in the Black Forest (Vockler); Selection, Rigoletto (Verdi); War March of the Priests (Mendersolm); The Skaters' Waltz (Waldtenfel). Part II. Dance Music: There's a new day comin'; I wanna count Sheep; Moon Indigo; Hobo, you can't ride this train; My Mother's Garden; La Cumparsita; I've got to get up and go to work; My Own; Signature Tune. 1.30, Programme in French. 3.30 to 6.0 p.m., Programme in French. 3.30 to 6.0 p.m., Programme in English by the I.B.C. 3.30, Worthing and Littlehampfon Concert. Part 1. Tango Orchestra: Donde estas Corazon (Berto); Nina (Paolita); Passion Flower (Kennedy); Mon amour (Paolita); Ninon (Moretti); Rosa Mia (Fisher); Little Romany (Leon); Aromas mendocinos (Cunita). Part II. Dance Music: Did my heart beat (Russell); He was a handsome young Soldier; When Antunan comes around; A couple of Pais; Who's afraid of the Big Bad Wolf'; Lover; I've got to pass your honse; Don't blame me. 4.30, The I.B.C. Nursery Corner. Birthday Greetings. 5.0, Brighton and Hove Concert. Part I. Light Music: March of the Russian Hussatrs Crad.); Nightfall (Lewis); Fairy Tale (Heykens); The Cuckoo Song (Norton); Waltz Medley (Ewing); The Birth of the Blues (Henderson); The Pride of the Wolferines (Sonsa). Part 2: Balalaika Orchestra: Troika and a Lady (Andraeiv); The Blues (Henderson); The Pride of the Wolferines (Sonsa). Part 2: Balalaika Orchestra: Troika and a Lady (Andraeiv); The Policeman's Holiday (Ewing); The Birth of the Blues (Henderson); The Pride of the Wolferines (Sonsa). Part 2: Balalaika Orchestra: Troika and a Lady (Andraeiv); The Policeman's Holiday (Ewing); The Policeman's Holiday (Ewing); The Birth of the Blues (Henderson); The Pride of the Wolferines (Sonsa). Part 2: Balalaika Orchestra: Troika and a Lady (Andraeiv); The Englin; My Moonlight Moonlight (Lewis); The Policeman's Holiday (Ewing); The Birth of the Blues (Henderson); The Pride of the Wolferines (Sonsa). Part 2: Balalaika Or FLENSBURG .-- Sec Hamburg.

FLORENCE .-- See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel, and Trier, 1,157 kc.s, 259.3 metres.—12.15 p.m., Time and News. 2.25, See Stuttgart. 1.30. Local News. 1.40, Radio Play for Children (Isa. von Eck). 2.30, Weather Forecast. 2.40, Time and Market Prices. 3.0, Concert, by the Trier Municipal Orchestra. conducted by Franz Altmeier, with Albert Wehler (Animal Imitator and Siffleur). Part I: Overture, The Merry Wives of Windsor (Nicolai); Selection from The Bartered Bride (Smetana). Part II: Animal Imitations. Part III: Overture, Der Waffenschmied (Lortzing); Selection from Hansel and Gretci (Humperdinck). Part IV: Siffleur Solos. Part V: Overture, Eine Nacht in Venedig (Joh. Strauss); Selection from The Gipsy Baron (Joh. Strauss); Entract from Die glückliche Reise (Künneke). 5.0 to 5.35, Programme from Stuttgart. 5.35, Reading (Hans Maikowski). 5.50, News and Time. 6.0, Transmission for all German Stations relayed from Breslau. 7.0, Topical Talk. 7.10, See Langenberg. 8.10, See Stuttgart. 9.30, Local News and Weather. 9.45 till Close



Down, See Langenberg. 12 Midnight, Close Down,

FREDRIKSSTAD .- See Oslo.

FREIBURG .- See Stuttgart.

GENEVA.—See Radio-Suisse Romande.

GENOA .- See Turin.

GLEIWITZ .- See Breslau.

GOTEBORG .- See Stockholm.

GRAZ.—See Vienna.

HAMAR.-See Oslo.

HAMBURG

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by
Bremen, 1,112 kc/s, 269.8 metres; Flensburg
and Hanover, 1,319 kc/s, 227.4 metres; and
Kiel, 1,292 kc/s, 232.2 metres:—6.0 p.m.,
Transmission for all German Stations, relayed from Breslau, 7.5, See Berlin (Funkstunde). In the interval at 9.0, Time and
News. 10.45, See Langenberg, 11.10 (approx.),
Close Down.

HANOVER.—Sec Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—12.5 p.m., Wagner Concert on Gramophone Records: Prelude to Act 111 of Parsital; The Legend of the Grail, from Lohengrin; Aria from Then Busk of the Gods; Aria from Siegfried; Two Arias from The Busk of the Gods; Aria from Siegfried; Wotan's Farewell and Fire Magic, from The Walkyrie; Prelude to and Aria from The Walkyrie; Prelude to and Aria from The Walkyrie; Prelude to and Aria from The Wastersingers, In the intervals at 12.20 and 1.0, News. 1.30, Programme arranged by the Post Office, with Gramophone Records. 2.0, Agricultural Report. 2.30, Programme for Children. 3.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Zampa (Herold); Selection from The Arabian Nights (Joh. Strauss); Polka. Sorgenbrecher (Joh. Strauss); Polka. Sorgenbrecher (Joh. Strauss); Polka. Sorgenbrecher (Joh. Strauss); Alajan Suite No. 2 (Becce); Overture, Ein Opernbail (Heuberger). 4.0, Concert of German Chamber Music: Movement from the Trio in A. Op. 3, or Clarinet, Horn and Pianoforte (Freidrich); Songs for Soprano, Clarinet, and Pianoforte, Op. 103 (Spohr): (a) Zwiegesang. (b) Sehnsucht, (c) Wiegenlied. (d) Das heimliche Lied; Movement from the Serenade in E Flat for Violin. Clarinet, and Pianoforte (von Baussern). 5.0, Book Review. 5.25, Agricultural Talk, 5.50, Weather. 6.0, Trausmission for all German Stations, relayed from Breslau. 7.0, News. 7.5, See Berlin (Funkstunde). In the interval at 9.0, News. 11.0 (approx.).

HILVERSUM

Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW. up to 5.40 p.m. and 20 kW. from 5.40 p.m. Programme of the General Broadcasting Society (A.V.R.O.).—11.41 a.m., Concert by the Wireless Orchestra, conducted by Nico Treep: Hands across the Ocean (Sousa); Suite (Juel-Fredericksen); Moonlight on the Bosphorus (Köpping); Glow-worm Idyli (Siede); Waltz, Ange d'amour (Waldtenfel); Selection from Lilae Time (Schubert-Berte); Dio Nachtigall im Pliederbusch (Krome); The May-Beetle goes a-wooing (Armandola); In a Persian Market (Ketelbey); Max und Moritz (Zimmer); Festival Overture (Leutner); Eiskünstler (Ertl); Dutch Dances (Samehtini); Jahrmarktstrummel (Lincke). 1.55, Talk by Ina Boudier-Bakker; The Education of our baughters. 2.25, Interval. 2.40, Dressmaking Lesson. 3.25, Gramophone Records. 3.40 Programme for Hospitals. 4.10, Gramophone Records. 4.40, Programme for Children. 5.10, Procent of Light Music. 6.10 Sports Talk. 6.40, Concert by the Wireless Orchestra, conducted by Albert van Raalte, 7.10, English Lesson. 7.40, Time and News, 7.45, Concert (contd.); Homage March from Signed Jorsalfar (Grieg); Overture, The Bohemian Girl (Balfe); Elegy (Massenet); Chanson triste (Tchaikovsky); Wine, Woman and Song (Joh. Strauss); Three Romanian Dances (Belor Bartok); The Old Folks at Home (Busch); Hungarian Dance (Brahms); March (Komzak). 8.45, Gramophone Cecorts. 9.25, Kindertotenlieder (Mahler), by the Concertgebonw Orchestra. conducted by Reinum, relayed from the Concertgebonw, Amsterdam. Soloist: Alexander Kipnis (Bass). 9.55, Concert of Light Music by Kovacs Lajos and his Orchestra. 10.40, News. 10.50, Gramophone Records. 1.40 (approx.), Close bown.

HURZEEN

HORBY,-See Stockholm.

HUIZEN

HUIZEN

160 kc/s, 1,875 metres; 7 kW until 3.40 p.m.
Transmitted from Kootwijk, on 50 kW, from
3.40 p.m.—11.40 a.m. to 1.40 p.m., Programme
of the Catholic Radio Society (K.R.O.). 11.40,
Police Announcements. 11.55, Orchestral
Concert. March, The Nibelungs (Sountag);
Overture, Lysistrata (Lincke); Selection
from Die Fledermans (Joh. Strauss); Elegie
(Busch); Two Norwegian Dannes, Op. 32,
Nos. 3 and 4 (Aulin); Waltz, Carmen Sylva
(Ivanovici); Gramophone Records, Pro
Patria (Rebattu); Ein Walzerabend bei
Suppé (Thicle); Erinnerung an Luzern
(Blon); Gavotte tendre (Ganne); Operetta

DEC. 7th THURSDAY continued

Potpourri (Fetras); Der Jongleur (Rosey).
1.40 till (Dose Down, Programme of the Christian Radio Society (N.C.R.V.).
1.40, Handwork Lesson.
2.40, Gramophone Records.
3.10, Interval.
3.40, Bible Reading, Baritone and Organ Solos.
4.40, Handwork Lesson.
5.10, Viola d'annore Recital hy Kint.
Sonata (Hannmer); Sonata (Stamitz); Gramophone Records: Andante and Minuet (Milandre); Serenade (Kint); Sarabande and Tambourin (Kint); Short Sonata (Hindemith).
6.40, Police Annonneements.
6.55, Talk.
7.10, Press Review.
7.40, Song and Pianoforte Recital by Mine. Ludolph (Soprano); Mine. Meent-Walter (Contralto), and Hengeveld. In the interval at 8.4, Talk.
8.40, Talk and News.
9.20, Organ Recital by Bouwmeester.
Prehade (Bach); He shall guard His Flock (Handel); Fantasia (Caproci); Canzonetta (Rheinberger); Vision (Rheinberger); Sortie (Guilmant); Choral Fantasia; Songs; Improvisation.
10.20, Gramophone Records.
11.10 (approx.), Close Down.

INNSBRUCK.—See Vienna.

INNSBRUCK.-See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—8.0 p.m., Amusement Gnide, Financial Notes, Racing Results, and News. 8.10, Scientific Review. 8.20, Radio Concert. In the interval at 9.0, News and Weather. and Weather

KALUNDBORG .- See Copenhagen.

KATOWICE

734 kc, 8, 408 metres; 16 kW.—6.0 p.m., Announcements. 6.10, Sports Talk. 6.25, See Warsaw. 6.40, Sports Notes. 6.47, See Warsaw. 8.0, Granophone Music. 8.15 till Close Down, See Warsaw.

KAUNAS

KAUNAS

Time, Weather, Exchange and Programme Annonneements. 6.30, String Quartet Concert. 7.0, Talk on Archeology. 7.20, Quartet Concert. 7.50, Talk: Sports Training. 8.0, Talk: Indoor Sports. 8.10, Concert. 8.30, Talk in Esperanto. 8.50, Popular Music: Slav Rhapsody (Dvorak); Schection from The Bartered Bride (Smetana); Humoresque (Dvorak); Spring (Fibich). 9.30 (approx.), Close Down.

KIEL.—See Hamburg.

KLAGENEURT.—See Vienna.

KOSICE.-See Prague.

LAHTI

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by Melsinki, 815 kc/s, 368.1 metres.—4.0 p.m., Concert by the Station Orehestra, conducted by Linko: March. Old Comrades (Teike); Overture. Si J'étais roi (Adam); Selection from Frederica (Lehár); Waltz (Ivanovici); Two Songs (Koskimies); March (Koskimies). 4.50, News in Finnish. 4.59, Time and Weather. 5.10, News in Finnish. 5.15, Talk. 5.40, Song Recital. 6.5, Talk. 6.30, Recitation. 6.50, Concert by Students of the Conservatoire. Helsinki. 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12.25 p.m., News and Weather. 12.35, Concert from Stuttgart. 1,30, Interval. 2.0, Gramophone Records: Minuet (Boccherini); Schlafe, mein Prinzehen, schlaf ein (Mozart); Tarantella sincera (de Crescenzo); Serenade (Roland); Perpetnum mobile (Joh. Stranss). 2.15, Talk: Relief for the Unemployed, 2.30, Market Prices. 2.50, Political Announcements. 3.0, see Frankfurt. 5.0, Programme from Stuttgart. 5.35, Report on the Six Days' Racing in Cologne. 5.45, Announcements. 6.0, Transmission for all German Stations, relayed from Breslau. 7.0, See Frankfurt. 7.10, Concert; Erdmuthe Fiebiger (Contralto), Hans Haass (Harpsichord), Robert Grote (Viola da Gamba), Rudi Rhein (Violin), and Egbert Grape (Pianoforte): Sonata in C for Harpsichord and Viola da Gamba (Handel); Songs; (a) Il mio fnoco (Marcello), (b) Se tu m'ami (Pergolesi); Harpsichord Solo: Preludinm and Figne from Das wohltemperierte Klavier (Bach); Songs (Beethoven): (a) An die Hoffnung, (b) Sehnsucht; Romance in F for Violin and Pianoforte (Beethoven): Pianoforte Solo: Capriccio on Die Abreise des vielgeliehten Bruders (Bach). 8.10, See Stuttgart. 9.0, See Frankfurt. 9.20, See Stuttgart. 9.0, News. 9.45, Gramophone Records. 10.0, Perpetumm Mobile—Dance Music by the Station Dance Band, conducted by Kühn. 10.45, Report on the Six Days' Racing in Cologne. 11.10, Richard Strauss Concert on Gramophone Records: Two Songs: (a) Geduld, (b) Morgen: Fantastie Variations. Don Quixote. Op. 35. 12 Midnight, (Pose Down.

LAUSANNE.-Sec Radio-Suisse Romande.

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—12.15 p.m., News and Time. 12.25, Gramophone Relayed es.—12.15 Music. 1.0, News. 1.10, Book Review. 1.30 to 1.40, Film Report. 1.50, Concert by a School Orchestra. 2.35, Market Prices. 3.0 to 5.10, See Breslau. 5.10, The German Book Fair: Radio Report from a Printing Works. 5.45, Market Prices. 6.0, Transmission for all German Stations relayed from Breslau. 7.0, To-day's News. 7.10 to 9.20, See Munich. 9.20, News. 9.50, Light Music and Dance Music by the Enide Orchestra. 11.0 (approx.), Close Down.

LINZ .- See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—6.0 p.m., Serbo-Croatian Lesson. 6.30, Request Gramo-phone Records. 7.0, Organ and Song Recital. 7.45, Instrumental Duets. 8.30, Weather and News. 8.50, Concert by the Station Orchestra.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—German Evening.—7.0 p.m., Gramophone Concert: The Scottish Symphony. No. 3, 0p. 56 (Mendelssohn), by the Royal Philharmonic Orchestra, conducted by Weingartner. The Toy Symphony (Haydn). 7.45, Humorous Items in German. 7.55, Brahms Recital by Mrs. Skuhra (Pianoforte). 8.15, Concert of German Music by the Station Orchestra, conducted by Henri Pensis: Overture, Die Beherrscher der Geister (Weher): Selection from Elektra (R. Strauss); Wiegenlied; (Brahms); Trämnerei (Schumann); Pietures of the Orient (Unger). 8.50, News in French. 9.0, Variety Concert by the Station Orchestra, conducted by Benri Pensis: Der Tausendkünstler (Blakenburg); Waltz, Dynamiden (Jos. Strauss); Selection from Samson and Delilah (Saint-Saöns); Chinese Serenade (Siede); Selection from Rose-Marie (Frinl). 9.50, Xews in German. 10.0, Variety Concert on Grauophone Records. 10.15, Dance Music by the Radio Jazz-Band, conducted by Ferry Jusa.

LWOW

788 kc/s, 381 metres; 16 kW.—6.25 p.m., See Warsaw. 6.45, Sports Notes. 6.47, See Warsaw. 10.5, Gramophone Concert. 10.30 (approx.), Close Down.

LYONS

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LYONS

LYONS

A 644 kc/s, 465.8 metres; 15 kW.—

7.40 p.m., Radio Gazette for Lyons and the South Eeast. 8.30, Musical Programme. 8.45, Concert arranged by the Société des Grands Concerts. The Orchestra, conducted by Jean Witkowsky. Soloist: Mme. Bertrand (Violin). Symphony No. 2 in B minor (Borodin); Violin Concerto in D (Mozart); Symphonic Poem. Léonore (Duparc); Violin and Orchestra: Havanaise (Saint-Saëns); In Wallenstein's Camp (d'Indy). After the Concert: News.

MADRID

MADRID

ARANJUEZ, EAQ, 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Programme relayed from Madrid (EAJ7), followed by Radio Chronicle. 12 Midnight to 1.0 a.m. (Friday), Concert arranged by the International Broadcasting Company of London. 12 Midnight, Light Music: The Blue Danube (Joh. Strauss); A Perfect Day (Jacobs Bond); I lay me down to sleep (Wrubel); Two of Irish (Whitlock); Step Lightly (Anderson); Song: For ever and for ever (Tosti); Blaze away (Kennedy); Love's Old Sweet Song (Molloy). 12.30, Orchestral Concert; Chanson (Friml); Chant sans paroles (Tchaikovsky); Song: Fate's Discourtesy (Eigar); Grand March from Alda (Verdi); Serenade, Les millions d'Arlequin (Drigo); Largo (Händel); Song: Richard of Taunton Deane (arr. Molloy); Spring Song (Mendelssohn). 1.0, I.B.C. Good-night Melody and Close Down.

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—7.0 p.m., EAJ7, 707 kc/s, 424.3 motres; 2 kW.—7.0 p.m., Chimes, Exchange, Announcements and Programme for Children. 8.15, Radio Journal. 8.30 to 9.15, Interval. 9.15, English Lesson. 9.30, Chimes. Time and Radio Journal. 9.45 (approx.), Two Plays (Alejandro Stéfani); (a) La Primera Husion y la Ultima, (b) El Columpio de la Felicidad. 11.45, Radio Journal. 12 Midnight, Chimes. 1.0 a.m. (Friday) till Close Down. Programme in English arranged by the International Broadcasting Company of London: Dance Music: Twelfth Street Rag; On the other side of Lover's Lane; I raised my Hat; Roll up the Carpet; Happy as the Day is Long; There's a Cabin in the Pines; Let's call it a Day; It you'll say Yes, Chérie: The Shadow Waltz; The Grass is getting Greener; Remember my Forgotten Man; Sittin' in the Dark; Bom-hadiddy-bom-hon; Pettin' in the Park; A Broken Rosary; Let Bygones he Bygones; The Gold-Digger's Song. 2.0, I.B.C. Goodnight Melody and Close Down.

MALMO.-See Stockholm. MILAN.-See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—5.30 p.m., German Transmission: Programme of Modern Bulgarian Literature. 6.0, See Prague. 8.0, See Brno. 9.0 till Close Down, See Prague. 10.0 (approx.), Close Down.

MOTALA.—See Stockholm.

MUHLACKER.-Sec Stuttgart.

MUNICH

MUNICH

MUNICH

Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Mürnberg, 1,256 kc/s, 250 metres; 3.0 p.m., Programme from Breslau. 5.10, Agricultural Talk. 5.30, Gramophone Records. 5.45, Time, Weather and Agricultural Report. 6.0, Transmission for all German Stations, relayed from Breslau. 7.0, See Leipzig. 7.10, Austria. 7.30, At the Service of our Customers—A Revue. 9.20, See Leipzig. 9.40, Weather, Agricultural Notes, Exchange and Sports Notes. 10.0, Programme from Leipzig.

NAPLES.-See Rome.

NOTODDEN .- See Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres; and Bloy, LCL, 6,990 kc/s, 42.92 metres.—9.30 to 10.0 a.m., Broadcast for Schools, 10.40 to 11.10, Programme for Schools, 40, Concert by the Bergen Radio Ensemble: March Grotesque (Sinding); Overture, Lecheval de bronze (Auber); Ennstal (Pachernegg); Melody (Brunkvist); Autumn Song (Zerkowitz); Serenade (Petcrsen-Berger); Selection from Lohengrin (Wagner); Klänze aus Rumänien (Dauber). 5.0, German Lesson. 5.30, Divine Service. 6.0, Announcements, Weather and News. 6.30, Concert by the Gutta i Rölken Ensemble: March, Folies Bergères (Lincke); Mazurka (Wimmy Simousen); Waltz, Children of Spring (Waldteufel); Gubbe Rheinländer (Eidsmo); Foxtot (Barnes); Potpourri of Dance Tunes (Hauger); March, Porta (Johansen). 7.0, Time. 7.1, Agricultural Talk, 7.30, Pianoforte and Violin Recital by Mme. Elisabeth Reiss-Faerden and Willy Johanson. 8.15, Talk. 8.40, Weather and News. 9.0, Topical Talk, 9.15, Variety Programme. 10.0 (approx.). Close Down.

OSTERSUND.-Sce Stockholm.

PALERMO

PALERMO

556 kc/s, 539.5 metres; 3 kW.—7.0 p.m.,
Dopolavoro Announcements, Agricultural
Notes and Gornale Radio, 7.20, Gramoplone Music. In the interval at 7.30,
Time and Announcements, 7.45, Orchestral
Concert. Soloists: Virino (Tenor). Levial
(Soprano), Sali (Soubrette); Overture,
Banditenstreiche (Suppé); Waltz, Spighe
d'oro (Becucci); Caccia (Magro); Tenor
Solo: Mattinata (Leoneavallo); Nozze
marocchine (Billi); Song (Rosen); Rustic
Dance (Malvezzi); Serenata a Pierrette
(Penna); Internezzo, Caizone vespertina
(Profeta); Song (Bonavolonta); Variety
Item. 8.30 (approx.), Biglietto di matrimonio (The Marriage Licence)—Comedy in
One Act (Sapori). 9.0 (approx.), Concert
(contd.): Selection from The Dubarry
(Millöcker-Mackelen); Fortissimo (Kalman).
10.0, Giornale Radio.

PARIS

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m., (Preliminary and 6-dot Signals).—5.45 p.m., Le Journal Parié. 7.15, Weather and News. 7.30, Gramophone Concert: Part I. Opera Minsic: Overture, William Tell (Rossini); Aria from The Queen of Sheba (Gounod). 8.0, Political Review. 8.15, Gramophone Concert: Part II, Variety Music: Pianoforte Concerto in E minor (Chopin); Selection from Light Cavalry (Suppé); Selection from Véronique (Mcssager); Melody (Gingl); Ma reine (Bucalossi); Le chaland qui passe (Badet), J'aime tes grands yeux (Trunchant); Wien bleibt Wien (Michaelov). 9.0 (approx.), Close Down.

PARIS

PARTS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Gramophone Record: Waltz from The Dubarry (Millöcker-Mackeben). 7.5, Sponsored Talk. 7.10, Agrieultural Talk. 7.15, Le Journal Parlé. 7.30, Programme for Children. 8.0, Two Sponsored Talks. 8.15, Interval. 8.25, Sponsored Gramophone Concert. 9.20, Interval. 9.40, Concert. 10.30, News.

PARIS

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725
metres; 75 kW.-6.45 a.m., Physical Culture.
7.30, Weather and Physical Culture (contd.).
7.45, Gramophone Music. 8.0, Weather and
Press Review. 12 Noon, Protestant Address.
12.30 p.m., Gramophone Records: Turkish
March (Mozart); Le petit malade (Courteline); Le kiosque à musique (Franc-Nohain);
La rue, le gnitariste et le vieux cleval (Monon);
Le dit du pauvre vieux (Fort); La
complainte du petit cheval blanc (Faul Fort);

Le jet d'eau (Baudelaire); Sarabande (Bach); Minuet (Destouches); Three Recitations (Rostand): (a) Le barrage, (b) La Brouctte. (c) Selection from Chantecler (Rostand); Danse des petits nègres (Caplet); Le Martin-pècheur (Gerard); Noël (Gerard); Deux pastiches musicaux (Doucet); Le cochen savant (Jaboune); Les petits Cadeaux (Jaboune); Children's Corner (Debussy). In the intervals at 1.0 and 1.30, Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 6.20, Weather, Agricultural Talk, Market Prices and Racing Results. 6.45, Legal Talk. 7.0, A Dialogue. 7.20, Gramophone Music: Le père Antoine (Loyraux); Valse bleue (Margis); Fascination (Marchetti); Marionnettes (Cuvillier); Le gamin de Paris (Charlys); Tes heaux doigts roses (Cazals). 7.45, Review of the German Press, Commercial Notes and News. 8.0, Julius Cæsar-Play (Shakespeare). In the interval at 8.30, News, Weather, Sports Talk and Review by Christophe, and at 9.15, Press Review and News.

PITTSBURGH

PITTSBURGH

KDKA, 980 ke/s, 306 metres; 50 kW. Relayed by W&KK on 48.86 metres and 25.27 metres.—7.0 p.m., Musical Originalities, from New York. 7.30, KDKA Home Forum. 7.45, Pioneers, KDKA to New York. 8.0, State Federation of Pennsylvania Women. 8.15, Rochester Orchestra, from New York. 9.0, Betty and Bob, from New York. 9.15, Programme to be announced. 9.30, Business News and Markets. 9.45, Thursday Special, from New York. 10.0, National Federation Women's Club, from New York. 10.15, KDKA Kiddies' Klub. 10.30, Singing Lady, from New York. 10.45, Orphan Annie, from New York. 11.0, News, Pat Haley. 11.15, Sports, Programme Preview. 11.30, Evensong. 11.45, Lowell Thomas, from New York. 12.15 a.m. (Friday), Marvellous Melodies. 12.30, Lois Miller, Organist. 12.45 to 3.30, New York Relay. 12.45, Concert Footlights. 1.0, Captain Diamond. 1.30, Adventures in Health. 1.45, The Revellers. 2.0, Death Valley Days. 2.30, Lady Esther Serenade. 3.0, Hands across the Border.

PORSGRUND,-See Osio.

· PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—3.0 p.m., Programme for Children. 3.25, Report on the Christmas Festivities, in the Peace Square. 4.15, Talk on Commerce. 4.25, Gramophone Music. 4.35, Elementary French Lesson. 4.50, Gramophone Music. 5.5, Agricultural Report. 5.15, Talk for Workers. 5.25, News in German. 5.30, German Transmission: Agricultural Talk. 6.0, Time, News and Weather. 6.10, An Appeal for the Czech Red Cross Society. 6.15, Talk: Tuberculosis. 6.30, St. Nicholas—Literary and Musical Programme. 7.25, String Quartet in E, Op. 45 (d'Indy), played by the Ondricek Quartet. 8.0, See Brno. 9.0, Time, News, Daily Review and Sports Notes. 9.15, Introductory Talks to the following transmission, in Czech, German and French. 9.25, Smetana Memorial Concert by the Station Orchestra, conducted by Otaker Jeremias. Soloists: Maria Vudikvo (Soprano), and Krikava (Baritone). Extracts from The Secret. 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE
SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15 a.m. (from Lausanne), Gymnastics. 11.28, Time Signal from Neuchâtel Observatory. 11.30, News and Weather. 11.40 (froin Geneva), Varicty Items. 2 Noon (froin Lausanne), Financial Notes. 12.10 p.m. (from Lausanne), Gramophone Concert. 1.0, Interval. 2.58, Time Signal from Neuchâtel Observatory. 3.0 (froin Geneva), Song and Pianoforte Recital by Verena Brunner and May Lenoir, relayed from the Conservatorie: Arias (Mozart) from (a) Il Seraglio, (b) Il Re Pastore; Pianoforte Solo: Nocturne in C minor (Chopin); Three Songs (Schubert: (a) Die Forelle, (b) Ständchen, (c) Ueber den Wassern zu singen; Pianoforte Solos: (a) Jeux d'eau (Ravel), (b) Seguedillas (Albéniz). 3.30, Concert by the Radio Suisse-Romande Orchestra, conducted by Echenard: March from Athalie (Mendelssohn); Suite for Small Orchestra (Cui); España (Chabrier); Algerian Nights (Gregh): Selection from Monsieur Beaucaire (Messager): Intermezzo from Cavalleria rusticana (Mascagni); Selection from Funny Face (Gershwin). In the interval at 4.20, Gramophone Music. 5.0 (from Lausanne), Lesson in Carpentry and Cabinet-making. 5.30 (from Lausanne), Review of New Books. 5.55 (from Lausanne). Sound Film Music on Gramophone Records. 6.30 (from Lausanne), Weather Report. 7.0 (from Lausanne), Veello Recital by Marc Delgay: Andante cantabile (Tartini); Sonata in G (Breval); Sketch (Karjinsky); (from Lausanne), Weather Report. 7.0 (from Lausanne), 'Cello Recital by Marc Delgay: Andante cantabile (Tartini); Sonata in G (Breval); Sketch (Karjinsky): Les maisons de l'éternité (Bloch), 7.30 (from Lausanne), Françoise—Musical Comedy in Three Acts (Daniderff), relayed from the Bel-Air Theatre. 10.45 (approx.), Close Down.

REYK JAVIK

250 kc/s, 1,200 metres; 21 kW.—8.0 p.m., Musical Programme. 8.10, Weather. 8.20, Musical Programme and Announcements.

DEC. 7th THURSDAY continued

8.35, Programme to be announced. 9.0, Chimes and Music by the Radio Trio. 9.30, Reading. 10.0, News. 10.30, Songs on Gramophone Records, followed by Dance Music. 11.30 (approx.), Close Down.

RIGA

571 kc/s, 525.3 metres; 15 kW.—5.30 p.m., English Lesson. 6.0, Weather. 6.5, Moorish Rhapsodies—Orchestral Concert conducted by Medins. 7.5, News. 7.30, Song Recital by Pia Ravenna. 8.0, Weather, followed by Orchestral Concert. 8.30, Songs from Sound Films.

RJUKAN.—See Oslo.

ROME

ROME

Gali 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres from 7.45 p.m., and 2RO, 11,810 kc/s, 25.4 metres.—
12.10 to 1.15 p.m., Concert from Turin. In the intervals at 12.30, Giornale Radio and Exchange, and at 1.0, Time and Announcements. 3.30, Children's Radio Review. 3.50, Giornale Radio and Exchange. 4.0, Reading. 4.10, Weather Forecast. 4.15, Instrumental and Vocal Concert; Mario Broussard (Planoforte), Guglielmo Bandini (Bass), Giuseppina Marciano (Roprano), and Clara Fioravanti Cinci (Mezzo-Soprano): Planoforte Solos: (a) Alla fonte (Savasta), (b) The Lark (Glinka Balakirev): Bass Solos: (a) Seventeenth Century Aria, (b) Arioso (Handel), (c) Aria from Luisa Miller (Verdi); Pianoforte Solos: (a) Polichinelic (Rachmaninov), (b) Navarra (Albéniz); Soprano and Mezzo-Soprano Duets: (a) An den Frühling (Schumann), (b) Duet, Il cacciatore del bosco (Sinigaglia), (c) La mariettina (Ricordi), (d) Le nuvole (Cantarini). 5.0, Announcements. 5.40 (Naples), Shipping and Sports Notes. 5.45, Dopolavoro Notes and Tourist Report. 6.10, Agricultural Notes and Wheat Market Report. 6.20, News in Foreign Languages. 6.40, Giornale Radio. 7.0, Time and Announcements. 7.30, Giornale Radio and Sports Notes. 7.45, Orchestral Concert of Opera Music; Soloist. Scavizzi-Fabris (Soprano) overture, Matilde di Shabran (Rossini); Prelude to Act I of Lorcley (Catalani); Soprano Solo from Trais (Massenet); Humorous Interlude; Selection from Act IV of Adriana Lecouvreur (Citea). 9.0 (approx.), Dance Music. 10.0, Giornale Radio.

SALZBURG.—See Vienna.

SALZBURG.—See Vienna.

SCHENECTADY

WGY, 780 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAD on 19.56 metres.—12.45 a.m. (Friday), Stock Reports, 1.0 to 4.0, New York Relay. 1.0, Fleischmannn Hour. 2.0, Captain Henry's Show Boat. 3.0, Paul Whiteman's Orchestra. 4.0, Programme Résumé.

SCHWEIZERISCHER

LANDESSENDER

LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; Basle, 1,229 kc/s, 245.9 metres; and Berne, 1,220 kc/s, 245.9 metres.—5.50 to 6.5 a.m. (from Berne). Gymnastics. 11.0 (from Zürich), Talk for Housewives. 11.5 (from Zürich), Time, Weather and Exchange. 12.30 to 2.30 (approx.). Interval. 2.30 (from Berne), Offenbach and Strauss Music (on Gramophone Records). 3.0, See Radio-Suisse Romande. 5.0 (from Basle), Songs from Der Dreigroschenoper (Weill), on Gramophone Records. 5.30 (from Basle), Talk on llygiene. 6.0 (from Basle), Time. Weather and Traffic Report. 6.5, Light Music by the Radio Orchestra. 6.30 (from Basle). Recitations. 7.30 (from Basle). Pianoforte Recital by Helene Meister. 8.0, Weather and News. 8.10 (from Basle). Concert by the Gundeldingen Male Voice Choir. 8.45 (from Basle). Paganini in Berlim—Five Radio Scenes (Rombach). 9.15 (approx.), Close Down.

SOTTENS.-See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM
689 kc/s, 436 metres; 55 kW. Relayed by
Boden, 242 kc/s, 1,239.5 metres; Göteborg,
932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257
metres; Motala, 222.5 kc/s, 1,348 metres;
Ostersund, 402 kc/s, 746.2 metres; and
Sundsvall, 554 kc/s, 542 metres.—7.15 p.m.,
Military Band Concert.
8.15, Elementary
English Lesson. relayed from Jönköping,
1,490 kc/s, 201.3 metres.
8.45, Weather and
News. 9.0, Concert of Chamber Music.
Gunhild Schedin (Organ). Elis von Melen
(Organ). Liss Tunell (Songs). Tore Malmberg (Oboe). Kjellström (Violin), Axel
Ruunquist (Viola). and Gunnar Norrby
('Cello): Organ Solo, Chaconne (Pachelhel);
Songs with Organ Accompaniment: (a) Recitative and Aria from Rinaldo (Handel). (b)
Se tu m'ami (Pergolesi); Quartet in B Flat
(Wesström); Song with Organ Accompaniment: Psalm (Helmich Roman, arr. Vret-

blad); Organ Solo, Prelude and Fugue in G Minor (Buxtehude). 10.0 (approx.), Close Down.

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.30 a.m.,
Gramophone Concert. 12.45 p.m., News. 1.0,
Time and Exchange. 1.5, Light Music on
Gramophone, Records. 2.0, Programme for
Children. 3.0, Orchestral Concert, conducted by de Villers: Overture, Euryanthe
(Weber); Waltz, Tales from the Vienna
Woods (Joh. Strauss); Ballet Music from
La Source (Delibes). 3.30, Elocation Lesson. 3.45, Concert (contd.): Selection from
Madame Chrysanthème (Messager); Suite,
Fête nippone (Mouton); Sérénade indiscrète
(Gillet); Marche parisienne (Ganne). 4.15,
Programme for Children, relayed from Bordeaux-Lafayette (986 kc/s, 304 metres).
6.0, Talk: The Austrians. 6.15, Talk for
Women. 6.30, La Création du Monde (Milhaud) by the Strasbourg Quartet, conducted
by the Composer. 7.30, Time and News.
7.45, Press Review in German, Lottery Results, and Announcements. 8.30, Concert
of Chamber Music: Sonata in F for Viola
d'amore (Bouvard); Song, Au chant nocturne du Violon (Hussonmorel); Pianoforte
Solos: (a) Dolly (Fauré), (b) Bourrée fantasque (Chabrier); Poste à Galène—Operetta in One Act (Gavel and Cools); Variations in Old Style on a Popular Theme
(Ochs); Viola d'amore Solos: (a) Les regrets
(Blaret), (b) Tambourin (Gonis), (c) Cradle
Song (Grieg); Song with 'Cello Obbligato.
Contemplation (Mazelier); Xylophone Solo;
Three Preludes for Viola d'amore (Casadesus); Trumpet Solo, Extract from The
Trumpeter of Sickingen (Nessler); Flute
Solo: Polka, Rossignolet (Bades). In the
interval at 9.30 (approx.), Press Review.
10.30 (approx.), Close Down.

STUTTGART

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 1.5 kW. Relayed by Freiburg, 527 kc/s, 570 metres.—12.35 p.m., Concert by the Station Orchestra, conducted by Gustav Görlich: March, Uncle Teddy (Flucik): Overture; Flotte Bursche (Suppé); Amina (Lincke); Waltz, Hydropathen (Gungl); Overture: Berlin, wie es weint und lacht (Conradi); Internezzo, A Wedding in Lilliput (Kockert); March, Wien-Berlin (Schrammel). 1.30, Programme for Children. 2.30 to 3.0, Intervai. 3.0, See Frankfurt. 5.0, Spanish Lesson. 5.20, Talk on Technics and Science. 5.35, Tänk: Wild Horses in Germany. 6.0, Transmission for all German Stations, relayed from Breslau. 7.0, Sce Frankfurt. 7.10, See Langenberg. 8.10, Musical Potpourri by the Station Orchestra, conducted by Gustav Görlich. 9.0, See Frankfurt. 9.20, Topical Talk. 9.30, Local News, Weather, and Sports Notes. 9.45 till Close Down, See Langenberg. 12 Midnight, Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Military Music. 6.30, Programme for Children. 7.0, Songs. 7.15, News. 7.30, Spanish Caprice (Rimsky-Korsakov), by the Symphony Orchestra. 7.45, Light Music. 8.0, Opera Music: Overture. Si j'étais roi (Adam); Selection from La Bohème (Puccini). 8.15, Operetta Music. 8.30, Light Music by a Viennese Orchestra. 9.0, Concert of Reynaldo Hahn Music. 9.30, Hawaiian Guitar Recital. 9.45, Concert. Part I—Light Music. Part II—Opera Music: Arias from The Pearl Fishers (Bizet), Mirella (Gounod) and Fortunio (Messager); Chorus from Lakmé (Pelibes). 10.15, News. 10.30, Concert for Listeners in Morocvo. Part I—Sound Film Music. Part II—Music by an Argentine Band. 11.0, Songs. 11.15, Dance Music. 12 Midnight, News. 12.5 a.m. (Friday), Russian Songs and Balalaika Music. 12.15, Orchestral Music: Selection from The Mikado (Sullivan); Overture, Morning, Noon and Night (Suppé). 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.-4.10 p.m. till Close Down, See Turin. TRONDHEIM.—See Oslo.

TURIN

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 598 kc/s 501.6 metres.—4.10 p.m., Chamber Music on Gramophone Records. Sonata in A (Beethoven); (oncerto No. 1 in G minor (Bruch). 5.0, Weather Forecast. 5.5, Interval. 5.40, Giornale Radio, Dopolavoro Notes and Gramophone Music. 6.0, Time, Announcements and Gramophone Music. 6.10, Sports Notes and Wheat Market Prices. 6.20, News in Foreign Languages. 6.40, Gramophone Music. 7.0, Announcements, Giornale Radio, Weather and Gramo-

phone Music. 8.0, Relay of an Opera. In the intervals, Talk. Literary Notes and Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in French. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 433.1 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—11.0 a.m., ('oncert by the Wiener Symphoniker, conducted by Josef Holzer: March, Gruss aus Wien (Gehauer); Overture, La Princesse de Trebizonde (Offenbach); Barcarolle from Eine Nacht in Venedig (Joh. Strauss); Selection from Aida (Verdi); Märchen aus dem Wienerwald (Ast); Ballad and Polonaise (Vieuxtenps); Johann Strauss Waltz Potpourri (II. Weber); Jugendzeit-Marsch (Ganglberger); In Schönbrunn (Benatzky); Waldlercherl. Kuckock und Frosch (J. F. Wagner): Waltz, Snow Balls (Ziehrer); Im Leben geht alles hübsch langsam (Granichstaedten); Weaner Kinder (Demuth); Potpourri. Das Beste vom Besten (Dostal). In the interval at 12 noon, Time and News. 1.0, Interval. 2.0, Time, Weather and Exchange. 2.15, Talk on Hen-Keeping. 2.25, Talk: The Works of Pieter Breughel and his Precursors. 2.50, Gramophone Records. 3.25, Talk. 3.50, Talk: Advent. 4.10, Traffic and Tourist Report. 4.20, Song and Violin Recital by Emmy Tocca (Soprano) and Elsie Stein; Songs: (a) Es träumt die ganze Welt from Lied der Liebe (Joh. Strauss-Korngold), (b) Mädchen der Wachau from Donauliebchen (Eysler), (c) English Waltz (Stricker), (d) Nun ist 's Ernst (Bittner-Waldmüller), (e) Geht mir im Leben einmal etwas schief (Breuer), (f) Du, mein ganzes Deuken bist du (Winters), (g) So ein Busseri im Grün (Perné), (h) Wenn die Liebe dir kommandiert (Perné); Rondo brillante for Violin and Pianoforte (Schubert). 5.0, Talk: Service for Customers. 5.25, A Discussion between an Architect and a Contractor: How to build a House. 5.50, Theatre Notes. 6.0, Towns in Music—Concert by the Wiener Symphoniker, conducted by Paumgartner: Soloist: Luise Brix (Centralto); Introductory Talk by Albrecht Claus: Part I—March, Pulkauer Sänger (Heilinger); Overture, Das Modell (Suppé); Waltz, Wiener Blut (Joh. Strauss); Die Stadt der Lieder (Hoffmann); Part

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—10.57 a.m.,
Time Signal and Fanfare from St. Mary's
Church. Cracow. 11.5, Music from Revue on
Gramophone Records. 11.30, Radio Journal.
11.35, Concert by the Warsaw Philharmonic
Orchestra, conducted by Wolfstal, with Introductory Talk. 1.0 p.m., Weather. 1.3,
Interval. 2.25, Announcements. 2.40, Concert by a Mandoline Orchestra. 3.40, Talk.
3.55, Choral Concert, relayed from Lwów, 788
kc/s, 381 metres. 4.25, Violin Recital by
Dworakowski. 4.50, Agricultural Notes. 5.0,
Talk: Modern Poland. 5.20, Programme to
be announced. 6.0, Programme Announcements. 6.5, Miscellaneous Items. 6.25, Topicul Talk. 6.40, Sports Notes. 6.47, Radio
Journal. 7.0, Concert by the Symphony Orchestra, conducted by Oziminski. Soloist:
Krzywiec (Soprano). Overture, The Voyevode (Tchaikovsky); Andante cantabile from
the Quartet in D (Tchaikovsky); Serenade
and Cortège (Moszkowski); Songs: (a) Two
Songs (Glière), (b) J'aime avec passion (Dargomijsky). (c) J'entends la valse (Arenski);
Selection from Tiefland (d'Albert); Rhapsody
No. 1 (Liszt); Melody (Paderevski); Melody
(Noskowski); Finale from Der Geist des
Wojewoden (Grossman); Extracts from The
Flying Dutchman (Wagner); Three Songs
(Rachmaninov); Suite from Sigurd Jorsalfar
(Grieg). In the interval at 8.0, Wireless
Notes. 9.0, Light Music from the Gastronomia Café. In the interval at 10.0, Weather
and Police Notes.

ZAGREB

977 ko/s, 307 metres; 0.75 kW.—4.0 p.m., Concert by the Radio Orchestra. 6.10, Announcements and News. 6.40, Educational Talk. 7.0 to 9.0, Concert relayed from Beigrade, 697 ke/s, 430.4 metres. 9.5, News, Weather and Programme Announcements. 9.15, Dance Music. 10.0 (approx.), Close Down.

ZURICH.-See Schweizerischer Landessender.



DECEMBER THE EIGHTH

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres; and Cork, 1,337 kc/s, 224.4 metres.—1.20 to 2.30 p.m., Time Signal, Weather Report, Stock Report, and Gramophone Concert. 6.0, Programme for Children. 6.45, News. 7.0, Gardening Talk. 7.15, Literary and Dramatic Talk. 7.30, Time Signal. 7.31, Concert by the Station Orchestra. 8.0, Gaclie Song Recital by Tadlig MacFirbhisigh. 8.15, Harp Solos by Treasa Nie Chornaic. 8.20, Sopramo Solos by Edie O'Dwyer. 8.45, The Station Orchestra. 9.0, Baritone Solos by Leslie Jones. 9.15, Pianoforte Recital by Mine. Grossi. 9.30 to 10.30, Programme by the LB.C. (Ireland). Ltd. 9.30, Concert of Military Band Music: Signature Tane. Young and Healthy; Hungarian March (Berlioz); Prachidium (Jarnefeldt); Selection from The Miracle (Humperdinck); Waltz, Les Sirènes (Waldtenfel); Cornet Solo. Sonvenirs of Switzerland; Scottish Patrol (Williams); The Whistler and his Dog (Pryor); The Skaters Waitz (Waldtenfel); Signature Tane. Young and Healthy, 10.0, Concert arranged by the International Broadcasting Company (Ireland). Ltd.; Dauce Music: A One-Horse Town; Thanks; In the Park in Paree; Racing Commentary; Who's afraid of the Big, Bad Wolf? Looking Forward; Carolina Lullaby; It's the Talk of the Town. 10.30, I.B.C. Goodnight Melody, followed by News and Weather. 10.40, Pipe and Fiddle Recital by L. Rowsome and M. Dunn. 11.0 (approx.). Close Down.

BARCELONA

BARCELONA

BARCELONA

EAJ1, 860 kc/s, 349.6 metres; 8 kW.—6.0
p.m., Trio Concert: March (Ord Hume); Gavotte Caprice (Bortkiewicz); Selection from
Robert le diable (Meyerbeer); Preliade in F
(Chopin); Minuet (Mozart-Gaime); Selection
from La Navarraise (Massenet). 7.0, Request Gramophone Records. In the interval
at 7.30, Exchange. 8.0, Gramophone Music.
8.30, Catalan Educational Programme; Geography and History Lessons, followed by
News. 9.0, Chimes, Weather, Messages to
Seamen, and Exchange. 9.10, Concert by
the Station Orchestra: March (Raymond);
Selection from Ruy Blas (Acevedo); Waltz,
Etincelles (Waldtenfel); Sequedillas (Torrandell); Romance (Gles). 9.45, Grieg Song
Recital by Cincepción Callao. 10.15, Quintet
Concert from the Vienes Café. In the interval at 11.0, News. 12 Midnight, Close
Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—11.30 a.m., Quintet Concert. 12 (Noon) to 7.0 p.m., See Rome. 7.0, News in Albanian. 7.15 till Close Down, See Rome.

BASLE. -See Schweizerischer Landessender.

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.-5.55 p.m., Time and Progratume Announcements. 6.0, Grannophone Music. 6.20. Song Recital by Dobrivoje Jocic, with Orchestral Accompani-ment. 7.0, Talk. 7.30, European Concert, relayed from Vienna. 9.30, Time and News. 9.35 (approx.), Cigány Music, relayed from the Kasina Restaurant.

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHESSEND-ER), 183.5 kc/s, 1,635 metres; 60 kW,—1.0 p.m., Gramophone Coucert: Serge Rachmaninov: (a) Etude tableau in A Minor (Rachmaninov), (b) Waltz in C Minor (Chopin); Pablo Casals: Solo, Nocturne in E Flat (Chopin), (b) Tonadilla (de Laserna) and Mafalda Salvatini; Arias from (a) Tosca (Puccini), Madame Butterfly (Puccini); Elisabeth Rethberg; Aria from (a) Carnen (Bizel), (b) Cavalleria rusticana (Mascagni); Georg Kulenkampff: (a) Humorosque (Dvorak), (b) Hungarian Dancein G Minor (Brahms); Claudio Arran: (a) Etude in E (Chopin), (b) Prelude in F (Chopin); Jan Kubelik: (a) Souvenir (Drdfa), (b) Zigcunerweisen (Sarasate). 2.0, Programme for Girls. 2.31, Weather and Exchange. 2.45, Book Review. 3.0, See Langenberg. 4.0, A Surgestion for Children's Presents. 4.25, Pianoforte Recital by Dorochea Braus: Variations in C (Mozart); Sonata in F Sharp Minor, Op. 11 (Schmann); Concert Etude in D Flat (Liszt). 5.0, Pouns. 5.5, Bübchen, Humorous Scenes (Rudolf Presber). 5.40, Topical Talk: Eugenies. 5.50, Weather and News. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, Today's Motto. 7.5 (approx.), Talk: Ski-ing Preparations. 7.25, Lessons in Deportment, Two Sketches, relayed from Die Katakombe Cabaret. 8.0, Dances of the Nations—Radio Report from the Foreign Students' Society Ball. In the intervals at 9.0, News. 8.30, Autobiographical talk by Adalbert Forstreuter. 9.45, Weather. 11.30 (approx.), Close Down.

BERLIN

BERLIN

FUNKSTUNDE, 716 kc/s, 419 metres; 1.5
kW. Reiayed by Zeesen, DJC, DJA, DJD,
DJB and DJE.—4.0 p.m., See Hamburg, 5.0,
Winter is here—A Skating Rink Attendant,
a Roast Chestnut Vendor, a Snow Sweeper
and a Coadman before the Microphone, 5.30,
The Funkstunde informs its Listeners,
5.35, Sports Notes for November, 6.0, Trains
mission for all German Stations: Brahms
Concert by the Station Orchestra, conducted
by Otto Friekhoeffer: Tragic Overture in D
minor, Op. 81; Symphony No. 4 in C minor,

Op. 98. 8.5 to 9.0, See Heilsberg. 9.0, News, 9.30 till Close Down, See Heilsberg. 11.0 (approx.), Close Down.

BERNE. See Schweizerischer Landessender.

BEROMUNSTER. - See Schweizerischer

BODEN. See Stockholm.

BODO .-- See Oslo.

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—6.15 p.m., Radio Journal. 7.20, News. 7.30, European Concert, relayed from Vienna. 9.45, Concert of Classirelayed from Vienna. 9.45, toneert of trassical and Modern Music, followed by Concert relayed from the Conservatoire. Toulouse Pyrennes, 1,176 kc/s, 255.1 metres.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW. -6.0 p.m., See Prague. 6.10, Sports Notes. 6.25, Introductory Talk to the following Transmission. 6.30, A Masked Bull-Opera (Verdi), relayed from the National Theatre, 9.0, News. 9.15, Gramophone Music. 9.30, See Prague. 9.45, Concert from Vienna. 11.0 (approx.), Close Down.

BREMEN. See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz 1,185 kc/s. 253.1 metres.—12.25 to 1.0 p.m., Sec Leipzig. 1.20, Gramophone Concert: Overture. The Thieving Magpie (Rossini); Hungarian Dances. Nos. 1 and 3 (Brahms). 1.40, Programme arranged by the Post Office with Gramophone Records. 2.0, Agricultural Prices. 2.15, Reading (Robert Karger). 2.30, Programme for Young People. 3.0 to 5.10, Sec Munich. 5.10, Agricultural Prices. 5.15 (approx.), Reading (Robert Kurpiun). 5.25, Book Review. 5.50, Announcements. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, Sec Leipzig. 7.10, Folk Dancing Programme, relayed from the Südpark Restaurant. 8.20, Radio Report on Winter Relief Work in Silesia. 8.40, Talk on Siliesian Dialect. 9.0, Sec Leipzig. 9.20, Tinac and News. 9.30, Concert by the Station Orchestra, conducted by Torpitz: Overture. Le roi Fa dit (Delibes): Selection from Carr and Carpenter (Lorizing): The Forge in the Forest (Michaelis): Selection from Liselott (Künneke); Cagliostro-Walzer (Joh. Stranss); March, Fürs Vaterland (Millöcker). 10.30, Organ Recital by Gotthold Richter, relayed from the Toethnical Institute: Fantasia on the Choral, Wie schön Leuchtet der Morgenstern (Reger). 11.0 (approx.), Close Down.

BRNO

BRNO

878 kc/s, 342 metres; 35 kW. 6.0 p.m., See
Prague. 6.25, Piantoforte Concerto in B
minor (Benda), played by Kumlera and the
Station Orchestra conducted by Bakola,
6.45, Dialogue: Life and Matter. 7.5, Programme to be amounced. 7.30, Europeau
Concert relayed from Vienna. 10.45, Concert from Vienna.

BRUSSELS (No. 1)

BRUSSELS (No. 1)

1.N.R., 599 kc/s, 509.2 metres; 15 kW.—12

Noon, Concert of Scandinavian Music by the Small Station Orchestra, conducted by Lecamars. Symphonic Poem, Finlandia (Sibelins); First Peer Gynt Smite (Grieg); Rustle of Spring (Sinding); Fantasia on Popular Swedish Songs (Sõedermann); Violin Solo: Romanec (Svendsen); Dance of the Elves (Henriques); Valse triste (Sibelins); Two Picces for Pianoforte (Grieg); Norwegischer Brantzug im Vorüberzichen (Grieg), 1.0 p.m., Le Journal Parié, 1.10, Gramophone Concert of Operetta Music, with Songs by Mme. de Troch: Overture, Eine Nacht in Venedig (Joh. Strauss); Extract from Le grand Mogol (Andran); Selection from White Horse Inn; Three Songs (Schubert); (a) Gretchen am Spinnrade, (b) Die Forelle, (c) Liebeslied; Selection from The Three Musketeers (Friml); Selection from Arsène Lupin; Banquier (Lattes); Overture, Orpheus in the Underworld. 2.0, Broadcast for Schools. 5.0, Concert by the Station Symphony Orchestra, conducted by Jean Kumps; The Jupiter Symphony (Mozart); Le tombcan de Conperin (Ravel); Rhapssody for Strings (Gilson); Dances (Brahms), 6.0, Talk, 6.15, Request Gramophone Music, 6.30, Concert of Belgian Music by Herre Leemans; Overture (Gilson); Paysages flammands (De Traeye); Bercense (Gocyens); Violin Solo: Petite Snite (Frémolle), 6.45, Pianoforte Recital by Jeanne Aspers; Sonata in F Minor, Op. 21, No. 1 (Recthoven); Grand Polonaise, Op. 22 (Chopin), 7.15, Medical Talk, 7.30, Legal Talk and Review of Literature, 8.0, Programme for Ex-Servicemen; Concert of Belgian Airs and Songs by a Vocal Quintet and the Royal Orchestra of Wounded Ex-Servicemen. In the intervals, Talk and News, 10.0, Le Journal Parié, 10.10, La Brabançonne.

BRUSSELS (No. 2)

BRUSSELS (No. 2)
N.I.R., 888 kc s, 337.8 metres; 15 kW. Programme in Flemish.—12 Noon, Concert by the Symphony Orchestra, conducted by Jean Kumps; Soloist, Mile, Laventurier (Pianoforte): Overture, The Barber of Bagdad (Cornelius); Pianoforte Concerto (Saint-Saëns); Scènes napolitaines (Massenet); Dances from Prince Igor (Borodin); Pianoforte Solos; Serenade (Elgar); Overture, Oberon (Weber). In the interval at 1.0 p.m., Le Journal Parlé. 2.0, Educational Programme. 5.0, Dance Music, relayed from the St. Sauveur Palais de Danse. 6.15. Reading. 6.30, Quartet in G Minor, Op. 27 (Grieg), by the Zimmer Quartet. 7.0, Le Journal Parlé. 7.20, European Concert, relayed from Vienna. 9.30, Radio Play (Braun). 10.0, Le Journal Parlé.

BUCHAREST

BUCHAREST

760 kc/s, 394.7 metres; 12 kW.—5.15 p.m., Concert by the Station Orchestra. Soloist; Teodoru (Violin); Selection from Der Bettelstudent (Millöcker); Legend No. 2 (Dvorák); Slav Dance No. 1 (Dvorák); Violin Solos; (a) Leggende d'amore (Becce), (b) Melody (Akermans); March (Sousa), 6.0, Educational Talk, 6.20, Gramophone Music, 6.45, Talk, 7.0, Symphony Concert by the Philharmonic Orchestra, conducted by Georgesco, relayed from the Atheneum, In the interval at 8.0, Reading. 8.45, Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on 840 metres from 7.25 p.m.—5.0 p.m., Reading. 5.30, Concert by the Inre-Magyari Cigainy Band. 6.30, Talk. 6.55, Harp Recital by Gyula Revere. 7.30, European Concert, relayed from Vienna. 9.30, News. 9.45, See Vienna.

CASSEL .- Sec Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc s, 1,153.8 metres, and Skamlebaek, 0xY, 9,250 kc, s, 31.51 metres.—11.0 am, Time and Chimes from the Town Hall. 11.15, Broadcast for Schools. 11.48 to 1.0 a.m., String Ensemble Music, relayed from the Bellevue Strand Hotel. 1.30 to 1.50, Pianoforte Recital by Elga Gaspari; Ballet Music from Alceste (Gluck-Saëns); Gavotte (Gluck-Brahms); Widmung (Schumann); Stämldhen (Schubert-Liszt). 2.0, Concert by the Radio Harmony Orchestra, conducted by Launy Grondahl; March (Stork); Overture, Le Grand Mogol (Andran); Fantasia on Danish Sailors' Sougs (Gröndahl); Polonaise from A Life for the Czar (Glinka); Waltz (Gungl); Two Pieces (Lumbye); Overture, Die Jagd nach dem Gluck (Suppé); March from Et Bondebryllup (Södermann); Waltz (Waldteufel); Dance (Paulli); Cavatina from La Juive (Halevy); Spanish Rhapsody, España (Chabrier); Gallop (Lumbye). 4.0, Reading. 4.30, Exchange and Fish Market Prices. 4.45, Talk. 5.15, German Lesson. 5.45, Weather. 5.54, Annonneements. 6.0, News. 6.15, Time. 6.20, Legal Talk. 6.50, Programme by Per Kuntzon. 7.0, Time and Chimes from the Town Hall. 7.2, Song Recital. 7.15, Det Store Forlis-Radio Play (Helge Rode). 9.15, News. 9.30, Instrumental Concert of New English Music; Soloists, Jytte Forchhammer (Mczzo-Soprano). Folmer Jensen (Pianoforte), Johan Bentzon (Flute), Waldemar Wolsing (Ohoe), Sverre Forchhammer (Mczzo-Soprano) and Pianoforte (Goosens); Four Proverles for Flute, Violin, Viola and 'Cello (Hemessy); Ballad for Mezzo-Soprano and Pianoforte (Goosens); Four Proverles for Flute, Ohoe, Violin, Viola and 'Cello (Hemessy); Ballad for Mezzo-Soprano and Pianoforte (Goosens); Four Proverles for Flute, Ohoe, Violin, Viola and 'Cello (Hemessy); Ballad for Mezzo-Soprano and Pianoforte (Goosens); Four Proverles for Flute, Ohoe, Violin, Viola and 'Cello (Hemessy); Ballad for Mezzo-Soprano and Pianoforte (Goosens); Four Proverles for Flute, Ohoe, Violin, Viola and 'Cello (Hemessy); Ballad for Mezzo-Soprano and Pianoforte (Go

CORK .- Sec Athlone.

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—6.0 p.m., Programme Announcements. 6.20, Talk: Elections. 6.25, Miscellaneous Items. 6.30, See Warsaw. In the interval at 9.40, Sports Notes. 10.30 (approx.), Close Down.

DANZIG .- See Heilsberg. DRESDEN .-- See Leipzig.

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—11.0 to 12 Noon, Programme in English by the LB.C. 11.0, Happy Hour. Part I: Orchestral Concert: Signature Tune; Persian March (Friml); Pianoforte Selection from viktoria and her Hussar (Abraham); The Coon among the Chickens (Ives); Little Yvonne

(Schwartz); Xylophonia (Green); Moombeam (Peter); A Radio Roundabout (Noack); Waltz (Kālmāu). Part II. Dance Music: A One Horse Town (Leon): A Heart of Stone (Sevier); A Couple of Fools in Love (Vathentine); There's a Cabin in the Pines (Hill); Dinner at Eight (Fields); Adios. Gondbys: (Frankan); The Main on the Flying Triprae (O'Keefe); Signature Time. 12 Noon, Programme in French. 3 30 16 6.0, Programme in English by the l.B.C. 3.30, Bournemouth and Weymouth Concert. Part. I. Light Music: Signature Tunc. The Night by the Sea; Some of these Days (Brooks); Bohemian Song (Boldi); Smilin Through (Fenn); Just an Echo in the Valley (Woods); La Rosita (Dupont); Her First Dance (Heykens); When the Convert Bell is Ringing (Gifford); Melody (Künneke). Part II. Dance Music: The List Romad Up; My Own; Dinner at Eight; Tick, Tock; Rosa Mia; The Cage in the Window; I was in the Mood; The Three Trees. 4.30, The l.B.C. Nursery Corner, Birthday Greetings. 5.0, Southampton and Winchester Concert. Part II. Grampophone Records: Grieg Pothomri (arr. Urbach); A Farewell (Coleman); And would'st thou thus have sullief? (Verdi); Cavatina (Raff); Hollyhock (Mayer); I cover the Waterfront (Heymann); Monsiem Tricotrin (Rawlingson). Part II: Orchestral Concert: Autumn (Chaminade); Spring Song (Mendelssohn); Spanish Dance (Falla); Hungarian Dance No. 6 (Brahms); Minuet (Chaminade); Spring song (Mendelssohn); Spanish Dance (Falla); Hungarian Dance No. 6 (Brahms); Minuet (Chaminade); Signature Tune. 6.0, Programme in French. 10.0 till Close Down, Programme in English by the l.B.C. 10.0 (concert by a Gipsy Orchestra: The Blue Danube (Joh. Strauss); Venetian Boatman's Song (Mantovani); Gipsy, sing for me (Pola); Eta Notteh (arr. Mantovani); Black Eyes (Ferraris); Waltz from The Gipsy Princess (Kálmán); Si petie (Claret); Cardas (Monti). 10.30, Dance Music: Signature Tune. 10.0 talkie Time; Signature Tune, Silin' in the Dark; The Wedding of Mr. Mickey Monse (Pola); Black Eyes (Ferraris); Waltz from The Gipsy Princes (Keefe); Elvira (Polida); W FLENSBURG.-See Hamburg.

FLORENCE.-Sec Turin.

FRANKFURT

FRANKFURT

1,157 kc, s, 259.3 metres; 17 kW. Relayed by Gassel, and Trier, 1,157 kc/s, 259.3 metres. 12.15 pm., Time and News. 12.25, Local News. 12.35, See Langenberg. 1.40, Programme for Housewives. 2.30, Weather. 2.40, Time and Economic Notes. 3.0 to 6.0, See Langenberg. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, Topical Talk. 7.10, A Sherlock Holmes Story (Conan Doyle). 7.40, Variety Concert. Part 1: Suite of Folk Songs by the Station Orchestra, conducted by Hans Rosband, Soloists: Lili Trautmann (Soprano). and Anton Knoll (Tenor). Part 1: Zither Recital by Richard Griinwald with Commentary. Variations on an Original Theme (Griinwald): Folk Songs: Upper Bavarian Ländler on Themes of Burg staller (Grünwald). Part 1H: Miniature Snite of Eastern Missic by the Station Orchestra, conducted by Hans Rosband. 8.25, Reading (Sawatzki). 8.45, Bach Pianoforte Recital by Hans Rosband. Prachadium and Fugue in C: Prachadium and Fugue in F Sharp Minor: Prachadium and Fugue in B Flat. 9.0, Time and News. 9.20, See Stuttgarts. 9.30, News. 9.45 to 11.0, See Langenberg.

11.0, Talk on Lessing. 11.45 (approx.), Close Down.

FREDRIKSSTAD .- See Oslo. FREIBURG.—See Stuttgart.

GENEVA.—See Radio-Suisse Romande.

GENOA .- See Turin.

GLEIWITZ .- See Breslau.

GOTEBORG.—See Stockholm.

GRAZ.—See Vienna.

HAMAR,-See Oslo.

HAMBURG

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg and Hanover, 1,319 kc/s, 227.4 metres; and Kiel, 1,292 kc/s, 232.2 metres.—4.0 p.m., The Theatre Concert by the Small Station Orchestra and Soloists. Conductor: Adolf Secker; Overture, Die Fledermaus (Joh. Strauss); Talk by Alex Otto: Reminiscences of my Life; Prologue to 1 Pagliacci (Leoncavallo); Recitation: Behind the Wings; Song from Die Fledermaus (Joh. Strauss); Der Regisseur (Grube); Song from The Rape of the Sabine Womeu; Die Naive (Grube); Recitation: Farewell to the Footlights; Operetta Potpourri. 5.0, Reading. 5.30, Planoforte Trio in G (Haydn by Cortot (Pianoforte), Thilbaud (Violin), and Casals ('Cello), on Gramophone Records. 5.45, Frankfurt Exchange and Hamburg Market Prices. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.5 to 9.0, See Heilsberg. 9.0, Time and News. 9.30, Coucert relayed from Heilsberg.—

HANOVER.—See Hamburg.

HEILSBERG

HANOVER.—See Hamburg.

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.— 12.5 p.m., Gramophone Concert. In the intervals at 12.20 and 1.0, News. 1.30, Programme arranged by the Post Office, with Gramophone Records. 2.0, Agricultural Prices. 2.15, Programme for Children. 2.25, Programme for Women. 3.0, Concert by the Danzig Municipal Theatre Orchestra, conducted by Lenzer. Academic Festival Overture (Brahms); Two Elegiac Melodies (Gricg); Scherzo caprice (Nedbal); Dreams on the Ocean (Gungl); Selection from Carr and Carpenter (Lortzing). 4.0, See Hamburg. 5.0, Book Review. 5.15, Agricultural Prices. 5.25, Talk. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, News. 7.5, Concert of Contemporary Music by East Prussion Composers for the Opening of the New Broadcasting Building. Festival Overture, Ostmark (Schliepe); Concerto for Organ and Orchestra (Besch); Weihekantate (Brust); for Baritone, Choir, Organ and Orchestra, written for the Opening of the New Broadcasting Building. 9.0, Microphone Report: A Stroll through the New Broadcasting Building. 9.0, Mews. 9.30, Concert by the Small Station Orchestra, conducted by Engen Wilcken. Overture, Lachendes Leben (Rust); Three Bavarian Dances (Pachernegg); Serenade, Granada (Albéniz); Catalonian Caprice (Albéniz); Suite, Travel Sketches of Old China (Percy); Selection from Le Villi (Puccini); Polka, Schlaraffen (Joh. Strauss); Waltz, Die Schwalben (Joh. Strauss); Selection from Die Puppenfee (Bayer). 11.0 (approx.), Close Down.

HILVERSUM

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW. up to 5.40 p.m. and 20 kW. from 5.40 p.m.—11.40 a.m. to 3.40 p.m., Programme of the General Broadcasting Society (A.V.R.O.). 3.40 to 7.40, Programme of the Workers' Radio Society (V.A.R.A.) 3.40, Gramophone Music. 4.30, Programme for Children. 5.10, Concert by the V.A.R.A. Orchestra, conducted by de Groot: Overture, Si j'étais roi (Adam); Ein Walzerredoute (Hildebrandt); Grossmütterchen (Langer); Aufzug der Stadtwache (Jessel); Waldteufeleien (Kling). 6.0, Gramophone Music. 6.10, Concert (contd.): Uncle Sammy (Holzmann); Three Songs (Davids); The Grasshoppers' Dance (Bucalossi); The Toymaker's Dream (Bucalossi); Selection from The Flower of Hawaii (Abraham). 6.40, Legal Talk. 7.0, Concert (contd.): Overture, A Midsummer Night's Dream (Mendelssohn); Waltz from Der Rosenkavalier (Richard Strauss); Brise de mer (Leoncavallo); Poème (Fibich); Suite, Four Ways (Eric Coates). 7.40 to 10.40, Programme of the Liberal Protestant Radio Society (V.P.R.O.). 7.40, Talk. 8.10, Quartet Concert: Quartet in E Flat, Op. 125, No. 1 (Schubert); Serenade (Wolf). 8.40, Talk. 9.10, Concert (contd.): Quartet in F (Ravel). 9.40, Religious Notes. 9.45, News. 9.55, Religious Address. 10.25, Gramophone Music. 10.40 Organ Recital. 11.10, Gramophone Music.

HORBY .- See Stockholm.

HUIZEN

HUIZEN

160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m.

Transmitted from Kootwijk on 50 kW. from
3.40 p.m.—Programme of the Christian
Radio Society (N.C.R.V.). 10.40, Concert by
the Van der Horst Ensemble: Overture, Tancred (Rossini); Nordseebilder (John. (Rossini); Nordseebilder (Joh.; Gluck-Wagner Potpourri (arr.

FRIDAY DEC. 8th

continued

Schreiner); Gramophone Records: Selection from Martha (Flotow); Slav Rhapsody (Priedemann); Festjubel (Blankenburg). 11.40, Police Notes. 11.55, Gramophone Music. 12.10 p.m., Concert (contd.); Overture, Fra Diavolo (Auber); Waltz, Mon réve (Waldteufel); Ein Melodientraum (Urbach); Selection from The Drum-Major's Daughter (Offenbach). 12.55, Sopramo Song Recital by Mine. Both-Haas; Gramophone Music. 2.10, Religious Reading. 2.40, Concert by The Hague Pianoforte Quartet, Op. 87 (Dvor.1k). 2.25 to 3.40, Interval. 3.40, Quartet Concert (contd.): Quartet. Op. 16 (Beethoven). 4.10, Talk. 4.40, Organ Recital by Kloek: Gavotte and Bourrée (Bach); Three Pieces (Wachs): (a) Pontifical March, (b) Offertory, (c) Angelus; Fantasia No. 3, Op. 18 (Benoit); Romance in F. Op. 26, No. 1 (Rubinstein); Romance in E Sharp, Op. 44, No. 1 (Rubinstein); Two Pieces (Grieg); Gramophone Records: Three Etudes (Ravina); Elévation, Op. 76 (Chaminade); Extracts from Woodland Sketches (Machowell); Improvisation. In the interval: Gramophone Music. 6.10, Talk on Horticulture. 6.40, Police Notes. 6.55, Religious News. 7.10, Literary Talk. 7.40, Concert by an Orchestra, conducted by V. Erp and a Saxophone Quartet: Selection from The Queen of Sheba (Gounod); Overture, The Black Domino (Auber); Selection from Les Cloches de Corneville (Planquette); Quartet: Pontifical March (Gounod); Minuet (Bolzoni-Meyer); The Londonderry Air (arr. Briegel); Cathedral Echoes (Briegel); La sirène (Allier); Songs without Words, Nos. 6 and 9 (Mendelssohn); Wienerblut (Joh. Strauss). 8.40, Talk. 9.10, Coucert (contd.): March, Ernest August (Blankenburg); Overture. Das goldenc Kreuz (Brüll); Quartet, Selection from Der Freischütz (Weber); Pavane; Andante religioso (Sellenick); Allegro (Sambin); Prinz Eugen Friedrich (Blankenburg); Selection from Bourterial and Stripes (Sousa). In an interval at 9.30, News. 10.10, Gramophone Music. 1.110 (approx.), Close Down. INNSBRUCK.—See Vienna.

INNSBRUCK .- See Vienna.

JUAN LES PINS
1,205 kc s, 249 metres; 0.8 kW.—8.0 p.m.,
Amusement Guide, Financial Notes, Racing
Results and News.
8.10, Esperanto Lesson.
8.25, Radio Concert.
In the interval at 9.0,
News and Weather.

KALUNDBORG.—See Copenhagen.

KATOWICE

734 kcys, 408 metres; 16 kW.—6.5 p.m., Announcements and Gramophone Records. 6.30, Programme from Warsaw. 9.55, Sports Notes. 10.0, The Letter Box, in French.

KAUNAS

TAOUNAS

155 kc/s, 1,935 metres; 7 kW.—6.5 p.m.,
Concert: Symphony in D (Mozart); Concert No. 23 (Viotti). 7.0, Talk. 7.20, Song
Recital. 7.40, Talk. 8.0, Pianoforte Recital:
Aufschwung (Schumann); Grillen (Schumann); Nocturne No. 2 (Chopin); Three
Etudes, Op. 19 (Bacevicius). 8.30, Sports
Notes. 8.35, Educational Talk. 8.55, Concert. 9.30 (approx.), Close Down.

KIEL.-See Haraburg. KLAGENFURT .- See Vienna.

KOSICE .- See Prague.

LANGENBERG

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12.25 p.m., News. 12.35, Variety Concert on Granophone Records. 1.30, Interval. 2.0, Excursions in Westphalia-Radio Sequence (Rudolf Predeck). 2.30, Economic Notes. 2.50, Political Announcements. 3.0, Stabat Mater (Schnbert). by the Station Chamber Choir and Orchestra, conducted by Breuer. Soloists: Klärc Hansen (Soprano), Franz Legrand (Tenor), and Josef Rodens (Bass). 3.35, Chamber Music by the Station String Quartet. Violin and Pianoforte: Romance in A Minor (Bruch); 'Cello and Pianoforte: Remance in A Minor (Bruch); 'Cello and Pianoforte: Legy and Scherzo (van Goens); Viola and Pianoforte: Andante (Bossi); Quartet: (a) Sarabande (Blumenfeld), (b) Mazurka (Glazunov). 4.20, Extracts from La Favorita—Opera (Donizetti), by the Cast of the Scala, Milan (on Gramophone Records). 5.0, English Conversation Lesson. 5.20, Talk on Genealogy. 5.35, A Legend of the Virgin Mary. 5.45, Announcements. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, Sec Frankfurt. 7.10, Duets by Klare Hansen (Soprano), and Heinz Schlebusch (Tenor). 7.40 to 9.20, See Frankfurt. 9.20, See Stuttgart. 9.30, News. 9.45, Light Music on Grannophone Records. 10.0, Concert by the Station Orchestra, conducted by Külin. Overture, The Hermit's Bell (Mailart); Waltz, Dreams on the Ocean (Gungl); Ballet égyptien (Luigini); Norwegian Rhapsody, No. 1 (Halvorsen); Dance from Naïla (Delibes); Selection from Die sieben Schwahen (Millöcker); Waltz, Neu Wien (Joh. Strauss). 11.0, See Frankfurt. 1.45 (approx.), Close Down.

LAUSANNE.-See Radio-Suisse Romande.

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dreaden, 941 kc/s, 319 metres.—12.15 p.m., News and Time Signal. 12.25, Heinrich Schlusnus Song Recital on Gramophone Records. 1.0, News. 1.10, Art Review. 1.20, Reading of Poems. 2.25, A Discussion on the Need for Bird Protection. 2.45, Market Prices. 3.0 to 5.10, See Munich. 5.10, Talk: The Battle of the Falkland Islands. 5.30, Books for the Hitler Jugend. 5.45, Economic Notes. 6.0, Transmission for all German Stations relayed from Berlin (Funkatunde). 7.0, To-day's News. 7.10, Introductory Talk to the following Transmission. 7.20, Wir bannen den Tod (We banish Death)—Radio Play (Friedrich Schreyvogel) on Gramophone Records. 9.0, News and Time Signal. 9.20, Local News. 9.30 till Close Down, Programme relayed from Bresiau. 11.0 (approx.), Close Down. LINZ.—See Vienna. LINZ .- See Vienna.

LJUBL JANA

522 kc/s, 574.7 metres; 7 kW.—7.30 p.m., See Vienna. 9.30, Weather and News.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—Dutch evening.—7.0 p.m., Third Symphony in E Flat, Op. 55, The Eroica (Beethoven), by the Berlin Opera House Orchestra (on Gramophone Records). 7.50, Song Recital hy Alice Peffer: Ninon (Tosti); Idéalc (Tosti); Plaisir d'Annour (Martini); Berceuse de Jocelyn (Godard); Air from Les Saltimbanques (Ganne). 8.15, Gramophone Concert: The Concertgebouw Orchestra, Amsterdam, conducted by Willem Mengelberg: (a) Egmont Overture (Beethoven), (b) Overture, Lohengrin. (Wagner), (c) Les Préludes (Liszt). 8.50, News in French. 9.0, Planoforte Recital by Theo Potjes: Scherzo in B Flat (Chopin); Fantasia in F Minor (Chopin); Le Rossignol (Alabiefi-Liszt); Ballad (Edouard Potjes). Le Cygne (Edouart Potjes). 9.30, Gramophone Music. 9.50, News in German. 10.0, Dutch Gramophone Music. 10.15, Dance Music on Gramophone Records.

LWOW

788 kc/s, 381 metres; 16 kW.—7.30 p.m., European Concert, relayed from Viennas. 9.40, Sports Notes. 9.50, See Warsaw. 10.0, Viennese Music, relayed from Vienna. 11.0 (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 16 kW.— 6.15 p.m., Radio Journal. 7.30, European Concert, relayed from Vienna.

MADRID

MADRID

ARANJUEZ, EAQ, 10,000 kc/s, 30 metres; 20 kW.—10.36 p.m., Concert of Popular Music. In the interval at 10.45, Radio Chronicle. 11.45, Light Music. 12 Midnight to 1.0 a.m. (Saturday), Concert arranged by the International Broadcasting Company of London. 12 Midnight, Accordion Band Music: Coal Black Mammy (St. Helier); Marine March (Herzer); Spanish Sweetheart (Conyers); Morella Waltz (Charlier); Song, At the Little Pig and Whistle (Butler); Return of Johnnie (Charlier); Jiniareel; Swanee (Gershwin). 12.30 a.m., Dance Music: Don't blame me; The Grass is getting greener; Oh, Johanna; Waltzing alono with you; There's a new Day coming; Roll up the Carpet; Ding. Dong, Ding; Two Tickets for Georgia. 1.9, I.B.C. Goodnight Melody and Close Down.

MADRID

MADKID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—7.0
p.m., Chimes, Exchange, Announcements,
Programme for Women and Dauce Music.
8.15, Radio Journal. 8.30 to 9.30, Interval.
9.30, Chimes, Time and Radio Journal.
9.45 (approx.), Carmen—Opera (Bizet) on
Gramophone Records. 11.45, Radio Journal
and Programme Announcements for Listeners Abroad. 12.0 Midmight, Chimes and
Close Down.

MALMO.-See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.-5.0 p.m., See Prague. 7.30, European (oncert re-layed from Vienna. 9.30, See Prague. 9.45, Concert from Vienna. 11.0 (approx.), Close

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

563 kc/s, 533 metres; 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 239 metres.—3.0 p.m., Orchestral Concert, conducted by Kloss: Overture, Undine (Lortzing); Two 'Cello Solos: (a) Brise de mer (Leoncavallo), (b) Serenade (Drigo); Suite

campestre (Amadei); Three Norwegian Dances (Grieg); Selection from Cavalleria rusticana (Mascagni); Waltz (Provacnik); Canzonetta and Gavotte (Schütt); Selection from Das Dorf ohne Glocke (Künneke); Old Styrian Suite (Pachernegg). 4.30, Talk: Work as an Integral Part of Life. 4.50, Alma dei creatoris—Sacred Concert for the Feast of the Immaculate Conception by the Station Choi: and Orchestra, conducted by Eduard Zengerle. Soloist: Gustav Schoedel (Organ). Choir, Strings and Organ: Alma dei creatoris (Mozart); Choir: Ave Maria (Liszt); Choir, Strings and Organ: Sancta Maria (Mozart). 5.10, Talk: The Miracles at Lourdes. 5.30, Opera Music on Gramophone Records. 5.50, Announcements. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, See Leipzig. 7.10, Harp Duet Recital of Folk Music. 7.30, European Concert, relayed from Vienna. 8.15, Snow has Fallen—Review of Winter Pleasures. 9.0, See Leipzig. 9.20, Announcements. 9.30 (approx.) till Close Down.

NAPLES .- See Rome. NOTODDEN.—See Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Rjukan, 671 kc/s, 447.1 metres; Rjukan, 671 kc/s, 447.1 metres; and Jelöy LCL, 6,990 kc/s, 42.92 metres.—9.30 to 10.0 a.m., Broadcast for Schools. 10.40 to 11.10, Broadcast for Schools (contd.). 4.0 p.m., Orchestral Concert, relayed from the Grand Café: Overture, Morning, Noon, and Night (Suppé); Waltz, Tout Paris (Waldteufel); Selection from Faust (Gounod); Morgenstimmung (Grieg); Hymn to the Sun (Rimsky-Korsakov); Czardas (Bereny). 5.0, French Lesson. 5.30, Song Recital by Madame Heldis Helen Nilsen, relayed from Bergen, 824 kc/s, 364 metres: Three Songs (Schubert); (a) An die Laute, (b) Wiegenlied, (c) Die Rose; Two Songs (Wolf-Ferrari); (a) Ur verde praticello senza piante. (b) lo Dei salutine ne mande mille; Three Songs (Cyril Scott); (a) Blackbirds' Song, (b) Daffodils, (c) Cherry Ripe; Aria from Romeo and Juliet (Gonnod). 6.0, Announcements, Weather, and News. 6.30, English Lesson. 7.0, Time. 7.1, Symphony Concert, relayed from the Logen Hall; Conductor, Ernst Telmanyi (Violin): Concerto grosso, Op. 3, No. 1 (Handel); Violin Concerto in E (Bach); Suite, Aladdin (Nielsen); Humoresque (Weiner). 8.40, Weather and News. 9.0, Topical Talk. 9.15, Literary Review. 9.45 (approx.), Close Down.

OSTERSUND .- See Stockholm,

PALERMO

PALERMO

556 kc/s, 539.5 metres; 3 kW.—7 p.m., Dopolavoro Announcements. Tourist Report, Agricultural Notes, Report of the Royal Geographical Society, and Giornale Radio. 7.20, Gramophone Music. In the interval at 7.30, Time and Announcements. 7.45, Symphony Concert, conducted by La Rosa Parodij: The Pastoral Symphony (Becthoven); Il lago d'annore (Nordio); Symphonic Poem, Printemps-lliver (Bloch); Music for Machines (Mossolov). In an interval, Talk on Gobineau. After the Concert, Gramophone Music. 10.0, News.

PARIS

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—5.45 p.m., Le Journal Parlé. 7.15, Weather and News. 7.30, European Concert, relayed from Vienna. 9.30 (approx.), Close Down.

PARIS

PARIS

POSTE PARISIEN, 914 kc s, 328.2 metres; 60 kW.—7.0 p.m., Ave Maria (founed), on Gramophone Records. 7.5, Sponsored Talk. 7.15, Le Journal Parlé. 7.30, Gramophone Records of Famous Singers. 7.55, Review of the Week. 8.0, Talk on Music. 8.10, Interval. 8.30, No. No. Nanette—Operetta in Three Acts (Youmans), translated by Roger Ferréol and Robert de Simone. 10.30, News.

PARIS

PARIS

RADIO-PARIS, Call GFR, 174 kc/s, 1,725
metres; 75 kW.—6.45 a.m., Physical Culture, 7.0, Interval. 7.30, Weather and Physical
Culture (contd.). 7.45, Gramophone Music. 8.0, Weather and Press Review. 8.30, Interval. 12 Noon, Jewish Talk. 12.30, Gramophone Concert: Selection from Le martyre de Saint Sébastien (Debussy); L'invitation au voyage (Dupare); Habanera (Aubert); Marionette (Glazunov); Siegfried Idyll (Wagner); Airs from (a) Gwendoline (Chabrier), (b) Sappho (Massenet), (c) Isoline (Messager); Ballet Music from Lc Cid (Massenet). In the intervals at 1.0, 1.30 and 2.0, Exchange. 2.5, News. 3.45, Exchange. 4.30, Elementary English Lesson. 6.20, Weather, Agricultural Talk, and Exchange. 6.45, Insurance Societies' Report. 7.0, Literary Talk: Marcel Proust. 7.20, Gramophone Concert: Melody (MacKnight); Vos yeux moqueurs (Messier); Etascolo (Racho); Prinrose (Charlys); Pierrot galant (Chillemont); Infiniment (Borchard-Spoak); Ave Maria (Gounod); Granada (Garcia-Salabert). 7.45, News and Commer-



cial Prices, 8.0, Reading (Marcel Proust). 8.20, News, Weather, and Gastronomic Report, 8.45, Le petit due Operetta (Lecorg). In the interval at 9.15, Press Review and

PITTSBURGH

KCKA, 980 kc s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres, and 25.27 metres.—7.0 p.m., Musical Originalities, from New York. 7.30, KDKA Home Forum. 8.0, U.S. Marine Band, from New York. 9.0, Betty and Bob. 9.15, Fillity Hall. 9.30, News and Markets. 9.45, Firenze Orchestra, from New York. 10.0, Unele Tom and Betty. 10.15, KDKA Kliddes Klub. 10.30, The Singing Lady, from New York. 10.45, Orphan Anme, from New York. 11.04, News-Recler. Pat Haley. 11.15, Sports. Programme Priview, 11.50, Evensong. 11.45, Lowell Thomas, from New York. 12.45, Rogramme Priview, 12.30, Potash and Perhint fer, from New York. 12.45, Programme 1.50, Dangerons Paradise. 1.45, Red Davis. 2.0, Let's listen to Harris. 2.30, Variety Programme. 3.0, The From Master.

PORSCRUND. See Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 1:0 kW, 2.0 p.m.,
An Opera (Hirmaty), relayed from the
National Theatre, 4.30, Talk on America,
4.45, Gramophone Misic, 5.0, German Transmission Report from Urania House, followed
by News, 6.0, News, 6.10, English Lesson,
6.35, Popular Songs, 6.55, Talk: The Prague
Zoological Gardens, 7.10, Hinpsichord Recital by Latzko: English Suite in A Minor
(Bueb): Two Sonatas (Searlatta): (a) in
G. (b) in D; Two Pieces (Couperin), 7.30,
European Concert, recayed from Vienna,
In the interval, News, 9.30, Russian News,
9.45, Concert, Prinved from Vienna.

11.0
(approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 ke s, 403 metres; 25 kW.; and Geneva, 400 ke's, 749.9 metres.—6.0 to 6.15 a.m. (from Lausanne), Gymmastics. 11.28, Time Signad from Neuchatel Observatory, 11.30, News and Weather 11.40 troin Lausanne), Orchestral Concert, conducted by Moser, 12 Noon (from Lausanne), Financial Notes, 12.10 p.m. from Lausanne), Financial Notes, 12.10 p.m. from Lausanne), Concert (contd.), 1.0, Intervil, 2.58, Time Signal from Neuchatel Observatory, 3.0, See Schweizerischer Landessander, 5.0 ffrom Geneva), Programme for Women, 5.30 (from Geneva), Engeranto Lesson, 5.40 (from Geneva), English Lesson, 6.5 (from Geneva), Talk on Bridge, 6.20 (from Geneva), Talk on Chess, 6.35 (from Geneva), Hinstrated Talk; Newly Released Gramophone Records, 6.59 (from Geneva), Violin and Pianoforte Recital by Appia and Trillat; Somata No. 6 (Recthoven; Sonata (Deursy), Talk and Life, 7.50 (from Geneva), Pranoforte Recital by Trillat; Sonata (Scarlatti); Prelude, Choral, and Finga (Franck), 8.10 (from Geneva), La Rose de St. Flour Operetta in One Act (Offenbach), 8.50, News and Weather, 9.0 (from Geneva), Report of the Aniomobile Unib, 9.10 (from Geneva), Close Down.

REYK JAVIK

250 kc s, 1,200 metres; 21 kW.—8.0 p.m., Musical Programme. 8.10, Weather. 8.35, Reading. 9.0, Chimes and Gramophone Con-cert: Quartet in A minor (Schubert); Songs. 10.0, News. 10.30, By the Fireside.

RJUKAN. See Osto.

ROME

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc s, 453.1 metres from 7.15 p.m.; and 2RO, 11,810 kc s, 25.4 metres. 12 Noon till 1.15 p.m., Orchestral Concert. In the intervals at 12,30, Giornale Radio and Exchange, and at 1.0, Time and Announcements. 3.0, Violin Recital by Natham Milstein, relayed from the Academy of Saint Cecilia. 5.40 (Naples), Shipping Report and Sports Notes. 5.45, Dopolayoro Notes and Tourist Report. 5.57, Report of the International Institute of Agriculture (in Spanish, German and French). 6.10, Agricultural Notes, 6.20, News in Foreign Languages, 6.40, Giornale Radio, 7.0, Time, Announcements and Sports Notes. 7.45, Sponsored Concert, 8.15, Pianoforte Recital by Faini; Gavotte (Rameau); Studio da concerto (Martneci); Ronda degli Arlecchini (Piek-Manyiagalli). 8.45 (approx.), Menzogne di bordo (Scamen's Yarus)—One-Act Comedy (De Stefani). 9.15 (approx.), Variety Concert. Mezzo-Suprano Solos; (a) Marie Antoinette's Song, (b) Popular Irish Bance Song, (c) A nerican Song, The Brown Bear (Zueca); Four Waltzes (Joh. Strauss); (a) Tales from the Vienna Woods, (b) Künstlerleben, (c) Wiener Blut, (d) The Blue Danube, 10.0, Giornale Radio.

SALZBURG. See Vienna.

SCHENECTADY

WGY, 790 kc s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAD on 19.56 metres,—

FRIDAY DEC. 8th

continued

7.20 p.m., Friday Steeplechases, Itom New York. 8.15 to 8.30 capprox.), Georgia Wildcats. 12.45 a.m. (Saturday), Stock Reports. 1.0, Concert, from New York. 1.50, WGY Farm Forum. 2.6 to 4.0, New York Relay. 2.6, Fred Allen and Ferde Grofe's Orchestra. 2.30, Players and Victor Voung's Orchestra. 3.0, First Nighter Sketch. 3.30, Lum and Almer's Old Time Friday Night Sociable. 4.0, Peogramme Résumé.

SCHWEIZERISCHER

LANDESSENDER

LANDESSENDER
BEROMUNSTER. 653 kc/s, 459 metres; 60 kW; Basls, 1,229 kc s, 244.1 netres; and Berns, 1,220 kc s, 245.9 metres.—5.50 to 6.5 a.m. (from Zürich), Gymnastic. 9.20 to 9.50 (100 Basle), Broadcast for Schools.
11.0 (from Basle), Extracts from Opesettas; Sound Films, and Revues (on Gramophone Records), 11.29, Time Signal from Neuchitel Observatory, Weather, and News, 11.40 (from Basle), Time, Weather, and Exchange, 12.20 (approx.) to 2.30, Interval. 2.30 (from Zürich), Gramophone Concert. 3.0 (from Zürich), Gramophone Concert. 3.0 (from Zürich), Violin Concerto (Wieniawsky), 3.25 (approx.), Recital by the Wiener Strassensinger, 4.0, Gramophone Music, 4.10, Concert by the Small Station Orchestra, conducted by Max Schethaum, 5.0 (from Berne), Pro-

(Kestler); Aux caresses des printemps (Delmas-Popy); Waitz (Ziehrer); Overture, Rip (Planque (te); Chanson d'amour (Caludi); Selection from La Favorita (Donizetti); L'aurore (Brusselmans); Tritume (Wagner); Albumblati (Wagner); March (Kyier), 2.0, Interval, 4.45, Talk; Elizabeth of England, 5.0, Variety Concert, conducted by Roskam, 6.0, Trio Concert, relayed from Lille, 1,128.5 kc/s, 265.8 metres. 6.45, Talk in German; Topical Problems, 7.0, Time, Lottery Results and News in French and German, 7.30, European Concert, relayed from Vienna, 9.30 (approx.), Press Review, 9.45, Fart Relay of a Concert given by the Societé des Concerts, from the Théâtre du Capitel, Tonlouse.

STUTTGART

STUTTGART

MUHLACKER, 832 kc s, 360.5 metres; 1.5 kW. Relayed by Freiburg, 527 kc s, 570 metres. 11.0 a.m., Concert by the Station Orchestra, conducted by Gustav Gorlich; Soloist, Eduard Oswall (Violin); Kärnther Liedermarsch (Seniert); Waltz, Dreams on the Ocean (Gung'll); Sérémade mélancolique (Tchaikovsky); Secues from the Cardas (Hubay); Potpourri, Flower Songs; Selection from Madame Batterfly (Pucchi); Glocken-Intermezzo (Heagney); March, Deutschlands Ruhm (Self-5der), 12.15

PROGFAUMES IN THE MAKING. A scene in the office of Dr. Fritz Pauli, director of the Frankfurt station, during an actual conference on forthcoming programmes.

gramme for Children. 5.30 (from Berne), Talk; Berne Guilds, 6.0 (from Berne), Time, Weather, Market Prices, Tourist Notes, and Sports Talk. 6.25 (approx.) (from Berne), Thirty Vears Ago Radio Sequence from Old Newspapers, (Franziskus), 6.30 (from Berne), Talk; The Pianoforte Music of Bach and Handel, with Illustrations by Alice Elders (Harpsichord), 7.0 (from Berne), Literary Talk, 7.30, Concert of Light Music by the Stition Orchestra, 8.0, Weather and News, 8.10 (from Berne), Talk in Dutch, 9.25 (approx.), Close Down.

SOTTENS. See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

689 kc s, 436 metres; 55 kW. Relayed by Boden, 242 kc s, 1,239.5 metres; Goteborg, 932 ke s, 522 metres; Horby, 1,167 kc s, 257 metres; Motala, 222.5 kc s, 1,348 metres; Ostersund, 402 kc s, 765.2 metres; and Sundsvall, 554 kc s, 542 metres; and Sundsvall, 554 kc s, 542 metres; and Sundsvall, 60 metre Music. 6.0, A Dia ogne; Doctors and Patients, 8.15, Weather and News, 6.30, Legal Talk, 7.0, Concert by the Radio Orchestra, conducted by Tor Mann, Soloist; Olov Wibergh (Fibnoforte). Pianoforte Concerto in E. Flat. Op. 78, No. 5 (Beethoven); Musik am Abond (Gruencr); Sinfoniae piecola (Atterberg). 8.15, Talk on Psychology, relayed from Malmo, 1,301 kc s, 230.6 metres. 8.45, Weather and News. 9.0, Light Music by the Septiman String Ensemble. Kleiner Wienermarsch (Kreisler); Selection from Il Soraglio (Mozett); Intermezo. (Gramados); Spring Song (Mendelsschut); En latean (Debnssy); Slav Dance, No. 6 (Dyorak); Melody (Ekenberg); Flower Waltz (Belibes); Piece (Alden). 10.0 (approx.), Close Down

STRASBOURG

869 kc's. 345 metres; 11.5 kW.—11.30 a.m., Gramophone Music. 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Orchestral Concert, conducted by Roskam: Predude, Kunihild

p.m., See Frankturt. 12.25, Local News and Weather. 12.35 to 1.30, See Langenberg. 2.30, Music by Frederick the Great; Recital by Georg Völker (Flute) and Hubert Giesen (Harpsichord; Flute Sonata for Flute and Harpsichord; Concerto for Flute and Harpsichord. 3.0 to 5.35, See Langenberg. 5.35, Legal Talk. 5.45, Time. Agricultural Notes and Weather. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0 to 9.20, See Frankfurt. 9.20, Topical Talk. 9.30, Local News, Weather and Sports Notes. 9.45 to 11.0, See Langenberg. 11.0, See Frankfurt. 11.45 (approx.), Close Down.

SUNDSVALL, - See Stockholm.

TOULOUSE

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc's, 385
metres; 8 kW. 6.0 p.m., News, 6.15, Opera
Music, 6.30, Tourist Talk, 6.45, Extracts
from Sound Films, 7.0, Medical Talk, 7.15,
News, 7.30, Pianoforte Recital, 7.45, Arias
from Opera and Arias from Werther (Massenet); Manon (Massenet); Turandot (Puccini); and Thai, (Massenet), 8.0, Orchestral
Music, 8.15, Spanish Songs, 8.30, Light
Music, 8.15, Spanish Songs, 8.30, Light
Music, 8.45, Orchestral Music, 9.0, Concert
Version of Les Saltimbanques—Operetta
(Gamie), 9.30, Radio Report from the Medrano Circus, 10.0, Music by an Argentine
Raml, 10.15, News, 10.30, Concert for
Insteners in Morocco, Part I; Songs, Part
II; Opera Music, Selection from Mignon
(Schreicer); Ballet Music from Etienne Marcel (Saint-Sacius); Selection from Tosca (Puccini), 11.0, Operetta Music, Songs from
(a) Mariska (Cares), (b) Quand Famonr
vient (Chantrior); Selection from RoseMarie (Frimb); Aria from I'n soir de Rèveillon (Moretti), 11.15, Dance Music, 12 Midnight, News, 12.5 a.m. (Saturday), Opera
Music, 12.50 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 40 kW.—4.10 p.m., Quartet Concert: Two Pieces (Martucci); (a) Momento musicale, (b) Minuetto; Noc-

turne (Borodin); Scherzo (Cherubini); Romance (Grieg); Mandoline and Guitar Duct; Spanish Caprice (Munier); Minnet (Haydu); Andante cantabile (Tchaikovsky); The Mill (Raft). 5.0 till Close Down, See Turin.

TRONDHEIM. See Oslo.

TURIN

TURIN

1,096 kc's, 273.7 metres; 7 kW. Relayed by Milan, 903 kc's, 332.2 metres; Genoa, 959 kc's, 312.6 metres; and Florence, 598 kc's, 201.6 metres.—4.10 p.m., Concert of Chamber Music: Magda Gusberti (Violin), Rita de Vincenzi (Soprano) and Renato Russo (Pianoforte). 5.0, Weather, 5.5, Interval. 5.40, Giornale Radio, Dopolayoro Notes and Gramophone Music. 6.0, Time, Report of the Royal Geographical Society and Gramophone Music. 6.10, Agricultural Notes and Wheat Market Prices. 6.20, News in Foreign Languages, 6.40, Gramophone Music. 7.0, Aunonneennents. Giornale Radio and Weather, 7.15, Gramophone Music. 7.30, European Concert, relayed from Vienna. 9.0, Dance Music. 10.0, Giornale Radio.

VATICAN CITY

15,120 kg s, 19.84 metres (Morning), and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—
15.0 to 10.15 a.m., Religious Information in German.
7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

VIENNA

580 kc s, 517.2 meires; 160 kW. Relayed by Craz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc s, 283 metres; Klagenturt, 662 kc s, 433.1 metres; Linz, 1,220 kc s, 245.9 metres; and Salzburg, 1,373 kc s 218.5 metres.—11.0 a.m., Concert by the Wiener Symphoniker conducted by Martin Spörr; Soloist, Marcell Dick (Viola), 1.0 p.m., Interval, 2.0, Time and Announcements. 2.5, Programme for Women, 2.30, Concert by the Vienna Guitar Trio. 3.30, Concert by the Austrian Railway Officials' Choir, relayed from the Konzerthanissaat, 4.15, Talk: At the Equator, 4.45, Popular Music on Gramophone Records, 5.25, Variety Items, 5.55, Concert by the Strauss-Lamer Schrammel Quartet, 6.50, Time and Announcements. 7.0, Talk, 7.30, European Concert by the Wiener Philharmoniker, conducted by Oswaldt Kabasta; Soloist, Lotte Lehmann (Soprano); Symphoniker, Conducted by Oswaldt Kabasta; Soloist, Lotte Lehmann (Soprano); Symphony No, 3 in D (Schimbert); Two Songs (Wolf); (a) Mignon, (b) In dem Schatten meiner Locken; Three Songs (Marx); (a) Hat dich die Liche herührt, (b) Selige Nacht, (c) Und gestern hat er mit Rosen gebracht; Symphony No, 2 in E Flat (Schmidt). In an interval at 8.50 (approx.), News, 9.30, Announcements, 9.45, Concert of Viennese Music by the Wiener Symphoniker, conducted by Josef Holzer; March, Wien bleibt, Wien (Schrammel); Overture, Wiener Frauen (Lehmer); Song from Ein Openball (Heuberger); Potpeuri of Vienna Folk Music (Konzak); Waltz, Sphärenklänge (Jos. Strauss); Overture, Wiener Frauen (Lehmer); Song, Mei Muatterl war a Wienerim (Gruber); Unitar Wiener Bürger (Zichter); Intermezzo from Die gold medisterin (Eysler); Potpourri, Beim Henrigen (Kronegger). After the Concert, Announcements,

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—10.57 a.m., Time Signal and Fanfare from St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Weather. 11.15, Concert, of Polish Music by the Warsaw Pbilharmonic Orchestra, conducted by Wolfstal, Soloist: Mmc. Zmigrod-Fedyczkowska (Songs). In the interval at 12 Noon, Talk. 1.0 p.m., Agricultural Talk. 1.15, Symphonic Dances (on Gramophone Records). 1.50, Talk. 2.20, Song Recital by Serge Benoni (Bass). 3.0, Programme for Young People—St. Nicholas. 3.30, Gramophone Records of Rubinstein (Piamoforte). 3.45, Reading (Kudlinski). 4.0, Talk: Photographs of Ski-Racing. 4.15, Popular Polish Music by the Stromberg and Kaczynski Orchestra. Polomaise (Brezinski): Mazurka (Osman); Valse dorée (Stromberg): Polka graciense (Kaczynski): Oberkis Potpourri (Stromberg): Polka (Stromberg): Polka (Stromberg): Polka (Kaczynski); Mazurka (Stromberg): Polka (Kaczynski); Mazurka (Stromberg): Polka (Kaczynski); Cracow Mazurka (Stromberg): Polka (Kaczynski); Cracow Mazurka (Stromberg): Polka (Kaczynski); Mazurka (Stromberg): Oberek (Stromber

ZAGREB

PACKED

977 kc s, 307 metres; 0.75 kW.—4.0 to 5.30, p.m., Concert by a Russian Choir and Balalaika Orchestra. 6.30, Talk for Sokols. 6.45, Sports Notes. 7.0, Aunonneements and News. 7.30, European Concert relayed from Vienna. 9.30, News, Weather and Programme Annonneements. 9.45 (approx.). Close Down.

ZURICH. See Schweizerischer Landessender.

ALGIERS

824 kc/s, 364 metres; 13 kW.—7.0 p.m., Financial Notes. 7.10, Shipping Notes. 7.15, Weather Report. 7.20, Songs from Sound Films. 7.55, News. 8.0, Time Signal. 8.2, Concert by the Station Orchestra. Overture, Le cheval de bronze (Auber); Selection from Miss Decima (Audran); Waltz from Casanova (Lincke); Selection from Ghismonda (Février); Suite, La Feria (Lacome). In the interval at 8.30, News and Light Music. 9.30, News. 9.35, Accordion Solos. 9.55, News.

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres; and Gork, 1,337 kc/s, 224.4 metres.—1.30 to 2.30 p.m., Timie Signal, Weather Report, Stock Report and Gramophone Concert. 6.0, Gramophone Concert of Concert. 6.0, Gramophone Concert. 6.0, Gr

BARCELONA

EAJ1, 860 kc/s, 349.6 metres; 8 kW.—5.30 g.m., Programme for Children 7.0, Request Gramophone Records. In the interval at 7.30, Exchange, 8.0, Gramophone Music 8.15, Anti-War Talk and News. 9.0, Chimes, Weather, and Exchange, 9.5, Catalan Educational Programme. 9.35, Concert by the Station Orchestra: March, Japanese Patrol (Verré); Waltz. Chant d'automne (Waldteufel); Intermezzo (Culotta); Andante appassionata (de Treye). 10.15, Vincente Diaz de Tejada reads from his own Works. 18.30, Concert of Light Music. 11.0, News, followed by Dance Music on Gramophone Records. 12 Midnight, Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—3.30 p.m., Programme for Children. 3.55 to 7.0, See Rome. 7.0, News in Albanian. 7.20 till Close Down, See Rome.

BASLE.—See Schweizerischer Landessender.

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—5.55 p.m., Time and Programme Announcements. 6.0, Talk. 6.30, Pianoforte and Violin Recital, 7.30, Concert by the Radio Orchestra. 8.0, Popular Song Recital, with Orchestral Ac-companiment. 8.30, Concert by the Radio Orchestra. 9.0, Time, News, and Gramophone Music. 9.50, Dance Music, relayed from the Auto-Club. Auto-Club

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHSSEND-ER), 183.5 kc/s, 1,635 metres; 60 kW.—1.0 p.m., Light Music on Gramophone Records: Dämmerung (Kudritzki); Barcarolle (Fasola); Ein Brief von deiner Hand (Snyder); Ein Lied der Puszta (Margulies-Holm); Waltz, An der Donau, wenu der blüht (Crethe Melichar); Kleiner Mann, was mun (Böhmelt); For you, Rio Rita (Adam-Breet); Dorothée (Laudschulz-Schappe); Les marimberos (Bochmann); In einer Frühlingsnacht (Dostal); Mann die roten Rosen blüh'n (Fischer); Ich war heut' auf dem Fundbüre (Kolle). 2.0, Handwork Programme—Making Christmas Presents. 2.30, Weather and Exchange. 2.45, Review of Economics. 3.0, See Frankfurt. 4.0, Sports Review. 4.20, Cinema Organ and Pianoforte Recital by Erwin Christoph and Kurt Pollack (on Gramophone Records). 5.0, Poems. 5.5, Variety Programme. 5.30, Talk on Government Films. 5.45, Chimes from The Frauenkirche at Munich. 5.50, News. 6.0, Transmission for all German Stations, relayed from Langenberg. 7.0, To-day's Motto. 7.5, Dance Music. 9.0, News. 9.25, Discussion: Where to go for Winter Sports. 9.45, Weather. 10.0, Dance Music (contd.). 11.30 (approx.), Close Down.

BERLIN

FUNKSTUNDE, 716 kc/s, 419 metres; 1.5 kW. Relayed by Zeesen, DJC, DJA, DJD, DJB and DJE.—3.0 p.m., See Heilsberg. 4.0, Stories about the Famous Robber, Katusch—Radio Sequence (Brist Keienburg). 4.30, Schubert and Hugo Wolf Song Recital by



Wilhelm Strienz (Bass). 5.0, This is Berlin—Radio Sequence. 6.0, Transmission for all German Stations, relayed from Langerberg. 7.5, See Hamburg. In the interval at 9.0, Weather and News. 11.5, See Hamburg. 12 Midnight, Close Down.

BERNE.—See Schweizerischer Landessender.

BEROMUNSTER. - See Schweizerischer

BODEN.-See Stockholm.

BODO.—See Osio.

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—7.0 p.m., Radio Journal. 7.55, Sports Notes. 8.0, News and Exchange. 8.5, English Lesson. 8.20, News. 8.30, Concert by the Associa-tiou artistique des chanteurs de Lyon.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—5.15 p.m., lints for Housewives. 5.30, Review of the Week's Events. 5.45, Gramophone Music. 5.55, Hints for Housewives. 6.0, See Prague. 6.25, See Moravská-Ostrava. 7.25, See Prague. 8.0, See Brno. 9.0, See Prague. 9.15, Concert by the Station Orchestra, conducted by Dyk. Soloists: Emma Simandiova (Soprano), Holubar (Tenor) and Ruth-Markov (Bass); Potpourri of Slovak Songs, The Tatra Mountains (Leopold); Potpourri of Czechoslovak Mining Songs for Vocal Quartet and Orchestra (Tvrdy); Potpourri of National Songs, Grandfather's Reminiscences (Sladek). 10.30 (approx.), Close Down.

BREMEN.-See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—12.25 to 1.10 p.m., See Leipzig. 1.20, Programme arranged by the Post Office with Gramophone Records. 2.0, Agricultural Prices and Exchange. 2.15, Song; by Prize Canaries, relayed from the Silesian Canary Breeders' Exhibition. 2.25, Film Review. 2.40, Economic Review. 3.0 to 5.10, See Leipzig. 5.10, Programme to be announced. 5.20, Discussion on the Sterilisation of the Unfit. 5.40, Programme Announcements for the Coming Week. 5.50, Programme Announcements. 6.0, Transmission for all German Stations, relayed from Langenberg. 7.0, See Leipzig. 7.10, Concert by the Silesian Philharmonic Orchestra and the Station Orchestra, conducted by Topitz. Soloista; Olly Stephan (Soprano). Bruno Jagielski (Tenor), and Walter Jonetzko (Zither). 9.0, See Leipzig. 9.20, Time and News. 9.40, See Munich. 11.0 (approx.),

BRNO

RYS kc/s, 342 metres; 35 kW.—5.25 p.m., German Transmission: News and Gramophone Music. 6.0, See Prague. 6.25, See Moravski-Ostrava. 7.25, See Prague. 8.0, Concert by the Bata Band, conducted by Hauptvogel: March (Horak); Waltz, Winterstürme (Fucik); Overture, Nebuchadnezzar (Verdi); Song (Fiala); Lehár Potpourri (Hruby); Selection from Nicholas Shouthich-Zrinsky (Zaje); Polka (Hauptvogel). 9.0, See Prague. 9.15, See Bratislava. 10.30 (approx.), Close Down.

BRUSSELS (No. 1)

BRUSSELS (No. 1)

1.N.R., 589 kc/s, 509.2 metres; 15 kW.—12
Noon, Concert by the Radio Orchestra, conducted by Walpot; Soloist, Salés (Baritone).
1.0 p.m., Le Journal Parlé. 1.10, Concert by the Mickey's Club Jazz Attraction, conducted by Ludo Langlois. 4.45, Talk. 5.0, Concert by Robert de Kers and his Cabaret Kings, relayed from the Century Hotel. 6.0. Talk: The Protection of Birds. 6.15, Gramophone Music. 6.30, Concert by the Small Station Orchestra, conducted by Leemans: Overture, Lucio Silla (Mozart); Albumblatt (Wagner); Concerto for Violin and Quartet (Tartini-Chaumont); Flute Solo. Danse lente (Jougen); Suite miniature (Dubois); Presque une berceuse (Jongen); Thamineh (Schoemaker); Suite, Mimes et ballerines (Razingade). 7.30, Wireless Notes and Scientific Talk. 8.0, Concert by the Radio Orchestra, conducted by Walpot; Soloist, Mme. Marville (Chanteuse-diseuse); Military March, Le trompette amoureux (Walpot); Overture, The Gipsy Baron (Joh. Strauss); Waltz, Tune sauras jamais (Rico); Selection from Phi-Phi (Christiné); Songs: (a) L'adieu des roses (Openshaw). (b) Si petite (Claret); Spanish Dances (Moszkovsky). 8.45, Georges Rency, a Iselgian Author—Talk and Readings. 9.0, Orchestral Concert (contd.): Walloon Suite (Wangerinée); Selection from The Land of Smiles (Lelar); Songs: (a) Ninon (Tosti), (b) Ne dis pas toujours

(Lenoir); La czarine (Ganne); Potpourri, Tempo-tempo (Dostal); Suite of Waltzes, España (Waldteufel). 10.0, Le Journal Parlé. 10.10, Dance Music, relayed from the St. Sauveur Palais de Danses.

BRUSSELS (No. 2)

N.I.R., 888 kc/s, 337.8 metres; 15 kW. Programme in Flemish. 12 Noon, Dance Musle by Mickey's Club Jazz Attraction. 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Radio Orchestra, conducted by Charles Walpot. Soloist: Salès (Baritone). Suite romantique (Armandola); Melody (Meyer-Helmund); Selection from A Waltz Dream (O. Straus); Songs; Waltz (Krome). 5.0, Concert by the Small Station Orchestra, conducted by Lecmans: Overture, Le Châlet (Adam); Suite (Chavarri); Bacchanal (Dvorák); Selection from Etienne Marcel (Saint-Saëns); Tendresse et passion (Lagarde); Les deux Guitares (Salabert); Hungarian Rhapsody for 'Cello (Popper); Strauss Fantasia (Winter); Gallop (Eilenberg). 6.0, Gramophone Records: Scherzo No. 2 in B Flat Minor (Chopin); Overture, Strauss Fantasia (Winter); Gallop (Eilenberg). 6.0, Gramophone Records: Scherzo No. 2 in B Flat Minor (Chopin); Overture, Coriolanus (Beethoven). 6.15, Reading. 6.30, Dance Music by Mickey's Club Jazz Attraction. 7.30, Film Review. 8.0, La Traviata—Opera (Verdi), relayed from the Royal Flemish Opera House, Antwerp. 8.40, Programme to be announced. 10.5, Le Journal Parlé.

BUCHAREST

BUCHARES 1
760 kc/s, 394.7 metres; 12 kW.—4.0 p.m., bance Music by the Visoiu Jazz Band. In the interval at 5.0, Radio Journal. 6.0, Educational Talk. 6.20, Grannophone Music 6.45, Talk. 7.0, Song Recital by Elinesco-Cristofovici; Villanelle (Dell'Aqua); Variations (Proch); Unter Orangenbluten (Meyer-Helmund); La Patrida (Alvarez); Berceuse (Brailoiu). 7.30, Dance Music on Gramophone Records. 8.0, Talk. 8.15, Modern Music by the Syncop Accorders. 8.45, Radio Journal. 9.0, Popular Romanian Music by the Station Orchestra, conducted by Dinico.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on 840 metres from 5.0 p.m. till Close Down.—4.30 p.m., Wireless Notes for Amateurs. 5.0, Lottery Announcements. 6.0, Gramophone Music. 7.0, The Geisha—Operetta (Jones). 9.0, News. 9.20, Jazz Music by the Georg Garay Dance Band, relayed from the Royal Hotel. 10.15, Concert by the Pali Pertis Cigány Band.

CASSEL.—See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres, and Skamleback, 9,250 kc/s, 31.51 metres.—11.0 a.m., Time and Chimes from the Town Hall.
11.5 (approx.) to 1.0 p.m., String Ensemble Concert, relayed from the Wivex Restaurant. 1.30, Gramophone Concert of Light Music. 2.0, Reading. 2.30, Concert by the Radio Orchestra, conducted by Fritz Mahler. In the interval at 3.15 (approx.), Reading. 4.30, Exchange and Fish Market Prices. 4.45, Talk: Ernst Toller, the German Proletarian Writer. 5.15, French Lesson. 5.45, Weather. 5.54, Announcements. 6.0, News. 6.15, Time. 6.30, A Discussion on Books for Children. 7.0, Time from the Town Hall. 7.1, Round the Coast from Copenhagen to Helsingfors—Literary and Musical Radio Pictures. 8.0 to 10.15, Variety Programme. 8.0, Saxophone Solos by Otto Banner-Jansen: Plaisir d'amour (Martini-Thomsen); Waltz from The Gold-diggers (Dubin and Warren); Romance (Piensuti-Thomsen); Krazy Kat (Trumbauer and Morehouse); S.15, Music by Carl Rydahls Instrumental Easemble: Overture, Rip van Winkle (Hanquette); Waltz, Paysage d'automne (Waldieufel); Suite from Les Fantoccini (Lecocq). 8.45, News. 9.0, Hungarian Operetta Music by Carl Rydahl's Ensemble: Overture, Gipsy Love (Lehár); Selection from The Carnival Fairy (Kálmán); March from Eva (Lehár). 9.25, Song Recital by Carl Fischer. 9.40, Danish Music by Carl Rydahl's Instrumental Ensemble: Radio March (Rydahl); Lullahy (Rosenberg); Aubade (Rosenberg); Repsodietta (Gade). 10.15 (approx.), Dance Music from the Ritz Restaurant. 11.0, Time and Chimes from the Town Hall.

CORK.-Sce Athlone.

CRACOW

959 ke/s, 312.8 metres; 1.5 kW.—6.0 p.m., Programme Announcements. 6.5, Topical Talk. 6.20, Miscellaneous Items. 6.25, See Warsaw. In the Interval at 6.40, Sports Notes. 9.5, Variety Programme. 10.0,

Dance Music (on Gramophone Records), 11.0, Fanfare from the Church of Notre Dame.

DANZIG .- See Heilsberg. DRESDEN .- See Leipzig.

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—11.0 a.m., till 12 Noon, Programme in English by the I.B.C. 11.0, Happy Hour: Part I, Orchestral Concert: Signature Tune, By the Swanee River (Myddleton); By the Sleepy Lagoon (Coates); Song, The Girl Next Door (Everett); Mignonette (Frimi); Woodland Peace (Favilla); Song, My Mother's Garden (Hanley); Selection from The Show Boat (Kern); Part II; Accordion Band; Gipsy, sing for me (Pola); Zigeuner, you have stolen my Heart (Egen); Little Romany (Leon); Ninon (Moretti); Conchita (Paolito); Passion Flower (Kennedy); Elvira (Paolita); Rosa Mia (Fisher); Signature Tune. 12 Noon, Programme in French. 3.30 till 6.0, Programme in English by the I.B.C. 3.30, Concert for Tunhridge Wells and Isle of Thanet Listeners: Part I, Request Music; Signature Tune, The Night hy the Sea; Waltz, Très joile (Waldteufel); Marta (Simons); Drifting down the Shalimar (Moll); Kamschamola (Traditional); Ve Banks and Braes (Traditional); Underneath the Arches; Sally in our Alley (Carey); Selection from The Merry Widow (Lehar); Part II: Dance Music: The Man on the Flying Trapze; Dear Stranger; Did my Heart Beat; Thanks; Oh! Johanna; Ah, but is it Love?; Who's afraid of the Big Bad Wolf. 4.30, The I.B.C. Nursery Corner; Birthday Greetings. 5.0, Dover and Folkestone Concert: Part I, Military Band Music: L'entente cordiale (Allier); Selection from The Geisha (Jones); Berceuse (Lacôme); March, The Grenadier (Moln); Waltz, Les sirbnes (Waldteufel): The Doge's March (Rosse); Enchantress March (White); Jolly Fellows (Vollsteut); Part II, Accordion Band: At the hal mussette (Alexander); Tango Serenade (Stolz); Dinah (Lewis); Valse de la reine (Alexander); Signature Tune, Sitin' in the Dark; A Couple of Fools in Love (Valentine); The Wind's in the Water; Lay your Head on my Shoulder. 5.0, Programme in English by the I.B.C. 11.0, Talkie Time: Tunes from the Talkies and Shows: Signature Tune, Sitin' in the Dark; A Couple of Fools in Love (Valentine); The Wind's in the West; I always keep my Girl out Late (Abrabauu); My FLENSBURG .-- See Hamburg. FLORENCE.—See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel and Trier, 1,157 kc/s, 259.3 metres.—12.15 p.m., Time and News. 12.25, Local News. 12.35 to 2.15, See Langenberg. 2.15, See Stuttgart. 2.30, Weather. 2.40, Time and Economic Notes. 3.0, Concert. Part 1: The Station Orchestra, conducted by Reinhold Merten. Soloists: Albert Stübgeu ('Cello) and Julius Gelfius and Emilizimmermann (Flute); Overture, Mariotta (Gade); Allegro militaire, Op. 48, for Two Flutes and Orchestra (Andersen); 'Cello Concerto, Op. 33 (Volkmann). Part II: Old Dance Music conducted by Walter Caspar. 5.0, Frontier Problems. 5.20, Review of the Week. 5.35, Surprise Programme. 5.50, News. 6.0, Transmission for all German Stations, relayed from Langenberg. 7.0, Topical Talk. 7.10 to 9.0, See Stuttgart. 9.30, Local News. 9.45, Concert of Light Music. 10.0, Concert by the Station Orchestra, conducted by Walter Caspar. Richard Kautz (Humorist). 11.0

till Close Down, See Stuttgart. 1.0 a.m. (Sunday), Close Down.

FREORIKSSTAD .- See Oslo.

FREIBURG .- See Stuttgart.

GENEVA .- See Radio-Suisse Romande.

GENOA.-See Turin.

GLEIWITZ .-- See Breslau.

GOTEBORG .-- See Stockholm.

GRAZ .-- See Vienna.

HAMAR.-See Oslo.

HAMBURG

HAMBURG

806 kc, s. 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc, s. 269.8 metres; Flensburg and Hanover, 1,319 kc/s. 227.4 metres; and Kiel, 1,292 kc/s, 232.2 metres.—3.0 p.m., See Hellsberg. 4.0 to 5.0, See Berlin (Deutschlandsender). 5.0, Reading (Georg von der Vring). 5.25, Report from the Naval School at Friedrichsort. 5.40 (from Kiel). Religions Address. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from the Liner, New York; the Atlantic Quartet; the Station Male Voice Quartet; the Small Station Orchestra, conducted by Gerhard Maass; the Hamburg Harbour Concert Orchestra, conducted by Karl Becker; and the Orchestra of the Liner, New York, conducted by Harald Reimers. In an interval at 9.0, Time and News. 11.5, Dance Music by Tibor von Ragotzky and his Eand, relayed from the Atlantic Hotel. 12 Midnight, Close Down.

HANOVER.-See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—10.30 a.m., Concert by the Small Station Orchestra. conducted by Eugen Wilcken: Overture, Le puits d'amour (Baffe): Spanish Legend; Blumen der Liebe (Rust); Die Spieluhr der Ponpadour (Koack); Die launische Yvette (Schmalstich); Selection from Lucrezia Borgia (Donizetti); Waltz, Neu-Wien (Joh. Strauss); Zwei Temperamente (Kork); Passion (Lamare); Wiener-Triumph-Ouvertüre (Suppé). In the intervals at 12.20 and 1.0 p.m., News. 1.30, Programme arranged by the Post Office, with Gramophone Records. 2.0, Exchange, 2.30, Programme for Children. 3.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Hungaria (Nagypal); Two Pieces (Goetz); (a) Brief an das Glück, (b) Komm heute Nacht; Waltz, Jungherrntänze (Gungl); Old Vienna in Song and Dance (Pachernegg); Le Serenata (Tosti); Malaga (Sentis); Overture. The Land of Smiles (Lehar). 4.0, A Radio Sequence, relayed from Berlin (Funkstunde). 4.30, East Prussian Weekly Review. 4.55, Traffic Report. 5.5, Programme Announcements for the coming Week. 5.15, Agricultural Prices. 5.25, Recital on the New Radio Organ. 5.50, Weather. 6.0, Transmission for all German Stations relayed from Langenberg. 7.0, News and Weather. 7.5 till Close Down, See Hamburg. In the interval at 9.0, News. 11.0 (approx.), Close Down.

HILVERSUM

HILVERSUM

1,013 kc | s, 296.1 metres; 7 kW. up to 5.40 p.m., and 20 kW. from 5.40 p.m.—Programme of the Workers Radio Society (V.A.R.A.). 11.40 a.m., Trio Concert: Gavotte (Sgambati); Bercense (Sgambati); Canto amoroso (Sahmartini-Elman); Nous deux (Steek); Selection from La Wally (Catalani); Gramophone Records; Waltz from Choulette (Hahn); Si mes vers avaient des ailes (Hahn); Selection from Samson and Delliah (Saint-Saëns); Gramophone Records; Chanson tzigane (Boldi); Lehār Potpourri (Geiger), 1.25 p.m., Concert conducted by Wins. 1.55, Interval. 2.10, Gramophone Music. 4.240, Talk. 3.0, Gramophone Music. 4.25, Talk. 4.40, Concert by Jack Bee and the Blue Bees. 5.35, Interval. 5.40, Literary Talk. 6.0, Gramophone Music. 6.55, Concert by the V.A.R.A. Young People's Choir, conducted by Tiggers. 7.38, S.O.S. Announcements. 7.40, Concert by the V.A.R.A. Orchestra, relayed from The Théâtre Carré Amsterdam. Conductor: Tiggers. Soloist: Ljuba Kusnetzowa (Songs). Overture, Euryanthe (Weber); Aria from Siellan Vespers (Verdi); Aria from The Pearl Fishers (Bizet): First Suite from L'Arlé-ienne (Bizet): Song. Il bacio (Arditi); Tarautella (Rossini): Waltz. Künstlerleben (Joh. Strauss); Polonaise from Engene Onegin (Tchaikovsky). 8.40, Press Review and Variety Hem. 8.55 Organ Recital by Jong: March, Pomp and Circumstance (Elgar); Selection from Nalla (Delibes). 9.10, Talk. 9.20, Concert conducted by Horst, relayed from Amsterdam. 10.40, Organ Recital (contd.). 11.0, Gramophone Music. 11.40 (approx.), Close Down.

HORBY .- See Stockholm

HUIZEN

160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m. Transmitted from Kootwijk on 50

DEC. 9th SATURDAY continued

kW. from 3.40 p.m. Programme of the Catholie Radio Society (K.R.O.).—11.55 a.m., Concert by the K.R.O. Orchestra: March, Hoch und Deutschmeister (Ertl); Overture, Flotte Bursche (Suppé); Suite, At the Circus (Armandola); A Box of Soldiers (Siede); Liszt Potpourri (Urbach); Gramophone Records: Prelude (Rachmaninov); An temps jadis (Montagne); Czardas (Monti); Melody (Rebattu); In a Persian Market (Ketelbey); Soirée d'éte (Waldteurfel); Overture, Im Reiche des Indra (Lincke). 1.40 p.m., Programme for Young People. 2.10, Programme for Children. 3.40, Interval. 3.55, Gramophone Music. In the Intervals at 4.10, Writing Lesson, at 4.55, Sports Talk, and at 6.0, Press Review. 6.40, Police Notes. 6.55, Medical Talk, 7.15, Gramophone Music. 7.40, Variety Programme by the K.R.O. Boys: M. van der Hulst (Recitations) and M. Lehey (Accordion); Wenn hier ein Pott mit Bolmen steht (Streeker); Selection from The Flower of Hawaii (Abraham); Two Guitars (Makarov); Potpourri of Waltzes (Golwyn); March, Electric (Herek); Overture, Light Cavalry (Suppé); Gramophone Music; Recitations; Gomedy Overture (Keler Belay; Le merle blanc (Demaré); Selection from Tine Tirree Musketeers (Friml); Selreib mir ein Paar Zeilen (Grosz); Melody (Ciere); Das Sang der Groszpapa (Ralton); Recitations: Gramophone Music; Sternschnuppen (Kauler); Valse romantique (Heinecke); Baby plays at soldiers (de Michell); Nimm diesen Ring (Mohr); Spanish March (Strauss), 10.40, Gramophone Music, 11.40 (approx.), Close Down,

INNSBRUCK.—See Vienna.

JUAN LES PINS

1,205 kc s, 249 metres; 0.8 kW.—8.0 p.m., Amusement Guide, Financial Notes, Racing Results and News. 8.10, Film Review. 8.25, Radio Concert. In the interval at 9.0, News and Weather.

KALUNDBORG .- See Copenhagen.

KATOWICE

734 kc/s, 408 metres; 16 kW.—6.10 p.m., Talk. 6.25, Nee Warsaw. 6.40, Nports Notes. 6.47. Nee Warsaw. 8.0, Gramophone Music. 8.20, See Warsaw. 9.5, Nee Cracow. 10.0, See Warsaw. 10.5, Gramophone Music.

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—6.0 p.m., Time, Weather, Announcements and Pro-gramme Notes, 6.30, An Opera relayed from the State Opera Honse. In the interval, Sports Talk.

KIEL.-See Hamburg.

KLAGENFURT .-- See Vienna.

KOSICE .-- See Prague.

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by Helsinki, 815 kc/s, 368.1 metres.—6.5 p.m., Concert by the Station Orchestra, conducted by Linke: Le Pas des fleurs (Delibes); Andalusian Love Song (Cremieux); Autumn Dream (Joyce); Waltz, Gold and Silver (Lehár); Waltz (Palmgren), 7.45, News in Finnish, 8.0, News in Swedish, 8.15, Dance Musle from the Grand Restaurant, 19.0 (approx.), Close Down.

LANGENBERG

LANGENBERG

635 kc's, 473 metres; 60 kW.—12.25 p.m., News. 12.35, Variety Concert: The Fröhliche Fünf and Popular Music on Gramophone Records. 1.30, Programme for Young People. 2.15, Sec Stuttgart. 2.30, Economic Notes. 2.45, Book Talk. 3.0, Sec Frankfurt. 5.0, Programme relayed from the Borken Museum. 5.20, Sec Frankfurt. 5.35, Fiddle Solos. 5.45, Announcements. 6.0, Transmission for all German Stations: Music of Contemporary West German Composers by the Station Orchestra, conducted by Busch-kötter, the Station Chamber Choir, conducted by Brener, and a String Trio: Heitere Festmisk (Bettingen): Male Voice Choir: Lieder der Treue (Eppf): Planoforte: Tonsätze (H. Weber): Orchestral Music (Maler): Landsknecht-slied (Gerster): New Ngzi Songs (Wintermeier). 7.0, Sec Frankfurt. 7.10, Beim Rosemuirt am Grabeutor—A Hymn of Praise (Theo Rausch), after Songs by Otto Lob (arr. Kueip). 8.0, See Stuttgart. 9.0, See Frankfurt. 9.20, See Stuttgart. 9.30, News. 9.45 to 11.0, See Frankfurt. 11.0, Sece Stuttgart. 1.0 a.m. (approx.). Close Bown.

LAUSANNE .-- See Radio-Suisse Romande.

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—12.25 p.m., Instrumental and Vocal Concert. Violin and Guitar: Norwegian Melody, Uppsala (Blomqvist); Baritone, Zither and

Guitar: Es steht in Deutschland eine Lind' (Pfeiffer); Pianoforte Solos: (a) Deutscher Tanz (Schubert). (b) Linzer Tanz (Pamer); Internezzo for Zither (Swoboda); Two Folk Melodies for Baritone and Zither: German Peasant Dances (Grinwald); Plnte and Pianoforte: Three Pices, Op. 54 (Bunner); Violin and Viola: Two Duets (Mozart). 1.0, News. 1.10, Programme for Children. 1.55, Review of Historical Novels, 2.15, Review of the Week. 2.30, Agricultural Notes. 2.45, Economic Notes. 3.0, Concert by the Station Orchestra, conducted by Theodor Blumer. Soloists: Erna Dietrieh (Soprano) and Emmy Dachne (Contralto): Overture, Les petits riens (Mozart); Old German Folk Song Duets (Brahms): (a) Maria ging ans Wandern, (b) Drunten im Tale, (c) Klosterfräulein, (d) Hüt du diel; Selection from Das Nachtlager von Grandia (Krentzer); Hungarian Dances Nos. 11-16 (Brahms); Four Duets (Dvorák); Rêverie du soir (Schütt); Pianoforte Solo: Concert Fantasia on the Waltz, Tales from the Vienna Woods (Joh. Strauss-Schütt); Waltz from Das Fürstenkind (Lehár): Selection from Fatinitza (Suppé). 4.30, Talk: The Soldier's Life as portrayed in Art. 4.50, Pianoforte and Harmonium Recital. 5.10, A Modern Dictionary, 5.25, Talk: German Punctuation. 5.45, Talk on Animals. 6.0, Transmission for all German Stations relayed from Langenberg. 7.0, To-day's News. 7.10, Concert from Breslau. 9.4, News and Time Signal. 9.20, Local News. 9.40, Light Music relayed from Munich. 12 Midnight (approx.), Close Down.

LINZ .- See Vienna.

LJUBLIANA

522 kc/s, 574.7 metres; 7 kW.—6.0 p.m., Talk on Philosophy, 6.30, Talk on Foreign Affairs, 7.0, Concert of Light Music by the Station Orchestra, 7.30, Instrumental Music, 8.0, Guitar and Accordion Music, In the interval, Gramophone Records, 9.0, Weather, News and Dance Music.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW. French Evening. 7.0 p.m., Concerto for Violin and Orchestra (Saint-Saëns), by Mignel Candela and the Orchetra of the Société des Concerts du Conservatoire, conducted by Philippe (aubert (on Gramophone Records).

7.35, Reading of Fables (La Fontaine). 7.45, Concert of French Music by the Radio Orchestra, conducted by Henri Pensis; Soloist, Gertrude Schmidt-Derckum; Overture, Le Roi d'Ys (Lalo); Mon petit Anc (Philippe Gaubert); Antomme (Ganhert); Soir Paien (Ganhert); La Mer est, plus belle (Debussy-Salabert); Tendresse (Altred Bachelet); The Song of Spring from Samson and Delliah (Saint-Saëns); Tondresse (Altred Bachelet); The Song of Spring from Samson and Delliah (Saint-Saëns); La Jeunesse d' Hercule (Saint-Saëns). In an interval at 8.30, Economic Notes. 8.50, News in French. 9.0, Radio Luxembourg Musical Medley, by the Station Orchestra, conducted by Henri Peusis, 10.25, Variety Music and Dance Music on Gramophone Records.

LWOW

788 kc/s 381 motres; 16 kW.—6.55 p.m., Programme Anomecments, 7.0, Warsaw and Poznan Exchange Programme, (For Details See Warsaw), 8.0, See Warsaw, 9.5, See Cracow, 10.0, Musical Programme, 11.0 (approx.), Close Bown.

LYONS

LA DOUA, 644 k/cs, 465.8 metres; 15 kW.--7.30 p.m., Radio Gazette for Lyons and the South East. 8.30, Choral Concert, conducted by Wist.

MADRID

MADRID

ARANJUEZ (EAQ), 10,000 kc's, 30 metres; 20 kW.—6.0 'to 8.0 p.m., Programme for Listeners in the Canary Islands, Gninea and Europe. 6.0, Popular Concert. 7.15, Talk. 7.30, Light Music. 8.0 to 10.30, Interval, 10.30, Concert of Popular Music. In the interval at 10.45, Radio Chronicle. 11.40, Light Music. 12 Midnight to 1.0 a.m. (Sunday), Concert arrange i by the International Broadcasting Company of London. 12 Midnight, Dance Music. The School Song; Sweetheart Darini; There's a Clabin in the Pines; Jog Along; I cover the Waterfront; I've told every little Star; In the Valley of the Moon; Hold Me; Two Buck Tim; Tony's Wife. 12.30 a.m. (Sunday), Hawaiian Music. Klima; Kamsehanola March; Hawaiian Hotel; Manilla Moon (Gaston); Bone Festa; Hawaiian Love (Gaston); O Sole mio (di Capua); On a fixtle Street in Honolulu (Shermann). 1.0, I.B.C. Good-night Melody and Close Down.

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange, Topical Talk and Talk by Teodoro de Iradier, followed by Dance Music. In the interval: Talk on Hygiene. 8.15, Radio Journal. 8.30 to 9.15, Interval. 9.15, English Lesson. 9.30, Chimes, Time and Radio Journal. 9.45 (approx.), Music Competition—Part 1: Violin Recital by Eduardo Hernandez; Concerto, Op. 26 (Bruch); Nocturne (Chopin.Sarasate); Caprice vicinois (Kreisler); The Hight of the Bumble Bee (Rimsky-Korsakov); Spanish Dances (Falla-Kreisler). Part 11: Song Recital. Air from Doña Francisquita (Vives); Lullaby (Gretchaninov); Amor y. odio (Granados); Arias from The Barber of Seville (Rossini); Figaro (Mozart): and Carmen (Bizet); Song from Marina (Arrieta). In the interval: Literary Talk. 1.45, Radio Journal. 12 Midnight, Chimes and Close Down.

MALMO.-See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

MORAYSKA-OSIKAVA

1,137 kc s, 263.8 metres; 11 kW.—5,25 p.m.,
Concert of Light Musie by the Station Orchestra, conducted by Blaha. 6.0, See
Prague. 6.25, Variety Concert by the
Station Wind Quartet and the Station Orchestra. Conductor: Plichta. Soloist:
Madina (Songs). 7.25, See Prague. 8.0,
See Brno. 9.9, See Prague. 9.15 till Close
Down, See Bratislava. 10.30 (approx.), Close
Down

MOSCOW

KOMINTERN (RW1). 202.5 kc/s, 1.431
metres; 500 kW.—3.30 p.m., Talk: Agricultural Labour. 4.30, Red Army Programme.
5.30, Programme for Collective Farm
Workers. 6.30, Talk: The Tenth Anniversary of the Ukraine Republic, followed by
Announcements. 7.0, Programme of Works
of Saltikov-Schedrin. 8.55, Chimes from
the Red Square. 9.5, Talk in French:
Women in Soviet Russia. 10.5, Talk in
Spanish: The Soviet Oil Wells Workers.

MOTALA .-- See Stockholm.

MUHLACKER .- Sec Stuttgart.

MUNICH

MUNICH
563 kc/s, 533 metres; 1.5 kW. Relayed by
Augsburg and Kaiserslautern, 536 kc/s, 560
metres; and Nürnberg, 1,256 kc/s, 239 metres.
-3.0 to 5.10 p.m., See Leipzig. 5.10, Programme for Young People. 5.50, Wireless
Notes. 6.0, Transmission for all German
Stations, relayed from Langenberg. 7.0, See
Leipzig. 7.10, See Breslau. 9.0, See Leipzig.
9.20, Weather and Announcements. 9.40,
Serenade by the Small Station Orchestra,
conducted by Erich Kloss. 12 Midnight,
Close Down.

NAPLES .- See Rome.

NOTTODEN.-See Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc, s, 368.1 metres; Hamar, 522 kc, s, 574.7 metres; Porosgrund, 662 kc/s, 453.1 metres; and Rjukan, 671 kc/s, 447.1 metres; and Jelöy LCL, 6,990 kc/s, 42.92 metres.—3.30 p.m., Gramophone Music 4.15, Programme for Children. 5.15, Hardanger Fiddle Recital of National Music and Talk, relayed from Bergen, 324 kc/s, 364 metres. 5.45, Talk on Economics. 6.0, Announcements, Weather and News. 6.30, Talk. 7.0, Time. 7.1, Concert by the Station Orchestra, conducted by Hugo Kramm. Overture Juan de Faris (Boieldien); Suite, No. 1 and 2 from L'Arlésienne (Rizet); Minuct (Kristoffersen); Devil Dance (Kiula); On Wings of Song (Mendelssohn); Melodies (Borth); I'n peu d'amour (Silesu); Melody (Gröndahl); Summer Song (Petersen-Berger); Dance (Heykens); Pirce (Leijdström); Suppé Potpourri (Morent). 8.15, Mikkjel Fönsbus reads from his Own Works. 8.40, Weather and News. 9.0, Topical Talk, 9.15, Review of the Weck and Songs by Kyktemann. 9.35, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

OSTERSUND.—See. Stockholm.

PALERMO

556 kc s, 539.5 metres; 3 kW.—7.0 p.m., Dopolayoro Announcements, Tourist Report, Agricultural Notes and Giornale Radio, 7.20, Gramophone Music. In the interval at 7.25, Sports Notes and at 7.30, Time and Announcements, 7.45, Fascino azzurro—Operetta in Three Acts (Bellini). In the intervals, Talk and Announcements, 10.0, Giornale Radio.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kg/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).— 5.45, Le Journal Parlé. 7.15, Weather and News. 7.30, Dramatic Programme. Two Plays: Wir**eless** World

(a) Gringoire (Théodore de Banville), (b) Je veux m'en aller (Tristan Bernard). 9.0, (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Weber Concert (on Gramophone Records). 7.15, Le Journal Parlé. 7.30, Le Carnaval des animaux (Saint-Saeins), on Gramophone Records. 7.50, Talk: The Event of the Week. 8.0, Theatre Review. 8.10, Event of the Week. 8.10, Sponsored Programme. 9.0, Interval. 9.20, Jazz Music and Dance Music, conducted by Lucien Moraweck. 11.30, News.

PARIS

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725
metres; 75 kW.—6.45 a.m., Physical Culture.
7.0, Interval. 7.30, Weather and Physical
Culture (contd.). 7.45, Gramophone Music.
8.0, Weather and Press Review. 8.30, Interval. 9.30 a.m., Concert by the Conservatoire Concert Society. 11.30, Interval. 12 Noon, Gramophone Concert of Light
Music. 2.0 p.m., Iuterval. 3.0, Programme
for Children. 3.45, Exchange. 3.50, Interval. 6.20, Weather, Agricultural Talk
and Exchange. 6.45, Gramophone Music.
Nogent sur Marne (Paradis); La saison des
minosas (Claret-Cabriello); Reviens (Fragson-Christiné); Pour un seul amour (Cabaroche); Mariquitina (Borel-Ciere). 7.0,
Talk. 7.20, Gramophone Music. 7.30, Concert. La ronde des petits oiseaux bien sages
(Dalcroze); Waltz, La cocarde de Mimi Pinson (Coublier); Brise Argentine (Daquin);
Catari, Catari (Cardillo), Le rugissement du
tigre. 7.45, Prèss Review, Commercial Prices
and News. 8.0, Literary and Musical Programme. Music and Poems of the Sixteenth,
Seventeenth and Eighteenth Century by the
Henri Casadesus Society of Old Instruments.
Soloists: Mme. Ritter-Ciampi, Berthe Bovy
and Pierre Faubert. Le jardin des amours
(Mouret): Recitations; Viola d'amore and
Treble Viol: La chasse (Lorenziti); Melodies; Trehle Viol Solos: (a) Concerto (Somis),
(b) Minuet (Leclair), (c) Rondo (Sacchini);
Recitations; Petite symphonie (Marais);
Harpsichord Solos: (a) Prelude and Fugue
(Bach), (b) Sonata (Scarlatti), (c) Tic-TocChoc (Couperin); Songs; Viola d'amore
Divertissement (Cimarosa); Les récreations
de la campagne (Clement). In the intervals
at 8.30, News, Weather and Sports Notes,
and at 9.16, Press Review and News.

PITTSBURGH

PITTSBURGH

KDKA, 980 ke/s, 306 metres; 50 kW. Relayed
by W8XK on 48.86 metres and 25.27 metres.

-7.0 to 10.30 p.m., New York Relay. 7.0,
Musical Originalities. 7.30, Concert Echoes.
8.0, Words and Music. 8.30, Wealth of
Harmony. 9.0, Dance Masters. 9.30, Concert
Favourites. 10.0, Casino Orchestra. 10.30, A
Recreo—Bill and Alex. 10.45, Orphan Annie,
from New York. 11.0, News. Pat Haley.
11.15, Sports, Programme Preview. 11.30,
Evensong. 11.46, Programme to be announced.
12 Midmight, Ernie Holst's Orchestra. 12.30
to 3.0 a.m. (Sunday), New York Relay. 12.30,
Trio Romantique. 12.45, O'Leary's Minstrels.
1.0, Waldorf Orchestra. 1.30, Sous les Ponts
de Paris. 2.0, Jamboree. 3.0, Behind the
Law.

PORSGRUND.—See Oslo.

POZNAN

POLIVAN

897 kc/s, 334.4 metres; 1.9 kW.—5.20 p.m.,
Nowowiejski in an Organ Recital of his Own
Works, relayed from the Jesuit Church. 6.0,
Programme Announcements. 6.5, Announcements. 6.25, See Warsaw. 6.40, Sports Notes.
6.47 till Close Down, Warsaw and Poznan
Exchange Programme. 11.0 (approx.), Close
Down.

PRAGUE

PRAGUE
614 kc/s, 488.6 metres; 120 kW.—3.0 p.m.,
Jazz Music by Dvorsky and his Melody
Boys. 3.50, Talk for Children. 4.15, Talk
on Commerce. 4.25, Gramophone Music.
4.35, Czech Lesson for Germans. 4.50,
Gramophone Music. 5.5, Agricultural Talk.
5.15, Talk for Workers: The Olympic Games
5.25, News in German. 5.30, German Transnission: Winder reads from his own Works.
6.0, Time, News and Weather. 6.10, Talk:
Painting Books for Children. 6.25, See
Moravska-Ostrava. 7.25, Gramophone Concert. 8.0, See Brno. 9.0, Time. News,
Daily Review and Sports Notes. 9.15, See
Bratislava. 10.30 (approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE
SOTTENS, 743 kc/s, 403 metres; 25 kW; and
Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15
a.m. (from Lausanne), Gymnastics. 11.28,
Time Signal from Neuchâtel Observatory.
11.30, News and Weather. 11.40, Soldiers
Songs. 12 Noon (from Lausanne), Financial Notes. 12.5 p.m. (from Lausanne),
Gramophone Concert. 12.45 (from Lausanne),
Gramophone Concert. 12.45 (from Lausanne),
News and Answers to Correspondence. 1.0, Interval. 2.58, Time Signal from
Neuchâtel Observatory. 3.0 (from Lausanne),
Concert by the Radio-Lausanne Orchestra, conducted by Moser. Part I: Light;
Music. Part II: Folk Music. Part III:
Dance Music. 3.45, Variety Concert, relayed from Lugano. 5.0 (from Geneva),
Talk for Young People: The Life of Fran.
cois Couperin. 5.40 (from Geneva), Talk
on Films. 6.5 (from Geneva), Talk on the
New Road Laws. 6.30 (from Geneva), Radio

DEC. 9th SATURDAY continued

Chronicle. 6.59, Weather Report. 7.0, (from Geneva), Accordion Solos by Rosso. 7.15, Song Recital by Harry Marc. 7.35, Xylophone Solos by Marthe Reubi. 7.50, (from Geneva), Variety Programme by the Melody Dance Band. conducted by Pasche. 8.50, News and Weather. 9.0 (from Geneva), Talk: The Work of the League of Nations. 9.30 (from Geneva), Dance Music on Gramophone Records. 10.30 (approx.), Close Down.

REYK JAVIK

250 kc/s, 1,200 metres; 21 kW.—7.45 p.m., Programme for Children. 8.10, Weather. 8.20, Musical Programme and Announcements. 8.35, Programme to be announced. 9.0, Chimes and Concert by the Radio Trio. 9.30, Reading. 10.0, News. 10.30, Gramophone Concert of Songs, followed by Dance Music. 1.0 a.m. (Sunday), Close Down.

RIGA

KILA

571 kc/s, 526.3 metres; 15 kW.—4.30 p.m.,
Organ Recital by Arvids Predelis: Prelude
and Fugue in C (Bach); Prelude to Lohengrin (Wagner-Straube); Procession and
Toccata (Dubois). 5.0, French Lesson. 6.28,
Weather. 5.30, The Sea Wolves—Play in
Three Acts (Waldess), relayed from the
Arts Theatre. In the intervals: News. 8.0,
Weather. 9.0, Dance Music by the Vlaseks
Band. 10.0 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

ROME
Call 1R0, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres from 7.45 p.m., and 2R0, 11,810 kc/s, 25.4 metres.—12 Noon to 1.15 p.m., Orchestral Concert. In the intervals from 12.30 to 12.46, Giornale Radio and Exchange. and at 1.0, Time and Announcements. 3.30, Children's Radio Review. 3.55, Giornale Radio and Report of the Royal Geographical Society. 4.10, Weather. 4.15 to 5.0, Orehestral Concert of Light Music. 5.40 (Naples), Shipping and Sports Notes. 5.45, Lesson in Morse and Dopolavoro Report. 6.0, Tourist Report. 6.10, Wheat Market Report. 6.20, News in Foreign Languages. 7.0, Time and Announcements. 7.20, Talk. 7.30, Giornale Radio and Sports Notes. 7.45, La Sonnámbula—Opera in Three Acts (Bellini). In the intervals, Talk: The Patron Saists of the Theatre and Talk on Science. Giornale Radio after the Opera.

SALZBURG.—See Vienna.

SCHENECTADY

SCHENECIADY
WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres, and by W2XAF on 19.56 metres.—12.45 am. (Sunday), Stock Reports. 1.0, Variety Programme. 1.30, Antobals Cubans, from New York. 1.45, Variety Programme. 2.0 to 4.0, New York Relay. 2.0, Baron. Munchhausen; Orchestra. Soloists. 2.30, Leo Reisman's Orchestra; Yacht Club Boys. 3.0, Hudson Saturday Night Dancing Party. 4.0, Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

LANDESSENDER

BEROMUNSTER. 653 kc/s, 459 metres; 60
kW; Basle, 1,229 kc/s, 244.1 metres; and
Berne, 1,220 kc/s, 245.9 metres.—6.50 to
6.5 a.m. (from Berne), Gymnastics. 11.0)
(from Berne), Violin Recital from Yehudi
Menuhin (on Gramophone Records). 11.29,
Time Signal from Neuchâtel Observatory,
Weather and News. 11.40 (from Berne),
Talk: The Weck in the Federal Assembly,
followed by Gramophone Music. 12.15 p.m.,
(from Berne), Songs. 12.25 (from Berne),
Time, Weather and Exchange. 12.30 (from
Zürich), Request Gramophone Music. 12.45
(from Zürich), Book Review. 1.15 (from
Zürich), Concert by the Trogen String Orchestra. 1.45 (from Zürich), Technical
Talk. 2.0 to 3.0, Interval. 3.0, (from
Zürich), Accordion Concert. 3.45, Variety
Concert, relayed from Lugano. 5.0 (from
Basle), Opera and Operetta Music on
Gramophone Records. 5.30 (from Basle),
Medical Talk. 6.0, Chimes from Zürich
Churches. 6.15 (from Basle), Time, Weather
and Market Prices. 6.20 (from Basle), Talk:
Itali-an-Hour in a Cow-Herd's Hut on
Stockhorn. 6.50, (from Basle), Talk:
Itali-an-Hour in a Cow-Herd's Hut on
Stockhorn. 6.50, (from Basle), Talk:
Itali-an-Hour in a Cow-Herd's Hut on
Stockhorn. 6.50, (from Basle), Talk:
Itali-an-Hour in a Cow-Herd's Hut on
Stockhorn. 6.50, (from Basle), Talk:
Itali-an-Hour in a Cow-Herd's Hut on
Stockhorn. 6.50, (from Basle), Itale:
Itali-an-Hour in a Cow-Herd's Hut on
Stockhorn. 6.50, (from Basle), Itale:
Itali-an-Musiksaal. 9.0 (approx.), Weather
and News. 9.10 (approx.) (from Basle).
Dance Music on Gramophone Records. 10.0
(approx.), Close Down.
SOTTENS.—See Radio-Suisse Romande.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

SIOCKHOLM

889 kc/s, 436 metres; 55 kW. Relayed by

Boden, 242 kc/s, 1,239.5 metres; Göteborg,

932 kc/s, 322 metres; Hörby, 1,167 kc/s,

257 metres; Motala, 222.6 kc/s, 1,348 metres;

Ostersund, 402 kc/s, 746.2 metres; and

Sundsvall, 554 kc/s, 542 metres.—3.0 p.m.,

Choral and Orchestral Concert relayed from

Orebro, 1,265 kc/s, 237.2 metres. Soloists:

Ragnar Thanderz (Baritone) and Fredrik Möller (Violin); Swedish Folk Songs; Och gossen gick sig ut i morgonstund (Dabigren); Vill sig Amor uppenbara (arr. Felix Körlin); Violin Solo: Meditation from Thais (Massenet); Selection from Ran (Peterson-Berger); Baritone Solos: (a) Nonc but the Lonely Heart (Tchaikovsky), (b) Song (Eriksson), (c) Gloria in excelsis (Hurum); Piece for Baritone, Choir and Orchestra (Rantzen); Song for Choir and Orchestra (Schumann). 4.5 (from Sundsvall), Programme for Children. 4.30, Gramophone Music. 5.15, Stockholm-Paris Cabaret Programme. 5.15, Weather and News. 6.30 (from Göteborg), Talk: The Swedish Language. 7.0 to 11.0, Radio Ball. 7.0, Old Dance Music by Bernhard Janssons' Band. 7.30, Humorous Items by Nergärds-Lusse. 7.45, Old Dance Music by Sigurl Agrens' Orchestra. 8.45, Weather and News. 9.0, A Lesson in the Tango. 9.15, Modern Dauce Music by Hanns Bingang's Orchestra. 10.15, Dance Music by Hakan von Eichwald's Orchestra.

STRASBOURG

STRASBOURG

869 kc/s, 346 metres; 11.5 kW.—11.30 a.m., Gramophone Music. 12 Noon, Orchestral Concert. conducted by de Villers. Overture, Zampa (Héroid); Ballet égyptien (Luigini); Six Impressions. (Gabriel-Marie). 12.45 p.m., News. 1.0, Time. 1.1, Concert (contd.). 2.0, Legal Talk in German. 2.15, Gramophone Music. 3.0, Talk on Music: Arnold Schönberg. 3.15, Interval. 4.0, Gramophone Concert. 6.0, Concert, arranged by the Pasdeloup Orchestral Society, relayed from the Théâtre des Champs-Elysées, Paris, 7.0, French Lesson. 7.15, Horticultural Talk in German. 7.30, Time and News. 7.45, Press Review in German. Lottery Results and Announcements. 8.30, Choral Concert by the Association Artistique de Chanteurs de Lyou, relayed from the Conservatoire, Paris. Three Old Russian Chants; L'Histoire de Malbrouck (d'Indy); First Vocal Symphony (de Rause); Four Part Songs (de Motaney-Michet); Berceuse (Casadesus); Basque Song: Extracts from the Missa Papae Marcelli (Palestrina); The Battle of Marignano (Jannequin); Two Madrigals (Monteverdi-d'Indy); Three Songs (Ravel). 10.30 (approx.), Press Review. 10.35 (approx.), Dance Music, relayed from the Savoy Dance Hall. 12 Midnight, Closc Down.

STUTTGART

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MUHLACKER, 832 kc/s, 360.5 metres; 1.5 kW. Relayed by Freiburg, 527 kc/s, 570 metres.—12.15 p.m. to 12.35, See Frankfurt. 12.35 to 2.15, See Langenberg. 2.16, Morse Lesson. 2.30, Recital of Accordion Duets: March, So geht's zua bei uns in Wean (Hornischer); Waltz, Münchner Kindl (Komzak); Volksliedchen und Märchen (Komzak); Waltz, Sirenenzauber; Parpharase on the Song. Ein Vöglein sang im Lindenbaum (Eberle); Wiener Fiakerlied (Prik). 3.0 to 5.35, See Frankfurt. 5.35, Talk: Fifty Years of Electric Lighting. 5.50, Time and Weather. 6.0, Transmission for all German Stations relayed from Langenberg. 7.0, See Frankfurt. 7.10, Bunte Stunde. 8.0, Concert by the Station Orchestra, conducted by Ferdinand Drost. 9.0, See Frankfurt. 9.20, Topical Talk. 9.30, Local News, Weather and Sports Notes. 9.45 to 11.0, See Frankfurt. 11.0, Serenade. 1.0 a.m. (Sunday), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

TOULOUSE

RAD10PHONIE DU MIDI, 779 kc/s, 385
metres; 8 kW.—6.0 p.m., News. 6.15, Military Music. 6.30, Chansonnettes. 6.45, Music by an Argentine Band. 7.0, Sound Film Music. 7.15, News. 7.30, Extracts from Ronieo and Juliet (Berlioz), by the Symphony Orchestra. 7.46, Light Music. 8.0, Operetta Music: Vilja's Nong from The Merry Widow (Lehâr); Selection from Azor (Gabaroche); Selection from The Dubarry (Millöcker-Mackeben). 8.15, Opera Music: Arias from Lakmé (Delibes), Carnen (Bizet), Werther (Massenet), and The Barber of Seville (Rossini). 8.30, Military Music. 8.45, Accordion Solos. 9.0, Programme of Choral, Accordion and Orchestral Music. 10.0, Opera Music: Recitative and Cavatina from Figaro (Mozart); Arias front: (a) Hamilet (Thomas), (b) Hérodiade (Massenet), (c) La Favorita (Donizetti). 10.16, News. 10.30, Concert for Listeners in Morocco: Overture, Preciosa (Weber); German Dances (Mozart); Songs from the Land of Smiles (Lehâr), Azor (Gabaroche), White Horse Inn (Stolz-Benatzky), and Katinka (Latjai). 11.0, Request Music. 11.15, Dance Music. 12 Midnight, News. 12.5 a.m. (Sunday), Chansonnettes. 12.15, Music by an Argentine Band. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—4.10 p.m. till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

HURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 598 kc/s, 501.6 metres.—4.10 p.m., Cliamber Music on Grannophone Records. Sicilienne (Paradie); Adagio (Tartini); Pietà, Signor (Stradella); Aria from Kina (Pergolesi); Suite in A (Vivaldi); Sento nel cuor (Scarlatti); Clair de lune (Lully); Trio in G (Haydin). 6.0, Weather Forecast. 5.40, Giornale Radio, Dopolavoro Notes and Grannophone Music. 6.0, Time, Announcements and Gramophone Music. 6.10, Agricultural Notes and Wheat Market Prices. 6.20, News in Foreign Languages. 6.40, Grannophone Music. 7.0, Announcements, Giornale Radio and Weather. 7.20, See Rome. 7.30, Talk. 7.45, Variety Programme. 8.45, Book Review. 9.0, Dance Music. 10.0, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in Various Languages. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 562 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres; 11.0 a.m., Concert by the Volksoper Orchestra, conducted by Philipp de la Cerda; Overture, Donna Diana (Reznicek); Selection from The Egyptian Helen (R. Strauss); Two Pieces (Goldmark): (a) Brautlied, (b) Im Garten; Sicilian Suite (Marinuzzi); Overture, The Bird Fancier (Zeller-Bauckner); Two Intermezzi from The Jewels of the Madonna (Wolf-Ferrari); Waltz from Gipsy Love (Lehar); Overture, Josephine Gallmeyer (Knepler); Waltz Song, Hast du noch nie von der Liebe geträumt (de la Cerda); Potpourri, Wiener Spezialitäten (Hruby); Emil Fey March (Altmann). In an interval at 12 Noon, Time and News. 1.0 p.m., Interval. 2.0, Time and Announcements. 2.10, English Lesson—Reading of Act I of The Importance of being Earnest (Oscar Wilde). 2.40, Talk: Bad German, Spoken and Written. 3.5, Concert by the Vienna Mandoline and String Ensemble. 3.45, Reading (Georg Britting). 4.10, Concert of Sacred Music by a Boys' Orchestra and Choir, conducted by Leopold Daxsperger. 4.40, Topical Talk. 5.15, A Visit with the Microphone to a Sugar Factory at Lorch, near Enns. 6.0, Beethoven Pianoforte Recital by Walter Kerschbaumer: Sonata, Op. 10, No. 3, in D; Sonata. Op. 111, in C minor. 6.50, Time and News. 7.0, To-day's Motto. 7.5, Austria—Radio Sequence. 8.50, News. 9.5, Concert by the Wiener Symphoniker, conducted by Max Schwalbennest (Graniclistaedten); Selection from Der arme Jonathan (Millöcker); Two Airs from Das Schwalbennest (Graniclistaedten); Selection from Der liebe Augustin (Fall); Waltz from The Gipsy Princess (Kalman); Overture, Der Göttergatte (Lehár); March from Der fliegende Rittmeister (Dostal). After the Concert, Announcements.

WARSAW

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212.5 kc/s, 1,411 metres; 120 kW.—10.57 a.m., Time Signal and Fanfare from St. Mary's Church, Cracow. 11.5, Italian Songs on Gramophone Records. 11.30, Radio Journal. 11.35, Weather. 11.38, Light Music on Gramophone Records. 12 Noon, Interval. 2.25, Announcements and Economic Notes. 2.40, Music from Forgotten Sound Films on Gramophone Records. 2.55, Aviation Notes and Anti-Gas Drill. 3.0, Programme for Invalids, relayed from Lwów, 788 kc/s, 381 metres. 3.40, French Lesson. 3.55, Concert of Light Music—Songs and Duets. 4.50, Agricultural Notes. 5.0, Talk, relayed from Cracow, 959 kc/s, 312.8 metres: Sleeping Sickness. 5.20, Programme from Poznan, 897 kc/s, 334.4 metres. 6.0, Programme Announcements. 6.5, Miscellaneous Items. 6.25, Reading. 6.40, Sports Notes. 6.47, Radio Journal. 7.0, Programme from Poznan. 8.0, Wireless Notes. 8.15, Interval. 8.20, Chopin Planoforte Recital by Mme. Familier-Hepner: Balladi nf. 7, Op. 38; Waltz in C sharp minor, Op. 64, No. 2; Fantasia-Impromptu in C sharp minor; Two Mazurkas, Op. 33, No. 1, and Op. 67, No. 4; Etude in C sharp minor, Op. 10, No. 4; Polonaise in A flat, Op. 53. 9.5, Humorous Programme, relayed from Cracow. 10.0, Weather and Police Notes. 10.5, Dance Music on Gramophone Records.

ZAGREB

977 kc/s, 307 metres; 0.75 kW.—4.0 p.m., Trio Concert. 6.25, Talk. 6.45, Announce-ments and News. 7.15, Soprano Song Re-cital. 7.45, Programme by a Mandoline and Guitar Orchestra. 8.45, Dance Music. 9.0, News, Weather and Programme Announce-ments. 9.15, Dance Music. 10.0 (approx.), Close Down.

ZURICH.-See Schweizerischer Landessender.



PRINCIPAL BROADCASTING STATIONS OF EUROPE

Arranged in Order of Wavelength

Metres.	kc/s.	kW.	Station.	Tuning Positions.	Metres.	kc/s.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania)		363.6	825	13	Algiers (Algeria)	
875	160	8.5	Huizen (Holland) (Kootwyk, 50kW., after 3.40 p.m.) (K.R.O. and N.C.R.V. programmes.)		360.6	832	1.5	Mühlacker (Stuttgart) (Germany) (temporarily on low power)	
796 725	167	50	Lahti (Finland)		355.9	843	50	London Regional (Brookmans Park)	
35	$174 \\ 183.5$	75 60	Radio Paris, CFR		352.1 349.6	852 858	7.6	Graz (Austria). (Relays Vienna)	
		"	(SW. Stn. D.J.1 on 31,38 m., DJB on		348.8	860	10	Leningrad, RV70 (Russia)	
	14.0		19.73 m., DJC on 49.83 m., DJD on 25.51 m., DJE on 16.86 m.)		345.2	869	11.5	Strasbourg, PTT (France)	
554.4 546	$\frac{193}{194}$	30 7	Daventry National		341.7 337.8	878 888	35 15	Brno (Brunn) (Czechoslovakia) Brussels II Velthem (Belgium). (In Flemish)	
181	202.5	500	Moscow, RV1 (Russia) (SW. Stn. on 25m.)		335	896	5	Cadiz (Spain)	
146	207.5	13	Eiffel Tower, FL, Paris Warsaw I (Poland)		334.4	897	1.9	Poznan (Poland)	.
112 180	$212.5 \\ 217.5$		Novosibirsk, RV76 I (Russia)		332.2	$\frac{903}{914}$	50 62	Milan (Italy). (Relays Turin) Poste Parisien (France)	
348	222.5	30	Motala (Sweden). (Relays Stockholm)	<i></i> .	325	923	60	Breslau (Germany)	
200	$\frac{250}{250}$	5 21	Stamboul (Turkey) Reykjavik (Iceland)		321.9 318.8	932 941	10	Göteborg (Sweden). (Relays Stockholm) Dresden (Germany). (Relays Leipzig)	[· · · · · · · · · ·
90	252	200	Luxembourg		318.8	941	1.5	Naples, INA (Italy). (Relays Rome)	l
70	256	25	Tashkent, RVII (Russia)		315.8	950	1.6	Marsemes, P11 (France)	
54 54	$\frac{260}{260}$	30 20	Kalundborg (Denmark). (Relays Copenhagen)		312.8 312.8	959 959	1.7	Gracow (Poland)	
17	$\frac{268.5}{268.5}$	40	Monte Ceneri (Switzerland)		309.9	968	50	West Regional (Washford Cross)	
083	277	60	Oslo (Norway)		307	977	0.7	Radio Vitus (Paris). (SW. Stn. on 43.75 m.)	
071	$\frac{280}{290}$	35 36	Tiflis, RV7 (Russia) Kiev, RV9 (Russia)		307 304	$\frac{977}{986}$	0.75 13	Zagreb (Yugoslavia) Bordeaux Lafayette, PTT (France)	
100	300	100	Moscow RV49 (Russia). (SW. Stn. on 50 m.)		301.5	995	50	North National (Manchester)	
938 357	$\frac{320}{350}$	20	Kharhov, RV4 (Russia)		298.8	1004	11 20	Tallinn (Estonia)	
40	357	100 18.5	Leningrad (Russia) Budapest (Hungary)		296.1	1013	20	Hilversum (Holland). (7 kW. before 4.40 p.m.)	• • • • • • • •
300	375	50	Sverdlovsk, RV5 (Russia)		293.5	1022	0.7	(V.A.R.A., A.V.R.O. and V.P.R.O. programmes.) Limoges, PTT (France)	
750 720	400 416.6	1.3 20			293.5		2.6	Kosice (Czechoslovakia)	
389	436	1.5	Oulu (Uleaborg) (Finland)		291	1031	13.2	Viipuri (Viborg) (Finland). (Relays Helsinki)	
574.7	522	0.7	Hamar (Norway) (Relays Oslo)		288.3 288.3	1040 1040	50 1	Scottish National (Falkirk) Bournemouth. (Relay Station)	• • • • • • • • •
74.7	$\frac{522}{527}$	7 0.25	Ljubljana (Yugoslavia) Freiburg (Relays Muhlacker)		286	1049	0.8	Montpellier (France)	
68.1	528	2	Grenoble (France)		284.8	1053	0.7	Lyons (Radio-Lyon) (France)	
65	531	16	Wilno (Poland). (Relay Station)		283.6 283.6	$\frac{1058}{1058}$	0.5 0.5	German Relays (Berlin, Magdeburg, Stettin) Innsbruck (Austria). (Relays Vienna)	
60 50	$\frac{536}{545}$	1.5 18.5	Kaiserslauten and Augsburg (Kelay Munich) Budapest No. I Lakihegy (Hungary)		282.2		2	Lisbon CT 1AA (Portugal). (Short-wave	
42	554	10	Sundsvall (Sweden). (Relays Stockholm)		281.2	1067	0.75	Station on 31.25 m.) Copenhagen (Denmark)	
539.6	556	3	Palermo (Italy)		278.8		13.5	Bratislava (Czechoslovakia)	
533 525	$\frac{563}{571}$	60 15	Munich (Germany)		276.5	1085	60	Heilsberg (Germany)	
17.2	580 5	100	Vienna (Bisamberg) (Austria)		273.7 271.5		7 1.3	1 *	
01.6	589 598	20 15	Brussels No. 1, Velthem (Belgium). (In French) Florence, 1FI (Italy) (Relays Turin)		269.8	1112	20	Bari (Italy) (Relays Rome)	
95.8	605	1.2	Tröndelag (Norway)		267.6		0.75	Valencia (Spain)	
88.6	614	120	Tröndelag (Norway)		267.4 265.8		6.25 1.3	Nvireghaza (Hungary). (Relays Budapest) Lille, PTT (France)	
180 172.4	625 635	50 60	North Regional (Manchester)		263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)	
65.8	644 ;	1.5	Lyons la Doua, PTT (France)		261.5 259.3		50 17		• • • • • • • •
59.4	653	60	Beromünster (Schweizerischer Landessender)		259.3	1157	2.3	Trier and Cassel. (Relay Frankfurt)	
53.2	662		(Switzerland). San Sebastian, EAJ8 (0.6 kW.); Klagen.		257.1	1167	10	Hörby (Sweden). (Relays Stockholm)	
53.2	ĺ	0.05	furt (0.5 kW.) (Austria) (relays Vienna),		255.1 253.1	1176 1185	0.7 5		
53.2	662 662	0.25 4	Agen (France)		252	1193	1	Barcelona, EAJ15 (Assoc. Nat.) (Spain)	
51.8	664	20	Madona (Latvia). (Relays Riga)		249	1205	0.8		
47.1 47.1	671 671	0.5 7	Danzig (Relays Heilsberg)		247.7 245.9	1211 1220	10	Berne (0.5kW \(/Switzerland)\(/relaus Recombin.	<i></i>
41.2	680	50	Rome, IK(). (ŜW. Station, 2RO on 25.4 m.)		-1010			ster); Eskilstuna (0.2kW.), Süffle (0.4 kW.)	
35.4	689	55 2.5	Stockholm, SASA (Sweden) Belgrade (Yugoslavia)					ster); Eskiistuna (0.2kW.), Säfffe (0.4 kW.) (Sweden) (relays Stockholm); Linz (0.5 kW.) (Austria) (relays Vienna); Turku (Abo) (0.5 kW.) (Finland) (relays Helsinki).	
29.7 24.3	698 707	2.5	Madrid, EAJ7 (Union Radio)		244.1	1229	0.5	Basic (Switzerland). (Relays Beromunster)	
24.3	707	100	Moscow, Imini Stalina (Russia)		242.3	1238	1	Belfast (N. Ireland)	.
19 16.4	716 720.5	1.5 5	Berlin, Funkstunde (Germany)		240.6 238.9	1247 1256	0.5 2	Stavanger (Norway)	
13	725	60	Athlone (Irish Free State)		238	1260	1	Nimes (France)	.
08.7	734	16	Katowitz (Poland)		237.2	1265	3 0.5	l · · · · · · · · · · · · · · · · · ·	
03.8 98.9	743 752	25 25	Sottens (Radio Suisse Romande) (Switzerland) Midland Regional (Daventry)		235.5	1274 1283	1.65		
94.2	761	12	Bucharest (Koumania)		232.2	1292	0.25	Kiel (Germany). (Relays Hamburg)	
89.6	770	120	Leipzig (Germany)		230.6	1301	}		
35.1 35.1	779 779	8 10	Toulouse (Radiophonie du Midi) (France)		227.4	1319		Hamburg)	
81	788	16	Lwow (Lemburg) (Poland)		225.9	1328	10	Fécamp, Radio-Normandie (France)	
76.4	797	50	Scottish Regional (Falkirk)		224.4 219.9	1337 1365	1 1.5		
72.2 68.1	806 815	1.5			219.9	1373	0.2	Plymouth	
	210		Galicia EAJ4 (0.2 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Ilelsinki (10 kW.) (Finland) (relays Lahli); Kharkov, RV20 (10kW)	• • • • • • • • •	218.5	1373	0.5	Salzburg (Austria). (Relays Vienna)	
			land) (relays Lahti): Kbarkov, RV20 (10kW)		217 217	$\begin{array}{c} 1382 \\ 1382 \end{array}$	1.2 0.5	Königsberg (East Prussia). (Relays Heilsberg)	
68.1	815	0.7	Fredriksstad (Norway). (Relays Oslo)		214.3	1400	1	Aberdeen	
36.7	818 824	0.8	Radio, LL, Paris		211.3	1420	1 25	Newcastle	
34.1		1	Bergen (Norway)		2UM.8	1430	1.25	makyarovat, amskow and rees (mungary)	



SHORT-WAVE STATIONS OF THE WORLD

(N.B.-Times of Transmission given in parentheses are approximate only and represent G.M.T.)

Metres.	kc/s.	Call Sign.	Station.	Tuning Positions.	Metres.	kc/s.	Call Sign.	Station,	Tuning Positions.
62.56 58.31	4,795 5,145	VE9BY OKIMPT	London, Ont. (Canada). (Sun. 06.00) Prague (Czechoslovakia). (Tues. and Fri.		31.54 31.48	9,510 9,530	GSB W2XAF	Empire Broadcasting Schenectady, N.Y. (U.S.A.). (Relays W.G.Y.)	
50.26	5.970	HVJ	19.30) Vatican State, Rome. (Daily 19.00)		31.38	9,560 9,570	DJA WIXAZ	Zeesen (Germany). (Daily 22.00) East Springfield, Mass. (U.S.A.). (Relays	1
50.0 50.0	6,000	ItW59 EAR25	Moscow. (Relays Komitern Stn.) Barcelona, Radio Club (Spain). (Sat. 20.00)		31.3	9,580	HBL	WBZ) Radio Nations, Prangins (Switzerland).	1
49.83 49.67	6,020 6,040	DJC W1XAL	Zeesen (Germany) Boston, Mass. (U.S.A.)		31.29	9,585	gsc	(Sat. 22.00-22.45) Empire Broadcasting	
49.64 49.58	6,040 6,050	W4XB GSA	Miami Beach, Florida (U.S.A.) Empire Broadcasting		31.28 31.28	9,590 9,590	W3XAU VK2ME	Philadelphia, Pa. (U.S.A.). (Relays WCAU) Sydney (Australia). (Sundays)	
49.5	6,060	W3XAU	Philadelphia, Pa. (U.S.A.). (Relays		31.25	9,598	CTIAA	Lisbon (Portugal). (Tues, and Fri. 22.00-00.00)	
49.5 49.5	6,060 6,060	VQ7LO W8XAL	Nairobi (Kenya Colony). (Daily 16.30) Mason, Ohio (U.S.A.). (Relays WLW) Vancouver, B.C. (Canada)		31.0	9,675	TIINRH EAQ	Heredia (Costa Rica). (Daily 22.00 and 02.00) Aranjuez (Spain). (Daily 22.30, Sat. 18.00)	
49.43 49.40	6,069 6,075	VE9CS OXY			28.98 26.83	10,350 11,180	LSX CT3AQ	Buenos Aires (Argentina). (Daily 20.30) Funchal (Madeira). (Tues. and Thurs.	
49.34 49.22	$\frac{6,080}{6,095}$	W9XAA VE9GW	Chicago, Ill. (U.S.A.). (Relays WCLF) Bowmanville, Ont. (Canada). (Daily 20,00)		25.63	11,705	FYA	10.30-12.30) Pontoise (France). (Colonial Stn. E-W.	
49.2	6,098	ŽŤĴ	Johannesburg (S. Africa). (Weekdays 09.00) 14.00 [Sal. 14.30] and 17.00, San. 13.00		25.6	11,720	VE9JR	duily 20.30) Winnipeg (Canada). (Daily 14.30)	
49.18	6,100	W3XAL	and 16.30.) Bound Brook, N.Y. (Relays WJZ)		25.57 25.53	11,730 11,750	PHI GSD	Eindhoven (Holland) Empire Broadcasting	
49.18 49.1	$6,100 \\ 6,110$	W9XF VUC	Downers Grove, Ill. (U.S.A.) (Calcutta, India. (Daily 13.00)		25.5 25.45	11,760 11,790	W1XAL	Boston, Mass. (U.S.A.)	
49.02 48.86	$6,120 \\ 6,140$	W2XE W8XK	Wayne, N.J. (U.S.A.). (Relays WARC) East Pittsburg, Pa. (U.S.A.). (Relays		25.4	11,810 11,830	2R0 W2XE	Prato Smeraldo, Rome. (16.15-23.30) Wayne, N.J. (U.S.A.). (Relays W ABC)	
47.97 48.05	$\frac{6,250}{6,243}$	HJ3ABF HKD	KDK.1 21.19-06.00 Bogota (Colombia). (Daily 15.00) Barranquilla (Colombia). (Weekdays 23.15)		25.36 25.28 25.27	11,830 11,865 11,870	W9XAA GSE W8XK	Chicago, Ill. (U.S.A.). (Relays WCFL) Empire Broadcasting East Pittsburg, Pa. (U.S.A.). (Relays	
48.0 47.0	$6,250 \\ 6,382$	CNSMC HCIDR	Casablanea (Morocco). (Relays Rabat) Quito, Ecuador. (Daily 01.00)		25.25	11,880	FYA	KDKA 21.19-03.00)	
46.69 45.38	6,425 $6,610$	W3XL RW72	Bound Brook, N.J. (U.S.A.). (Relays WJZ) Moscow. (Relays Stalin Stn.)		25.0 23.38	12,000 12,830	ŘŇĚ CNR	Moscow. (Relays R.V.1)	
45.0	6,667	FM8KR	Constantine (Algeria). (Mon. and Fri. 22.00)		19.84 19.81	15,120 15,140	HVJ GSF	Vatican State, Rome. (Daily 10.00)	
45.0	6,667	TGW	Guatemala City (Central America). (Daily 03.00)	ĺ	19.73 19.72	$15,200 \\ 15,210$	DJB W8XK	Zeesen (Germany). (Daily 13.00-22.30) East Pittsburg, Pa. (U.S.A.). (Relays	
43.75 43.0	6,860 6,970	EARIIO	Radio Vitus, Paris. (Daily 20.30) Madrid. (Tues. and Sat. 22.30)		19.68	15,244	FYA	KDKA 15.00-21.18) Pontoise (France). (Colonial Stn. E-W)	
41.7	7,195	VSIAB	Singapore (Malay States). (Sun. and Wed. 15.30)		19.64 19.57	15,270 15,330	W2XE W2XAD	Wayne, N.J. (U.S.A.). (Relays WABC) South Schenectady, N.Y. (U.S.A.). (Daily	
40.3 38.47	7,413 7,797	HBQ HBP	Radio Nations, Prangins (Switzerland) (Sun. 22,00-22,45) Radio Nations, Prangins (Switzerland).		16.89 16.88	17,760 17,770	DJE PHI	20.00) Zeesen (Germany) Eindhoven (Holland)	
37.33	8,936	CNR	(Sal. 22.30-23.15) Rabat (Moroeco). (Sun. 21.00)		16.87 16.87	17,780 17,780	W3XAL W9XAA		
37.04 33.50	8,110 8,955	HCJB TGX	Quito (Ecuador) Guatemala City (S. America)		16.87 16.86	17.780 17,790	W9XF GSG		
31.58 81.55	9,500 9,510	PRBA VK3ME	Rio de Janeiro (Brazil). (Daily 21.30) Melbourne (Australia). (Wed. and Sat. 10.00)		13.97 13.92	21,470 21,540 24,380	GSH W8XK VE9GW		

THE RADIO INDUSTRY

I N spite of intensive development of superheterodyne circuits, the more ambitious type of straight set is not being neglected. The new "Straight Six" developed by Higgs (Great Britain), Ltd., of Hove, is an interesting example of present tendencies, having two tuned H.F. stages with iron-cored coils throughout, an H.F. pentode detector and a resist-

ance-coupled L.F. amplifier, feeding a 3-watt output valve.

Kolster-Brandes want a good title for their K-B.660 de luxe receiver, and a slogan to advertise their products. They believe in paying for good ideas, and are offering a £450 Daimler car as a prize for the best suggestions.



THE PREMIER WATCHES SET ASSEMBLY. The Rt. Hon. Ramsay MacDonald (right) during a recent visit to the "H.M.V." factory at Hayes. Other figures (right to left) are Mr. W. A. Fraser, Assembly Factory Manager, Mr. Alfred Clark, Chairman of "H.M.V." and Sir Landon Ronald, director.

The Ferranti firm have just introduced an upright receiver—the Arcadia Console—embodying a five-valve circuit with A.V.C., tuning indicator, and variable tone control.

The latest Marconi telephone and telegraph transmitter, Type S.8A, has been specially developed for use at police headquarters and commercial stations. Simple operation is a feature of the set, which covers waves between 20 and 80 metres.

Current for the wireless transmitter installed at the Mount Everest Expedition base camp was supplied by a special generator built by the Electro-Dynamic Construction Co. In spite of adverse conditions, the machine worked faultlessly.

A McMichael "Supervox" for D.C. mains is now available.

Catalogues Received

Wharfedale Wireless Works, 62, Leeds Road, Bradford.—Leaflet describing the Wharfedale extension speaker, fitted with combined volume control and on-off switch. Different models to match many well-known makes of set are available.

Triotron Radio Co., Ltd., 26, Bloomsbury Street. London, W.C.i.—"Valves for 1934," a descriptive booklet of all the current Triotron valves, with full operating data, numerous circuit diagrams, and a technical appendix.

The Ever Ready Co., Ltd., Hercules Place, Holloway, London, N.7.—Folder giving a complete list of suitable Ever Ready batteries (H.T., L.T., and G.B.) for all well-known receivers.

Harken Electrical Co., Ltd., 18a, South End, Croydon.—Leaflet describing the "Empire" receiver, covering wavelengths between 13 and 550 metres, and specially designed for overseas use.

Broadcast **Brevities**

By Our Special Correspondent

Confirming the News

The B.B.C.'s official list of its new wavelengths under the Lucerne Plan simply confirms the list first exclusively published in The Wireless World of June 23rd last, but I wonder whether readers realise that the arrangement is purely temporary.

There is to be a grand reshuffle of British wavelengths immediately the new regional transmitters are opened.

Confidential Schedule

By agreement with the International Broadcasting Union the B.B.C. will re-allot its wavelengths according to a schedule already in the hands of the Union, and this schedule cannot be altered at less than six weeks' notice. In all probability, however, it will not be altered.

Another Wavelength Shuffle

When the reshuffle takes place in 1935, the Midland Regional wavelength of 391.1 metres will go to Scottish Regional, the former then taking the 296.2 metre wavelength of North National. West Regional will take the Scottish Regional of 373.1 metres.

North-Eastern

London Regional will remain on 342.1 metres, but the new Northern Ireland transmitter near Belfast will acquire West Regional's 307.1 metre wavelength, while the 285.7 metre wave, allotted to Scottish National under the Lucerne Plan, will be transferred to the new North-Eastern Regional near Newcastle.

North Scottish

The mysterious North Scottish transmitter, whose probable whereabouts are still uncertain, will operate on 207.4 metres, which Belfast will be using until superseded by the high power station.

To complete the shuffle, Scottish National will take the 261.1 metre wavelength previously shared by the London and West Nationals. 6 6 6 6

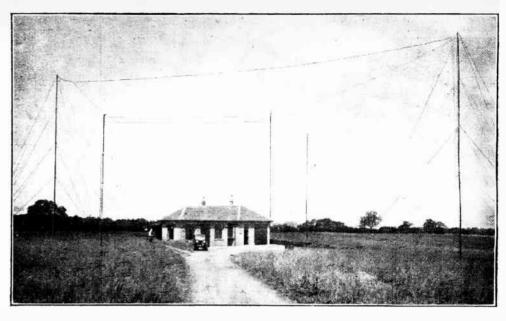
The Happy Midlands

AN anyone doubt that Midland Regional CAN anyone doubt that Midland Regional is among the brightest of the B.B.C. stations at the present time? Unlike so many "veterans," Percy Edgar, the station director, shows no sign of resting on his laurels. The Midland programmes abound in stunts and surprises.

Bring Him to London

THE artistes are keen and original. Any-• one who heard Will Gardner, whose songs and patter were relayed from Walsall on November 18th, must agree that if this comedian looked half as funny as he sounded, the audience could have been forgiven for blasting the microphone with their laughs. As it was, they applauded him to the echo.

Will Gardner has the broadcasting voice and I hope we shall soon hear him in London.



CHECKING EUROPE'S WAVELENGTHS. A general view of the B.B.C.'s checking station at Tatsfield, Surrey, which will play a prominent part in the great wavelength change-over on January 14th and 15th.

At Christmas

THE Christmas programme plans are still somewhat nebulous, but certain features are already decided upon. Pride of place must be given to the King's broadcast to his people throughout the Empire on Christmas Day. His Majesty is expected to speak from Sandringham at about 3 p.m. (G.M.T.), and will be heard, to use his own words in last year's message, by "men and women so cut off by the snows and the deserts that only voices out of the air can reach them.

Recording the Bells of Bethlehem

To avoid offending religious susceptibilities the B.B.C. has decided not to broadcast any form of service from Bethlehem on Christmas Eve. What listeners will hear will be the sound of the bells from the 1,600-yearold Church of the Nativity, built over the traditional site of Christ's birth.

It is interesting to note that the chimes will be recorded by Blattnerphone for rebroadcasting to the Empire and also, possibly, for future programme occasions.

Big Ben, and Then . . .

A strange and thrilling contrast should be afforded by the fact that the bells from Bethlehem will follow immediately after the chime of Big Ben at 8 p.m. on December

Impossible Problems

Engineers and producers alike seem to have been beaten by certain problems arising out of "Sindbad," the pantomime to be broadcast to National listeners on Christmas Day and to the Regional supporters on Boxing Day. For example, it has not been found possible to depict the touching coconut scene in which Sindbad, chased round and round the stage by monkeys throwing coconuts, escapes, while numerous members of the cast are injured.

A Brittle Topic

Likewise it has been found utterly impossible to broadcast the hatching of the egg in the roc's nest. However, listeners will find themselves, in imagination, on the back of a whale and, if they survive that, in an Arabian slave market and other exotic situations.

"Sindbad" is to be produced by Gordon

McConnell. The part of Sindbad will be taken by Arty Ash, and Hindbad, the principal boy, by Bertha Willmott. Ajello will be the Fairy Queen.

A Real "Music Hall"

ST. GEORGE'S HALL has now lost much of the makeshift, impromptu appearance that it wore just after the B.B.C. took over. It is now a fully equipped broadcasting studio.

When I dropped in during the rehearsal for last Saturday's "Music Hall" I was surprised to find a newly erected silence cabinet in the wings, standing some 10 feet above stage level. From the windows of this little box on stilts Paul Askew, the Balance and Control Chief, has complete command of the performance, and nothing could be more fascinating than to sit at his side while he operates the mixing panel and controls the microphones in various parts of the hall-

Balancing and Controlling

We can see Billy Merson at the "mike" between him and the auditorium is the Theatre Orchestra; beyond in the semi-darkness is the audience. At the moment only the orchestra is heard, for the artistes' "mike" has been faded out. A touch of the gain control and in comes Billy's voice on the loud speaker. The orchestra fades out and is then brought back again until a perfect balance is obtained.

At the end of the turn the microphone in the auditorium is faded in and, if we like, we can have applause which is literally deafening.

Five Microphones

What a fortune awaits the man who can invent a device which would make the same sort of control available at the listener's enda Actually, there are five microphones in circuit in St. George's Hall. These are placed in the commentator's box in the wings, in the footlight gulley, up stage, in mid-air in front of the stage, and away back in the auditorium.

B.B.C.'s Best Studio

Engineers and musicians alike agree that the hall is the finest ever used for broadcasting in this country, with the sole exception of the lounge of the Grand Hotel, Eastbourne.

Letters to the Editor:—

Disturbance or Interference

Long-wave National: Tuning by Name: Cabinet Design

The Editor does not hold himself responsible for the opinions of his correspondents

Disturbance or Interference

WE noted with interest the fact that Mr. E. M. Lee, when speaking at a recent meeting, differentiated between the word "disturbance" and "interference," as applied in particular to apparatus intended for connection in mains leads to reduce the parasitic noises emanating from electrical apparatus.

We agree with the speaker that clear definition is desirable, but we do not agree that the word 'disturbance' is necessarily the most suitable word to describe this type

of parasitic trouble.

Consultation of leading dictionaries inclines us to the view that of the two words "interference" comes nearer to being the suitable description.

Language is, of course, a living matter, and the meanings of words are always changing. Whichever word is used, therefore, implies a new and slightly different meaning. "Interference," however, necessitates a lesser jump in meaning. The word has hitherto been universally used to cover the objectionable intervention of heterodyne whistles, atmospheric noises, and so forth.

Parasitic noises from electrical apparatus come, we feel, in a similar class of unwanted noises, and we feel, therefore, are also to be described as "interferences," possibly clarified by the word "mains" to indicate and differentiate from other types of interference.

We suggest the following descriptions and notes would clarify matters:—

Aerial Interference Devices.

To be applied to devices for connection in the aerial system for reducing parasitic noises emanating from electrical apparatus and collected by the aerial system.

Mains Interference Devices.

To be applied to devices for connection in the mains leads to reduce parasitic noises emanating from electrical apparatus and propagated along the mains wiring.

We appreciate that this leaves heterodyne whistles and atmospherics, forms of interference still unclassified. There are, however, on the market many devices known and classified already as selectivity units and so forth, and it is already understood that these are connected in the aerial-earth system. We suggest that these descriptions are worthy of close consideration as serving to clarify to the public the uses and intentions of devices with which they are not fully familiar.

At present we feel that the word "interference" alone, although descriptive, is too broadly used, and the purposes of devices to which it is applied remain vague.

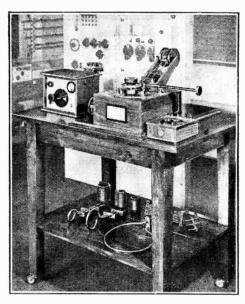
Barking, Essex. H. T. STOTT, Technical Department, A. Bulgin & Co., Ltd.

Closing Down the National

I HEAR many comments on the proposal of the B.B.C. to close down the National transmitter when the new station at Droitwich opens.

There are many thousands of listeners who do not care about foreign programmes but who want their two local programmes free from interference.

During the past hot and dry summer it has been remarkable how little interference has been experienced from atmospherics in the local Regional and National programmes, whereas on the Daventry wavelength they have been bad.



WATCHING THE WAVELENGTHS. The B.B.C.'s checking station at Tatsfield includes the short-wave wavemeter covering a range of from 10 to 100 metres shown in this photograph.

The proposed discontinuance of the National low-wave transmitter means a backward step to the days of 1929, when the local programmes were the only ones of programme value. A transmission interspersed with a local "Brocks' benefit" has no programme value, and any transmitter situate more than fifty miles away from the receiver, whatever its power, suffers from this disability.

LOUIS J. WOOD.

Alternatives to the Disc Record

THE present reproduction obtained from disc records is comparatively good considering the price paid, and cost is the first consideration with both the recording companies and the purchaser. Therefore, until such times as a better method just as cheap as the present can be found, let the companies concentrate on keeping records as cheap as at present. No doubt one of the companies would be glad to make special quality records for those who want them, providing they are willing to pay for them.

Sidcup, Kent. QUITE SATISFIED.

Correspondence, which should be as brief as possible, should be addressed to the Editor, "The Wireless World," Dorset House, Stamford Street, S.E.I, and must be accompanied by the writer's name and address

Why Tune by Wavelength?

MY view is that the scheme put forward by Mr. Hallows is just as unsound as kilocycles or wavelengths, for the reason that a number has to be memorised in each case.

The public refused to turn to kilocycles because they had got a few of the numbers in wavelengths in their heads, and they were not going to start learning all over again. They will reject channels for the same reason.

If there is to be no stability in the relative tuning positions of stations, then dials will have to be devised with interchangeable slips bearing the station names—not a difficult matter on horizontal and vertical scales—allowing the owner to rearrange his dial when and as changes occur. In fact, each of Mr. Hallows' channels would be a little slide into which the required name could be slipped.

The public demand is, rightly, for names, not wavelength, kilocycles or channels.

N. Ireland. J. N. BROWN.

Cabinet Design

YOUR article on "The Receiver in Outward Form" gave food for thought, but a question which must be asked is, "Would the public favour a drastic change in cabinet design?" I venture to suggest that the answer is in the negative.

My opinion is that a design on the lines of the present-day horizontal cabinet, in a console form, with a sloping control panel, to enable operation to be carried out with case in any position, would solve most of the problems.

With regard to fatigue, my experience—gained from hundreds of customers to whom I sell receivers weekly—is that a sloping control panel, at 45°, would definitely overcome the problem.

Your readers' views will be of interest. Guildford. S. G. BUTTON.

Tuning Scales

THE writer has read with the greatest interest and agreement the editorial in The Wireless World, dated November 3rd, in which you draw attention to the great importance of a larger and more clearly visible tuning scale.

It is interesting to note that this point was appreciated by the designers of Ekco receivers as far back as 1931, when the R.S.3 receiver was designed with a large tuning scale completely encircling the loud speaker fret. This is, surely, a case in which the area of the tuning device was the maximum which the dimensions of the cabinet permitted.

The same type of scale was continued in an improved form in 1932, whilst the present Ekco receivers have also a tuning scale of sensibly large and even more convenient design.

E. J. WYBORN, B.Sc., A.C.G.I., Chief Engineer, E. K. Cole, Ltd., Southend-on-Sea.

Television Explained

VI.-The Cathode-ray Tube

HERE are two general systems whereby the cathode-ray tube may be used for television reception; one involves a special type of transmission, but has the advantage of involving no synchronisation difficulties in the receiver; the other can be used for the reception of any mechanically scanned transmission, but necessitates careful attention to synchronisation if successful results are to be obtained. Taking the latter first, let us consider the requirements for successful operation.

The principles of the cathode-ray tube have recently been described in *The Wircless World*, and it is unnecessary to go into it in any detail. It will suffice to say that a beam of electrons is emitted by the cathode, and, on striking a fluorescent screen mounted on the end of the tube, gives rise to a spot of light. The intensity of the spot of light is dependent upon the density of the electron beam, and means can be provided for controlling this. The position of the spot of light can be varied at will by deflecting the electron beam by applying suitable potentials to pairs of

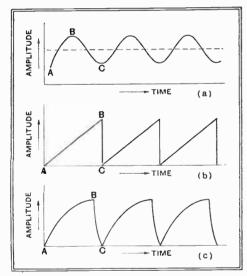


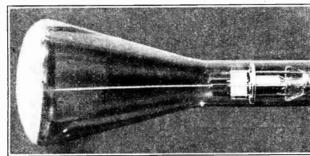
Fig. 1.— The various types of waveform which might be used for the voltages applied to the deflecting plates are illustrated here. A saw-tooth waveform as at (b) is desirable.

plates set at right angles at a suitable point in the tube.

By applying a suitable type of voltage variation to one pair of plates, the light spot can be made to move sideways and give the effect of a line of light. The application of another suitable voltage to the other pair of plates will cause the light spot to move vertically. By the choice of the correct frequencies, waveform, and amplitude for these voltages the light spot can be made to move over the screen in any desired manner. For the reception of vertically scanned transmissions, such as the present B.B.C., the light spot is made

to move vertically 375 times a second, and horizontally 12½ times a second.

One difficulty which will be obvious with this arrangement is that when the spot of light has moved to the bottom of the screen it must return to the top before the next scanning line can start. If it took as long to return to the top as to travel



A cathode-ray tube in which the beam of electrons can clearly be seen.

from the top to the bottom it is obvious that with normal methods of transmission no intelligible picture would be obtained, for alternate lines would be upside down. The waveform applied to the deflecting plates, therefore, is of a special type, so that during the scanning cycles the light spot moves steadily down the screen, but, having reached the bottom, it returns to the top for the next line much more The time taken for the return rapidly. upward movement of the spot is negligible in comparison with that required for the downward movement. In the horizontal movement for the separation of the scanning lines the same quick return is obtained.

The Synchronising Voltages

The apparatus additional to the cathoderay tube, therefore, must provide suitable deflecting voltages, and ensure that they are in synchronism with the synchronising impulses in the transmitter. A special form of oscillator is required, therefore, for the ordinary oscillator gives an output which, in the absence of harmonics, is a sine wave, as shown in Fig. 1a. Suppose we try using an oscillator of this nature, however. Considering the lowest portion of the negative half-cycles to represent the zero line, the voltage rises slowly at first from the point A, then rapidly, and again slows down as it approaches the point B. After passing this point, it commences to fall, slowly at first, then wore rapidly, and then slowly again as it approaches the minimum C.

The light spot on the viewing screen will follow these variations. The scanning stroke is between A and B, and the speed of the light spot will obviously vary during the line; moreover, the return stroke is the interval BC, which is equal to the

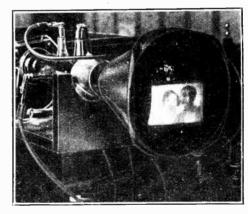
THE cathode-ray tube is of particular interest for television reception since it avoids the necessity for mechanically moving parts. The whole process of building up the picture is achieved through the aid of a beam of electrons. In this article the principles of operation are explained.

scanning stroke. Obviously this will be unsatisfactory.

Let us consider, therefore, what is actually required. During the scanning stroke we need a voltage which rises steadily until the line has been completed, and which then falls instantaneously to zero to permit the light spot to return for the next line. The voltage required, therefore, takes the

form shown in Fig. 1b in which the interval AB represents the scanning stroke, and BC the return stroke. In practice, of course, it may prove impossible to obtain exactly this waveform, but it is by no means difficult to generate a voltage which closely approaches it, but which is actually of the form shown greatly exaggerated in Fig. 1c.

The methods of generating such a voltage are more complicated than those for



The manner in which the picture appears on the end of the cathode-ray tube is well brought out in this illustration.

the usual sine wave, but there is nothing essentially difficult about them. In general, the rise in voltage along AB is obtained through the charging of a condenser through a constant current device such as a saturated diode or a screen-grid valve or pentode, while the sudden drop along BC is obtained by suddenly discharging the condenser with the aid of a neon tube, a thyrotron, or an over-biased valve.

The frequency of oscillation is determined by the effective resistance and capacity of the circuits, and can be varied by changing either. It is, therefore, quite pos-

¹ The Cathode-ray Oscillograph. Nov. 3rd, 1933.



Television Explained -

sible to produce oscillators the frequencies of which can be readily controlled by variable condensers or resistances. cathode-ray tube, therefore, offers the important advantage over mechanical systems that it is readily adaptable to the reception of signals with any scanning or picture frequencies, for the oscillator frequencies can be easily adjusted to suit the transmission, whereas with a mechanical system it is necessary to fit at least a new drum or disc. A change from horizontal to vertical scanning at the transmitter requires only a change-over in the frequencies of the two oscillators with the cathode-ray system, but it would necessitate the complete rebuilding of the receiver with a mechanical arrangement. As most foreign stations use horizontal scanning, and the present British transmissions are vertically scanned, this is not without importance.

Synchronisation is dependent upon the maintenance of the two oscillators at

exactly their correct frequencies, and in practice this is usually obtained by feeding them with the synchronising impulses carried by the television signal. These impulses increase the oscillator potential momentarily when it is approaching the point B (Fig. 1), and ensure the breakdown of the discharging device at the correct instant.

There are, of course, certain difficulties in the way of good cathode-ray television reception among which synchronisation is one of the foremost. Another point which must not be forgotten is that the variations in intensity of the electron beam, which are required for the variations of light and shade in the picture, affect the focusing of the beam to some extent, and may possibly affect its position on the screen. All this means distortion and a reduction of detail, so that an alternative system which requires neither synchronisation nor modulation of the electron beam is of considerable interest, and will be dealt with in the next instalment.

the detector valve in the usual way, grid voltage being meanwhile held at zero.

With regard to the Q.P.P. output circuit, which is coupled to the detector valve by a high-ratio L.F. transformer, it should be noted that matching of the output valves is effected by adjustment of auxiliary grid voltage. To this end, individual pentode valves supplied with the kit of parts bear a label showing the appropriate voltage to be used, and so the constructor meets with no difficulty, and does not require any measuring instruments.

On the Short Waves.

In testing an "all-wave" set, one generally makes subconscious allowances for the fact that something extra is being provided as compared with the more conventional type of receiver. But, particularly on the 28-80 metres range, there is no need to be tolerant towards the Lissen set, which can well be judged on its merits. Handcapacity effects were virtually non-existent; the unconventional reaction system worked very sweetly, and, in spite of the two tuning knobs, adjustments were not difficult. Tuning of the input circuit is quite flat, but that of the intervalve coupling requires much more critical adjustment. On the shortest wave-lengths (12-35 metre range), too, performance was also very satisfactory, although the usual slight falling off became evident below 20 metres, where very fine adjustment of the H.F. coupling circuit became necessary. A good "bag" of shortwave stations was obtained both before and after dark.

Medium and Long Wave-bands.

On the medium band, the set is comparable with others having two tuned circuits in regard to selectivity and sensitivity. In order to avoid interference, it is sometimes necessary to use the weakest of the three optional aerial couplings, with a consequent loss of signal strength. On the long waves, performance was well up to the standard for a receiver of this class.

The Q.P.P. output system works well,

The Q.P.P. output system works well, providing ample volume and good quality, with a commendably low average consumption of H.T. current. It is, indeed, some-

thing of an achievement to have designed such a satisfactory all-wave set in a form suitable for amateur construction.

The makers are Lissen, Ltd., Worple Road, Isleworth, Middlesex, and the kit of parts, complete with valves, costs £5 128. 6d. The model we tested was fitted with a Lissen moving-coil loud speaker, but a moving-iron instrument may be used.

The Lissen "Skyscraper" may be housed in almost any manner, but many constructors will prefer to use the special table or "consolette" cabinets which are available in the form of sets of parts.

12 TO 2,000 METRES

The Lissen "Skyscraper 4" Tested

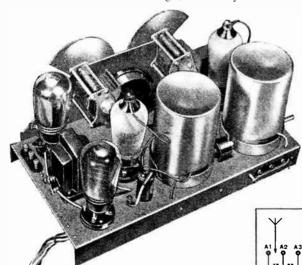
O-CALLED "all-wave" sets, covering short, medium and long broadcasting wavelengths, are becoming more and more attractive. Great advances have of late been made in their design, and many

assemblies with built-in wave-range switches. In a set of this nature it is obvious that defective switch contacts might cause endless trouble, and so it is reassuring to note that during our tests the Lissen set gave

no trouble whatever in this direction, and indeed, the switching system looks as if, bar accidents, it should go on functioning almost indefinitely.

There are several other interesting features, not the least of which is the combined volume-reaction control, which is effected by a single specially designed component. This consists of a

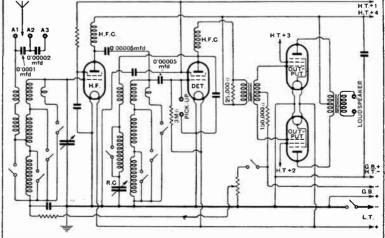
The Lissen "Skyscraper 4" chassis, and (below) the complete circuit diagram.



of the better examples, far from being Jacksof-all-trades and masters of none, give a very satisfying performance on all wavebands.

. The fact that such a set can be put forward to the amateur constructor in the form of a kit of parts is indicative of the advances that have been made. The Lissen "Skyscraper 4," with which we are here concerned, is a battery-operated set covering four wave-ranges—nominally, 12-35 metres: 28-80 metres; 195-520 metres; and 800-1,970 metres—and is cleverly planned so that it may be built by the least experienced of home constructors with virtual assurance of success.

Basically, the circuit comprises a three-stage H.F.-det.-L.F. arrangement, with single-tuned input and intervalve circuits, and a Q.P.P. output stage. The various wave-ranges are covered by multiple coil



potentiometer through which the grid bias of the H.F. valve is varied from maximum negative to zero; further rotation of the control has the effect of increasing reaction feedback between plate and grid circuits of

NEW APPARATUS REVIEWED

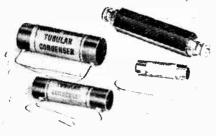
Latest Products of the Manufacturers

GRAHAM FARISH TUBULAR CONDENSERS AND 3-WATT OHMITES

THE new tubular condensers made by Graham Farish, Masons Hill, Bromley, Kent, are fitted with wire ends securely anchored to the bakelite container, a method of construction which gives adequate strength without imposing any strain whatsoever on the condenser insert. They are rated at 250 volts working, but tested at twice this potential, and a wide range of values from 0.0001 mfd, to 0.25 mfd, is available.

Some specimens taken at random show that the customary tolerance of plus or minus to per cent, is nowhere exceeded; for example, an 0.05 mfd, condeuser measured 0.0502 mfd, or plus 4 per cent.; an 0.01 mfd, gave 0.00988 mfd, (minus 1.2 per cent.), whilst one of 0.0003 mfd, measured 0.000291 mfd, or minus 3 per cent. In a few cases only discrepancies of between eight and nine per cent, were found. Prices range from 1s. to 1s. 6d, according to size.

The heavy duty Ohmite resistances are equally as good in their agreement with the marked values, and a 10,000-ohm sample was only 3 per cent, low, whilst one of 25,000 ohms was 4.8 per cent, high. This style lissipates three watts without everheating, or with the temperature rising to an extent that precludes handling it with comfort, and under these conditions only a small change in resistance occurs. After a severe test all the specimens were found to be within a few ohms of their original values. They are, of



Selection of Graham Farish tubular condensers and heavy-duty Ohmite resistance.

course, synthetic resistors. Quite massive terminals are fitted and they are made in values ranging from 300 to 100,000 ohms, the price being 2s. 3d. each.

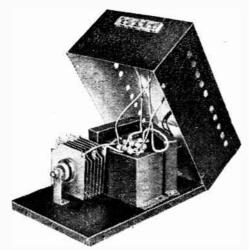
FEL-ELECTRIC H.T. MAINS UNIT

THE battery eliminator sent in for test is one of a wide range made by Fel-Electric Radio, Garden Street, Sheffield, 1, which includes both A.C. and D.C. models, and some of the former embody a trickle charger. In addition, all the A.C. models can be supplied with a 4-volt 3-amps. L.T. winding at a small extra cost.

The model illustrated is the type C7/C.H. rated to give 120 volts at 12 mA., and it provides three separate output voltages. The detector valve supply comes from a resistance joined to the "power" tapping and is decoupled by a condenser. A potentiometer supplies the screen grid voltage for the H.F. valves, and under normal working conditions these tappings give 90 volts at 1.5 mA. and 70 volts at about 0.5 mA. respectively, and with the other valves in

the set taking 10 mA, in all at 140 volts. These voltages were obtained with the unit connected to a 230-volt 50c/s supply main.

The primary winding of the mains transformer is not tapped, but is stated to be suitable for all A.C. mains of from 200 to 250 volts; the output will, however, be subject to slight change on supply mains of different voltage.



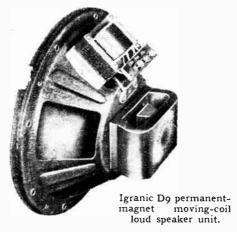
Fel-Electric battery eliminator, model C7 C.H., with cover removed.

This unit is quite suitable for use with practically any type of battery set taking not more than 12 mA., and very little more background will be present than with batteries. For when tested with a sensitive four-valve set mains hum could be heard only by listening close to the loud speaker.

The components are neatly arranged on a metal base-plate, and the workmanship is very good. The price is £2 2s.

IGRANIC D9 LOUD SPEAKER

THIS unit is very well made and finished and has a magnet system which is designed to reduce amplitude distortion to a minimum. That this aim is accomplished is proved by the fact that frequency doubling cannot be detected by car when the diaphragm is developing full amplitudes at low frequencies.



The efficiency is good and in a small room not more than 250 watts is required to give an adequate volume level. The balance of tone at this level is good, and the bass is provided by a couplex group of resonances between 80 and 120 cycles. In the upper register, also, there is a commendable absence of isolated and prominent resonances, but the general level of output is higher over the band of frequencies from 2,500 to 4,500 cycles.

The unit is supplied in three types, the "Standard" model for single output valves at 32s, 6d., and the "Q.P.P." and Class "B" models at 35s, each. The makers are the Igranic Electric Co., Ltd., 149, Queen Victoria Street, London, E.C.4.

HEAYBERD MAINS TRANSFORMER MODEL W.41

A RECENT addition to the Heayberd range, this model is designed for use with the new Westinghouse H.T.12 rectifier and provides two alternative output voltages for the unit, in addition to one L.T. supply of four volts at four amps. for the A.C. valves. The transformer was tested in conjunction with a voltage doubler circuit, using 4-mfds condensers of 500-volt test rating and a smoothing choke of 300 ohms resistance.

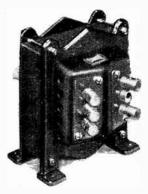
The smoothed D.C. at various current loads is given in the table below, using in the one case the 110-volt output and in the other the 140-volt supply.

110-volt Output.		140-volt Output.			
Current in mA.	Volts.	Current in mA.	Volts.		
.5	257	5	335		
IO	236	10	315		
15	216	15	295		
20	196	20	276		
		25	256		
25	176	30	245		

With the full load of four amps, the L.T. winding gave 4.25 volts with 20 mA. flow-

ing in the H.T. circuit—when measured at the transformer. As there will be a small voltage drop along the L.T. leads this ensures that the

Heayberd model W.41 mains transformer for use with Westinghouse H.T.12 rectifier.



valves are operated at their correct voltage. The transformer runs cool, there is no trace of hum due to looseness in the assembly, and, in common with all Heayberd products, it is a very well-made component. Insulated plugs and sockets are fitted in place of terminals, and the price is 22s. 6d.

The makers are F. C. Heavberd and Co., 10, Finsbury Street, London, E.C.2.

CHANGE OF ADDRESS

The head office of the Edison Swan Electric Co., Ltd., from Queen Victoria Street to 155, Charing Cross Road, London, W.C.2. Tel.; Gerrard 8660.

C.A.C. "Pentagrid" Superhet

AND SHORT-WAVE ADAPTOR

A Sensitive Receiver Equipment Covering All Broadcast Wavelengths

"Pentagrid" Receiver. FEATURES. Type.—Table model superheterodyne for A.C. mains. Separate loud speaker unit. Provision for Gramophone pick-up. Circuit.—Band-pass input to heptode frequency-changer—variable-mu I.F. slage—duo-diode-pentode second detector — pentode output valve. Full-wave Rectifier. Controls.—(1) Tuning. (2) Waverange Switch. (3) Volume control. (1) Pre-set sensitivity control and switch. (5) Radio-gramo. switch. Price.—14 gns. (including L.S. unit.) Makers.—City Accumulator Co. Ltd., 18-20, Norman Buildings, Central Street, London, E.C.I.

THE enthusiast for long-distance reception will find in this group of receiver units the ideal medium for the pursuit of his hobby, for there can be

little doubt that the range available is the maximum which can be gained from the number of valves used.

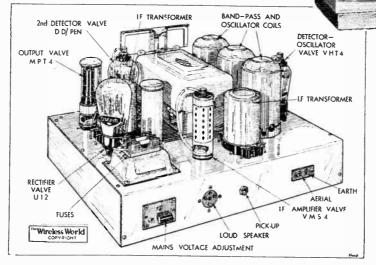
From this point of view the C.A.C. set is able to offer something a little better than the ordinary run of four-valve superhets., and it is for this reason that it should appeal to the man who takes an interest in foreign-station listening and a pride in the number of stations in his log book. That is not to say that the receiver is a job for the specialist, for the tuning is simple and the quality of repro-duction will more

than satisfy those who prefer to settle down to the local station programme.

The basic unit is the "Pentagrid" super-

The basic unit is the "Pentagrid" superhet, receiver, which is designed to cover the medium- and long-wave bands, and we propose to discuss its merits as an ordinary broadcast receiver before turning to a consideration of the Short-wave Adaptor.

The four-valve superhetero-



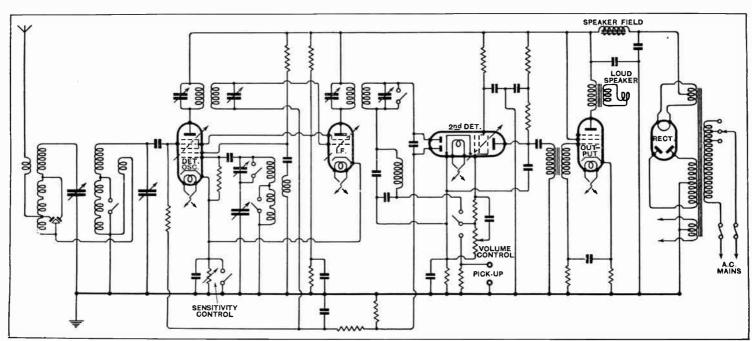
A logical layout of components contributes to the efficiency of the "Pentagrid" receiver chassis.

dyne circuit is of thoroughly up-to-date design and includes automatic volume control. An inductively coupled band-pass filter precedes the frequency-changer valve, which is the latest Ferranti "Heptode." A special advantage of this valve is that it

minimises mutual interference between the various tuned circuits associated with the first stage. A sensitivity control is connected in this stage and consists of a variable cathode bias resistance which is common to both the frequency changer and the L.F. valve, and which can be adjusted to a predetermined level. It is brought into operation by opening the switch in parallel with it.

The I.F. stage is straightforward and includes a variable-mu valve with four tuned circuits. It is followed by a duo-diode-pentode which combines the function of detection with the provision of the automatic control bias and a degree of L.F. magnification. It is interesting to note that transformer coupling has been included between this valve and the output stage, and it is probable that this contributes materially to the unusually good performance of the set from the point of view of sensitivity.

The set is built in two units, the loud speaker occupying the top section and being connected to the receiver through the medium of a five-pin plug. This is a particularly convenient arrangement and the loud speaker can be used in another room without



Circuit diagram of the "Pentagrid" receiver. Modern high-efficiency valves are used in all stages.

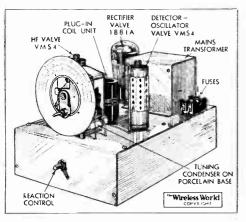
C.A.C. "Pentagrid" Superhet -

detracting from the appearance of the set. A horizontal type of tuning scale has been adopted, and in the model tested was calibrated only in degrees. We understand, however, that all future models will be marked both in wavelengths and degrees. This will enable the non-technical listener to tune-in the station he requires without any difficulty, and, at the same time, will not deprive the enthusiast of the means of preparing his own accurate tuning charts or calibration curves.

The first thing to attract attention in testing the receiver is its extraordinary liveliness and high overall magnification. Continental stations on the medium waveband, which are difficult to receive in daylight, came in with a volume which normally one would expect only after sunset. The selectivity on medium waves excellent and was barely one channel is lost in Central London on either side of the local B.B.C. transmitters. On long waves, however, there was some difficulty

in receiving Zeesen with Radio Paris in operation, but this may have been due to slight misalignment on the long waveband.

With regard to second channel whistles, those due to the London Regional and National transmitters were well defined on the medium waveband, and there was one



Non-microphonic all-metal valves are a feature of the Short-wave Adaptor chassis.

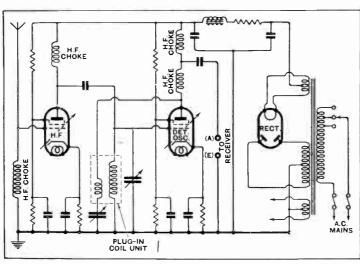
fairly prominent whistle on the long waveband which was, no doubt, due to a harmonic of the oscillator. In relation to the high magnification of the set, however, these whistles cannot be regarded as being more serious than those in any four-valve superheterodyne of average performance.

The Short-Wave Adaptor

FEATURES.

Type.—Two-valve autodyne unit for atlachment to broadcast receiver. Circuit.—Aperiodic H.F.—autodyne detector-oscillator. Full-wave rectifier. Controls.—(1) Tuning. (2) Reaction. Price.—£10. Makers.—Cit Accumulator Co. Lld., 18-20, Norman Buildings, Central Street, London, E.C.1.

The auxiliary short-wave unit is designed to couple-up with the aerial and earth terminals of the main receiver and is provided with its own power supply. The broadcast receiver is tuned to about 1,875 metres and the output from the short-wave unit then receives not only with the full over-all magnification of the set, but is also provided with the advantage of automatic volume control, which is a very real advantage on short waves which are subject to fading.



Circuit diagram of C.A.C. Short-wave Adaptor which is provided with its own power supply.

The autodyne frequency-changer in the short-wave unit is preceded by an aperiodic H.F. stage with choke coupling. The degree of reaction in the frequency-changer stage is under control, and this was found to be a very real advantage when adjusting the set for the maximum sensitivity, as the efficiency of this stage is appreciably affected by the relative strengths of the incoming and locally generated oscillations. This adjustment, however, may be regarded as a refinement, for it is not necessary to touch the reaction control when searching in the normal way.

A specially designed short-wave condenser mounted on an insulating base of ceramic material is used and is fitted with a two-speed slow-motion dial which is admirably suited to short-wave tuning conditions. Another sensible feature is the employment of Catkin valves, which completely overcome the microphonic troubles frequently experienced in sensitive short-wave receivers. The short-wave ranges are changed by means of plug-in coil units, and in the receiver tested the bands covered were as follows: 15.5 to 27.5 metres, 26.5 to 51.5 metres, and 46 to 95 metres.

During the periods of the test the lowest waveband gave best results, at any rate, as far as long-distance reception is concerned. Three American stations, Pittsburgh, W8XK, Schenectady, W2XAD, and Bound Brook, W3XAL, were received at good strength with only slight fading during the afternoon. On the two higher wavebands all the European amateurs and short-wave broadcasting stations were always available, and as a medium for the exploration of this interesting field the C.A.C. short-wave unit could hardly be bettered.

The predominant impression left after handling this equipment is that, by comparison with the ordinary run of mass-produced receivers, it possesses just that extra degree of efficiency that is sought after by the enthusiast for long-distance reception.

The Short-Wave World

URING the past fortnight short-wave listeners who have been able to listen during the afternoons and early evenings have had much to interest them. The broadcasting of special programmes commemorating the opening of "Radio City," New York, has fortunately coincided with a spell of quite exceptional conditions on the shorter waves.

Probably the best and most reliable station of all has been W₃XAL, Bound Brook, on 16.87 metres, which has been received at good strength almost continuously from 2 p.m. until "fade-out." The time of the latter has varied between 5 p.m. and 6.30 p.m. in the course of a week, and will, of course, occur carlier almost day by day until the shortest day.

Many owners of short-wave receivers seem to miss W3XAL on this wave, either because of their inability to tune down below the 19-metre band or simply because they do not realise the excellence of W3XAL's transmissions. Just at present it is certainly better in every way than the 19-metre stations. W9XAA, Chicago, on 16.57 metres, has also been heard on several occasions.

Amateur transmitters throughouf the country have been finding the 20-metre band very unsatisfactory for the past two or three weeks—a rather surprising fact in view of the excellence of the 16- and 19-metre broadcasting. It is generally safe to assume that if the amateur 20-metre band is "lifeless," the general conditions below 30 metres are bad. The characteristics of the 20-metre band at present seem to be the somewhat unreliable reception of Australia and New Zealand between 7 and to a.m., and the reception of the East Coast of U.S.A. from noon onwards, the strength of signals varying tremendously from day to day.

From the Antipodes

The 40-metre band, on the other hand, has been productive of very interesting results. Signals from the Antipodes have been well and reliably received in the early mornings for the past two months or more.

In the evenings the South African stations may often be heard—from 7 p.m. onwards—while the Australians, presumably received "the other way round, are generally almost as good as in the early mornings. As has always been the case, there seems to be a preponderance of New Zealand in the mornings and Australia in the evenings.

This would appear to confirm the fact that signals are received across the Pacific and South America in the morning, and across Asia in the evening. For this reason it is difficult to explain the presence of South American stations most evenings and their absence in the mornings!

The one remaining continent - Asia—has recently been represented by Japanese stations on 40 metres at about 8 p.m., but they could certainly not be described as reliable. Readers who remember the extraordinary influx of these "J" stations on the 20-metre band two years ago will be disappointed by the weakness of their 40-metre signals at present.

The amateur bands have been dealt with at some length, because they serve as a fairly reliable guide to the general level of short-wave conditions. High-power broadcasting stations may be received consistently to on the worst of days, awing to "freakish" conditions of some kind; low-power amateur transmissions seldom survive.

MEGACYCLE.

Readers' Problems

Bias Polarity

IT is possible, when making alterations to a receiver with automatic bias, to bring about an accidental reversal of voltage and thus to operate one or more of the valves with positive instead of negative bias. A reader has apparently fallen into this trap through attempting to adapt methods that now tend to become obsolete to a modernised set.

When bias is developed across a resistor in the common H.T. negative lead to the receiver, this resistor may be treated as a potentiometer, across which negative bias voltages up to the maximum value provided may be obtained for any number of valves n a set. Referring to Fig. 1 (a), we will assume that a pressure of 10 volts is developed across the bias resistance; point A will therefore be 10 volts negative with respect to the earth line and the cathode of the valve, and any lesser intermediate voltage down to zero is obtainable by making contact with intermediate points on the re-

sistor towards point B. With a true "self-bias self-biased" circuit, such as that shown in Fig. 1 (b), it is no longer possible to obtain negative bias voltages for any other valves from, say, the cathode resistor, associated with the output valve.

H.T.+ н.т.+ (b)

Fig. 1.—Diagram (a) represents a workable method of obtaining negative bias for two valves from a single resistor. The second circuit gives positive bias for the H.F. valve, and is incorrect.

Referring to diagram (b), it should be realised that point X on the bias resistor will be positive with respect to the earth At whatever position on this bias resistor we may make contact, it is impossible to obtain a negative voltage for application to earlier valves; even with the slider at Y, the H.F. valve will be operating

 $T_{\it of matter of general interest arising out of}^{\it HESE columns are reserved for the publication}$ problems submitted by our readers. Readers requiring an individual reply to their technical questions by post are referred to "The Wireless World" Information Bureau, of which brief particulars, with the fee charged, are to be found at the foot of this page.

with a zero grid, and not with negative bias as is required. The second diagram represents the incorrect arrangement (so far as the H.F. valve is concerned) used by the reader whose letter prompts this paragraph.

Inter-connected L.T. Windings

CORRESPONDENT asks whether it would be advisable to connect in

parallel two of the 4volt low-tension secondaries of his power transformer. It is desired to feed the heater elements of five indirectly heated valves, taking one amp. each; the secondaries were designed to give 3 amps. each.

It is hardly safe to recommend this course. The usual transformer bears no indication of the "sense" of the windings, and if two of the L.T. secondaries were interconnected in the manner proposed by our correspondent, but in the wrong sense, it is possible that the transformer would be

burnt out, or at least seriously damaged. In any case, we can see little advantage in running any risk of trouble. Surely, there is no objection to feeding three of the valves from one secondary, and the remaining two from the other?

Q.P.P. with Triodes

OUIESCENT push - pull amplification with three-electrode output valves (as discussed at length in The Wireless World of February 24th) is perhaps not so popular as it deserves to be. A correspondent who has been using the system for many months says that results were excellent until a slight but appreciable deterioration of quality set in a few weeks ago. Subsequent tests with

The Wireless World INFORMATION BUREAU

THE service is intended primarily for readers meeting with difficulties in the construction, adjustment, operation, or maintenance of wireless receivers described in *The Wireless* World, or those of commercial design which from time to time are reviewed in the pages of The Wireless World. Every endeavour will be made to deal with queries on all wireless matters, provided that they are of such a nature that they can be dealt with satisfactorily in a letter.

Communications should be addressed to The Wireless World Information Bureau, Dorset House, Stamford Street, London, S.E.1, and must be accompanied by a remittance of 5s. to cover the cost of the service. The enquirer's name and address should be written in block letters at the top of all communications.

a milliammeter show that the individual anode currents of the output valves now differ considerably, although when the set was new they were sensibly the same. Our correspondent goes on to ask whether there is not some method of equalising the characteristics of the valves; it does not seem possible to match them by applying different values of bias, and, of course, the expedient of matching anode currents by adjustment of auxiliary grid voltage (as applied to pentodes) is impossible.

The circuit diagram submitted by our querist shows that he is using an ordinary push-pull transformer; with a special transformer having a "split" secondary with two windings, it would be possible to adjust the bias of each valve independently.

As it is, we can only suggest the use of

н.т.+ 5,000 Ω H.T.→

Fig. 2.—Applicable to all push-pull systems: an arrangement whereby the bias of each valve may be adjusted separately.

one or two extra bias cells connected directly to the grid of one of the valves. Although it is unusual to insert the bias battery at the high-potential end of the circuit, there is actually no objection to doing this if very small cells, carefully insulated and preferably suspended in the wiring, are employed. It is often convenient to connect the extra "balancing" cell or cells so that the voltage applied to the grid is in opposition to that of the main source of bias; this method of connection, shown in Fig. 2, would, of course, be applied to the valve which is found to consume the lower value of anode current when both are working with the same bias.

Aerial Circuit Trimming

A READER who proposes to use a commercial receiver with an exceptionally large aerial asks whether it is probable that this course will necessitate a retrimming of the aerial circuit. He goes on to enquire whether this operation could be satisfactorily carried out by means of an external semi-variable condenser connected in series with the aerial.

This is quite a practical course of procedure, but it will be effective only if, with the particular aerial in use, the input tuned circuit of the receiver suffers from an excess of capacity. In the circumstances described, this condition is likely to obtain, and so the series trimmer should be quite effective, and there will be no need to have access to the built-in trimmer, which is presumably hard to get at.



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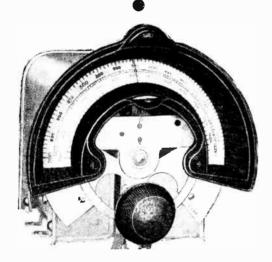
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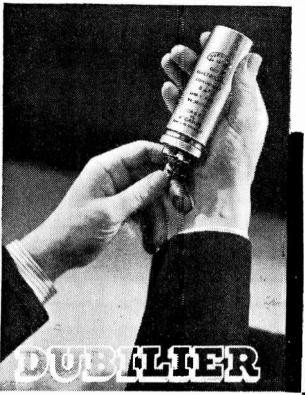
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"W.W." Baby Superhet, complete to specification, with valves and speaker, £11; "W.W." Magnarox Three, complete to specification, with valves, but less batteries, £3/10; Fer anti Constructor's Eliminator, 200v. 100 m.a., complete with box, £4; Tungar charger, with valve, 10/; nearest cash offers considered.—West, 43, St. Jude's Rd. West, Wolverhampton. [4105]

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1 POLAR Star Minor 4-gang condenser. 1 5 0
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1 HAYNES Radio Metal classis complete with screws, nuts
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SAYAGE	Massicore*	R 27M L.F. smoothing choke	1 8 0 0
Dayage	Massicore*	R 27M L.F. smoothing choke	1 8 0 0
Dayage	Massicore*	R 27M L.F. smoothing choke	1 8 0 0
Dayage	Massicore*	R 27M L.F. smoothing choke	1 8 0 0
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carriage 2 - extra; 10 henry choke, 5/6, post 9d.; 20 henry, 8/6.

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Capacity in Mfd.	Working Voltage,	Test Voltage.	List Price.	Our Price.
.1	250	500	1 6	6d.
i.i	4(6)	1,000	1.9	9d.
1	250	500	2.3	9d.
î	400	1,000	-2.9	1/3
í	500	1,500	4/	1/9
2	250	500	3'-	1.2
2	300	700	3'3	1 6
2	400	1,000	3 9	1/9
2	500	1,500	6'-	2/6
-,	100	2,000	7.6	4/~
2 4	250	500	5/-	2.2
4	300	700	5.6	2 6
4	400	1,000	6.6	3 -
1	500	1,500	10:6	3,6
6	250	500	7.6	
6	500	1.500		3/6
			16; -	7/6
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Hellesens 8 mfd. electrolities, illuid type. 435 v. working.
Very limited quantity. 3 6.
T.C.C. 3 mfd. 800 v. working. New goods, all tested. 4 6.
A 3PECIAL OFFER OF THE FAMOUS R.S. 350 TRANS-

350-0-350 at 85 mA.

4 v. 4 to 6 aup. C.T.
4 v. 2 amp. Rect. (D.W.3).
2,600 of these have been sold by us in the last 18 months, and we guarantee them out and out! 260 only are left, and we offer at 10 6 each, to make room for new stock. If you are wanting a transformer in the near future, be wise and put one by.

one by.

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m.a., 8.6.

PREMIER Mains Transformers, output 250-0-250 velts 60 m.a., 4v. 3-5a., 4v. 2-3a., 4v. 1-2a. fall C.T.), with screened primary, 15 c.

PREMIER Mains Transformers, output 350-0-350 volts, 90 m.a., 4v. 3-5a., 4v. 2-3a., 4v. 1-2a. fall C.T.), with screened primary, 15 c.

PREMIER Mains Transformers, output 400-0-400 volts, 100 m.a., 4v. 4-5a., 4v. 2-5a., with screened primary; 15/s.

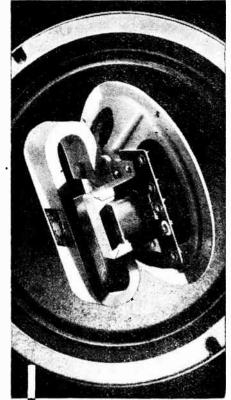
15/-.

PREMIER Auto Transformers, 100-110 200-250 volts or vice versa, 60-watt, 7 9; 100-watt, 10 -.

SPECIAL Offer of Manufacturers Type Transformers, any input, output 250-0-250 volts, 60 m.a., 4v. 1a., 4v. 3a., 6th C.T.), 8 6; It. 18 transformer, with 4v. 3-4a. (C.T.), 8 6; with restlifter, 18 6.

MAGNAVOX P.M. Loud speakers, 7in. cone, 18 6; please guired.

(This advertisement continued in third column.)



It must be **MAGNAVOX**

There is always a demand for a de-luxe speaker, and it is that demand which the Magnavox P.M. "Senior" Model at £3,3.0 so completely fills.

Based on the unique Magnavox experience of 22 years' standing it is—only naturally—the finest P.M. speaker obtainable.

The same exclusive qualities are found in the P.M. "Standard" Model—perfection in a smaller speaker—and this costs 37/6; both models, of course, being fitted with universal transformers, for Class " B," etc.

You can buy cheaper speakers, but if you are to feel really confident and happy about your purchase there can be no alternative—it MUST be MAGNAVOX.

> "SENIOR" MODEL £3.3.0 "STANDARD" MODEL £1.17.6

The Benjamin Electric Ltd., Tariff Road, Tottenham, N.17.

Components, etc., for Sale.-Contd.

(This advertisement continued from first column.)

GRAMPION P.M. Lond-speakers, 9in. cone, handles 4 watts; 18 6.

GRAMPION M.C. Londspeakers, 2,500 olim field, 9in.

H.M.V. Condenser Blocks, 49, 48, 15, 15, 0.5, 250v working, 5 6; ditto, 420v, working, 5 6.

FLLIOT First grade Moving Coll Meters, 0.30, 0.50, 0.100, 0.150 millions, projecting types, 15/- each; 0.100, 0.150 millions, flash types, 17/6 each.

B.T.H. Induction Type (A.C. only) Electric Gramophone Mocors, 100-250v.; 30 - complete.

A MPI.10N Moving Coil Speakers, type E.M.644, dual fields 2,500 and 5,600 ohms (100 and 200v.), with catput transformer, 12 6; A.C. conversion kit for this speaker, 10, catra.

WESTERN ELECTRIC Condensers, 250v. working, 1 mfd. 6d., 2 mfd. 1 -; 500v. working, 1 mfd. 1/-,

 $T^{\rm .C.C.}$ Condensers, 250v, working, $4\times4\times1$ mfd., 3/6; $6\times4\cdot2\times2\times2$ mfd., 375v, working, 6:11; $4\times4\times1$, 6/*.

PECIAL Offer of Wire Wound Resistances, 4 watts any value up to 10,000 ohms, 1/*; 8 watts, any value up to 15,000 ohms, 1/6; 15 watts, any value up to 10,000 ohms, 2/6; 50 watts, any value up to 50,000 ohms, 2/6; 50 watts, any value up to 50,000 ohms, 3/6.

DREMIER SUPPLY STORES, 20-22, High St., Clapham, S.W.4, Macaulay 2188, Closed 1 o'clock Wednesdays, open to 9 o'clock Saturdays, Nearest Station, Clapham North Underground. DREMIER.

WOBURN RADIO offer following New and Bankrupt

Wistock:

NERRANTI Multi Ratio Output Transformers, 18-1, 23-1, 32-1, centire tapped, at 4/11; Class B briver and Choke, 9-6 per pair, with valve and 7-pin valve-holder, 22-; 87',500 Coils, 5-6 per pair; Wego 750v, test Condensers, Infel, 1-, 2mid, 1-/3, 4mid, 2-/4, Siemens, 01-0,1mid, and 0,1-0,1mid, 3,500v, test 1/7, 4mid, 750v, test 2-/4; T.C.C. 0,1mid, 350v, working 9d.; Tubular Condensers, 1,500v, test ,001, 0,001 and ,00015mid, 1/3 half dezen; Ciix 4- and 5-pin valve holders, 1/3 half dezen; Edison Bell R.C.C. Units, 1-, each; Resistances as last week; H.F. Chekes, 10d.; Binocular Clekes, 1-3; 4-watt Resistances, 50,000 and 100,000, 9d.; Durt-Amsco (H.M.V.) 3 gauge condensers, with drum drive calibrated in wavelungths, with trimmers, 7-, Furs-Ausco 2-gang with trimmers, 4-6; Centralab Volume Controls with switch, 20,000, 2-; Clarostin Ganged Volume Controls, with switch, 2-50,000, 3-; A.V.C. 3-Kit, 48; S.T.500 Kit, 52-6; let us quote for parts,—Wodurn Raido Go., 7, Wodurn Buildings, W.C.L. Euston 1571. (Near Enston Station, back of 8), Paneras Church.) [4129]

T. W. THOMPSON and Co. 14-17, Strutton Ground, Westminste: 8.W.1.

PHILIPS 1-watt Resistances, full range from 400 ohms up to 100,000 ohms, 6d, each, post free.

ELECTRIC Light and Power Meters, for A.C. mains 200/250 volts, 50 periods; no more wondering as to the amount of current this or that article is consuming; useful for checking consumption of sub-let flats, charging plants, motors, wireless apparatus, or anything using electricity; a few shillings will save pounds; makers, Westinghouse, and other well known firms; cost £4 18 each, to clear 6 - each, post 1/3; jewelled pivots.

FAY Breadcast Microphones, complete with stand and transformer, highly sensitive; listed 3 guineas, to clear, brand new, 15/6, post 1/5.

 $W_{\mathrm{P, SE-6d.}}^{\mathrm{ESTON}}$ 0-100 Milhampmeters Moving Coil; 17/6 each,

MILLAMPMETERS, brand new, ranging from 20 to 100 milliamps; 5 6 each, post 9d.

O 1 Milliamps High Grade Moving Coil; 27/6 to clear.

**JUST Obtained, Large batch of moving coil speakers, 200–250 volts mains; list 37.6, to clear 18/6, post 9d.

PERMANENT Magnet Type, list 37/6, to clear 21/-, post 9d; will stand 5-6 wart undistorted output.

T. W. THOMPSON and Co., 14-17, Strutton Ground, Westminster S.W.1. (See display advertisement on page 12.)

M LDMAY RADIO EXCHANGE Offers the Following, sound and perfect :-

MARCONI A.C. Mains Radiogram, type 330, listed £30/9 1933 catalogue, complete with Marconi valves, m solid oak cabiner, moving coll speaker, etc.; £14.

A LBA A.C. Mains Radiogram, 1933 model 70, Band Pass tuning, Using Mullard valves, types M.M.4V., 8.4V.A., P.M.24M., D.P.2, Rola moving coll fitted, very fine job. 114.

H AMPTON 6 valve A.C. Mains Receiver, Band Pass tuning, with 2 stages, Var. nm detector and 2 A.C. Pens in push pull. Senior type Rola speaker fitted, in walnut cabinet, Mazda valves supplied; \$10.

1934 H.M.V. 7-valve Superhet, A.V.C., second hand with valves, very line condition; £14.

R EADY Radio Meteor Screen Grid Kits, in scaled boxes, with Mullard valves, moving coal speaker and cabinet; £3 15; listed £8 17/6.

(ARRARD Type V.C.4 A.C. Mains Motors, with automatic place, stop and start; 32 6.

COLLARO Combined A.C. Motors, with pick-up and volume control, fully automatic, stop and start, 59-6; Collaro Empire model, A.C. motor, less pick-up, 37-6

A LL the Above Carriage Paid

DHONE: Clissoid 5001.

OPEN Thursday, Closed Saturday All Day.

24, Mildmay Grove, London, N.1.

[4118

Components, etc., for Sale.—Contd.

SOUTHERN RADIO'S Wireless Bargains .- Set manufacturers' guaranteed surplus.

M AINS Transformers.—250-0-250 volts 60 m.a., 4v. 1a., 4v. 2-4a., 11/.; 250-0-250 volts 60 m.a., 4v. 1a., 4v. 2-3a., 4v. 1a., 12/-; 350-0-350 volts 60 m.a., 4v. 2-21.9a., 4v. 2-4a., 13/6; 350-0-350 volts 120 m.a., 4v. 2-21.9a., 4v. 3-5a., 4v. 1a., 16/.; 500-0-500 100 m.a., 4v. 2-2a., 4v. 3-5a., 4v. 2a., 19/.; step-up or step-down transformers, 0, 100, 110, 200, 230 and 250 volts, 60 watt output, 12 6; 100 watt output, 14/9.

MOOTHING Choice.—20 henrys, 120 m.a., 320 ohms, 8/9; 50 henrys, 60 m.a., 500 ohms, 7 8; 40 henrys, 40 m.a., 700 ohms, 6/6; Perranti chokes, 20 henrys, 60 m.a., centre tapped, 6/9 (list 21/-).

A LL-MAINS Transformers and Chokes Guaranteed for 12 Months, specials quoted for and delivery given within 3 days of order

WARIABLE Condensers.—Lotus 2-gang 0.0005 complete with dial, knob, escutcheon, 8,6; all ganged condensers are fully screened with trimmers, and bexed: Lotus Dyblock single variable condensers, 0.0005, complete with dial, escutcheon, etc., 4/9 (list 9-6); Hydra block condensers, new, 16 mid., 2+2+8+2+1+1, 1.000 volt test, 7/- each; 4 mid., 2-6; 2 mid., 1/9; 1 mid., 1 ; T.C.C. 4 mid. electrolytic, 440 b.C. working, 3 - each; Hellesens 8 mid. electrolytic, 5-9 each; block condensers, 1.500 volt, with terminals, 10 mid. (2+2+2+2+1+1), 8-3; 20 mid. (2+2-2+2+2+2+2+2+1+1+1+1), 12-9.

(2+2-2; 2+2+2; 2+2+1|1|1+1|), 12 9.

SPEAKERS.—Permanent magnet speakers, 7in. cone. 28'(listed 49'6); D.C. mains energised, 2.500 to 6.500
chms, complete with humbucking coils and transformers,
16'6 (list 39'6); 7 Magnavox moving coil D.C., 2.500
chms, 18'- each (list 39'6); G.E.C. Stork speakers, complete in magnificent cabinet, 19'6 (listed £3 15); Ormon's
speakers, complete in cabinets, 10. (listed £5-); Blue
Spot, 100U 13'6 (list 39'6)

AMOS 4 pole Loud-speaker Units; 7% (listed 29%).

CONSTRUCTORS Kits. Ready Radio Meteor screen grid 3 valve kit, less valves, 26 -: with 3 Mullard valves (P.M.12a, P.M.2D.N., P.M.2a), 49/- (list £5 7/61: Universal Radio 3-valve kits, ready assembled on chassis, 12/6 (listed 45/-)

READY RADIO "303" A Kits, complete with cabinet. M.C. specker, less valves, £2/5; with 3 Mullard valves, £2/15; with 3 Mullard valves, (P.M.11.F., P.M.2D.X., P.M.2), £3/5 (list £6 17 6).

READY RADIO Meteor "A" 3-valve Screen Grid Kit, complete with cabinet, M.C. speaker, less valves, £3/7/6; with 3 Mullard valves (P.M.12A., P.M.2D.X., P.M.2D.X., dist £8/7/6).

READY RADIO 8.T.400 Kits, as specified by Scott Tagart, £2/19/6 each (list £4/17-6); Mullard Rad for Million 3-valve battery kits, complete with 3 Mullar valves, £3-3 (list £6/2,6), all kit new, in original scale cartons.

B.T.H. Senior Pick-ups, 1934 model, with volume control, 23,- each (list 37/6); Marconi pick-ups, 1934 Model No. 19, 25/- (list 32/6); H.M.V. volume control, 1/6 each (list 12/6), Radiophone volume controls, with switch, 3/- each (list 10/6); Amplion loud-speaker units, 2/3 (list 12/6).

R ECRIVERS.—Burgoyne 3-valve transportable, α implete with 3 Cossor valves, batteries and accumulator, £3/2/6, 4 only; latest Class B.3 Burgoyne, complete with 3 valves, batteries, accumulator, noving coil speaker, in latest oblong cabinet, £5/5, new, in original cartens.

W.E. Have Purchased the Liquidated Stock of a Large Northern Manufacturer and Factor, and offer the following special bargains:--

DUBILIER 4 mfd. Condensers (2+1+1), 1,000 volt test (2,25+2,25), 3 - each; mains switches, 3 amp, 250 volt, 8d. each, 7 dozen; Lumophon D.C. mains energised moving coll speakers, 6,500 ohns, with terminals, 11/6 each (fisted 39/6); Pifco Altim-One radiometers, latest bakelite cased, 9/3 each (fisted 16); Ferroart coils, Fl. F2, and F3, G1, G2, and G3, 32/- per set; S.T. 4-500 coils, 5 6 per pair; Kolster-Brandes dual motors, for 100-250 volts, A.C. or clockwork, complete with all accessories and turntable, 25/- each (fist 95-); Edison plugin inductance coils, all values from 20 upwards, centre tapped, 9d. cach, 7 6 per dozen, assorted values; every article new.

A LL Goods Guaranteed and Sent Carriage Paid,

BRANCHES at 271-275, High Rd., Willesden Gree N.W.10, and at 46, Lisle St., W.C.2: please set all post orders to 323, Euston Rd., N.W.1.

SOUTHERN RADIO, 323. Euston Rd., London, N.W.1 (near Warren St. Tube). Phone: Museum 6324.

M ETERS Moving Coil, Weston 301; 10 m.a. and upwards, 22,6; Galvos 30-0-30, 27 6.

NEW British Made, 1 m.a., 27 6; 250 volls (1.000 w. per volt), 32/6; Turners 20 m.a. upwards, 17,6; thermo anumeters, 1.5a, 22-6; French 3-range, 3 m.a., 6v., 240v., 22-6; 2-range, 2 m.a., 240v., 20-; German 2 m.a., 25.; 2.000 volts, 32/6; assorted makers, 25 m.a. and upwards 10-6; laboratory apparatus in steck; meter repairs a specialty.—The Victa Electrical Co., 47, High St., Battersca, S.W.11. Phone: Batt. 0780.

FERRANTI A.F.5, perfect condition: 17.6,—Chandler 70, Deyncourt Gardens, Upminster, Essex. [412]

A.F.5, 12/6; A.F.6, 14'-; O.P.M.1, 7'6; 2-valve A.C. set, complete, 25/-; P.M. speaker 12 6. Wallis, 58a, Erollesham Rd. S.W.12.

PEPPER'S Final Clearance Lists Now Zviilable: all goods guaranteed; the tollowing are only a few examples of our value:--

FERRANTI A.F.7, 15/-; O.P.I, 7/6; O.P.M.5, 9 11: Ferranti 3 gaug condenser, as new, 19 6; A.F.15c, O.P.M.16c, for Class B, 15/ each

M HANES H.T. Unit, good condition, cost £4.14; £1-19 6 carriage [wd.

MANY Other Bargains in our List.-Pepper, 575, Mose-ley Rd., Birmingham (4071

1 WATT Carbon Resistances, 500 chins to 1 megolium, 10/d., 17/dozen plur postage, special for quantities, -54, Herne Hill Rd., S.E.24.

Electradix Bargains METERS. TESTERS. CHARGERS



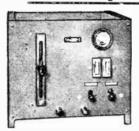
Meters, All Ranges and Types in stock.

The Dix - onemeter

The ideal of multi-range, moving-coil meters. Built to first-grade British Engineering Standard. 50 ranges in one meter. Measures Microamps to 20 amps., millivolts to 1,000 volts, 50 ohms to megohms. Six Terminals. Two clear scales, mirror and knife-edge pointer for accurate reading. Complete in case, 60 -. (Multipliers extra.)

Testers. No. 108, with moving-coil meter and graded Rheo., 12 6. Silvertown astatic horizontal galvos, jewel pivots. 7-. Silam polarised Central Zero Ammeters, 303 amps., 7-. Recording Graph. Voltmeters, 24 10s. Cambridge meters for Pyrometers to 1,200 cent., 35-. 3in. dial., 1,500 volts. D.C. Moving Coil panel. 35-. Testing Sets, Elliott, etc., E. 108, 4 ranges amps and volts, 45-. A. C. Hot Wire. amp., 5-. 6 and 110 volts, 5 9. Ceil testers, 100ckt, 15-; with spikes, 30-. Bridges, 10,000-ohm 4-dial Wheatstone, with Galvo, £10. G.P.O. type, £7 10s. Mirror Galvos Reflecting Beam, by Paul Gambrell, Sullivan and Tinsley, £3 to £10. Standard Res. Boxes and Univer. Shunts, 35-. Electrostatic Voltmeters to 2,800 volts, £2. First grade Moving Coil Meter movements for 5-. In portable wood case, 7 6, or complete Portable Meters, 12-, for home test sets. Peccrd Cirscale, 25-. Weston Moving Coil Panel Meters, 30 m a, 17 6. 120 lb. Gauges, 2 6. Watch Movements, 1 6.

Lesdix Chargers. A.C.—D.C.



We have 25 models to offer, from 35 -, and build special types to special require-ments. Three popular sizes are the AC109A, for 36 cells. The AC10S for 108 cells, and the Lesdix Super Six for 200 cells,

Charger List ' W" Free.

ELECTRADIX RADIOS 218 UPPER THAMES STREET, E.C.4

Telephone: City 0191.





Works on small battery lasting 12 months, or can be plugged into G.B. Battery without affecting reception. Uses practically no current. Fits into hole 3½" dia. in any panel up to ½" thick. Easy to fix—no screws required. Only ½" from front of panel to back of case. Swiss move ment. Hands set from front. Nickel plated bezel. Useful addition to any set.

TO Any Set,
RIVERSIDE MFG. CO., LTD.,
Dept. 29, Crisp Rd., Hammershith W 8
Telephone: Riverside 6392
POSTAGE 6D



CATALOGUE 1933-34 NOW READY FOR THE TRADER.

Persous supplies all makes KITS OR PART KITS,

or any components, vaives or Speakers, at best discount. LATEST WIRELESS WORLD & OTHER JOURNAL KITS PERSEUS RADIO, W.W. Burton - on - Trent.

Components, etc., for Sale.-Contd.

BIRMINGHAM RADIOMART.—Radiophone, 27/6; straight 3-gangs, duet cover and trimmers, 12/6.

straight 3-gangs, duct cover and triminers, 12/6, RADIOMART.—Utility 25 - 2-gangs, with concentric knob trimining wavelength disc dial; 7/6.

RADIOMART.—T.C.C. electrolytic bias condensers, boxed, 50 mfd, 12v, or 6 mfd, 50v.; 7½dd,

RADIOMART.—Millianmeters, all readings above 20 m.a., 5 9; super 3in, model, 6, 9.

RADIOMART.—T.C.C. 4×4 mfd, 375v, working, 3/9; 2/1, 2/2 mfd, 500v, working, 2 9; 4×4×1 mfd, 500v, test, 3/3.

R ADDOMART.—440v. electrolytis. T.C.C., 8 mid., aqueous, 3 11; Hellesen ditt), 3 3; Hellesen 8× mid., dry, 3 3.

R ADDOMART. Wearite transfermers, 300/300, 250/ R 250, H.T.8, H.T.9, all with 4 4 A.C.T., 4v. 2½ A.C.T., 10 6; Metvick 250 250, 4v. 2.4v. 5, 12/6; no stripped models.

RADIOMART.—I watt resistances, wire ends, Erie, nost values, 3d.; one dozen, your selection, 6/9; H.M.V., Philips, etc., 6d.; one dozen, your selection, 5-6; our selection, all different, 5-; Metycke 25,000, 100,000, 2 meg., three for 6d.; Ohmite 1, meg., 6d.

RADIOMART.—Louis super chassis mount, screened colls aerial, 2nd band-pass, tuned H.F., with reaction; 2 - each, set of three 5-.

action; 2 - each, set of three 5 -.

RADIOMART.—Lours super lack | lu_s. \$d.; 6ft, Lewcos twin screened pick-up cable, \$t.; ditto single, 6d.; 5-way heavy cable, 6d, yard length,

RADIOMART.—Non-inductive tubulars, 0.1 T.C.C., 375.

Working, C.2 or 0.01 mid., 1.5ccv. test, 6d, each,

RADIOMART.—Lotus push-pull 34-1 intervalve transformers, manufacturing tyle, no bakelite case; 21-.

RADIOMART.—Fostage 6n less than 6 - 6d, extra, 5therwise free; new and revised list, now ready, for stamp.—19, John Bright 8t, Biranischam. [4134]

GILBERT INDUSTRIES Parells and Components,—

"A." B" and "D" pareels still available by return (see issue 0ctober 6th).

O'R. Fannon 30 m.a. 180v. A.C. Eliminator Kit, complete in every detail, has now been redesigned with a still smarter case and beavier rectifier; price remains at 30, post paid, while supplies last.

GILBERT INDUSTRIES, Itd., 512, London Rd., West, Chilb., Essex. "Phone: Southend 422071. "Come and see us Sunday morning." [0402]

SURPLUS Components of All Descriptions for Disp bargam price; callers only. Newport Surplus 8t 24a, Newport Court, W.C.2.

N KORE 1 Transformer, 8 6; 11, 6 5, new; Baird Teievisor, perfect, £6; several other components.—Tat, 136. Bluebell Hill, Nottingham. [4122]

NY Radio Receiver, kit or gramophone part supplied; cash or terms; illustrated catalogue tree.—W. D. Burt, 185, High St., Deptford, S.E.3. [4114]

CINEMATOGRAPH Projectors, optical lanterns, films, slides, projection bulbs, lenses, spotlights; your inspection invited of big selection of bargains too numerous to but

I LLUSTRA ENTERPRISES, 159. Wardour St. (facing Film House), London, W.1. Phone: Gerrard 6889.

RESISTANCE Boxes, four lial, rotary switch type, 5,110 w., R. W. Paul, 65 postage 1 styrothmeter panel, M.C. 3v. 7 6, postage 6d.—Beatons, Chalk Farm Rd., N.W. [4123]

Gen. N.N. [4123]

SPECIAL Christmas Bargains: Twin-gang tuning units for broadcast wavelends, with special position for Feeanp, list price 12 6, our price 6 6; also 0.0005 J.B. S.M. variable condensers, list price 8 6, our price 3/9; 1/- blue prints free!—N.R.S., Lul., 15, Alfred Place, London, W.C.I.

1. blue prints free!—N.R.S., Ltd., 15, Alfred Place, London, W.C.1.

MODERN RADIO pre-ent the following amazing bargoins in new, bankrupt stock, and manufacturers' surplus; we have hundreds of absolutely satisfied customers; can we add your name to our lists; we are noted for square dealing, and always endeavour to give complete satisfaction.

GENUINE Fay Microphones, boxed, new, complete with stand, battery and transformer; microphone mounted in frame on three-point spring suspension; buy one now and introduce losts of fun at your Christmas party; postfree, 15, each.

FAY Acoustic Model Home Recarders, complete with special supplier cutting ne dle, tracking arm and soundbox, with speech horn; record your home talent right now, 53 cach, new, boxed and post free; records for above, 6im, double-sided, 23 per dozen, 8im, double-solied 6 per dozen.

If You Want the Real Heart of a Meraphone buy one of our super-sensitive merophene buttons, and make any amount of experiments; they can be used with or without a transformer, and can either be used with a diaphragm, or served to any article in the room in order to pick up the sound wave; all in perfect order and guaranteed, 1 6 cach.

PHILLIPS Mains Transformers, input 100-200x, output 250-0-250 60 ma. 4y, 3amp. C.T., 4y, lamps, 5/-210y, input, output 200-0-200x, 30 ma. 4y, 3amp. C.T., 4y, lamps, 6/-210y, input, output 200-0-200x, 30 ma. 4y, 3amp. C.T., 4y, lamps, 6/-210y, input, output 200-0-200x, 30 ma. 4y, 3amp. C.T., 4y, lamps, 6/-210y, input, output 200-0-200x, 30 ma. 4y, 3amp. C.T., 4y, lamps, 6/-210 may article for Disposal at 1.6 cach; stampings alone with trable.

SUPERIOR Model A.C. Meter in Bakedine Case, reading 5.5 and 275 y., new and boxed, 12 6 cach; H.T.3 rectifiers, 10 6 cach, manufacturer* type.

PHILLIPS Block Condensers, 300.5, working, all in perfect order deading and the deady and perfect, 4d, cach, 3 - per dozon; special price for quantity.

PHILLIPS Block Condensers, 500x, test, 2x2x1x1

DUBLILIER Block Condensers, ECCV, test, 2x2x1x1

MOOTHING Chokes, ex-H.M.V., 640 chm, 30ma, 20 hen, 2 6 cach.

KOLSTER BRANDETS Speakers, in solid oak cabinet, and very sensitive movement, incorporated, all new and boxed, model 287, 12 6 cach.

(This advertisement continued on next page.)

Components, etc., for Sale .- Contd.

(This advertisement continued from previous page.)

(VENTRALAB Twin Volume Controls, 10,000 and 100,000 ohms, 2 - each; listed at 10.6.

PHHLLPS 6,000 ohm Volume Controls, with switch, 5 - each; -pecial smoothing choke, as used in Phillips' receives, about 300 ohms, 20 30 hen, 25 milianus, nickel iron cote and special impregnated winding, 2 - each;

ARCONI Model 34 Short Wave Sets, in sloping mahog-any cabinet, detector, L.F. and power type of circuit, fitted with ultra-slow motion condensers, with two coils to cover 16-52 metres, 27-6. A.H. Ahove Goods Post Free Except L.F.S.; we calculate the send by return; for quick delivery send cash with order.

cash with order, M ODERN RADIO, 25, York Terrace, Clapham, S.W.4, Callers only to Modern Radic, 37 Liste St., Leicester Smare. [4138]

Square. [4438]

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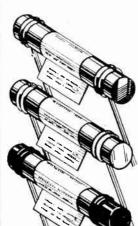
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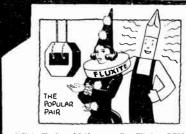
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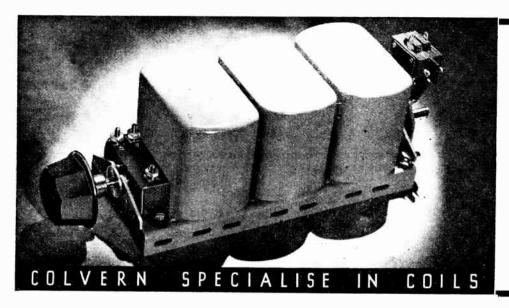
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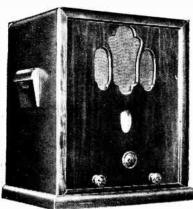
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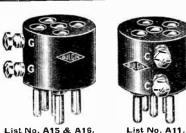
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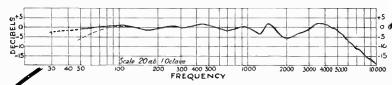
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THE HARTLEY-TURNER RESPONSE CURVE



We publish our response curve simply as a basis for comparison. It gives no information as to sensitivity, constancy of balance at all inputs, or ability to reproduce transients. This can only be proved by demonstration, and we would like you to call and hear the HARTLEY-TURNER.

D.C. Model - 7 Guineas.

A.C. Model — 8 Guineas.

and it is a true picture of the performance of our speaker over the whole room. A series of curves were taken by Mr. P. G. A. H. Voigt on his continuous recording apparatus, on the axis of the speaker and at 30 and 60 off the axis. To calculate the mean spherical forward radiation we multiplied each of these curves by a factor representing he relative area of its corresponding zone of the hemisphere and added all three together. The three zones are 0-15, 15-45, and 45-90. The areas are, therefore, proportional to 1-cos15, cos15-cos45, cos45-cos90, or 1, 7,5 and 20. The three curves were multiplied by their appropriate factors and then superimposed to find which of the sharp humps and dips appeared on two or more of them, which would indicate real resonances and not just accidents of the measuring chamber. All such "real" humps and dips are included in the final curve. The lower of the dotted lines at the bass end of the curve shows the response on the test baffle, the upper heing corrected for infinite haffle.

It should be noted that this curve is not the response of the speaker at a spot carefully chosen to flatter it; the response at high frequencies is very much greater on the axis, but we feel that the reader is more interested in what he hears all over the room. Bear this in mind when comparing other curves; in any case, the curve is good enough to stand by itself.

The interpretation of Loud Speaker Curve: is dealt with in "New

The interpretation of Loud Speaker Curves is dealt with in "New Notes in Radio," sent for 11d. stamp.

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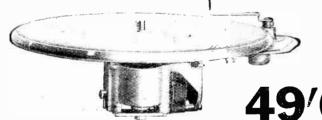
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• We have now produced a valve having the highest sensitivity of any Pentode Output Valve. What does this mean?

It means that it will operate a moving coil speaker with plenty of volume from a pick-up *without an intermediate amplifying stage.

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*By a pick-up we mean, of course, the B.T-H Pick-up which is in universal use.

Your dealer has these valves in stock and can give you further details, or you can write to the Valve Service Department who will be pleased to send you full information and circuit diagrams.

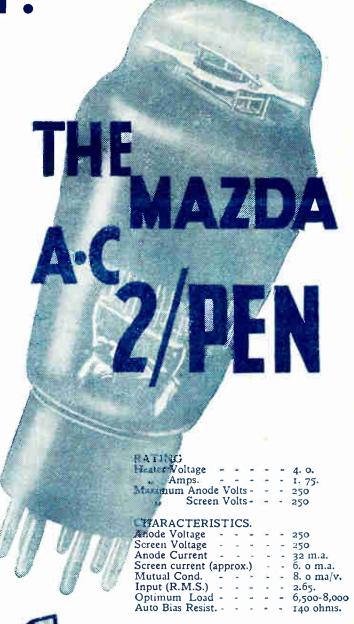
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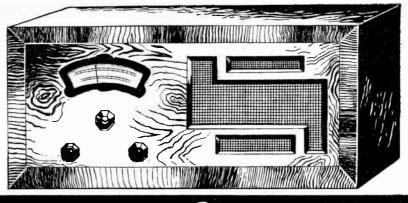
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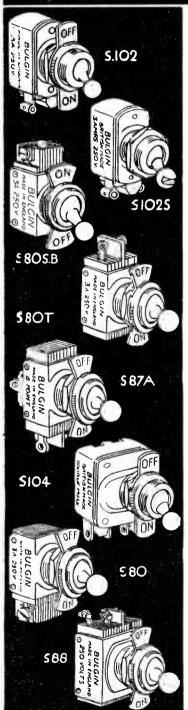
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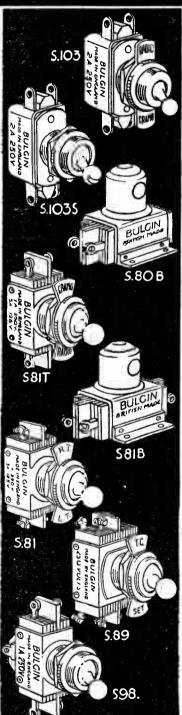
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OUTSTANDING PERFORMANCE

The C.A.C. "OXFORD" FERROCART CLASS "B" RECEIVER

Designed by W. I. G. Page, B.Sc. (late of the "Wireless World" Technical Staff).



The 'Oxford' Ferrocart Class "B" IV is a four-valve Battery Receiver of ultra-modern technique, in which has been embodied many refinements which months of research have proved worth while. The triple-ganged iron-core tuning circuit ensures the greatest possible degree of selectivity and stations of high power only 9 kc. apart can be separated easily. The Class "B" stage has been specially designed to give perfect quality of reproduction and many new circuit modifications have been effected. The undistorted output is about 2 watts, which is ample for the largest of rooms, lutin spite of this, the H.T. consumption averages only about 10 m.a.

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A continuously variable pre-driver tone adjustment is provided.

So that brilliant reproduction is possible with speech and greater prominence can be given to the lower register where music is concerned. The position of the tone control ensures a saving in H.T. current.

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Prics: complete with B.V.M.A. Valves, H.T. and L.T. Batteries, and "Rola" Moving Coll Speaker

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The C.A.C "PENTAGRID" SUPERHET IN GRAND-**FATHER CLOCK CABINET**

One of the advantages of purchasing a "C.A.C." Receiver is that the Chassis are so constructed that they are interchangeable with any type of Cabinet manufactured by the Company. "C.A.C." are the only manufacturers who are in a position to offer this advantage and customers have the choice of over 50 different designs of Cabinets at their disposal.

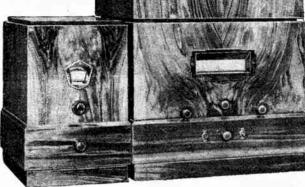
Alternatively, "C.A.C." specialise in the manufacture of Cabinets to a customer's own specification and enquiries of this nature are earnestly invited. The "C.A.C." Pentagrid Receiver in the handsome Grandfather Clock Cabinet, illustrated herewith, is a typical example of the wide range of Cabinet designs available. It is fitted with a synchronous Electric Clock movement and Garrard Automatic Record Changer, whilst the two side compartments allow for the storage of a large number of Grannophone Records. The Cabinet is supplied in Burr Walnut, Mahogany or Figured Oak.

Price. complete

Price, complete 45 GUINEAS or, 88/7 deposit and 11 monthly payments of 88/7.

Advertisement of The City Accumulator Co., Ltd.





The C.A.C. "PENTAGRID" SUPER-HET

Designed by W. I. G. Page, B.Sc. (late of the "Wireless World" Technical Staff).
Read what the "Wireless World" said in the Test Report last week.

Read what the "Wireless World" said in the Test Report last week.

"The enthusiast for long-distance reception will find in this group of Receiver units the ideal medium for the pursuit of his hobby, for there can be little doubt that the range available is the maximum which can be gained from the aumber of Valves used. From this point of view, the 'C.A.C.' set is able to offer something a little BETTER THAN THE ORDINARY RUN OF 4 VALVE SUPERHETS.

"The first thing to attract attention in testing the Receiver is its extraordinary liveliness and high over-all magnification. Concinental stations on the medium wave-band, which are difficult to receive in daylight, came in with a volume which normally one would expect only after sunset. The selectivity on medium waves was excellent and barely one channel is lost in central London on either side of the local B.B.C. transmitters." Speaking of the auxiliary short-wave unit shown in the above illustration, the report continued:—"During the periods of the test, three American stations. Pittsburgh, W8XK, Schenectady, W2XAD, and Bound Brook W3XAL, were received at good strength with only slight fading during the afternoon. On the two higher wave-bands all the European amateurs and short-wave broadcasting stations were always available, and as a medium for the exploration of this interesting field, the "C.A.C.' SHORT-WAVE UNIT COULD HARDLY BE BETTERED.

"THE PREDOMINANT IMPRESSION LEFT AFTER HANDLING THIS EQUIPMENT IS THAT, BY COMPARISON WITH THE ORDINARY RUN OF MASS-PRODUCED RECEIVERS, IT POSSESSES JUST THAT EXTRA DEGREE OF EFFICIENCY THAT IS SOUGHT AFTER BY THE ENTHUSIAST OF LONG-DISTANCE RECEPTION."

THE "C.A.C." PENTAGRID RECEIVER is a table model Superheterodyne for A.C. mains and is housed in two houses we have contained and the contained contained to the contained contained to the contained contained

THE "G.A.G." PENTAGRID RECEIVER is a table model Superheterodyne for A.C. mains and is housed in two handsome Walnut Cabinets, one containing the Receiver portion and the other the Rola M.C. Loud Speaker unit. This arrangement allows of the movement of the Loud Speaker from room to room without detracting from the appearance of the Cabinet. Provision is made for Gramophone Pick-up. The circuit comprises a band-pass input to a Heptode Frequency Changer, the latter performing the dual functions of oscillator and first Detector in the most efficient manner known. A Variable-mu Valve is used in the LF, stage, adding its contribution to Automatic Volume Control, whilst the third Valve is one of the new Duo-Diode-Pentodes, which gives almost perfect A.V.C. The fourth Valve is a Catkin Pentode. A full wave Rectifier is employed. The output of about 2½ watts is fed into a specially sensitive Rola Moving Coil Speaker. The four special Valves give an overall performance which is equal to that of any ordinary 6-Valve Superhet on the market.

market.

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Designed by W.I. G. Page, B.Sc. (late of the "Wirsless World" Technical Staft).
The C.A.C. short-wave adaptor is designed according to the latest technique and consists of a 3-valve unit (including rectifier) with an aperiodic H.F. stage to prevent damping of the tuned circuit, which in turn is coupled to an antodyne frequency changer valve. To avoid microphonic noises, Catkin valves are used. The unit is complete with its own mains equipment and can be used with any set without alteration. A waveband of from 12 to 14 metres is covered by means of three interchangeable coils and special tropical insulation is employed in the tuning condenser and in the fixed condensers. The special reaction condenser, which can be set 'to give optimum coupling, has phosphor-bronze ball bearings which prevent noisy operation. When using the Convertor, it is only necessary to connect the aerial and earth to the appropriate terminals and to join the output of the unit to the aerial and earth terminals of the broadcast receiver. The latter should be set to work at about 1,875 metres on the long waveband. By the use of comprehensive decoupling and liberal smoothing equipment, the Convertor is absolutely stable and free from hum.

and free from hum.
Price, complete with Valves and Gabinet £10 - 0 - 0



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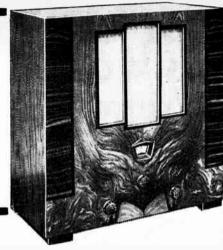
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Radiophone "Matched Perfection Seven"

The Radiophone "Matched Perfection Seven"

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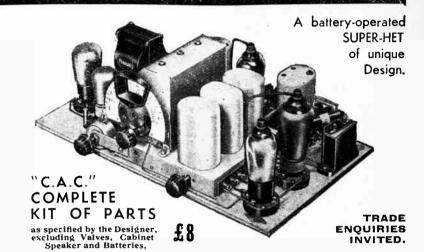
MAGNIFICENT

BURR-WALNUT

CABINET SPECIALLY CON-

STRUCTED FOR THE NEW MONODIAL SUPER.

STRUCTED FOR THE NEW MONODIAL SUPER. It represents the finest example of Cabinet making Craftsmanship and is manufactured throughout in our own Factory. As regards appearance, qualities one of the construction and finish it is in a class entirely of its own. It is manufactured in specially selected Burt-Walmit, with an chonised platform and Macassar Elbony base. The Cabinet can also be supplied as a Radio-gram, with raised hinged lid, at an additional cost of 20 -.



ASK YOUR DEALER FOR FREE BLUE PRINT, OR SEND 3d. STAMPS, to cover postage, to our address

THE "WIRELESS WORLD" **NEW MONODIAL SUPER**

The most outstanding year. of the

Since this excellent circuit was published some time ago, we have disposed of hundreds of Kits of parts in all parts of the world and have received nothing but the highest praise as to its performance. The demand for these Kits is as great as, if not greater than, ever and we commend the circuit to those who wish to obtain the very best that radio science can offer.

We shall be pleased at all times to see any reader of "W.W." at our Showtowns and to be able to demonstrate the capabilities of this wonderful instrument to them.

KIT "A" RECEIVER UNIT:

Comprising the Designer's first specified components (less Chassis, Pancl, Valves and Cabinet) - £10 - 19 - 6

KIT "B" POWER UNIT:

Comprising the Designer's first specified components (less Chassis and 88 - 13 - 6 Detailed Price List Free on Application.

ALUMINIUM CHASSIS correctly with side members, finished in French-Grey cellulose. Receiver Chassis, 10 -; Power Unit Chassis, 76. "C.A.C." Panel, 14" × 10", in Polished Oak, Walnut or Mahogany, 2 -. Valves: Receiver (5), £4-4-6. Power Unit (4), £3-0-6.

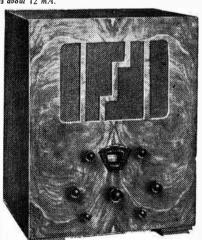
CONSTRUCTION.

We shall be pleased to undertake the construction of the Monodial Receiver to customers' own requirements. Only highly skilled technicians, under the personal supervision of Mr. W. I. G. Page, B.Sc., are entrusted with this work. This ensures that the results obtained by the designer will be duplicated.

Ferrocart Class "B" The A Highly Selective 4-valve Battery Set with 2 Watts Output

By W. I. G. PAGE, B.Sc.

Constructional details are here given of a "straight" battery receiver combining the virtues of Class "B" amplification and Ferrocart tuning. A remorkable all-round performance is obtained, for the selectivity is such that 60 kW stations 9 kc. apart can be separated; the sensitivity is high—some 80 stations being logged in one evening—and the undistorted output is rather more than two watts, being sufficient to fill a small hall. The total working H.T. consumption for full output is about 12 mA.



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Cabinet in selected Figured Walnut, exclusively specified by the designer and manufactured in our own in our factory,

32/6

Front drilled, if desired, without extra charge.

Complete (less Valves, Bat-teries, Cabinet and Loud KIT "A." Speaker)

KIT "B."

Speaker)

Complete with Valves (less Batteries, Cabinet and Loud

Complete with Valves, Cab-inet and Loud Speaker (less KIT " C."

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t of 20 -. ENTERNAL DIMENSIONS: Height 36, 4in., Width 20in., Depth 17in. INTERNAL DIMENSIONS: Height 2f, 54in., Width 19in., Depth 16in. PRICE £5 or with raised binged lid, as Radio-Gram Cabinet, 26.10.0



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Remember R.I. components are the solution to selective and amplification problems, and may be thoroughly relied upon for the most satisfactory results.

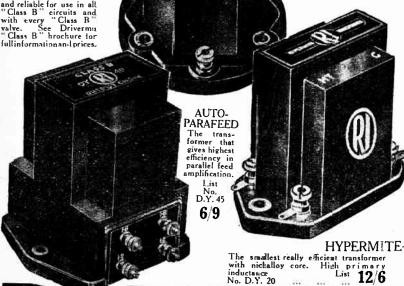
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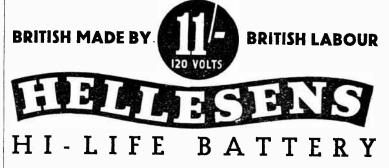
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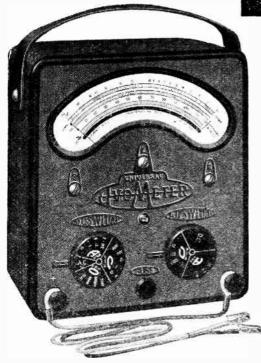


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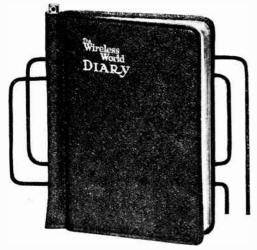
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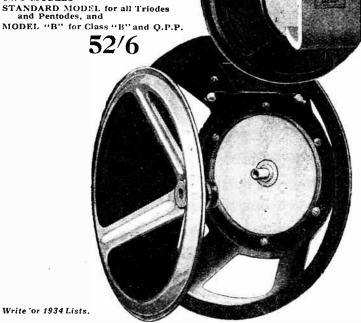


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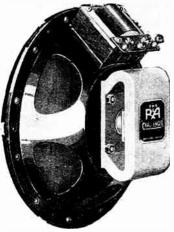
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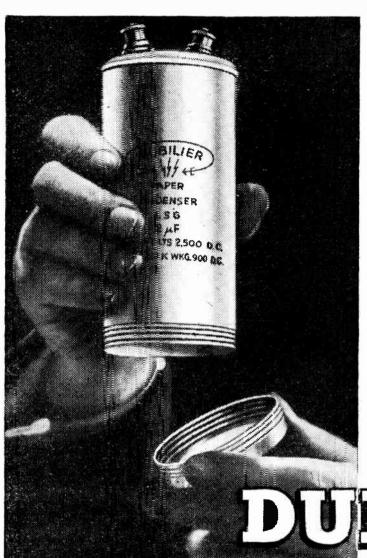






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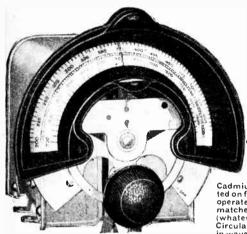
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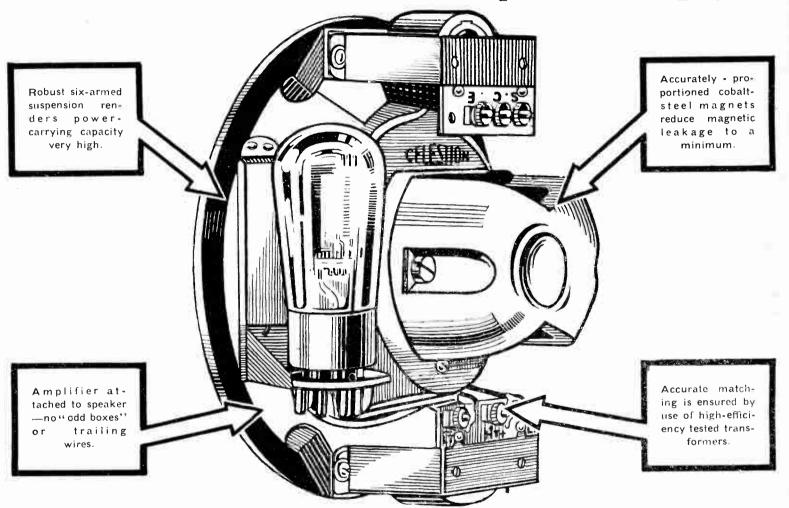
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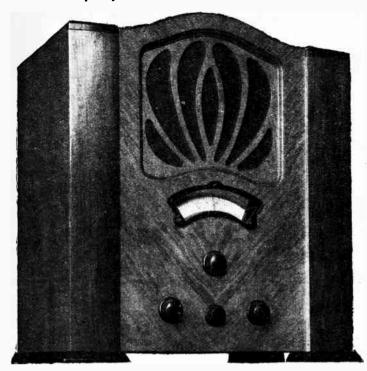
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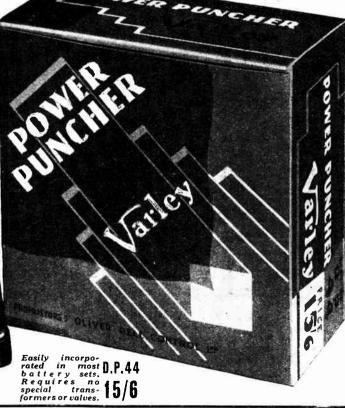
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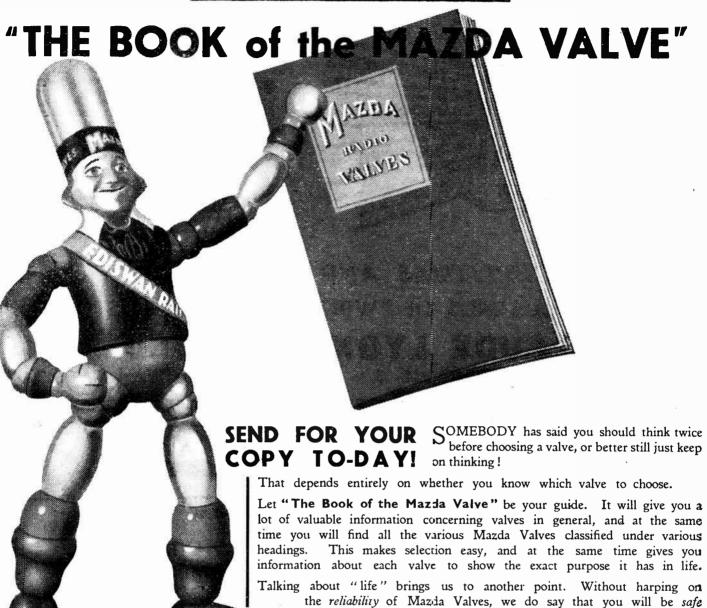
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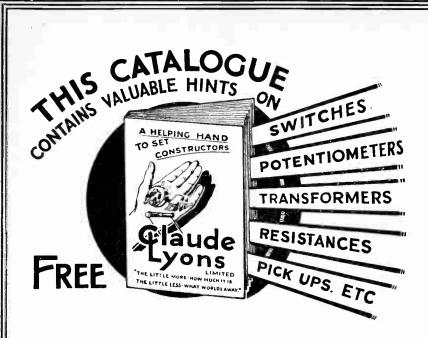
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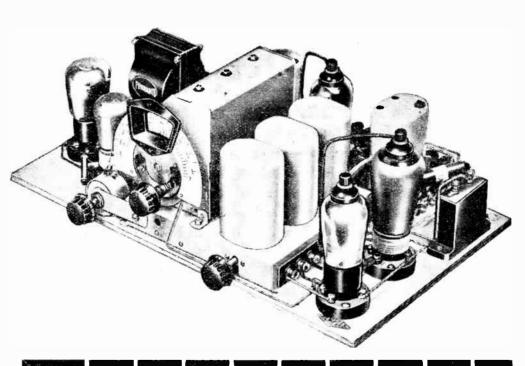
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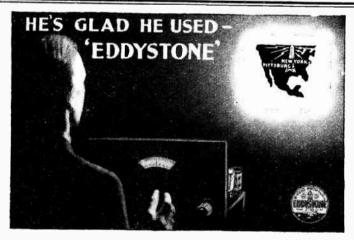
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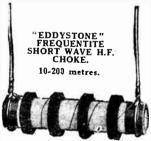
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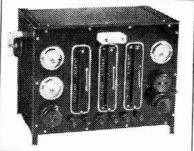
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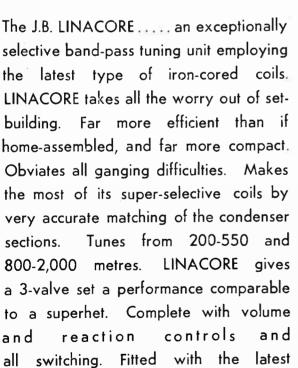
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Advertisement of Jackson Bros. (London), Ltd., 72, St. Thomas' Street, London, S.E.1.

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MEDLE x

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U got a Robo)." Carry me back to old
Virginny, "Mightyithea rose." Round
the bend of the road. "River stay way
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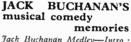
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(Lafayette)



Jack Buchanan Medley—Intro:
"Dancing Honeymoon," Her
Mother came too," "Fancy our
meeting," Who?," "Two little
Bluebirds," "Goodnight Vienna,"
'It's not you," "There's always
tomorrow" c2630 4/Adapted from the French
(Douglas Furber) 188072 2/6



CICELY COURTNEIDGE and prolonged

laughter) laughter)
The girl in the Post Office (Ronald Jeans)—Two minds without a single thought (Douglas Furber) (Cicely Courtneidge and Company) C2623 4]—If I had Napeleon's Hau-We'll all go riding on a rainbow (Intro: Wind's in the West) 88067 2/6 My wild oat—The wind's in the west (Both from Film: "Aunt Sally")

B8068 2/6



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Gracie at Home-

(A sing-song Party), GRACIE FIELDS assisted by her, Mother and Father, Sister (Betty Fields) and Brother (Tommy Fields) - C2822, 4-



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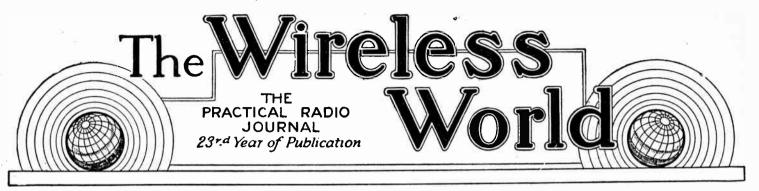
Hungarian Rhapsody No. 2
(Liszt)—Eight piano ensemble
(Leader, Philip Finch) (recorded at the Carlton Cinema, Upton Park) C2618 4/-

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B8075 2/6

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No. 745.

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As many of the circuits and afparatus described in these pages are covered by patents, readers are advised, before making use of them, to satisfy themselves that they would not be infringing patents.

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A Wireless Christmas

Help to Bring Broadcasting into Every Home

let us take this opportunity to convey to our readers in all parts of the world our sincere wishes for Christmas and the New Year. readers in this country it may seem early to talk of Christmas, but it must be remembered that many of our readers in distant parts of the world have to wait some weeks for their copies; some, in fact, will not even receive our greeting until the New Year.

Another reason why we should talk of Christmas in advance is that we like to remind our readers that wireless provides the ideal Christmas gift; not only does hroadcastling to-day still remain unquestionably the chearest possible form of entertainment, but if we give a friend a wireless set or accessory, we do so with the satisfaction of knowing that it is a gift which can be counted upon to give long service and be a constant source of pleasure. A wireless gift carries with it the assurance that it will provide entertainment far into the future, and since almost everyone in this country is interested in wireless in some direction, it would be hard to find a gift of more universal appeal.

or other accessories, so that the choice is wide enough to come within the pockets of everyone. In the case, too, of a present to a family, wireless provides the ideal gift because it can be enjoyed by all members of the family and a more ambitious gift can be indulged in instead of dividing the sum to be expended amongst a number of individual smaller presents.

As each Christmas time comes round broadcasting is used more and more to bring the atmosphere of Christmas intenthe Jame. The B.B.C. is already rlanding special broadcasts on more ambitious lines than ever, whilst all over the continent Christmas will be celebrated by means of broadcasting, so that those of us who listen-in will have the opportunity to tune in to local atmosphers more than at any other time.

Empire Broadcasting

Empire Readouting will we hope, this year serve more than ever its purpose of linking together those who are celebrating Christmas at home with those in the Dominions and the Colonies. It will be remembered that the Empire Broadcasting station was inaugurager bout this time last year, and we get that we have a special interest ourselves in the progress of this service. It is now many years since we first put forward the proposal that an Empire Broadcasting service An Unlimited Choice should be established and we look forward to important developments in the matter of wifes there is nor the future, although, of the ssity, enormous variety of wireless articles progress up till now has been slow. from sets down to replacement valves. It is, however, on occasions such as Christmas that the true value of a station which links all parts of the Empire is brought home to us all must forcibly.

沃尔尔尔茨尔尔尔尔尔尔尔尔尔尔尔尔尔尔尔尔尔尔尔尔尔尔尔尔尔尔尔尔尔尔

The Christmas Spirit

Embraces The World

How the Earth will be Girdled

FEW years ago the home without wireless was not the anomaly that it will be next Christmas Day, when the whole of the Empire will be linked up by an invisible network of wires and wireless. No one need miss the opportunity of joining in; indeed. to be deaf to such a world-stirring eventand the adjective is justified-will constitute something of a reproach. The event will take on an even greater significance this year because practically all English-speaking peoples will be included. the broadcasting organisations of the United States having decided to join in. Nor will the festival be confined to Christ-

mas Day, for the broadcasting of the bells from the Church of the Nativitiy, Bethlehem, on December 24th, is also an event in world history, and must be

The control room at Faraday Building,
London, which will
form the hub of the
world broadcast. The
wireless signals are
handled at the desk
on the left.

Sandringham House. from which His Majesty the King will speak to his Empire on Christmas Day.

the interval, however, thanks to the active co-operation of the Colonial Office and the High Commissioner for Palestine, arrangements have been made for the relay from the Holy Land at 8 p.m. (G.M.T.) on Christmas Eve. Fortunately, it will not be in the nature of a technical experiment, for the recent relay of the opening of the



A general view of the Office beam transmission station at Rugby, which will convey the greetings to Montreal, New York, Sydney, Cape Town, and Bombay.

included in any radio record of Christmas, 1933.

The suggestion for such a broadcast came from the National Broadcasting Company of America last year, but, owing to various difficulties, it was not then possible to put the idea into practice. In

new harbour at Haifa proved that the land-line arrangements between Palestine and the Post Office beam transmitter at Cairo are more than adequate. The sound of the bells will be picked up by a microphone installed at the traditional site of the birthplace of Christ and from thence

the chimes will be relayed by overhead line via the repeater station at Ismailia to Cairo, which is connected by a short line to the Post Office beam station at Abu Zabal, there to be transmitted and picked up by the Post Office beam receiving station at Baldock. This station is connected direct to the Faraday Building, Queen Victoria Street, London. This point will, indeed, be the "nerve centre" for nearly all the exchanges of wireless messages at Christmas. It will pass the signals to the beam transmitters at Rugby and also by special line to the control room at Broadcasting House, whence the messages will be distributed to all the B.B.C. stations and also to the Empire broadcasting station at Daventry for retransmission by short waves all over the world. It will be possible for a man in Bethlehem to have the uncanny experience of hearing the actual bells while at the same time picking up the sounds from Daventry.

The Three Phases

The great Christmas Day programme really falls into three divisions. First, Britain will speak to the Empire, then the Empire will reply, and, finally, as a fitting climax, the Empire, and, indeed, the world, will hear the personal message of His Majesty the King, delivered from his

home at Sandringham.

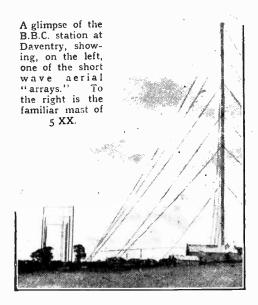
At 2 p.m. (G.M.T.), when Christmas Day has already become but a memory to Australia, there will begin a series of sound pictures broadcast by the B.B.C. These will go out to the world via the shortwave station at Daventry on 25.28 metres (G.S.E.) and 16.86 metres (G.S.G.), and also over the Post Office telephone routes to the Dominions and Colonies, giving the world an idea of how Christmas is being spent in the towns and villages of the United Kingdom. Street noises, the clock chimes, and even, perhaps, the outdoor hush which is always noticeable on



The Christmas Spirit Embraces the World-

Christmas Day during the consumption of turkey and plum pudding indoors, will form a vivid tableau of almost poignant interest, one imagines, to Colonials and other exiles who are spending their Yuletide sweltering under palm trees or driving away mosquitoes in African swamps.

At 2.45 p.m. the Empire will exchange Yuletide greetings. Not only will the messages come to Britain; they will be distributed by beam and short-wave wireless



from one Dominion to another, so that South Africa will hear Canada's greeting just as clearly as we shall hear it in London or Edinburgh. First will come a message from the Irish Free State, relayed from Dublin to Belfast and thence by the special

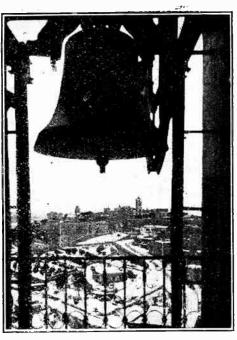
B.B.C. line to Manchester. Then the Bermuda Isles will greet the world via New York, and the transatlantic beam system. Canada's message will come from Ottawa and through the beam station at Montreal, while New Zealand and Australia will transmit their greetings via the beam station at Sydney. India's message will be transmitted from Bombay. South Africa will speak from the transmitter at Cape Town.

After 3 o'clock the Empire will wait expectantly for the message of His Majesty the King, who, speaking from his study desk, will have the largest audience ever within the call of one voice.

The Task of the Post Office

Included in the great circle of listeners will be millions of citizens of the United States. The King's message, picked up by the transatlantic telephony station at Houlton (Maine), will pass thence, after amplification, to the New York radio terminal switchboard, there to be relayed to the control rooms of the American National Broadcasting Company and the Columbia Broadcasting System. The two great networks controlled by these organisations include at least several hundred stations ranging in power from a humble 500 watts to 50 kW.

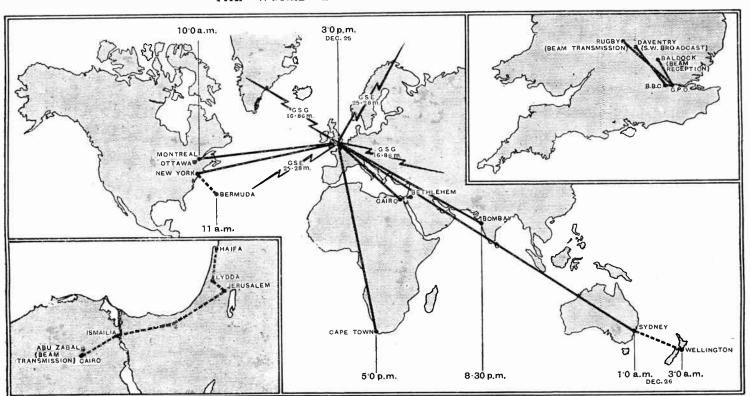
His Majesty's speech will also be recorded by the Blattnerphone system, so that listeners in the farthest-flung portions of the Empire will be able to participate even after the actual event has passed into history. The retransmission will be made from the other wavelengths at Daventry at the appropriate zone times.



A picturesque view of Bethlehem, seen from the belfry of the Church of the Nativity.

A very great burden of responsibility for the broadcast falls on the shoulders of the Post Office. For an hour and a quarter on Christmas Day, when the majority of listeners are at their ease in their own homes, the control-room officials at Faraday Building will be engaged in a task which admits of no mistakes, no flurry and no haphazard working. To them, to the B.B.C. engineers, and to the host of operators contributing towards the success of this great effort in all parts of the world, we extend the time-honoured greeting: "A Merry Christmas!"

THE WORLD BROADCAST AT A GLANCE



This map gives some idea of the magnitude of the world-programme on Christmas Day. The Post Office telephone services will bear a large share of the messages, though the "nooks and crannies" of the Empire will be brought in by means of the B.B.C. 's short-wave transmissions from Daventry. Left inset: The land-line route to Palestine. Above: The main lines in Great Britain.

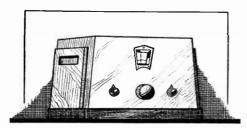


osing a New Set

Types Suitable for Every Purse and Purpose

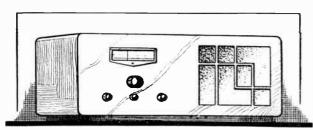
OST of us can recall the time when, having had to suffer in silence the enfeebled noises emanating from the antiquated receiving set of some deserving though less fortunate friend or relative, we have experienced the impulse to make them a present of a set which will do real justice to the quality of the B.B.C. transmissions. No season of the year is more propitious than the present for giving effect to such a resolve, and the range of choice is now so wide that there should be no difficulty in finding a suitable instrument at the price one is prepared to pay.

In the majority of cases a simple twoor three-valve set capable of receiving the local and national programmes is all that is required, and in the interest of future maintenance costs it goes without saying



The two- or three-valve detector-L.F set is an inexpensive medium for the reception of the local broadcast services.

that a mains set will be the inevitable choice if the recipient is on the supply mains. On the other hand, if a battery set is indicated there should be no hesitation in paying the little extra that will buy a set with one of the modern economical output stages, such as Class "B," for by so doing the gift will carry with it a



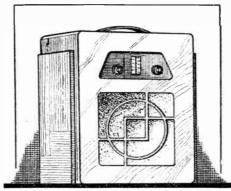
For good "all-round" performance under modern reception conditions the four-valve superheterodyne is unquestionably the most popular type.

saving which may well amount to £1 per annum in perpetuity.

For use in urban areas a detector-L.F.

set will almost always suffice, but if there is a possibility that an adequate aerial may not be available, or if the set is for use in a remote country district, a three-valve set with an H.F. stage will provide the extra range required.

Though sets of the last-mentioned type



Where little is known of the circumstances in which a set is to be used, the modern battery superheterodyne portable can be relied upon to give a good account of itself.

will suffice and can be bought very cheaply in these days, there is some justification for the view that, as we are not

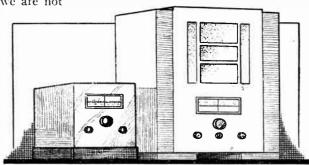
likely to be giving a wireless set away every day, it might as well be a good one with a performance somewhat in advance of the owner's present requirements. In any case, if there is any question of serious foreign station listening it would be as well to go straight to the four-valve superheterodyne class. There can be no doubt that under modern receiving conditions

a set of this calibre is necessary in order to attain the requisite degree of selectivity. In this category we would include "straight H.F." sets of modern design, which are often capable of giving an equivalent performance without the drawback of second channel interference.

Where little is known of the circumstances under which a set is to be used, one cannot go far wrong in deciding on a modern battery portable. The set will, of course, be independent of aerials and supply mains, and as there are now superheterodyne models with autoMANY Christmas gifts are of transitory interest and value, but a wireless receiving set will be remembered and appreciated for many years to come. For this reason it should be chosen with due regard for the requirements—both present and future—of the recipient.

matic volume control there is no reason why the results obtained should be inferior to those given by sets working on an outside aerial. Of course, if it is known that facilities exist for the erection of an aerial and there is some doubt as to the nature of the mains supply, or if there is a possibility that the current may be changed shortly from D.C. to A.C., the obvious choice will be a set incorporating universal indirectly heated valves.

If we are feeling in a particularly expansive mood a radio-gramophone might be considered, and in this connection the latest battery models should not be overlooked. These instruments, which can be bought for a little over £20, now give a



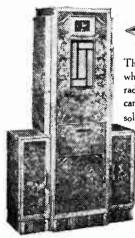
A short-wave adaptor opens up a fascinating field for those already in possession of a broadcast receiver.

sound output comparable with their mains-driven cousins and, thanks to the new output valves, are surprisingly economical in H.T. consumption.

It may well happen that our friends are already fortunate in possessing a modern receiving set. In this case the gift of a midget receiver as an auxiliary to the main set will probably be acceptable. Another useful adjunct would be one of the many short-wave adaptors now on the market. These are really superheterodyne receivers in miniature; for they change the incoming signal to a frequency which can be







(CAC)

The problem of what to give to your radio-loving friends can be promptly solved by referring to our advertisement on pages 2 and 3.

The "C.A.C" GRANDFATHER CLOCK
RADIO-GRAM CABINET

In Burr Walnut, 16 GNS.



Give components for the New Wonder Receiver



RADIOPHONE
"MATCHED PERFECTION 7"

SUPER HET RADIOPAK FREE BLUE PRINT

from your dealer or send 3d. in stamps to

BRITISH RADIOPHONE LTD.,
Aldwych House, Aldwych, London, W.C.2.

See advertisement on page 19.

BLUE SPOT

Battery Receivers

The best there are.
4 VALVES: CLASS B
BAND PASS TUNING
MOVING COIL SPEAKER
with provision for extra speakers
and grampohore pick-up.

WALNUT CABINETS



batteries.

Free catalogue WWS 1mm The British Blue Spot Co., Ltd., 94-94



HAYNES QUALITY RADIOGRAMOPHONES
from £37 10s. Specifications unrivalled.
Write for the Haynes' Booklet.

HAYNES RADIO 57, HATTON GARDEN, E.C.1.

See advertisement on page 35



FARADAY ALL-WAVE SUPERHET
Calibrated in wavelengths from 15-2000 metres on one dial.
£28.10.0 See display advertisement page 46.

EELEX SHORT-WAVE CONVERTOR



52[/]6 ess valve

See advertisement on page 43

J. J. EASTICK & SONS, Eelex House, 118, Bunhill Row, London, E.C.1. Met. 0314 (6 lines)

Can be used on A.C. or D.C. Mains without alteration.

HIGHMU 3 - £9-9-0 HIGHMU 4 £12-12-0

See advertisement on page 50

UNIVERSAL MODEL SETS

Convert your

RADIO SET

RADIO - GRAM



COLLARO

AUTOMATIC RECORD PLAYER

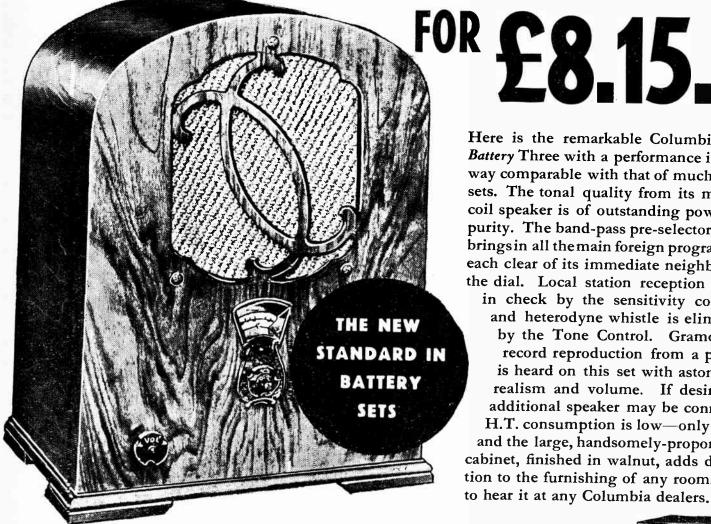
(See Advertisement on page 49

ENJOY QUALITY PERFORMANCE WITHOUT ELECTRIC (URRENT

FOR £8.15.0

Here is the remarkable Columbia M.C. Battery Three with a performance in every way comparable with that of much dearer sets. The tonal quality from its movingcoil speaker is of outstanding power and purity. The band-pass pre-selector circuit brings in all the main foreign programmes, each clear of its immediate neighbour on the dial. Local station reception is held

in check by the sensitivity controland heterodyne whistle is eliminated by the Tone Control. Gramophone record reproduction from a pick-up is heard on this set with astonishing realism and volume. If desired, an additional speaker may be connected. H.T. consumption is low—only 7 m.a., and the large, handsomely-proportioned cabinet, finished in walnut, adds distinction to the furnishing of any room. Ask



ECIFIC TI

Inductively-coupled band-pass circuit. Permanentmagnet moving-coil speaker with provision for additional speaker. Single tuning with local-distance control. Tone selector. Output, 200 milliwatts. Marconi valves. 120 v. H.T. Battery with 6-v. gridbias combined. 2 v. 45 amp-hours accumulator. Facilities for connection to pick-up. Walnut-finished cabinet 187" high. (Prices not valid in I.F.S.)

CONTRACTOR AND ADDRESS OF THE PROPERTY OF THE
To the Columbia Graphophone Co., Ltd.,
98 Clerkennell Road, E.C.1.
Please send me particulars of the M.C. Battery Three and the C.Q.A. Battery Radiograph Four without obligation.
NAME
ADDRESS

Have you heard the amazing Columbia C.Q.A. Battery Radiograph Four-the first really satisfactory battery radiogram? Ask your Columbia Dealer to let you hear it, and to explain the wonderful new Columbia C.Q.A. principle which gives all-mains performance from a battery set on radio and records at astonishingly low battery consumption. The Columbia C.Q.A. Battery Radiograph Four-price 20 guincas, or by Hire Purchase.



COLUMBIA GRAPHOPHONE

CO., LTD., 98 CLERKENWELL ROAD, E.C. 1.

Choosing a New Set-

amplified by any ordinary broadcast receiver.

In these days most sets are equipped with terminals for the addition of a gramophone pick-up, and a record playing desk or gramophone adaptor will contribute to the entertainment value of the installation. If for any reason the set is unsuitable for gramophone reproduction a separate highquality amplifier will remedy matters.

Where it is known that the recipient is of a mechanical turn of mind, a kit of parts for the construction of a modern receiver will give additional interest and pride in the final result.

For friends overseas there can be no doubt that one of the many excellent all-

wave receivers now available is the ideal gift. With such a set the listener is less dependent on seasonal changes in reception conditions, and there is generally at least one waveband which will provide news and entertainment from the home country. Great strides have been made in the technical design of these sets, and with stable, calibrated tuning and automatic volume control the results now to be obtained on short waves are far superior to those of a year or two ago.

Incidentally, a new receiving set is not a bad present to give oneself. Like a new hat its tonic effect is not to be underrated, and many recreative hours will pass in learning to use the controls and exploring its capabilities.

Toulouse, Strasbourg, Milan, the Poste Parisien, Breslau, Hilversum, Heilsberg, Turin; Trieste, Nürnberg and Fécamp are outstanding, whilst Vienna, Florence, Prague, Lyons Doua, Stockholm, Katowice, Hamburg, Göteborg, Bordeaux Lafayette and Frankfurt all give a good account of themselves.

There are many others that can be logged by careful tuning on good nights. Amongst these I would particularly like to mention Grenoble, which often comes in very strongly, Brno, Genoa, Bratislava, Toulouse PTT, Hörby, Gleiwitz, Moravská-Ostrava and Rennes.

CLUB NEWS

5-Metre Film Stars

. A film showing members of the Kentish Town and District Radio Society on a field day last summer, with 5-metre apparatus, has caused various members to wonder if they ought to give up radio and go to Elstree! Meetings are held at Holmes Road School every Tuesday, and prospective members are welcomed. Hon, Secretary: Mr. E. A. C. Jones (2BOC), 46, Lady Margaret Road, Kentish Town, N.W.5.

The Osram Catkin

All about the new Osram Catkin valves was told by Mr. F. Inchley, of the General Electric Co., at a recent meeting of the Smethwick Wireless Society. Prospective members should write to the Hon. Secretary, Mr. E. Fisher, M.A., 33, Freeth Street, Oldbury, near Birmingham.

The Lady Visitor

The first lady visitor was welcomed by the Catford Radio and Television Society at a recent meeting, at which Mr. Humphreys, of

DISTANT RECEPTION NOTES

Hearing America on the Medium Waves

CORRESPONDENT insists that the A station causing interference with Huizen is of Russian and not of Roumanian origin. All I can say is that the Station Director of Huizen himself was quite definite in a letter that the interfering station was a Roumanian. Myself, I think that there are often two interfering stations. Probably one of them is Russian and the other Roumanian.

From WLW I have just heard that the first tests of the new 500-kilowatt transmitter are to begin within the next week or two. Permission to make tests with full power between the hours of r a.m. and 6 a.m. Eastern Standard Time has been granted by the Federal Radio Board. The corresponding hours over here are 6 a.m. and it a.m. As American stations are coming in very well at about seven o'clock in the morning, this station will be well worth trying for.

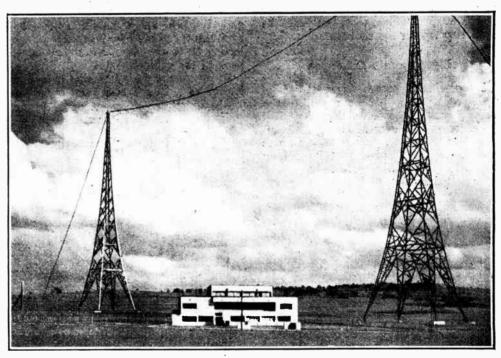
The high-frequency units of the plant have already been installed. There are three of them, each with a power rating of 180,000 watts. Every unit contains four giant valves, and by an ingenious arrange-ment two of these can always be kept in action should trouble necessitate switching off part of the apparatus.

Good U.S. Stations

Speaking of American reception, stations from across the Atlantic are splendidly heard now on any night when atmospherics are not troublesome. On several recent evenings I have had to be at work rather late, and before going to bed I have made a search over the medium waveband. stations best received have been WKAQ (St. John, Porto Rico, 241.8 metres). WHAM (Rochester, 260.7 metres), WPG (Atlantic City, 272.6 metres), WTAM (Atlantic City, 272.6 metres), WTAM (Cleveland, 280.2 metres), WTIC (Hartford, 282.8 metres), WBZ (Springfield, 302.8 metres), KDKA (Pittsburgh, 305.9 metres), WABC (New York, 348.6 metres), WGY (Schenectady, 379.5 metres), WBBM (Schenectady, 379.5 metres), WBBM (Chicago, 389.4 metres), WJZ (New York City, 394.5 metres), WSB (Atlanta, 405.2 metres), and WLW (Cincinnati, 428.3 metres).

The optimum wavelength for transatlantic reception seems definitely to have moved a considerable distance upwards. The greatest signal strength is now obtainable from stations with wavelengths between 300 and 400 metres. WGY was coming in the other night with all the strength that we used to associate with this station six or seven years ago.

Test transmissions of the 120-kilowatt Budapest transmitter have probably been picked up by a good many readers. By the time that these notes appear in print the official opening will have taken place, and Budapest will probably be one of the easiest of Continental stations to tune in. The new transmitter was working at two o'clock on a recent afternoon, and the pro-



Although the Berne station, seen above, is only a low-powered ON A SWISS PLATEAU. relay, it rivals in imposing appearance many of its high-powered cousins. high open ground accounts for the considerable signal strength.

gramme came through as strongly as those of Langenberg or Brussels No. 1.

There is some improvement on the long waveband. Huizen has been less frequently interfered with, and good reception can be obtained from Radio-Paris, Zeesen, Warsaw, Luxembourg, Kalundborg and Oslo.

Of medium-wave stations Brussels No. 1, Langenberg, Beromünster, Rome, Leipzig,

the Edison Swan Electric Co., lectured on cathode ray tubes. The lecturer displayed lantern slides and gave a very effective demonstration. Hon, Secretary: Mr. H. W. Floyd, 38, Como Road, Forest Hill, S.E.23.

Radio at Oxford

The Oxford University Radio Society has recently been formed, the Hon. Secretary being Mr. G. C. Wood, New College.



Our Distinguished Contributor in a Well-meant Effort

HE melancholy voices of the waits remind me that I spent last Christmas Day lying in bed, minus two teeth and with a badly contused countenance as the direct result of the black ingratitude of a miserable and bespavined set of children, whom, in a moment of generosity and feeblemindedness, I had undertaken to entertain with a television demonstration.

The idea was actually suggested to me by a rumour that the B.B.C. were to give a surprise entertainment of this nature on Christmas Eve. The reason why Christmas Eve and not Christmas Day was chosen was, of course, that, last year, the latter day fell on the sabbath.

My Yuletide Dilemma

I soon found myself in somewhat of a dilemma, as a telephone call to the B.B.C. elicited the news that they had no intention whatever of giving a Christmas Eve television broadcast—and this notwithstanding the fact that I carefully explained the difficulty in which they thus placed me.

Excitement concerning the demonstration had risen to fever heat amongst the juvenile fauna of the village, so that, instead of telling them that the show was off, as I ought to have done, I allowed myself, in a weak moment, to be led astray by an article written by a fool of a woman in a well-known periodical on the serious risks of dangerous complexes being set up in the *alter ego* of children who were subjected to severe and sudden disappointment.

I resolved, therefore, to keep them in ignorance concerning the breaking of faith on the part of the B.B.C. and give the show myself. Needless to say, I had no intention of giving an actual television show, either by wire or by wireless, as, to begin with, I had no transmitting gear. I determined to solve the problem in a far more simple and satisfactory manner by constructing a large cabinet capable of housing myself, a good receiver, a turntable, pick-up, and a microphone.

My first task was, of course, to find out a satisfactory way of explaining my absence from the juvenile audience, and I hit upon the idea of stating that I had been invited to Broadcasting House to organise the show.

My next task was to construct the cabinet, and after a certain amount of experimental work behind the locked doors of my laboratory I decided to employ a coffin-shaped crate, stood on end, with the television screen at the top and the loud-speaker grille at the bottom. The screen was constructed of ground glass with thirty vertical lines scratched on it, and I fixed up a patent epidiascope arrangement of my own invention for projecting on to the glass any objects at the back of the cabinet.

In my young days I was no mean performer as a Punch and Judy showman,



No fruit, by request.

and, indeed, was much in demand in the mess of my old regiment on guest night. This stood me in good stead, for not only was I able to disguise my voice to represent various artistes, but also to manipulate a pair of old gardening gloves behind the ground glass in order to give visual representation of the artistes.

At length the great day arrived, and I soon got into my stride and held my audience spellbound. I fancy, however, that in my zeal I rather overdid matters, for I noticed that after an hour or two the children began to get restive, and one rude little girl sitting in front flicked an orange pip on to the screen, and unfortunately this sport was quickly taken up by the others.

The Unhappy Ending

Even then all might have ended happily, but in my enthusiasm I determined that for my grand finale I would put on a real C. B. Cochran turn in the form of the divine Tetrazzini singing "Old Man River." As ill-luck would have it, however, my voice side-slipped badly in attempting to hold a high E.

This seemed to be the signal for causing the under-current of revolt which had been seething among my audience to burst into open conflagration, and with one accord a terrific yell of execration burst forth from them, and a volley of nutcrackers crashed through the glass panel just as I had pushed my face close to it. Naturally, I took a hasty back-ward step, with the unfortunate result that the whole bag of tricks toppled over, leaving me in a very undignified position, from which I was unceremoniously pulled by my would-be lynchers. So far from being sobered by the sight of blood, they burst into thunderous applause, due, as I learnt afterwards, to the fact that some of the younger ones thought that it was all part of the entertainment.

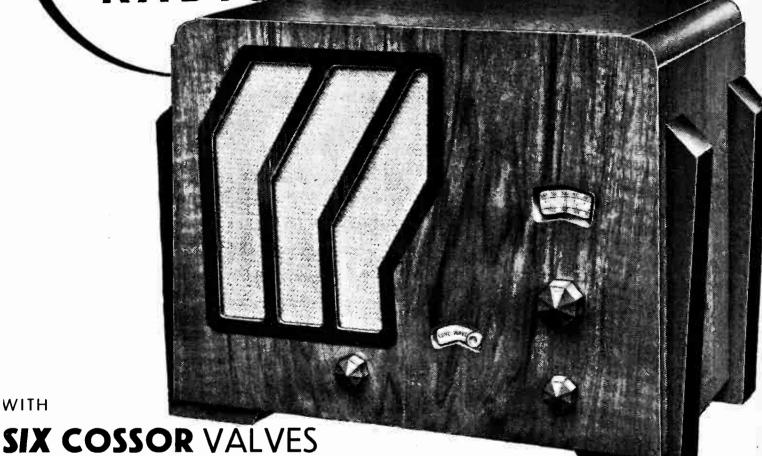
It is necessary at this stage to draw a merciful veil over the remainder of the day's proceedings, and I can only excuse the drastically sudden lapse on my part from the duties of a host by the fact that, apart from the loss of dignity to which I had been subjected, I was in considerable physical pain.

In the meanwhile I have an excellent but slightly damaged Television cabinet for sale, suitable for use as a coffin or for any other purpose. COSSOR Super heterodyne

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—remarkable absence of background noises

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SPECIFICATION:

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The Wireless World

COREIGN

ATHLONE

ATHLONE

725 kc s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc s, 217 metres; and Cork, 1,337 kc; 224.4 metres.—1.0 to 4.0 p.m., Programme by the 1.B.C. (Ircland), Ltd. 1.0, Broadcast of Dance Music: Louisville Lady; The Shadow Waltz; Dumer at Eight; It's only a Paper Moon; Give me Liberty or give me Love; Hold your Man; Night Owl; Gotta go. 1.30, Concert of Dance Music: Don't Blame me; There's a New Day Connin'; Ding, Dong, Ding; Remember my Iorgotten Man. 1.45, Concert of Light Orchestral Music: Her First Dance (Heykens); The Fairies' Gavotte (Kohn); Venetian Boatman's Song (Mantovani); Selection from A Thousand and One Nights (Stranss), 2.0, Concert of Light Music: Fantasia, The Thistle (arr. Myddleton); The Coon among the Chickens (Ives); Pianoforte Solo; The Squirrel Dance (Elliott Smith); Persian March (Frimt), 2.15, Orchestral Concert: Barcarolle from The Tales of Holfmann (Offenbach); Anitra's Dance, from Peer Gynt snite (Grieg); Hungarian Dance No. 6 (Bradms); Selection from La Bohème (Puecini), 2.30, Military Band Music: The Skater's Waltz (Waldtenfel); Weymouth Chimes (Howgill); Trumpet Solo; Rockin' Chair (Carmichael); Gems from The Vagabond King (Frimi); Praeludium (Jarnefeld); Xylophone Solo; Carnival of Venice (Briecialdi); By the Blue Hawaiian Waters (Ketelbey); Doge's March (Rosse), 3.0, Tony Reddin and his Radiolians: Signature Tune. The Gold Digger's Song; In the Park in Parce; Blue Momeuts; Going, going, gone; Did my Heart beat? Dancing Butterffy; Everybody loves my Marguerite; Selection from The Student Prince (Romberg); Do deoh-do; Fate; Second Reddin Arrangement of Old Waltzes; Wedding of the Dragon Flies; Selection from Sunny (Kern); No Funny Business; Casey Jones Blues; Selection from Blue Roses (Athert); Signature Tune: Let's call it a Day, 8.30, Concert by the Station Orchestra, 9.30, Granny's Birthday—a Play, by Dorothy Day and Company; Birthday—a Play, by Dorothy Day and Company; Botter and Company; 1.10, Time, News, Weather, and Close Down.

BARCELONA

BARCELONA

BARCELONA

EAJ1, 858 ke/s, 349.6 metres; 8 kW.—
11.0 a.m., Chimes and Weather. 1.0 p.m.,
Gramophone Music. 1.30, Theatre Notes
and Gramophone Music (contd.). 2.0, Sextet
Concert. 3.0, Programme for Hospitals and
other Benevolent Institutions, with Gramophone Records. 4.0 to 5.30, Interval. 5.30,
Agricultural Talk and Gramophone Music.
6.0, Concert by the Radio Orchestra. 6.39,
An Opera, relayed from the Gran Teatro del
Liceo. 9.0, Gramophone Music. 10.45, Chess
Lesson. 11.0 (approx.). Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW. 9.0 a.m., See Rome. 9.30, Agricultural Talk. 9.45, Bible Rending. 10.0, See Turin. 11.30, See Rome. 11.45 to 1.15 p.m., See Turin. 3.0 till Glose Down, See Rome.

BASLE .- See Schweizerischer Landessender.

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—
10.30 a.m., See Leipzig. 11.0, Concert:
Irish Military March (Brase); Overlure,
Venus and Erden (Lincke); Selection from
The Mastersingers (Wagner); Selection
from Rigoletto (Verdi); Gavotte, Der Weg
zum Herzen (Lincke); Trumpet Solo, Love
me and the World is mine (Ball); Waltz,
The Skaters (Waditeufel); Selection from Fräulein Loreley (Lincke). 11-55, Time Signal.
12 (Noon); Concert: Rastelbinder-Walzer
(Krome); Mazurka, Im schönen Elhiforenz
Schröder); Old Mark Song Quadrille
(Lüdecke); Waltz, Wir sind heut so vergnügt (Meisel); Hochzeitsständehen (Klose);

DECEMBER THE TENTH

March, Lachendes Leben (Blankenburg).

1.0 p.m., Songs from a Youths' Hostel.

1.20, Programme for Young People. 2.0,
Advent Songs by a Girls' Choir. 2.30,
Gramophone Concert. 3.30, Old Advent
Poems. 3.40, Second Act of Wiener BlutOperetta (Joh. Strauss) relayed from the
Berlin Theatre. 4.30, Josef Ponten reads
from his own Works. 4.50, Dialogue: A
Film Tour through Hungary. 5.10, The
Puszta- A Song Sequence on Gramophone
Records. 6.0, Sports Notes. 6.10, Sea Shanties (arr. Hagen). 7.10, See Breslau. 10.0,
Weather. 10.10, See Breslau.

BERLIN

BERLIN

FUNKSTUNDE, 716 kc/s, 419 metres; 1.5 kW. Relayed by Zeesen, DJG, DJA, DJD, DJB and DJE.—10.30 a.m., See Leipzig. 11.0, See Hamburg. 1.0 p.m., Fairy Tales for Children. 1.55, Talk: Reminiscences of a Children's Gathering. 2.10, The German Baroque Period in Song and Literature—Readings, Lute and Violin Solos. 2.30, Radio Report from the Ethnological Museum. 2.45, Sports Notes. 3.0, See Heilsberg. 5.0, Animals—Programme arranged from Stories by Manfred Kyeer and Hermann Löns (Klaus-Amsinck). 5.30, Concert by the Station Orchestra, conducted by Count Hildemaro Konoye. 6.30, Musical Boxes—Radio Report. 6.50, Sports Notes. 7.0, Announcements. 7.5, Concert by the Berlin Philharmonic Orchestra, conducted by Leo Borehard, relayed Som the Philharmonie. In the interval at 8.0, An Interview with Marianne Hoppe on the occasion of the First Production of the Film, Der Schimmelreiter. 9.0, News. 9.30, Dance Music from the Eden Pavilion. 11.0 (approx.), Close Down.

RERNE.-Ser Schweizerischer Landessender. BEROMUNSTER. - See Schweizerischer

BODEN, -See Stockholm.

BODO.-See Oslo.

BRATISLAVA

1,073 kc/s, 279.5 metres; 14 kW.—3.40 p.m., Variety Programme; Song Recital, Cigany Band Music and a Sketch, 4.20, See Brno. 5.0, Accordion Sdos. 5.20, Reading, 5.45, Gramophone Music, 5.55, Talk for House-wives. 6.0 till Close Down, See Prague, 10.0 (approx.). Close Down.

BREMEN.—See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc s, 253.1 metres.—10.30 a.m., See Leipzig. 11.0, See Munich. 12 Noon, Orchestral Concert, conducted by Ewald Rischka. 1.0 p.m., News. 1.10, Reading. 1.25, Talk: The Everyday Life of a Woman Clerk. 1.40, Die Lache, ja die Liebe—Cabaret Programme for Gramophone Records.) 2.30, Programme for Children. 3.0, See Munich. 5.0, Talk: The Origins of German Nationality. 5.20, Spain in Dance and Song—Talk with Gramophone Records. 5.50 (from Gleiwitz). Grande variation in A Flat. Op. 35 for Pianoforte Duct (Schubert). 6.20, Topical Talk. 6.50, Programme Announcements. 6.55, Talk on the following Transmission. 7.10, An allem ist Hüchen schuld—Fairy Tale Opera in Three Acts (Siegfried Wagner); News in the intervals. 10.0, Time, Weather Sports Notes and Local News. 10.10, Concert of Light Music by the Station Orchestra, conducted by Topitz. 12.45 a.m. (Mon-

day), Winter in the Realm of Rübezahl—Radio Sequence of Music and Literature, 1.35 (approx.), Close Down.

BRNO

BRNO

878 kc s, 342 metres; 35 kW.—4.20 p.m.,
The Diary of a Vanished Man—Song Cycle
(Janacek). 5.0, German Trannsmission:
Concert: Cornert Piece for Two Pianofortes
(Ravel); Four Songs from the Sanserit (Kreal); Concerto in E Flat for Two
Pianofortes (Gebhardt). 6.0 to 10.0, See
Prague. 10.0 (approx.), Close Down,

BRUSSELS (No. 1)

BRUSSELS (No. 1)

1.N.R., 589 kc/s, 509.2 metres; 15 kW.—10.0 a.m., Concert by the Small Station Orchestra, conducted by Leenaus, Soloist; Maria Toussaint (Songs). 11.0, Gramophone Music. 12 Noon, Concert by the Radio Orchestra, conducted by Walpot. 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Station Symphony Orchestra, conducted by Menlemans. In an interval at 1.30, Recitations by Bernard on Records. 5.0, Dance Music, relayed from the St. Sauveur Palais de Danse. 5.30 (approx.), Football Results. 6.15, Concert by the Small Station Orchestra, conducted by Leemans. 7.15, Religious Address, 7.30, Le Journal Parlé. 8.0, Monsieur Beaucaire—Operetta (Messager), relayed from the Royal Theatre, Ghent, In the first interval, Scemes from Topaze—Comedy (Pagnol), and in the second interval, Le Journal Parlé.

BRUSSELS (No. 2)

N.I.R., 888 kc/s, 337.8 metres; 15 kW.—
Progrumne in Flemish.— 10.0 a.m., Gramophone Records. 11.0, Concert by the Small
Station Orchestra, conducted by Lecmans,
with Gramophone Interludes. 12 Noon,
Concert by the Station Symplony Orchestra,
conducted by Meulemans, Soloist: Crabbe
(Baritone). 1.0 p.m., Le Journal Parlé. 1.10,
Concert by the Radio Orchestra, conducted
by Walpot, Soloist: Thelma (Baritone). 5.0,
Concert by the Radio Orchestra, conducted
by Walpot, Soloist: Thelma (Baritone). 5.0,
Concert by the Radio Orchestra, conducted
by Walpot, Soloist: Thelma (Baritone). 5.6,
Keligions Address. 7.30, Le Journal Parlé.
7.55, Talk on Music. 8.0, Concert by the
Station Symphony Orchestra, conducted by
Menlemans. Soloist: Margnerite Thys
(Songs). 8.45, Reading. 9.0, Concert
(contd.). 10.0, Le Journal Parlé. 10.10,
Dance Music by Robert de Kers and his
Cabaret Kings. relayed from the Century
Hotel, Antwerp. Cabaret Kings. Hotel, Antwerp.

BUCHAREST

BUCHAREST

Music on Gramophone Records. 10.0, Symphony Music on Gramophone Records. 11.0, Gramophone Concert. 12 Noon, Radio Jongmal. 12.15 p.m., Light Music on Gramophone Records. 3.0, Programme for Peasants. 4.0, Concert of Variety Music by the Marco Orchestra. In the interval at 5.0, Radio Journal. 6.0, Educational Talk. 6.20, Cramophone Records. 6.45, Talk. 7.0, Choral Concert. 7.30, Concert by the Station Orchestra. In the interval at 8.0, Talk. 8.45, Radio Journal. 9.0, Programme relayed from a Restaurant.

BUDAPEST

545 kc/s, 550.5 metres; 120 kW. Also relayed on 840 metres from 5.0 p.m.—10.15 a.m.,

Divine Service. 11.25, Concert by the Opera House Orchestra, conducted by Ludwig Rajter. 1.0, Gramophone Music. 2.0, Agricultural Programme. 2.45, Orchestral Conz.rt, conducted by Fridl. 3.30, Brondcast for Schools. 4.30, Reading. 5.0, Lottery Results. 6.5, Concert by the Elemér Sáray Cuány Band. 6.25, Humorous Talk. 7.10, Sports Notes. 7.30, A Comedy. 9.15, News. 9.30, Dance Music and Cigány Music, relayed from the Care Ostende.

CASSEL.—See Frankfurt.

COPENHAGEN

COPENHAGEN

1.067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres; and Skamblebaek, OXY, 49.4 metres.—7.0 a.m., Gymnastics for Women. 7.15, Gymnastics. 8.0, Talk from the Nyköbing Studio. 8.30, Interval. 9.0, Divine Service from the Garrison Church. 10.30, Weather and News. 11.0, Town Hall Chimes. 11.2, Orchestral Concert, conducted by Launy Gröndall. 12 Noon, Talk in English: A Grand Tour of Sectional. 12.20 p.m., Talk in German: Paul Ernst. 12.40, Reading in Freuch. 1.0, Accordium Recital. 1.25, Gramophone Records of Classical Music. 1.55, Programme for Children. 2.25, Concert by the Symphony Orchestra, comfucted by Emil Reesen, relayed from the State Broadcasting Building, Soloist: France Ellegaard (Pianoforte). 4.0 (also on Skamlebaek). Divine Service Relay. 5.20, Talk: Education in the New Germany. 5.50, Weather. 6.0, News. 6.15, Time Signal. 6.30, Talk. 7.0, Town Hall Chimes. 7.2, Orchestral Concert, conducted by Dyring. 7.35, The Hausen Family—Humorous Episode (Jens Locher). 7.50, Concert (contd.). 8.15, Relay of Mr. Stanning's Speech from the Press Association Dinner. 8.30, Concert (contd.). 9.0, News. 9.10, Reading. 9.30, Concert (contd.). 10.0, Davice Music from the Wivex Restaurant. 11.30 (approx.), Close Down.

CORK .- See Athlone.

DANZIG .- See Heilsberg

DRESDEN,-See Leipzig.

FECAMP

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—8.45 a.m. to 12 Noon, Programme in English by the I.B.C. 8.45 a.m., Orchestral Concert. 9.30, Military Band Music. 10.0, Dance Music. Signature Tune, The Bells of Normandy; Did my Heart Beat; Mood Indigo; A Couple of Pals; Love locked Out; Nina; Everyone loves my Margnerite; Dancing Butterfly; My Moonlight Madouma; Twixt the bevil and the Deep Blue Sea; I've got to get up and go to Work; I was in the Mood; Vilja. 10.45, Concert Marietta (Charlier); Milano (Le Clercq); Marche joyense (Cuvelier); Accordion Joe (Windrow). 11.0, Concert. Part I: Signature Tune. Anitra's Dance (Grieg); Scherzo from A Midsummer Night's Dream (Mendelssohm); Valse des Fleurs (Tchaikovsky); Salut d'amour (Elgar); Harlequin's Serenade from I Pagliacci (Leoneavillo). Part II: Sign a New Song; Paradise; Happygo-lucky Vou; Strangers; I got Rhythm; The Penginn's Partol; Oh Monah; My Moonlight Mailonna; Yon Rascal, Yon; The Last Round Up; American Patrol; Signature Tune. 12 Noon, Programme in French. 2.0 to 7.30, Programme in English by the LB.C. 2.0, Variety (Oncert. Scheetion from He wanted Adventure (Waller-Tunbridge); When day is Done (the Sylva); La Paloma (Vradier); Hollyhock (Mayerl); One alone from The Desert Song (Romberg); Miss Annabelle Lee (Clare); The 'Apache Dance (Offenbach); Serenade (Herbert); Chines Serenade (Herbert); Got (Herbert); Song, Deep in my Heart (Lockton); Gridiron (Pub March (Sonsa); Selection fom



SUNDAY DEC. 10th

FRANKFURT

1,157 kc s, 259.3 metres; 17 kW. Relayed by Cassel and Trier, 1,157 kc/s, 259.3 metres.—5.35 a.m., Programme from Ham-burg, 7.15, Time and News, 7.20, Weather, 7.25, Gymnastics, 7.45, Proby Gassel and Trier, 1,197 kc, S, 259.3 metres.—5.35 a.m., Programme from Hamburg, 7.15, Time and News, 7.20, Weather, 7.25, Gymnastics, 7.45, Programme from Stuttgart, 8.30, Programme to be announced. 9.0, See Langenberg, 9.45, Choral Concert, 10.30 a.m., See Leipzig, 11.0, See Langenberg, 12 Noon, See Stuttgart, 12.15 p.m., Gramophone Concert, 1.20, Agricultural Talk, 1.30, Rural Programme—Dialogue, 2.0, See Stuttgart, 3.0, Concert, 5.0, Recital of Christmas Antiphons by the White Fathers of Trier, 5.30, An Entracte, 6.0, Advent Programme, 6.30, Sports Notes, 6.35, Radio Report from the Frankfurt Art Society in the Steinernen Haus, 7.0, Der Keller, 9.30, Local News, 9.45, Gramophone Music, 10.10, See Breslau, 11.0 till Close Down, See Langenberg, 1.0 a.m. (Monday), Close Down,

FREDRIKSSTAD .- See Oslo. FREIBURG .- See Stuttgart. GENEVA .- See Radio-Suisse Romande. GENOA.—See Turin. GLEIWITZ .- See Breslau. GOTEBORG.—See Stockholm. GRAZ.—See Vienna. HAMAR.-See Oslo.

HAMBURG

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg and Hanover, 1,319 kc/s, 227.4 metres; and Kiel, 1,292 kc/s, 232.2 metres.—11.0 a.m., Concert by the Small Station Orchestra, conducted by Gerhard Maasz. Time and Weather in the interval. 1.0 p.m., Fran Holle—A Fairy Play (Erich Kühn). 2.0, Concert of Music for String Orchestra. 2.40, Reading. 3.0, See Heilsberg. 5.0, Stine—Radio Play (Hansulrich Röhl). 5.50 (from Flensburg), Harpsichord and Choral Concert. 6.35, Sports Notes. 6.50, Weather. 7.5, See Berlin (Funkstunde). 9.0, News. 9.30, Programme from Berlin (Funkstunde).

HANOVER .- See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 474.1 metres.—11.0 a.m., Concert by the Königsberg Opera House Orchestra, conducted by Wolfgang Brückner. Reading in the interval. 1.0 p.m., Talk on Chess. 1.30 (from Danzig), Programme for Young People. 2.0, Zither Trio Recital. 2.30, Sports Talk: 1ce Yachting. 3.0, Concert by the Small Station Orchestra, conducted by Engen Wilcken. 5.0, Concert by Children. 6.0, Talk: The Sixth Centenary Celebrations of the Löbenicht Church. 6.15, Ancedotes about Musicians, with Gramophone Records. 6.50, Sports Notes. 7.0, See Berlin (Funkstunde). 9.0, News. 9.15 (approx.), Light Music and Dance Music by the Small Station Orchestra, conducted by Eugen Wilcken. 11.0 (approx.), Close Down.

HILVERSUM

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW, up to 5.40 p.m. and 20 kW, from 5.40 p.m.—9.40 to 11.40 a.m., Programme of the Liberal Protestant Radio Society (V.R.P.O.). 9.40, Organ Recital. 10.10, Divine Service from Amsterdam and Organ Recital. 11.40 to 4.40 p.m., Programme of the General Broadcasting Society (A.V.R.O.). 11.41, Talk: The Film of the Week. 12.10 p.m., Concert by the Wireless Orchestra, conducted by Nico Treep. 1.25, Report by an Eye-Witness of the International Football Match, Holland v. Austria. 3.40, Concert by the Wireless Orchestra, conducted by Nico Treep. 4.25, Sports Notes. 4.40 to 7.40, Programme of the V.A.R.A. 4.40, Programme for Children. 5.40, Orchestral Concert, conducted by de Groot. 6.30, The Adventures of Wakker and Tropenduit. 6.50, Orchestral Concert. 7.40 till Close Down, Programme of the A.V.R.O. 7.40, Time and News. 7.55, Requiem (Verdi), relayed from the Concertgebouw, Amsterdam; The Concertgebouw Orchestra, conducted by Eduard van Beinum; Soloists, Jo Vincent (Soprano), Suze Luger (Contralto). Louis van Tulder (Tenor) and Alexander Kipnis (Bass). Gramophone Music in the intervals. 10.10, Gramophone Music in the intervals. 10.10, Gramophone Music. 11.40 (approx.), Close Down.

HORBY .- See Stockholm.

HUIZEN

160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m.
Transmitted from Kootwijk on 50 kW. from
3.40 p.m.—9.10 a.m. to 4.40 p.m., Programme
of the Catholic Radio Society (K.R.O.)
9.10, Gramophone Music. \$.40, Mass, relayed from the Church of the Immaculate

Conception, Overveen. 11.10, Organ Recital by Mul. 11.40, Talk. 11.55, Concert by the K.R.O. Orchestra, conducted by van 't Woud In the interval, Literary Talk. 1.40 p.m., Religious Talk. 2.10, Gramophone Music. 2.40, Orchestral Concert, conducted by Gerritsen. 3.25, Gramophone Music. 3.40, Concert (contd.): Selection from Faust (Gounod), 3.55, Programme for Invalids. 4.40 to 7.25, N.C.R.V. Programme. 4.40, Divine Service, with Gramophone Records. 7.25 till Close Down, K.R.O. Programme. 7.25, Football Report. 7.30, Talk on Geography. 7.55, Orchestral Concert. In the interval, Cookery Talk. 8.40, News. 8.45, Le mirioir de Jésus (Caplett), by the Maastrischt Orchestral conducted by Hermans. 9.50, Recitations. 10.5, News. 10.10, Gramophone Music. 10.20, Epilogne. 10.40 (approx.), Close Down.

continued

INNSBRUCK .- See Vienna.

JUAN LES PINS

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—8.0 p.m.,
Amusement Guide and Sports Notes. 8.15,
Radio Concert. 9.0, News. 9.15, Concert
(contd.). 10.0, Request Gramophone Music.
10.30 till Close Down, Programme in English
by the LB.C. 10.30, Military Band Concert:
Gaiety Echoes; Wood Nymphs (Coates);
Song, One of the Guard (Longstaffe); Firestar (Carter); Flotsam and Jetsam, The
Changing of the Guard; Song, A Jovial
Monk am I (Audran); March, King Cotton
(Sousa). 11.0, Concert of Viennese Music:
Viennese Singing Birds (Translateur); Waltz,
The Blue Dannbe (Joh. Strauss); Song,
Vienna, City of my Dreams (Sieczynsky);
Tales from the Vienna Woods (Joh. Strauss);
Live. love and laugh (Haymann); Soug,
Goodnight Vienna (Posford); Roses from the
Sonth (Strauss); Vienna Bons-Bons
(Strauss); I.130, Organ Reeital; Selection
of Wilfred Sanderson's Popular Songs;
Trees (Rashach); Song, Stonecracker John
(Coates); My wishing Song (Burke); La
Screnata (Braga); Song, The Wheel Tapper's
Song (Charles); Close your Eyes (Tennent);
Popular Irish Medley. 12.0 Midnight, Dance
Music: Harlem Fuss; Put a little Springtime
in the Winter of their Lives; How do you
do, Mr. Brown? Moon Song; I can't remember; It's within your Power; Hold me; I'll
sec you in the Morning. 12.30 a.m. (Monday), Drifting down the Shalimar; Maybe
I love you too muelt; Let's put ont the
Lights; Butterflies in the Rain; The Minor
Drag; How deep is the Ocean? The Dicty
Glide; Dip your Brush in the Sunshine. 1.0,
1.B.C. Goodnight Melody and Close Down.
KALUNDBORG.—See Copenhagen.

KALUNDBORG.—See Copenhagen. KIEL.—See Hamburg. KLAGENFURT .- See Vienna, KOSICE .- See Prague.

LAHTI

LAHII

167 kc/s, 1,796 metres; 40 kW. Relayed by
Helsinki, 815 kc/s, 368.1 metres.—4.35 p.m.,
Violin Recital: Violin Concerto No. 2
(Comus); Hungarian Dance (Raehmaninov);
Serenade (Randegger); Song (Madetoja).
4.59, Time and Weather. 5.10, History Talk.
5.40, Orchestral Concert. 6.40, Talk. 7.0,
Concert by the Suomen Laulu Choir, with
Introductory Talk. 7.45, News in Finnish. 8.0,
News in Swedish.

LANGENBERG

LANGENBERG

635 kc/s, 473 metres; 60 kW.—9.0 a.m.,
Catholic Service from the Minster. 10.0,
Orehestral Concert conducted by Buschkötter. 11.0, Gramophone Records of
Famous Artists. 12 (Noon), See Stuttgart.
12.15 p.m., Concert by the Fröhliche Fünf,
with Saxophone and Accordion Solos. 1.15,
Agricultural Talk. 1.45, Talk for Parents
and Children. 2.0, See Stuttgart. 3.0, See
Frankfurt. 4.0, Musical and Literary Programme. 5.0, Concert by a Nazi Band and
Choir, conducted by Fred Schmidt, relayed
from the Westfalenhalle, Dortmund. 6.0,
Christmas Antiphons sung by the White
Fathers of Trier (on Gramphone Records).
6.20, Report of the Gymnasties Competition
Rhineland v. Westphalia, from the Gruga,
Essen. 6.50, Sports Notes. 7.0 to 9.20, See
Frankfurt. 9.20, See Stuttgart. 9.30, News,
Weather and Sports Notes. 7.0 to 9.20, See
Frankfurt on Gramphone Records). 1.0
a.m. (Monday), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LAUSANNE.-See Radio-Suisse Romande.

LEIPZIG

TEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—10.16 a.m., Talk on the following Transmission. 10.30, Der Herr denket an uns-Cantata (Bach), by the Municipal and Gewandhaus Orchestra, the Choir of St. Thomas's, and Soloists. 11.0, See Munich. 12.0 Noon, See Breslau. 1.0 p.m., Radio Sequence for Girls. 1.35, The Programme of the Week. 1.50, Talk: Germany and World Economics. 2.15, Sonata Recital by Dorothy Braus: Sonata, Op. 101 (Beethoven); Sonata, Op. 11 (Schumann).

3.0, See Munich. 5.0, Sports Talk: The Mutschmann Cup Final. 5.15, Concert by the Rome Quartet: Quartet No. 2 (Bustini); Quartet in E minor (Verdi). 6.10, Transylvania—Radio Sequence (Fritz Heinz Reimesch). 6.55 to 10.0, See Breslau. News in the intervals. 10.0, News. 10.15, Recital of Johann Strauss Waltzes for Two Pianofortes: Fledermans Walzer; The Blue Danube; Man lebt nur cinmal. 10.40 (from Dresden). Light Music and Dance Music. 12.30 a.m. (Monday), Close Pown.

LINZ .- See Vienna.

LJUBL JANA

522 kc/s, 574.7 metres; 7 kW.—6.45 a.m., Agricultural Talk. 7.15, News. 7.30, Gymnastics. 8.0, Religious Address. 8.30, Talk for Workers. 9.0, Sacred Music. 10.0, Orchestral Concert. 11.0, Weather and News. 3.0 p.m., Talk for Peasants. 3.30, Songs and Music by a Guitar Quartet, with Songs. 4.30, Gramophone Records. 7.0, Relay of an Opera. In the interval, Weather and News.

LUXEMBOURG

LUXEMBOURG

252 kc | S. 1,191 metres; 200 kW.—8.0 p.m.
till Close Down, English Evening. 8.0,
Concert by the Station Orchestra, conducted
by Henri Pensis: Overture, Figaro
(Mozart); Concert oin E flat for Violin and
Orchestra (Mozart); Les Préludes (Liszt).
8.50, News in French. 9.0, Concert of
English Music by the Station Orchestra,
conducted by Henri Pensis: Southern Impression (Ancliffe); Selection from Nell
Gwynn (German); Melody (Chuckerburry);
Overture, Maritana (Wallace). 9.30, English Dance Music. 9.45, News in German.
9.55, English Concert: Silver Cloud (Ketelbey); Waltz, The Wedding of the Winds
(Hall); La Ballerina (Bantock). 10.15, Dance
Music on Gramophone Records.

MADRID

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Programme relayed from Madrid (Union Radio) (EAJ7). Radio Chronicle after the Programme. 12 Midnight till Close Down. Programme arranged by the International Broadcasting Company. 12 Midnight, Dance Music: Signature Tune. Come back to Erin; it's not a Secret any more; You're an Old Smoothie; Louisville Lady; My Moonlight Madonna; i'll take an Option on Yon; Ding, Dong. Ding; Let's make it up; Egypt; Signature Tune. Come back to Erin. 12.30 a.m. (Monday), Orehestral Concert: Grand March from Aida (Verdi); Meditations from Thais (Massenet); Moment musical (Schubert); Song (Tosti); Hungarian Medley (arr. Leggett); Mandoline Solo, Scleetion from Faust (Gounod); Anitra's Dance (Grieg); Haydn Wood's Songs. 1.0, I.B.C. Goodnight Melody and Close Down. Songs. 1.0, Close Down.

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—8.0 to 9.0 a.m., Topical Review. 2.0 p.m., Chimes, Time, Theatre Notes and Concert of Popular Music. 4.0 to 7.0, Interval. 7.0, Chimes, Announcements and Dance Music. 8.30 to 9.30, Interval. 9.30, Chimes. Time and Talk on Astronomy. 9.45 (approx.). Pianoforte and Baritone Song Recital in connection with the Music Competition. In the interval, Variety Items by Ramon Gomez de la Serna. 12.0 Midnight, Chimes. 1.0 a.m. (Monday) till Glose Down, Programme in English by the I.B.C. Concert of Light Music: 'Twixt the Devil and the Deep Blue Sea (Schwartz); Widdecombe Fair (arr. Jacob); Don't blame me (Fields); I've got the World on a String (Kochler); One Tiny Tear (Connelly); I'm getting Sentimental over you (Washington); Avalon (Rose); Lay my Head beneath a Rose (Madison); My Rose of Old Stamboul (Alwyn); If you were the Only Girl in the World (Ayer); Nizza Bella (Latorre); Forget me not (Rotter); Only a Rose (Friml); March of the Musketeers (Woodhouse); Tick Tock (Strauss); It's the Talk of the Town (Symes). 2.0, I.B.C. Goodnight Melody and Close Down.

MALMO.—See Stockholm.

MALMO.—See Stockholm.

MILAN .- See Turin.

MORAVSKA-OSTRAVA

1,137 ke/s, 263.8 metres; 11 kW.—3.0 p.m.,
Dance Music by the Station Orchestra. 3.40,
See Bratislava. 4.20, See Brno. 5.0 till Close
Down, See Prague. 10.0 (approx.), Close
Down.

MOTALA .- See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

MUNICH

Augsburg and Kaiserslautern, 536 kc/s, 560
metres; and Nürnberg, 1,256 kc/s, 560
metres;—9.0, Catholic Service. 9.45, Chimes
from Our Lady's Church. 9.50 to 11.0, See
Leipzig. 11.0, Military Band Concert from
the Feldhermhalle; Conductor. Hans Gassner. 12 Noon, See Breslau. 1.0 p.m., Time,
Weather and Programme Announcements.
1.10 (from Nürnberg). Advanced Chess Lesson. 1.40, Figaro—A Comparison between
two Masterpieces, with Gramophone Illustrations. 2.30, Programme for Children.
3.0, Concert by the Small Station Orchestra, conducted by Erich Kloss. In the interval, Recital on two Piauofortes. 5.0

FLENSBURG,--See Hamburg. FLORENCE.—See Turin.



DEC. 10th

SUNDAY

continued

(from Nürnberg), Talk: The Nuremberg Christmas Market. 5.30, Part Relay of the Concert by the Rome Quartet, from Leipzig. 6.0 (approx.). Concert by the Elvira Mandoline Orchestra. 6.25, Radio Report from the Bayarian Forests (arr. Bauer-Klingenhrunn). 6.55 to 10.0, See Breslau. News in the intervals. 10.0, Weather and Sports Notes. 10.10, See Breslau.

NAPLES,-See Rome.

NOTODDEN .- See Oslo.

OSLO

277 ke/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Potodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Rjukan, 671 kc/s, 447.1 metres; and Jeiöy LCL, 6,990 kc/s, 42.92 metres... 9.15 a.m., News and Weather. 9.20, Chimes 9.30, Divine Service, relayed from 8t, Saviour's Church. 12 Noon (from Hamar), Orchestral Concert. conducted by Einar Schöyen. Soloist: Eivind Bergh (Violin). 4.0 p.m., Concert relayed from the Theatre Café. 5.0, A Comedy in Three Acts (Charles Vildrac). 6.15, Weather and News. 6.30, Talk on Edvard Munch. 7.0, Time Signal. 7.1, Concert by the Station Orchestra, conducted by Kramm. 8.10 (from Hamar). Sven Moren reads from his own Works. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Concert of Operetta Music, relayed from Bergen, 824 kc/s, 364 metres. The Radio Ensemble, conducted by Johannessen. Soloists: Hulda Frisk Gran (Soprano) and Bjarne Beutz (Tenor). 9.55, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

PALERMO

558 kc s, 537.6 metres; 3 kW.—9.25 a.m.,
Bible Reading. 9.40, Sacred Music. 10.5,
Agricultural Talk. 11.45, Jazz Music. 12.30
p.m., Time, Amnouncements, and Weather,
4.30 to 5.30, Gramophone Music. 7.0, Dopelavoro Notes, and Giornale Radio. 7.20,
Gramophone Music. In the intervals, at 7.25,
Sports Notes; and at 7.30, Time and Announcements. 7.45, Concert of Opera Music.
Soloists: Agozzino (Soprano) and Pollicino
(Tenor). 10.0, Giornale Radio.

PARIS

PARIS

EIFFEL TOWER; Call FLE; 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot signals).—12.30 p.m., Concert by Jean Bos and his Orchestra, 1.0, News. 1.15, Concert (contd.), 2.0, Interval. 5.45, Le Journal Parlé, 7.15, Weather, 7.25, News. 7.30, Gramophone Concert. 9.0 (approx.), Close Down.

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—10.0 a.m., Selection from The Land of Smiles (Lehār) on Gramophone Records. 10.5, Talk by André Maurois, 10.10, Press Review, 10.30, Gramophone Records, 10.45, Humorous Scenes (on Gramophone Records, 11.40, Gramophone Records) 11.0, Gramophone Records of Gaby Morlay and Henri Duvernois, 11.45, Gramophone Records of Edith Lorand and her Orchestra, 12.15 p.m., Songs from Sound Films (on Gramophone Records), 12.45, Sponsored Programme, 12.50, Popular Programme, 1.25, Reading of Poetry, 1.30, Gramophone Records 2.0, Interval, 7.0, Le Journal Parlé, 7.5, Gramophone Records of Ychudi Menuhin, 7.20, Sports Notes, 7.30, Catholic Report, 8.0, Gramophone Records of Younge Georges, 8.30, Nuances—Play (Vix), 9.0, Interval, 9.20, Concert, 10.30, News.

PARIS

PARIS

RADIO-PARIS, Call GFR, 174 kc/s, 1,725
metres; 75 kW.—7.45 a.m., Gramophone
Music. 8.0, Press Review and Weather.
8.30, Gymnastics. 8.45, Interval. 9.20, Advanced English Lesson. 9.40, Elementary
English Lesson. 10.0, Book-keeping Lesson. 10.20, Advanced Book-keeping Lesson. 10.40, spanish Lesson. 11.0, Interval. 12 Noon,
Religious Address. 12.20 p.m., Sacred
Music. 12.30, Bilboquet Programme. 12.45,
Gramophone Music. 1.0, Concert. 2.45, The
Land of Smiles —Operetta in Three Acts
(Lchár), relayed from the Théâtre la Gaité
Lyrique. 6.0, Dance Music by the Cadets de
France. 8.0, Radio Paris Circus. 8.30,
Racing and Sports Notes, News and
Weather. 8.45, La Traviata—Opera (Verdi).
News and Press Review in the interval.

PITTSBURGH

PTI ISBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—5.30 to 6.30 p.m., Radio City Concert, from New York. 7.30, Grenadier Gnards Band, from New York. 8.30 to 9.30, Relay from New York. 8.30, Variety Concert. 9.0, Railroad Adventures. 9.15, Morin Sisters. 9.30, Vesper Services. 10.30, Grand Hotel, from New

York. 11.0, Sweet Rhythm Quartet, from New York. 11.15, Weather and Sports Notes. 11.30, Ernic Holst's Orchestra. 11.45 to 2.45 a.m. (Monday), Relay from New York. 11.45 p.m., Engineering Thrills. 12 Midnight, Vin-cent Lopez Orchestra. 12.30 a.m., Joe Penner. 10, Egon Petri and Orchestra. 2.0, Gulf Headliners. 2.30, Walter Winchell. 2.45, Marvellous Melodies. 3.0, Orchestral Concert.

PORSGRUND.-See Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW,—9.0 a.m., Concert by the Station Orchestra, conducted by Jeremias. In an interval, Talk: Ten Years of Czechosłovak Broadcasting. 9.35, Concert by the Ondrieck Quartet. 10.10, Programme from Bratislava. 11.0, Chimes. 11.5, News. 11.15, A Microphone Visit to the New Czechosłovak Broadcasting Building. 11.35, Military Band Concert. 12.30 p.m., Rural Programme. 1.0, Topical Talk. 1.10, Interval. 2.20, Programme to be announced, relayed from Kosice, 1,022 kc/s, 293 metres. 3.0, See Moravská-Ostrava. 3.40, Programme from Bratislava. 4.20, See Brno. 5.0, German Transmission: Talk on Music, followed by Hans Kudlich.—Radio Play (Wittek) and News. 6.0, News. 6.5, Czechosłovakia—Literary and Musical Programme. 1.6.55, Introductory Talk to the following Transmission. 7.5, Orchestral Concert, conducted by Jeremias, relayed from the Sunctana Hall. Soloist: Eva Hadrabova-Nedbalova (Soprano), 9.10, News. 9.30, Gramophone RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and
Geneva, 400 kc/s, 749.9 metres.—10.0 a.m.
(from Geneva), Gramophone Concert. 11.0,
Concert by the Radio-Suisse Romande Orchestra, conducted by Echenard, 11.30, News
and Weather, 11.40 (from Geneva), Gramophone Concert. 12 Noon, Orchestral Concert
(contd). 1.0 p.m., Interval. 1.45 (from
Geneva), Orchestral Concert. Conductor:
Bodet, Soloists: André Pépin (Flute) and
Mme, Bodet (Pianoforte), 4.30 (from Geneva),
Programme of Music and Addresses for
the Three Hundred and Thirty-first Anniversary of the Escalade, 5.40 (from Geneva),
Gramophone Records, 6.0 (from Geneva),
Radio Chroniele and Sports Report, 7.0
(from Geneva), Review of the Weck, 7.10
(from Geneva), Fétes galantes (Debussy),
by Hugues Chénod (Tenor) and Maroussia
Orlov (Pianoforte), 7.35 (from Geneva),
Reading, 7.50 (from Geneva), Concert by the
Radio-Suisse Romande Orchestra, relayed
from St. Joseph's Church, Conductor:
Echenard, Soloist: William Montillet
(Organ), 9.0, News and Weather, 9.10 (approx.), Close Dowa.

REYK JAVIK

250 kc/s, 1,200 metres; 21 kW.—7.45 p.m., For the Children. 8.20, Musical Programme and Announcements. 8.35, Musical Pro-gramme. 9.0, Chimes and News. 9.30, Reading. 10.0, Pianoforte Sonata in F minor (Brahms), on Gramophone Records, followed by Dance Music. 1.0 a.m. (Mon-day), Close Down.

RJUKAN.-See Osto.

ROME

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 483.1 metres from 7.45 pm., and 2RO, 11,810 kc/s, 25.4 metres.—9.0 a.m., Sports Notes and Amusement Guide. 9.30, Agricultural Talk. 9.45, Bible Reading. 10.0, See Turin. 11.30, Gramophone Music. 11.45 to 1.15 p.m., See Turin. 3.0 (Naples), Shipping and Sports Notes. 3.15, Gramophone Music and Sports Notes. 3.15, Gramophone Music and Sports Notes. 4.0, Concert of Modern Russian Music conducted by Bernardino Molinari, relayed from the Augusteo. Soloist: Serge Prokoffev (Pianoforte). Sports Notes in the interval. 6.30, Football Report, Dopolavoro Announcements. 7.5, Soprano Solos. 7.30, Sports Notes. 7.45, Ihre Hoheit tanzt Walzer—Operetta in Three Acts (Eysler). Reading and Theatre Notes in the intervals. News after the Operetta.

SALZBURG .- See Vienna.

SCHENECTADY

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAF on 19.56 metres.—
7.0 to 10.0 p.m. (approx.), New York Relay, 7.0, Gene Arnold and the Commodores, 7.30, Looking over the Week, John B. Kenedy, 7.45, Gens of Mclody, 8.0, Wayne King's Orchestra, 8.30, Musical Programme, 12.45 to 3.45 a.m. (Monday), New York Relay, 12.45, Variety Programme, Wendell Hall, 4.0, Popular Programme, 2.0, Manhattan Merry-Go-Round, 2.30, American Album of Familiar Music, 3.0, Jack Benny;

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NCC.1972

Frank Black's Orchestra. 3.30, Musical Programme. 3.45, Sunday at Seth Parker's, from New York, followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: Basle, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres,—10.5 a.m. (Berne), Concert. 10.30 (Berne), Reading. 11.0 (Berne), Grannophone Concert. 11.30, Time. Weather and News. 11.40 (Zürich), Concert by the Radio Orchestra. 12.30 p.m. (Berne), Prannatic Programme. 1.0 (Berne), Agricultural Programme. 1.30 (Berne), Music by the Höfen Ländler Band. 1.45 to 2.30, Interval. 2.30 (Berne), Time German Requiem (Brahms). 4.0 (approx.) (Berne), Programme to be amounced. 5.30 (Berne), Talk in French: The Middle Ages and the French Literary Rehaissance. 6.0 (Berne), Time and Sports Notes. 6.5, Talk on Bach and Handel Music, with Illustrations by Alice Ehlers (Harpsichord). 6.35 (Berne), Talk: The Pignuy Tribes of Central Africa. 7.0 (Berne), Das Weihnachtspaket (The Christmas Present)—Radio Play. 8.0, Weather and News. 8.10 (Berne), Programme to be amounced. 8.30, Programme to be amounced. 8.30, Programme of Waltzes. 9.15 (Berne), Sports Notes and Close Down.

SOTTENS.-See Radio-Suisse Romande

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 932 kc/s, 322 metres; Horby 1,167 kc s, 257 metres; Motala, 222.5 kc s, 1,348 metres; Ostersund, 409 kc s, 746.2 metres; and Sundsvall, 554 kc/s, 542 metres; and Sundsvall, 554 kc/s, 542 metres.—8.0 a.m., Provincial Programme. 8.30, Gramophone Music. 9.10, Programme for Workers. 10.0, Divine Service. 11.45, Weather and Ice Report. 1.0 p.m., Symphony Concert, conducted by Georg Schnéevoigt, relayed from Malmö, 1,301 kc s, 230.6 metres. 2.30, Programme for Children. 3.0, Elementary English Lesson. 3.30, Gramophone Music. 3.55, Weather. 4.0, Distribution of the Nobel Prizes—Addresses and Concert, relayed from the Concert House. 6.15, Weather and News. 6.30, Magic-Connedy (Chesterton). 7.45, Concert relayed from Malmö; Anna Tibell (Songs). Brita Hjort (Pianoforte), and Mario Galli (Violin). 8.45, Weather and News. 9.0, Light Orchestral Music. 10.0 (approx.). Close Down.

STRASBOURG

869 kc, s, 345 metres; 11.5 kW.-9.30 a.m., Uésar Franck Concert for the Anniversary

SUNDAY DEC. 10th

of the Composer's Birth (1822). Conductor: Maurice de Villers. Soloists: Annette Brincour (Contralto), Marianne Ricklin (Soptano) and Max Pogoda (Pianoforte). 10.45, Protestam Service. 1.30, Catholic Service in German. 12.0 Noon, Gramophone Concert. 12.45 p.m., News. 1.0, Gramophone Concert. 2.0, Talk in German: Pig-breeding. 2.15, Interval. 2.45, Gramophone Music. 3.0, Symphony Concert, conducted by Philippe Gaubert, relayed from the Conservatoire, Paris. 5-0, Gramophone Music. 5.15, Sacred Concert, conducted by Charles Muller, relayed from the Reformed Church. Soloists: Mmc. Meudt (Soprano), Schweitz (Tenor), Wettling (Bass), and Rupp (Organ). 6.45, Medical Talk. 7.6, Sports Talk. 7.15, Gramophone Records. 7.30, News. 7.45, Gramophone Records. 8.0, News in German. 8.30, Alsatian Programme of Literature and Music. 10.30, News. 10.45 (approx.), Dance Music from the Savoy. 11.0 (approx.), Close hown.

STUTTGART

MUHLACKER, 832 kc s, 360.5 metres; 1.5 kW.—Relayed by Freiburg, 527 kc s, 570 metres.—10.30 a.m., See Leipzig. 11.0, Military Band Concert from the Schlossplatz. 12 Noon, Topical Talk. 12.15 p.m., Guessing the Items—Gramophone Concert. 1.15, Talk: The Bookbinding Trade to-day. 1.30, German Folk Songs Sung by the Kromer Sextet. 2.0, A Radio Play for Children. 3.0, See Munich. 5.0, December—Programme arranged by Martin Lang. 5.45, Sports Notes. 6.10, Chopin—A Poet at the Pinnoforte. Musical and Literary Programme arranged by Willielm Locks. 7.0 to 9.20, See Frankfurt. 9.20, Topical Talk. 9.30, Local News. Weather and Sports Notes. 9.45, See Frankfurt. 10.10, See Breslau. 11.0 till Close Down, See Langenberg. 1.0 a.m. (Monday), Close Down.

SUNDSVALL, -See Stockholm.

TOULOUSE

779 kc/s, 385 metes; 8 kW.—11.0 a.m., Dance Music. 11.30, Opera Music. 11.45, Chansonnettes. 12 Noon, Music by a Vienness Orchestra. 12.30 p.m., Catholic service. 12.45, Opera Arias. 1.0, Amusement Guide, Market Prices and Time. 1.5, Orchestral Music. 1.15, Songs. 1.30, Hawaiian Gaitar Solos. 1.45, Protestant Service. 2.0, Military Music. 2.15, Agricultural Report. 2.30,

Concert of Opera Music. 3.0, Zimmermann Song Recital. 3.30, Orchestral Music: The Brandenburg Concerto No. 3 (Bach); Overture, A Midsammer Night's Dream (Mendelssohn). 3.45, Sound Film Music. 4.0, Accordion Solos. 4.15, Operetta Music. 4.30, Music by a Viennese Orchestra. 4.45, Tango Songs. 5.0, The dansant. 5.45, Chansonnettes. 6.0, News. 6.15, Operetta Music. 6.30, Russian Songs and Balalaika Music. 6.45, Light Music. 7.0, Opera Music. 7.15, News. 7.30, Ducts. 7.45, Music by a Viennese Orchestra. 8.0, Opera Arias. 8.15, Organ Recital. 8.30, Songs. 8.45, Light Music. 9.0, Concert Version of I Pagliacci —Opera (Leoncavallo). In the interval, Orchestral Music. 10.15, News. 10.30, Concert for Listeners in Morocco. Part I: Sound Film Music. 10.15, News. Weather and Announcements. 1:10 at Music. 11.15, Dance Music. 11.0, Light Music. 11.15, Dance Music: Chorus from Aida (Verdi): Duct from The Pearl Fishers (Bizet). 12.15, Orchestral Music. 12.5a.m. (Monday), Opera Music: Chorus from Aida (Verdi): Duct from The Pearl Fishers (Bizet). 12.15, Orchestral Music. 12.30 (approx.), Close Down.

continued

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—8.40 a.m., Programme from Turin. 8.55, Mass from the Cathedral of San Ginsto. 10.0, Religious Address, 10.20, Agricultural Report. 11.0 till Close Down, See Turin.

TRONDHEIM .- See Oslo.

TURIN

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc s, 332.2 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 598 kc/s, 501.6 metres.—10.0 a.m., Mass from the Church of the Annunciation, Florence. 11.0, Bible Reading. 11.30, Gramophone Records. 11.45, Gramophone Music. 12 Noon, Time and Announcements. 12.5 p.m., Concert conducted by Tito Petralia. 3.0, Gramophone Records and Sports Notes. 4.0, Symphony Concert conducted by Vittorio Gni. Soloist: Dusoltina Giannini. In the intervals, Sports Report. 5.0, Sports Review. 5.15, Weather. 6.0, Time, Football Report and Dopolayoro Announcements. 6.15, Gramophone Music. 7.0, Announcements and Sports Notes. 7.30, Topical Talk. 7.40, Concert of Opera Music. In the intervals. Talk and Theatre Notes. 10.0, Opera, Giornale Radio.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; 1nnsbruck, 1,058 kc/s, 233 metres; Klagenfurt, 663 kc/s, 453.1 metres; Lins, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—11.0 a.m., concert by the Wiener Symptoniker. conducted by Rudolf Kattnigg; Soloists, Stella Wang (Pianoforte) and Hugo Rottensteiner (Bassoon). 1.35 p.m., Time, Programme Announcements and Weekly News Review, 1.45, Agricultural Talk. 2.5, Review of Books. 2.30, Haydn Concert by the Sedlak-Winkler Quartet: String Quartet in F. Op. 50, No. 5; String Quartet in D Minor, Op. 76, No. 2. 3.30, Talk: Why do we go to the Tyrol in Winter? 3.45, Orchestral Concert conducted by Philipp de la Cerda. 5.5, Talk: The East Tyrol. 5.30, Reading from the Works of Frida Schanz. 6.0, Choral Concert, relayed from the Musikvereinssnal. 6.50, Time, Sports Notes and Programme Announcements. 7.0, The Spanish Nightingale—Operetta in Three Acts (Fall). News in the interval. 9.15, Report of the International Football Match, Austria v. Holland, in Amsterdam. 9.25, Announcements. 9.30, Gramophone Concert. Announcements after the Programme.

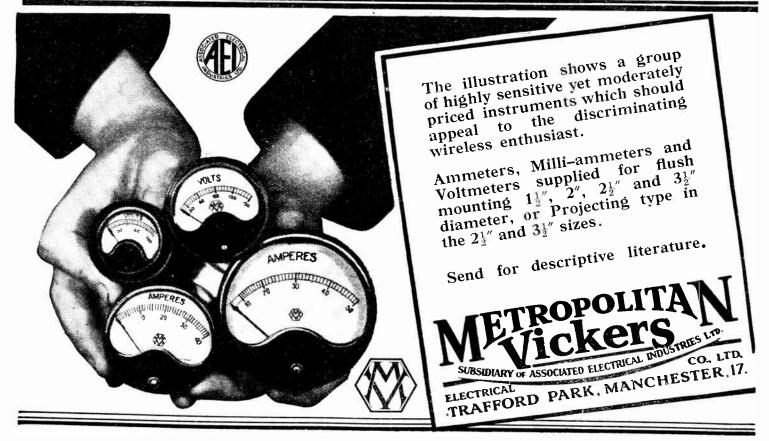
WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—10.45
a.m., Sacred Music (on Gramophone Records). 10.57, Time and Fantare from St. Mary's Church, Cracow. 11.5, Programme Annonneements and Weather. 11.5, Grieg Concert by the Philharmonic Orchestra, conducted by Szulc. Soloist: Wolfsöhn (Pianoforte). In the Interval, Talk: Labour Conditions in the Southern States of America. 1.0 p.m., Talk. 1.15, Agricultural Prices. 1.25, Popular Music (on Gramophone Records). 2.0, Talk. 2.20, Military Band Concert. 3.0, Programme for Children. 3.30, Gramophone Records of Famous Artists. 3.45, Recitation. 4.0, Talk. 4.15, thoral Concert of Polish Music conducted by Czudowski. Soloist: Dobosz (Tenor). In the interval, Annonneements. 5.0, Programme to be announcements. 5.0, Programme Announcements. 6.5, Miscellaneous Items, 6.30, Review of the Week's Events for Young People. 6.45, Art Notes. 6.50, Light Music by the Station Orchestra, conducted by Nawrot. Soloist: Olga Kamienska (Songs). 7.50, Radio Journal. 8.0, Topical Talk. 8.15, Humorous Programme, relayed from Lwów. 9.15, Sports Notes. 9.25, Dance Music, relayed from the Oaza. 10.0, Weather and Police Notes. 10.5, Dance Music (contd.).

ZURICH .- See Schweizerischer Landessender.





ATHLONE



DECEMBER THE ELEVENTH

725 kc s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc s, 217 metres; and Gork, 1,337 kc s, 224.4 metres.—1.20 to 2.30 p.m., Time Signal. Weather Report, Stock Report, and Gramophone Concert. 6.0, Programme for Children. 6.45, News. 7.0, Gaelie Talk. 7,15, Readings from the Works p.m., Time Signal. Weather Report. Stock Report, and Gramoplione Concert. 6.9, Programme for Children. 6.45, News. 7.0, Gaelic Talk. 7.15, Readings from the Works of James Stephens, by Mrs. E. V. Fleming Moran. 7.30, Time Signal. 7.31, The Station Orchestra. 7.50, Bass Solos by P. W. Dockrey. 8.0, Concert by the Waterford Instrumental Society, relayed from the Town Hall, Waterford. 9.0, The Station Orchestra. 9.15, Soprano Solos by Kitty Fagan. 9.30 to 10.30, Programme by the LB.C. (Ireland). Ltd. 9.30, Broadcast of Light Music: Ich Liche Dich (Grieg); The Flower Song from Carmen (Bizet); La Cimpunataine (Gabriel Marie); Ballet. 6.2yttien (Luigin). 9.45, Pianoforte Recital by Mr. Fred Stone. 10.0, Concert arranged by the International Broadcasting Company (Ireland). Ltd.; Dance Music: Fin dancing on a Rainbow; Sweetheart of Sweet Sixteen; Morning, Noon and Night; Racing Commentary; Sophisticated Lady; Longing; Just a Year ago to night; I loved you Wednesday. 10.30, LB.C. Goodnight Melody, followed by News and Weather. 10.40, Traditional Fieldle Solos by C. MacPhiomilacoich. 10.50, Accordion Solos by J. Carey. 11.0 (approx.), Cluse Down.

BARCELONA

BARCELONA

EAJ1, 858 kc/s, 349.6 metres; 8 kW,—
6.0 p.m., Trio Concert; Minnet from the
Sonata, Op. 49, No. 2 (Beethoven); Sommerabend (Grieg); Selection from Martha
(Flotow); Romance (Recktenwald); Moment
musical (Nucci); Gavotte (Massenet); Selection from Tamhäuser (Wagner), 7.0, Request Gramophone Music. 7.20, Sports
Notes, 7.30, Exchange and Talk in Catalan,
8-0, Gramophone Music, 8.30, Educational
Programme; Geography and History Lesson,
followed by News, 9.0, Chimes, Weather,
Exchange and Market Pries, 9.5, Sponsored
Programme, 9.35, Concert by the Radio
Orchestra, 10.15, Concert by the Radio
Orchestra, 10.15, Concert by the Philharmonic Mantoline Orchestra, Conductor;
Felix de Santos Sebastian, 11.0, News, 11.10
(approx.), Concert (contd.), After the Concert, Gramophone Music, 12 Midnight,
Close Down,

BASLE,—See Schweizerischer Landessender.

BASLE. See Schweizerischer Landessender.

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHSSEND-ER), 183.5 kC/s, 1,635 metres; 00 kW.—11.5

a.m. capptox.), Grancophone Concert of Instrumental Sides and Songs, 11.55, Time Signal, 12.45 p.m., News. 1.0, Grancophone Records, 1.20, Programme from Hamburg, 1.40, Talk, 2.0, Talk for Women, 2.20, Weather and Evelonge, 2.45, Review of Books, 3.0, See Frankfurt, 4.0, Talk: The Third Reich, 4.25, Spatk im Schallaichiv, 5.0, Procus, 5.5, Talk on Sport, 5.25, Talk: Preparations for Christmas, 5.45, Weather and Amonneyments, 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde), 7.0, Todays, Motto, 7.5, Ski ing Lesson, 7.30, See Leipzig, 8.10, See Stuttgart, 9.0, Weather, 10.0, Concert from Munich, 11.30 (approx.), Close Down.

BERLIN

BERLIN

FUNKSTUNDE, 716 ke/s, 419 metres; 1.5 kW. Relayed by Zeesen, DJC, DJA, DJD, DJB, and DJE.—12 Noon, Operetta Potpourris on Gramophone Records; Wiener Blut (Joh. Strauss); Paganini (Lehár); Zurgoid'nen Liche (Benatsky). 12.20, Programme from Hamburg, 1.15, Weather, News and Tides Report, 1.35, Selection from Mignon—Opera (Thomas), on Gramophone Records, 2.0, Exchange, 2.20, A Forceast of the Berlin Opera House Programme, 2.40, Wolfgang Hermann reads from his own Works, 3.0 to 5.0, See Heilsberg, 5.0, Songs and Dialogues by the Fireside, 5.30, Announcements, 5.35, Dialogue on the Future Trans-Oceanic Air Traffic, 6.0, Transmission for all German Stations, Koch, the Saviour of Millions—Programme for the Nimetieth Announcersary of the Birth of Rohert Koch, An Outline of Koch's Medical Career (Helmuth Unger), and Concert of Music by Fritz Stahlmacher by the Composer, 7.0, Announcements, 7.5 to 9.0, See Hamburg, 9.0, News, 9.30, See Hamburg, 11.0 (approx.), Close Down.

BERNE—See Schweizerischer Landessender.

BERNE .- See Schweizerischer Landessender. BEROMUNSTER. -- See Landessender. Schweizerischer

BODEN. See Stockholm.

BODO.—See Osio.

BORDEAUX-LAFAYETTE

BORDEAUX-LAFAYETTE
986 kc s, 304 metres; 15 kW.—6.15 p.m., Programme relayed from Paris, (Ecole Superieure), 671 kc s, 447.1 metres, followed by
Radio Journal, 7.30, News. 7.35, Talk:
Bordeauy a Century Ago. 7.50, Lottery Results and Charades. 8.0, Talk on Social
Hygiene, 8.15, News. 8.30, Gramophone
Concert, 9.0, Concert of Classical and
Modern Music. After the Concert, Amusement Guide and Time.

BRATISLAVA

1,073 kc/s, 279.5 metres; 14 kW.-3.0 p.m., Concert by the Station Orchestra, conducted

by Dyk. 3.50, See Prague. 4.15, Talk. 4.25, Pianotorte Recital: Variations on a Russian Theme (Beethoven); Sonata quasi una fantasia. 0p. 27 (Beethoven). 4.55, Talk. 5.10, Gramophone Music. 5.55, Talk for Housewives. 6.0, See Prague. 7.25, Concert, relayed from Liptaysky-Sv. Mikulac. 9.5, See Prague. 9.20 (approx.). Close Down.

BREMEN.-See Hamburg.

BRESLAU

BRESLAU

923 kc s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc s, 253.1 metres.—11.0 a.m., Concert by the Silesian Philharmonic Orchestra, conducted by Ernst Hoffman; Overture, The Merry Wives of Windsor (Nicodai); Selection from Martha (Flotow); Nachruf an Franz Schubert (Fetras); Serenade in D Minor (Götze); Kinderlieder-Fantasic (Riselike); Suite from The Sleeping Beauty (Tchaikovsky). 12.25 p.m., See Leipzig. 1.15, Programme arranged by the Post Ollice, with Gramophone Records. 2.0, Market Prices, Exchange and Shipping. 2.20, Review of Brooks for Christmas. 2.40, Talk: The Germanic Races. 3.0, Concert by the Station Orchestra. Conductor: Ernest Josef Topitz. Soloist; Addf Wreege (Violin). Overture, The Daughter of the Regiment (Donizetti); Selection from La Traviata (Verdi); La Capricciosa (Ries); Serenade

conducted by Walpot. Soloist: Armand Steurs (Accordion); Egyptian March (Joh. Strauss); Waltz, Les sirenes (Waldteufel); Overture, Pique bame (Suppé); Nice-Excentric (Callemien); Selection from Cocrico (Ganne); Accordion Solos; Suite saharieune (Ackermans). 1.0 p.m., Le Journal Parlé. 1.10, Orchestral Concert (contd.); Potpourri of Negro Spirituals (Foulds); Russian Dance (Bullérian); Interlude: Accordion, Xylophone and Clarimet Music; African Dances (Ring); Potpourri, Les airs de Borel-Clere (arr. Salabert). 2.0, Broadcast for Schools. 5.0, Haydin Concert by the Station Symphony Orchestra, conducted by Mealemans. Soloist: Mme. Husson (Pianoforte); Overture, L'isola disabitata; Pianoforte Concerto in D; Symphony No. 7 in C. 6.0, Talk on Sport. 6.15, Wembley Military Tattoo (Records). 6.30, Half-an-Hour of Fantasy. 7.0, Gramophone Music: Adagia from the Concerto in G minor (Bruch); Whirlwind (Salzedo); Waltz, Op. 69, No. 1 (Chopin); Melody (Bazzani); The Gipsy and the Bird (Benedict); Dance of the Hours from La Gioconda (Poneitielli). 7.30, Theatre and Film Review. 8.0, Quatuor inachevé (Leken), on Records. 8.30, Concert by the Liège Symphony Concert the Bird (Benedict); Dance of the thought from La Gioconda (Ponchielli). 7.3

Theatre and Film Review. 8.0, Quatum inachevé (Leken), on Records. 8.30, Cocert by the Lige Symphony Conce Society, relayed from the Royal Conserva

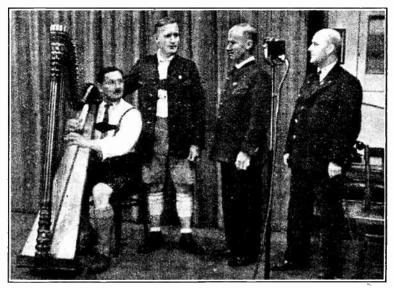


Photo: Bayerischer Rundfunk.

A YODELLING QUARTET. The brothers Winter, famous as yodellers, who make frequent appearances in the Munich programmes.

who make frequent appearanc (Pierné); Waltz, Wiener Bürger (Ziehrer); Ballet Overture (Kremser); Nocturne (Chopin-Sarasate); Canzonetta (d'Ambrosio); Waltz: O du himmelblauer See (Millöcker); Selbönfeld-Marsch (Ziehrer), 4.30, Talk: The Oder and German History, 4.50, Schomann Song Recital by Alberto Uzleili (Tenori); Lust der Sturamacht: Stirb Lieb und Frend; Wanderlied; Erstes Grün; Sehnsucht nach der Wahlegeend; Auf das Trinkglas eines verstorbenen Frendes; Stille Tiänen; Wer machte dich so krank? Alte Laute. 5.10, Dialogue: German Youth and the Theatre, 5.30, Topical Talk, 5.50, Programme Annonucements. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.30, Symphony Concert by the Silesian Philharmonic Orchestra, conducted by Hermann Behr, relayed from the Konzerthaussaal. Soloist: Käte Remann-Förster (Pianoforte). Pianoforte Concerto in A Minor Op. 54 (Schumaun); Symphony in B Minor (Op. 74 (Tehaikovsky), 9.0, News. 9.20, Time, Weather, Sports Notes and Local News. 9.50, See Munich.

BRNO

BRNO

878 kc.s, 342 metres; 35 kW.—5.25 p.m., German Transnission: News, Review of Christians Books, and Talk. 6.0, See Prague. 6.25, A Journey to Rome.—Three Humorous Scenes for Radio (Kroupa). 6.55, Choral Concert. 7.25, See Prague. 8.0, Concert by the Chamber Orchestra, conducted by Bakala, relayed from the Stadium; Soloists, Schäfer (Pianoforte): Suite. Le Bourgeois Gentilhomme (Schulhoff): Harlequinade (Hüttel). 8.40, Humorous Reading. 9.5, See Prague. 9.35 (approx.), Close Down.

BRUSSELS (No. 1)
1.N.R., 589 kc.s, 509.2 metres; 15 kW.-12 Noon, Concert by the Radio Orchestra,

toire, Liège, Conductor; Marsick, Soloists; Joseph Jongen (Organ) and Arthur Misson (Violin); Symphonic Selection from Psyche (Franck); Violin Concerto in B minor (Jongen); Gramophone Records; (a) Aria from La Redemption (Franck); Go Sonvenance (Franck); Fantasia on Two Angevin Airs (Leken); Organ Improvisation on Popular Walloon Themes (Jongen); Symphonic Poem, Le chasseur mandit (Franck), After the Concert, Le Journal Parlé.

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.I.R., 888 kc s, 337.8 metres; 15 kW. Programme in Flemish. 12 Noon, Act I and Part of Act II from Tosca Opera (Puccun), on Gramophone Records. 1.0 p.m., Le Journal Parté, 1.10, End of Act II and Act III from Tosca (Puccini), on Gramophone Records, 2.0, Broadcast for Schools, 5.0, Concert of Sound Film Music and Operetta Music by the Radio Orchestra, conducted by Charles Walpot: Foxtrot, Antoinette from Condiscamoi, Madame (Oberfeld); Air from Congress Danes (Heymann); Selection from The Land of Smiles (Lehár); Gotta he Good from Manhattan Cocktail (Schertzinger); Selection from The Threa Musqueteers (Friml); Tango trom Nina Rosa (Rombetg); Selection from Phi-Phi (Christiné); March of the Grenadiers from The Love Parade (Schertzinger). 5.45, Programme for Children. 6.30, Grieg Concert (on Gramophone Records); Symphonic Danees; Elegiac Melody; Norwegian Danees; Danee of the Dwarfs. 7.15, News and Announcements. 7.30, Le Journal Parlé, 8.0, Gramophone Records: Allego molto from Sona(a No. 6 (Mendelssohn); Minuet (Mozart); Toccata (Boëllmann); Arabesque (Debussy). 8.15, De zaak van Spoel-Radio Play (Frans Diricky). 8.40, Gramophone Record: Any étoiles (Dupare). 8.45, Talk: The Belgian Fiscal System. 9.0, Concert by the

Station Symphony Orchestra, conducted by Meulemans. Soloists; Mlle. Legrain (Songs), and Baeyens (Pianoforte). 10.0, Le Journal

BUCHAREST

BUCHAREST

761 kc/s, 394 metres; 12 kW.—11.0 a.m., Exchange, Tides Report and Gramophone Concert. 12 Noon, Radio Journal. 12.15 p.m., Light Music on Gramophone Records. 4.0, Concert by the Station Orchestra: Selection from Orpheus in the Underworld (Offenbach); Suite, Dances of the Nations (Mannfred); Viennese Dance (fodard); Song Potpourri (Dostal); March (Blankenburg). In the interval at 5.0, Radio Journal. 6.0, Educational Talk. 6.20, Gramophone Records. 6.45, Falk. 7.0, Quintet in A (Mozart). 7.30, Talk. 7.45, Song Recital by Mine. TineneMihalovici: Aria from Cleopatra (Handel); Ständehen (Schubert); The Procession (Franck); Aria from Madame Butterfly (Puccini); S'a dus cueul de p'aici (Brediceann). 8.15, Saxophone Solos by Seidmann. 8.45, Radio Journal. 9.0, Romanian Music by the Station Orchestra, conducted by Dinico.

BUDAPEST

BUDAPES1

80 kC/s, 550.5 metres 120 kW.—Also relayed on 840 metres from 6.15 (approx.) till Close Down.—4.30. Hungarian Folk Song Recital with Cigány Band accompaniment. 6.15, Talk. The World Crisis. 6.50, Song Recital. 8.0, News. 8.20, Concert by the Opera House Orchestra, conducted by Ernst Dohnányi. Soloist: Steff Geyer. In the interval, Weather. After the Concert, Jazz Music, relayed from the Café Étoile.

CASSEL. See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres, and Skamleback, OXY, 31.51 metres, and Skamleback, OXY, 31.51 metres, and OXY, 31.51 metres, and OXY, 31.51 metres, and OXY, 31.51 metres, and Skamleback, and OXY, 31.51 metres, and oXY,

CORK .-- See Athlone,

DANZIG,-See Heilsberg,

DRESDEN .- See Leipzig.

FECAMP

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—11.0 a.m. till 12 Noon, Programme in English by the I.B.C. 11.0, Happy Hour. Part I, Orchestral Concert. Part II, Dance Music. 12 Noon, Programme in French. 3.30 to 6.0 p.m., Programme in English by the I.B.C. 3.30, Chichester and Bognor Concert. Part I, Military Band Music. Part II, Dance Music. 4.30, The I.B.C. Nursery Corner; Birthday Greetings. 5.0, Hastings and Eastbourne Concert. Part I, Orchestral Music. Part II, Tango Band. 6.0, Programme in French. 10.0 (approx.) till Close Down, Programme in English by the I.B.C. 10.0 (approx.) Light Music: Pluttering Birds (Geunin); War Time Marching Songs; Whispering Flowers (Blon); Song, Letting in the Sunshine (Gev.); Waltz, Destiny (Baynes); Song, Pretty One Marching Songs; Whispering Flowers (Blon); Song, Letting in the Sunshine (Goy); Waltz, Destiny (Baynes); Song, Pretty One (Strauss); Waltz from the Gipsy Princess (Kalman). 10.30, Dance Music; Signature Tune, The Bells of Normandy; Throw open wide your window; Whisting under the Moon; Symphony of the Breeze; Who's afraid of the Big Bad Wolf; Rosa Mia; My Moonlight Madonna; Cecilia Mia; Gipsy sing for me; Signature Tune. 11.0, Talkie Time—Tunes from the Talkies and Shows; Signature Tune, Sittin' in the Dark; I've got you on my mind (Porter); Selection from Bitter Sweet (Coward); Dancing in the Dark (Schwartz); A compe of fools in love (Valentine); One Alone (Romberg); Butterfly Song (Strauss); Selections from College Humonr (Coslow); Sweetheart Darlin'; Signature Tune. 11.30, LB.C. Time Signat. 11.31, Club Concert for Hfracombe Listeners. Part I, Gramophone Records; Signature Tune, The Chum Song; Come back to Frin; Having a good time, wish you were here (Dubin); Selection from Ball at the Savoy (Abraham); When you've fellows like me in the

force (Frankau); Family Favourites (arr. Ewing); Sam's Medal (Hogau); Honolulu Bay; Dinah (Lewis). 12.5 a.m. (Tuesday), Late News Bulletin in English. 12.10 (approx.), Club Concert. Part 11: Dinner at eight (Fields); My Own (Little); Dear Stranger (Hansen); Conchita (Paolito); Oh Johanna (Lawrence); Signature Tune. 12.30, Dance Music: Signature Tune. The Bells of Normaudy; The Cage in the Window (Gibson): When Autumn comes around; For Love Time; Zigeuner, you have stolen my heart; Don't blanne me: Happy as the day is long; It's the Talk of the Town; There's a new day comin'. 1.0, LB.C. Time Signal. 1.1, Dance Music (contd.): I was in the Mood; Sweet Dreams pretty lady; Did my heart beat; Elvira; Well done Gordon; If I had someone to love; There's a Cabin in the Pines; Motlis around the candle flame; Shadows on the Swance; Snowball; Isn't this a night for love; I bring a song; You're an Old Smoothie: Egypt; Roll up the Carpet; Lazybones; Signature Tune. 2.0, I.B.C. Good-night Melody and Close Down.

FLENSBURG.—Sec Hamburg.

FLORENCE.—See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Gassel and Trier, 1,157 kc/s, 259.3 metres.—
12.15 p.m., Time and News. 12.25, Local News and Weather. 12.35, Gramophone Concert. 1.40, Advent Songs, sung to the Lute. In the interval, Harpsichord Music (on Gramophone Records). 2.30, Weather. 2.40, Time and Exchange. 3.0, Concert. 5.0, See Stuttgart. 5.35, Talk: German Books about German Landscape. 5.50, Weather. News. Exchange, Programme Announcements and Time Signal. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, Topical Talk. 7.10, See Stuttgart. 9.0, News. 9.20, See Stuttgart. 9.30, Local News and Weather. 9.45 till Close Down, See Langenberg. 12 Midnight, Close Down.

FREDRIKSSTAD .- See Osio.

FREIBURG.—See Stuttgart.

GENEVA.-See Radio-Suisse Romande.

GENOA.-See Turin.

GLEIWITZ.—See Breslau.

GOTEBORG,-See Stockholm.

GRAZ.-See Vienna.

HAMAR .- See Oslo.

HAMBURG

HAMBURG

806 kc/s, 372.metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg and Hanover, 1,319 kc/s, 227.4 metres; and Hanover, 1,319 kc/s, 227.4 metres; and Kiel, 1,292 kc/s, 232.2 metres.—6.0 p.m., Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.5, Requiem (Verdi), relayed from the Musikhalle. 8.30, Programme for the One Hundred and Fiftieth Anniversary of the Birth of Max von Schenkendorf. Introductory Talk. Commentary; Choral Music and Recitations. 9.0, News. 9.30 (from Kiel,) Concert by the Orchestra of Unemployed Musicians: Overture, Chal Romano (Ketelbey); Invitation to the Dance (Weber); Waltz from Faust (Gounod); Sang und Klang ans dem Osten (Eberle); Mazurka, Lob der Frauen (Joh. Strauss); Selection from The Pearl Fishers (Bizet); Waltz, Gold and Silver (Lehár); Der Voglein Abendlied (Richards-Zimmer); Selection from The Bird Fancier (Zeller); Waltz, Im schönen Tal der Isar (Löhr); March, Gruss an Kiel (Spohr).

HEILSBERG

HANOVER.—See Hamburg.

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—10.30 a.m., Concert by the Small Station Orchestra, conducted by Eugen Wilcken. Overture, The Secret (Smetana): Two Pieces (Glinka-Weninger): (a) The Lark, (b) Doubt; Selection from Pra Diavolo (Auber); Czardas from Der Geist des Wojewoden (Grossman); Waltz, Hofballtänze (Lanner); Two Pieces (de Michell); Selection from Polenblut (Nedbal). 12.5 p.m., Concert on Gramophone Records. Prelude to and Indian Dance from L'Africaine (Meyerbeer); First and Second Movements from the Quartet in A Op. 26 (Brahms); Chromatic Fantasia (Bach); Erotica (Grieg); Scillenne (Paradis); Romance (Reger); Hungarian Dance No. 2 (Brahms); Selection from Eaust (Gounod); Fröblicher Marsch (Hinrichs). News in the intervals. 2.0, Exchange. 2.30, Guessing Competition. 3.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken. Prelude to the Third Act of Der Pfeifertag (Max von Schillings); Sérénade pittoresque (Graener); Dance Suite (Mraczek); Selection from Die verschenkte Frau (d'Albert); Selection from Der Kulhreigen (Kienzl); Tramspiel-Smite (Itznicek). 4.0, Die Geschwister—Play. 4.25, Planoforte Duet Recital. Fantasia in F Minor (Mozart); Theme and Variations in E Minor (Schubert); Marche héroique Op. 66 (Schubert). 50, Review of Books. 5.15, Market Prices. 5.25 (from Danzig), Talk: St. Nicholas and the Brewers of Old Danzig. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, News and

DEC. 11th MONDAY

Weather. 7.10, General Schenkendorf celebrations, relayed from Tilsit. Fanfare. Address by the Oberbürgermeister. Wind Instruments: Freiheit, die ich meine. Address by Prof. Ibsen. Poem, Landsturm. Choir: (a) Soldaten Morgenlied, (b) Schlachtgesang. Poem: Te deum after the Battle of Leipzig. Address by Lt. General von Schenkendorf. Choir: Erneuter Schwur. 8.10, Concert by the Königsberg String Quartet. String Quartet in D minor (Reznicek); String Quartet in B flat (Mozart). 9.0, News.

HILVERSUM

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW. up to 5.40 p.m. and 20 kW. from 5.40 p.m.—9.55 a.m. till Close Down, Programme of the General Broadcasting Society (A.V.R.O.), 9.55, Organ Recital by Steyn. 10.40, Recitations. 10.55, Gramophone Music. 11.25, Recitations. 11.40, Concert by the Little V.A.R.A. Orchestra, conducted by de Groot. 12.40 p.m., Concert of Light Music. with Gramophone Records. 1.40, Interval. 2.10, Radio Play (Dmin). 2.55, Gramophone Music. 4.10, Programme for Children. 4.40, Trio Concert: 6.10, Talk on Music. 6.50, Dialogue. 7.10, Concert by the V.A.R.A. Orchestra, conducted by Gebert: Albumblatt (Wagner), Träume (Wagner); Siegfried-Idyll (Wagner), Träume (Wagner); Siegfried-Idyll (Wagner), Träume (Wagner); Siegfried-Idyll (Wagner), Träume (Wagner), Siegfried-Idyll (Wag

HORBY.-See Stockholm.

HUIZEN

HUIZEN

160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m. Transmitted from Kootwijk on 50 kW. from 3.40 p.m. Programme of the Christian Radio Society (N.C.R.V.).—11.10 a.m., Gramophone Music. 11.40, Police Notes. 11.55, Gramophone Music. 12.10 p.m., Organ Recital by Zwart: Psalms (arr. Zwart); Preludes and Fugues in F. D Minor, and B Sharp (Bach); Prologue and Epilogue (Rinck); Sacred Songs (arr. Zwart); Choral with Variations (Rinck); Preludes and Fugues in D Minor, C Minor, and D (Bach); Sacred Songs (arr. Zwart). 1.40, Broadcast for Schools. 2.15, Horticultural Talk. 2.55, Dress-making Lesson. 3.25, Interval. 3.40, Bible Reading with Songs and Organ Solos. 4.40, Gramophone Music. 4.55, Recital of Sacred Songs by de Heer, with Violin Accompaniment by Verver. 5.55, Gramophone Music. 6.10, Answers to Correspondence. 7.40, Concert by the Small N.C.R.V. Orchestra, conducted by van der Hurk: Caro mio ben (Giordano); Minuet (Boccherini); Largo (Handel); Meditation (Gounod); Andante from the Violin Concert (Mendelssohn); Adagio from the Pathetic Sonata (Beethoven). 8.10, Talk by A. C. G. von Proosdi]. 8.40, Concert (contd.): First Movement from the Unfinished Symphony (Schubert); Selection from Le Deluge (Saint-Saëns); Serenade (Haydn); Andante (Mozart). 9.10, Talk. cert (contd.): First Movement from the Unfinished Symphony (Schubert); Selection from Le Deluge (Saint-Saëns); Serenade (Haydn); Andante (Mozart); Turkish March (Mozart). 9.10, Talk. 9.40, Press Review. 9.50, Concert (contd.): Flowers all the Way (Ketelbey); Hungarian Comedy Overture (Keler-Bela); Itala Canora (Leopold): La Czarine (Ganne); Entr'acte from Mignon (Thomas); Potpourri of Ketelbey Music (Aston). 10.40, Gramophone Concert. 11.10 (approx.), Close Down.

INNSBRUCK.-See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—12.30 p.m., Amusement Guide and Miscellaneous Items. 1.0, News. 1.15, Concert. 8.0, Amusement Guide, Exchange and News. 8.10, Sports Review. 8.20, Concert. 9.0, News and Weather. 9.15, Dramatic Programme. 10.30, Concert.

KALUNDBORG .- See Copenhagen,

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE .- See Prague.

LAHTI

LAHII

167 kc/s, 1,796 metres; 40 kW. Relayed by Helsinki, 815 kc/s, 368.1 metres.—5.15 p.m., English Lesson. 5.40, Talk. 6.5, Choral Concert, relayed from the University. 6.5ralk. 7.15, Concert by the Station Orchestra, conducted by Linko: Petite Suite (Bizet); Selection from Romeo and Juliet (Massenet). 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12.25 p.m., News and Weather. 12.35, See Frankfurt.

1.30, Meat Market Prices. 2.0, Gramophone Music. 2.10, Dialogue. 2.30, Exchange. 2.50, Political Announcement. 3.0, Variety Concert. 5.0 to 5.35, See Stuttgart. 5.35, Talk: Relief or Provision of Work? 5.45, News. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 1.0, See Frankfurt. 7.10, Graf Spees Letzte Fahrt—Radio Play about the Battle of the Falklands (Carl Dietrich). 8.10, See Stuttgart. 9.30, News, Weather and Sports Notes. 9.45, Light Music (on Gramophone Records). 10.0, Dance Music by the Station Band, conducted by Kühn. 11.0, Chamber Music (on Gramophone Records). 12 Midnight, Close Down.

continued

LAUSANNE.-See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—12.25 p.m., Gramophone Concert: Selection from Schlagohers (Richard Strauss); Song from Die toten Augen (d'Albert); Les jeux d'eau à la Villa d'Este (Liszt); Two Songs (Hassler): (a) Jungfrau, dein schön' Gestalt, (b) Feinslieb, du hast mich g'fangen; Quintet from The Mastersingers (Wagner); Ballad, Des Glockentürmers Töchterlein (Loewe); Song (Tosti); Song for Choir: Schlafe, mein Prinzchen schlaf ein (Mozart). 1.0 p.m., News. 1.10, Talk on Max von Schenkendorf, on the Hundred and Fiftieth Anniversary of his Birth. 1.20, Reading (Heinrich von Kleist). 1.40, Songs and Tales about the Erzgebirge. 2.45, Exchange. 3.0 to 5.10, See Breslau. 5.10, Talk: The Vikings. 530, Gramophone Records of Music from new Sound Films. 5.45, Exchange. 6.0, Transmission for all German Stations relayed from Berlin (Funkstunde). 7.0, Review of the Day's News. 7.10, See Munich. 7.30, Wagner Concert by the Leipzig Symphony Orchestra, conducted by Hans Weisbach: The Ride of the Valkyries; Final Scene from Siegfried; Siegfried Rhine Journey; Funeral Cortège and Brunhilde's Song from The Dusk of the Gods. 8.30, See Munich. 9.20, News. 9.40, Sports Notes and News. 9.50, Concert from Munich. 11.0 (approx.), Close Down.

LINZ.-See Vienna.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—7.0 p.m., Symphony No. 4 in A. Op. 90—the Italian (Mendelssolin), on Gramophone Records, by the Orchestra of the Seala, Milan, conducted by Panizza. 7.35, Song Recital by Schockmel (Tenor): O leggia negli Occhi belli; Cielo e Mari, from La Gioconda (Ponchielli); Ave Maria (Cherubini); Pour un Baiser (Tosti); Recondita Armonia, from La Tosca (Puccini). 8.5, Italian Concert by the Station Orchestra, conducted by Henri Pensis: Overture, The Daughter of the Regiment (Donizetti); Ballet Music from La Gioconda (Ponchielli); Angelus (Micheli); Selection from Turandot (Puccini). 8.50, News in French. 9.0, Variety Concert by the Radio Orchestra, conducted by Henri Pensis: The Squirrel (Smith); Extase (Ganne); Ballata degli Amanti (Micheli); Künstlerleben (Johann Strauss); Scènes pittoresques (Massenet); Le Régiment de Sambre et Meuse (Planquette). 9.45, News in German. 9.55, Aria Recital. Giuseppe de Luca (Baritone). Invocation from Fanst (Gonnod); Beniamino Gigli (Tenor): (a) Si, fui Soldato, from Andrea Chenier (Giordano), (b) Two Arias from I Pagliacci (Leoncavallo); Essie Ackland (Contralto); Largo (Händel). 10.15, Dance Musie by the Radio Jazz Band, conducted by Ferry Jusa.

MADRID

MADRID

ARANJUEZ, EAQ, 10,000 kc/s, 30 metres; 20 kW.—10.30, Light Music. 10.45, Radio Chronicle. 11.0, Catalonian Programme. 12 Midnight till Close Down, Programme in English by the I.B.C. 12 Midnight, Dance Music: The Changing of the Guard; Say it with Music; You are my Heart's Delight; Manua Inez; With you here and me there; Aloha Oe: I'll take an option on you; Butterflies in the Rain. 12.30 a.m. (Tuesday), Military Band Music: Cradle Song (Brainns); The Thunderer (Sousa); Overture, Zampa (Hérold); Song, Shipmates o' mine (Sanderson); Valse triste (Sibelius); Selection from The Vagabond King (Friml); Trumpet Solo: Souvenirs of Switzerland; March from Tanuhäuser (Wagner). 1.0, I.B.C. Goodnight Melody and Close Down.

MALMO.—See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—5.30 p.m., German Transmission: Talk: The Straits of Gibraltar, followed by Granophone Records. 6.0, See Prague. 6.10, Talk: Christmas Gifts for the Children. 6.25 to 9.20, See Prague. 9.20 (approx.), Close Down.

MOTALA,-See Stockholm, MUHLACKER.-See Stuttgart.

MUNICH

MUNICH

563 kc/s, 533 metres; 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 239 metres. —12.25 p.m., Grannophone Concert. 1.0, See Leipzig. 1.10, Weather, Exchange and Announcements. 1.20, Programme arranged by the Post Office, with Grannophone Records. 1.50, Programme for Children. 2.5, Sonata in A (Schubert), by Rudolf Peters (Pianoforte). 2.30 (from Nürnberg), Reading. 2.50, Weather and Market Prices. 3.0, See Breslau. 5.10, Report from the German Museum of the Exhibition of Musical Clocks and Interval Signals. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, See Leipzig. 8.30, Concert by the Small Station Orchestra. conducted by Erich Kloss: Soloists, Augusta Poell (Soprano). Axel Fuss (Baritone) and Franz Köppl (Accordion). 9.20, See Leipzig. 9.40, Weather, Exchange and Sports Notes. 9.50, Concert by the Station Orchestra. conducted by Karl List: Soloist, Hedda Ditmar (Songs); Overture, Czar and Carpenter (Lortzing); Villanella (dell'Acqua); Selection from The Bartered Bride (Smetana); Schlummerlied (Juon); Aria from Louise (Charpentier); Polonaise from Eugene Onegin (Tchaikovsky); Aria from the Pearl of Brazil (David); Eine kleine Nachtmusik (Mozart); Overture, Abu Hassan (Weber). 11.30 (approx.), Close Down.

NAPLES .- See Rome.

NOTODDEN.—See Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; and Rjukan, 671 kc/s, 447.1 metres; and Bijukan, 671 kc/s, 447.1 metres; and Jeiöy LCL, 6,990 kc/s, 42.92 metres.—4.0 p.m., Chamber Music by the Radio Ensemble, 5.0, German Lesson. 5.30, Talk. 6.15, Weather and News, 6.30, Talk on Modern Norwegian, relayed from Bergen, 824 kc/s, 364 metres. 7.0, Time Signal, 7.1, Violin and Pianoforte Recital by Johan Heurique and Esther Vagning. Sonata (Alfven); Pianoforte Sonata in E Minor (Grieg): Violin Solo (Heuriques). 8.10, Political Review. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Variety Programme. 10.0 (approx.), Close Down. 9.15, Variet Close Down

OSTERSUND.—See Stockholm.

PALERMO

PALERMO

558 kc/s, 537.6 metres; 3 kW.—11.45 a.m., Giornale Radio. 12 Noon, Gramophone Music. In an interval at 12.30 p.m., Time, Announcements, and Weather. 1.0, Interval. 4.30, Gramophone Music. 5.0, Programme for Children. 5.30, Interval. 7.0, Dopolavoro Notes. Tourist Talk, Notes. Report of the Royal Society, and Giornale Radio. 7.20, Gramophone Music. In an interval at 7.30, Time and Announcements. 7.45, Concert of Chamber Music by the Classic Quartet. After the Concert, Gramophone Music. 10.0, Giornale Radio.

PARIS

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—5.45 p.m., Le Journal Parlé. 7.15, Weather. 7.25, News. 7.30, Concert arranged by the Composers' Society. Jean Merry (Flute), Francoise Kempt (Harp), Cécile Winsback (Songs) and Nicole Rolet (Pianolorte); Sonatina for Flute and Harp (Marsat); Songs (L. Pachmann), with the Composer at the Pianoforte: (a) Essor, (b) Chant du soir; Pianoforte Solos (Falkenberg): (a) En gondole, (b) Danse des esprits, (c) Scherzando. 8.0, Political Review. 8.15, Concert (contd.): The Richard Waldy Choir, Roland Charmy (Violin) and Jean Doyen (Pianoforte): Three Pieces for Harpsichord (Roesgen-Champion), played by the Composer: (a) Tango, (b) Complainte, (c) Danse rustique; Rois et bergers, for Choir and Pianoforte (Vasseur), the Composer at the Pianoforte; Sonata for Violin and Pianoforte (Durand-Farge). 9.0 (approx.), Close Down.

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.10 a.m., Fanfare and Gramophone Concert. In an interval at 7.30, Press Review and News. 8.0, Sponsored Concert. 8.20, Press Review and News. 8.45, Gastronomic Talk. 12 Noon, News and Exchange. 12.5 p.m., Concert by the Albert Huard Orchestra. 12.35, Sponsored Programme. 12.45, Concert by the Station Orchestra: Overture, Il Seraglio (Mozart): The Emperor Waltz (Joh. Strauss): Nocturne (Borodin); Selection from Grischidis (Massenet): Meditation (Glazunov): Divertissement petit-russien (Casadesus): Tristesse de Bérénice (Rousseau); Selection from II Trovatore (Verdi): Introduction to Act III of Lohengrin (Wagner). 1.5, News and Exchange. 3.45, News and Exchange. 3.45, News and Exchange. 4.50, News and Exchange. 4.50, News and Exchange. 7.0, Duets from Opera (on Gramophone Reeords): Duet from Act III of Lohengrin (Wagner). 7.15, Le Journal Parlé. 7.30, Hot Jazz (on Gramophone Re-

cords). 8.0, Talk on Aviation. 8.20, News and Exchange. 8.30, Half an Hour of Immour by Max Régnier and his Company. 9.0, Interval. 9.20, Gramophone Concert.

PARIS

PARIS

RADIO-PARIS. Call GFR, 174 kc/s, 1,725 metres; 75 kW.—6.45, Gymnasties. 7.0, Interval. 7.30, Weather and Gymnasties. 7.45, Gramophone Music. 8.0, Weather and Press Review. 8.30, Interval. 12 Noon, Music Hall Programme (on Gramophone Records): Old Montmarter (Fourdrain); Belle-Belle (Mateo); Four Songs sung by Jean Lumière; Couchita (Mateo); Leo Poll and his Orchestra: Dizzy Dan (Knight); Edmée Favart in Operetta Successes: (a) Song from Les Cioches de Corneville (Planquette), (b) Song from The Drum Major's Daughter (Offenbach), (c) Melody from Madame l'Archidue (Offenbach), (d) Song from Mannequins (Szulc), (e) Song from Sidonie Panache (Szulc); Mandoline Orchestra: (a) España (Waldteufel), (b) Antour du Moulin (Feret), (c) Arlequin et Colombine (Lacòme), (d) Escamillo (Goldberg); Four Songs sung by Jean Sorbier; Accordion Solos by Marceau; (a) he Piepus an Palais d'Angkor (Marceau), (b) Risveglio de Napoli (Caillie), (c) Frimonssette (Marceau), (d) Miss Columbia (Marceau); Urban in His Repertoire of Songs: (a) L'Anatomie du Conscrit (Spencer-Rimbault), (b) Ca vous fait quelque chose (Delormel), (c) Nons sommes les troullions (Cayron-Christine), (d) La Promenade aux Tuileries (Delormel-Belhiatos), (e) Sons les toits de Paris (Moretti); Foxtrot, Quand nous sommes seuls (Messier). Exchange, News, and Weather in the intervals. 2.0 p.m., Relay of the Speeches from the Session of the Academy of Science, 3.45, Exchange. 3.50, Interval. 6.20, Weather, Agricultural Talk (d) La Promenade aux Tuileries (Delormel-Belhiatos), (e) Sons les toits de Paris (Moretti); Foxtrot, Quand nous sonmes seuls (Messier). Exchange, News, and Weather in the intervals, 2.0 p.m., Relay of the Speeches from the Session of the Academy of Science, 3.45, Exchange, 3.50, Interval, 6.20, Weather, Agricultural Talk and Exchange, 6.45, Cinema Review, 7.0, Review of Books, 7.20, Gramophone Musie; Deep (van Hoorebeke); Song for Maritza (Szanto); Attorante (Los Hoyos); At Twilight (Tracy and Pinkard); Emporte des fleurs (Marinkovitch); Kinderlieder (Robrecht), 7.45, Exchange, News and Talk on Hortieulture, 8.0, Gramophone Musie; The Wedding of the Rose (Jessel); A Parthenay (Weckerlin); La Meunière (Weckerlin); Valse bluette (Drigo), 8.15, News, Weather, Sports Notes, and Review by Paul Reboux, 8.30, Concert, relayed from Glermont-Ferrand. The Orchestra of the National Academy of Music, the Emmanuel Chabrier Women's Choir, and Soloists; Mme, Gabrielle Rouzand (Violin), Boulnois (Cello), Mlle, Marguerite Dousset (Songs), and Mme, Vignal Hennebains (Pianoforte), Address by M. Demai, President of the Anvergne Radio Club, Royat-Valse (Lemaigre); Address by M. Gondard, Mayor of Clermont-Ferrand; Le Chant des Clochettes (Gemont), (b) Noetnene (Claussmann); Violin Solos; (a) Chant d'Amonr (Claussmann), (b) L'ile heureuse (Clabrier), (c) España (Chabrier); Bonrrées and Auvergne Mountain Dances; Extracts from Jeanne d'Arc (Gemon), conducted by the Composer; Address by M. le Dr. Marcombes, Under Secretary of State for Technical Education; Soprano Solos (Canteloube), accompanied by the Composer; (a) Chant d'Auvergne, (b) Aria from Vereingetorix; La Montagnarde d'Auvergne (de Rillé), for Male Voice Choir, Press Review and News in the interval.

PITTSBURGH

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—7.0 p.m., Musical Originalities, from New York. 7.30, KDKA Home Forum. 8.0 to 3.30, New York Relay. 8.0, Radio Guild. 9.0, Betty and Rob. 9.15, Rhythmic Screnade. 9.30, Business News and Market Reports. 9.45, Words and Music, from New York. 10.0, Uncle Tom and Betty. 10.15, KDKA Kiddies' Klub. 10.30, The Singing Lady, from New York. 10.45, Orphan Annie, from New York. 11.0, News-Reeler, Pat Haley. 11.15, Sports Notes and Programme Preview. 11.30, Evensong. 11.45 to 12.45 a.m. (Tuesday), New York Relay. 11.46, Lowell Thomas. 12.0 Midnight, Amos 'n' Andy. 12.15, Baby Rose Marie. 12.30, Potash and Perhautter. 12.45 a.m. (Tuesday), Engineering Stories. 1.0, Side Show, from New York. 1.30, Silvertoppers. 1.45 to 3.0, New York Relay. 1.45, Red Davis. 2.0, Sinclair Minstrels. 2.30, Melody Moments. 3.0, Programme to be announced. PORSGRUND.—See Osio. PORSGRUND,-See Oslo

PRAGUE

PRAGUE

514 kc/s, 488.5 metres; 120 kW.—3.0 p.m.,
See Bratislava 3.50, Programme for Chiidren. 4.5, Talk on Art. 4.15, Gramophone
Records. 4.35, Elementary English Lesson.
4.50, Gramophone Records. 5.5, Agricultural
Talk. 5.15, Talk for Workers. 5.25, News in
German. 5.30, German Transmission: Talk.
6.0, Time and News. 6.10, Talk: Life in the
Universities. 6.25, Variety Programme. 7.25,
Medical Talk. 7.45, Reading (Raines Maria
Rilke). 8.0, Czech Song Recital by Jelena
Holerkova. 8.20, Christmas Dreams—Concert: Melodrama; Christmas Eve, Op. 9, with
Orchestral Accompaniment (Fibich); Christmas Dream from the Cycle, Slumber Songs,
Op. 33 (Suk); Planoforte Solo from Episodes, mas Dream from the Cycle, Slumber Songs, Op. 33 (Suk); Pianoforte Solo from Episodes,

DEC. 11th MONDAY continued

Op. 57 (Suk); Song, Noël des enfants qui n'ont plus de maison (Debussy); Pianoforte; Christmas Sonathna, Op. 54, No. 6 (Novak); Old Advent Song, 9.5, News, 9.20, German News, 9.35 (approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE
SOTTENS, 743 kc/s, 403 metres; 25 kW.; and
Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15
a.m. (from Lausanne). Gymnasties. 11.28,
Time Signal from Nenchâtel Observatory.
11.30, News and Weather. 11.40 (from Geneva). Gramophone Concert. 12 Noon (from
Geneva). Financial Notes. 12.10 p.m. (from
Geneva). Financial Notes. 12.10 p.m. (from
Geneva). 3.0, See Schweizerischer
Landessender. 5.0 (from Lausanne). Book-keeping Lesson. 5.30 (from Lausanne). Programme for Children. 5.55 (from Lausanne).
Italian Lesson. 6.20 (from Lausanne). Talk
on the Albié de Raze. 6.45 (from Lausanne).
Soprano Song Recital by Madeline Gygi;
Alma del cnore (Caldara); Ogni pena
(Pergolese; An bord de l'ean (Fauré); Note
amour (Fauré); Le temps des filas (Chausson); Aria from L'Enfant prodigue
(Debussy). 7.15 (from Lausanne). Introductory Talk to the following Transmission.
7.30 (trom Lausanne), Symphony Concert by
the Radio-Snisse Romande Orchestra, condmeted by Ansermet, relayed from the
Municipal Theatre. Soloist: Walter Giesekthe Radio-Suisse Romande Orchestra, conducted by Ansermet, relayed from the Municipal Theatre, Soloist: Walter Giescking (Pianoforte). Symphony No. 4 in Dinior (Schumann); Pianoforte Concerto in Eflat (Liszt); Partita (Petrassi); Pianoforte Pieces (Debussy); Marche joyeuse (Chabrier), In the intervals, News and Weather. 9.30 (approx.), Close Down.

RJUKAN,-See Oslo.

ROME

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres from 7-40 p.m.; and 2RO, 11,810 kc/s, 25.4 metres.—
12 Noon, Gramophone Records of Opera and Variety Music. In the intervals: Giornale Radio, Exchange. Time and Announcements.
3.20 p.m., Children's Radio Review. 3.55, Giornale Radio and Exchange. 4.15, Recital of Poens. 4.30, Violin and Song Recital by Leo Petroni and Lilly Pettine (Soprano), relayed from the Royal Philharmonic Academy. 5.0, Wheat Market Report. 5.45 (Naples), Shipping and Sports Notes, 5.50, Dopôdavoro Report and Tourist Notes. 6.0, News in Foreign Languages. 6.20, News. 6.35, Song Recital by Lina Borgni (Mezzo-Soprano). 6.50, Giornale Radio and Sports Notes. 7.0, Time and Announcements, followed by Gramophone Music. 7.30, Review of the Day's Events. 7.40, Harp and Song Recital by Ada Ruata Sassoli and Enza Motti Messina (Soprano). Harp Solos: (a) Bourrée (Bach). (b) Gavotte (Martini), (c) Gagliarda (Galilei, arr. Respighi); Soprano Solos: (a) Caldo sangue (Scarlatti). (b) Con tranquillor riposo (Pasquini). (c) Chanson du pecheur (Fauré); Soprano Solo with Solos: (a) Caldo sangue (Searlatti), (b) Con tranquillor riposo (Pasquini), (c) Chanson du pécheur (Fauré); Soprano Solo with Harp accompaniment, Les Cloches (Debussy); Theatre Notes; Italian Songs for Mezzo-Soprano: (a) La rondine importuma (arr. Singaglia), (b) I battitori di grano (Puglie); Harp Solos: (a) Lolita la danseuse (Tournier), (b) Jazz Band (Tournier), (c) Tourbillons (Salzedo). In the interval; Talk on Music. 9.0, Concert of Light Orchestral Music, conducted by Culotta.

SALZBURG.—See Vienna.

SALZBURG.—See Vienna.

SAN SEBASTIAN

SAN SEBASTIAN

EAJ8, 662 kc/s, 453.1 metres; 0.6 kW.—
1.0 to 2.0 a.m. (Tuesday), Programme in English by the I.B.C. 1.0, Dance Music: There's a new Day comin'; Don't blame me; Yes, Mr. Brown; My Möonlight Madonna; Egypt; I've found the right Girl; Let the World go drifting by; Love's old sweet Song. 1.30, Light Music: Song of the Vagabonds (Friml); Beautiful Spring (Lincke); Song of the Tramp (Sievier); Moment musical (Schubert); Meditation from Thais (Massenet); Climbing up those golden Stairs; Selection from a Waltz Dream (O. Strauss); Kamschamola March. 2.0, I.B.C. Goodnight Melody and Close Down.

SCHENECTADY

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres, and by W2XAF on 19.56 metres.

7.30 p.m., Revolving Stage, from New York. 80, Health Hunters, Sketch. 8.15 to 8.30, Soloist, from New York. 12.45 a.m. (Tuesday), Stock Reports. 1.0 to 40, New York Relay. 1.0, Soconyland Sketch. 1.30, Variety Programme. 2.0, A. and P. Giples. 2.30, Ship of Joy. 30, Contented Programme. 3.30, K-7. Secret Service Spy Story. 4.0, Programme Resumé.

SCHWEIZERISCHER

LANDESSENDER

BEROMUNSTER, 663 kc/s, 459 metres; 60 kW: Basle, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—5.30 to 6.5 a.m. (Zürich), Gymnastics. 11.0 (Basle); Gramophone Concert. 11.29, Time Signal

from Neuchâtel Observatory, Weather and News. 11.40 (Basie), Gramophone Concert. 12.25 p.m. (Basie), Time, Weather and Exchange. 12.30 to 2.20, Interval. 2.30 (Zürich), Light Orchestral Concert, conducted by Neppach. 2.59, Time Signal from Neuchâtel Observatory. 3.0 (Basie), Programme for Children. 5.30 (Zürich), Talk in German and French-Swiss: Felix Calonder, Member of Parliament. 6.0, Time and Weather. 6.5 (Zürich), Gramophone Music. 6.20 (Zürich), English Lesson. 6.50 (Zürich), Concert, relayed from the Tohhalle. 8.40 (approx.), Weather and News. 8.50 (approx.) (Zürich), Dance Music on Gramophone Records. 9.15 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 932 kc/s, 322 metres; Horby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 hetres; Ostersund, 409 kc/s, 746.2 metres; and Sundsvall, 554 kc/s, 542 metres, 4.5 p.m., Provincial Programme. 4.45, Gramophone Music. 5.45, Elementary German Lesson. 6.15, Weather and News. 6.30, Song Recital. 6.50, Talk relayed from Uppsala, 662 kc/s, 453.1 metres. 7.20, Concert by the Radio Orchestra, conducted by Sixten Eckerberg: Soloist, Anders de Wahl (Recitations); Dance Suite (Franckenstein); Recitation with Orchestral accompaniment (Melartin); The Dryads (Sibelins); Recitation; Overture, Donna Diana (Reznicek); Hungarian Rhapsody No. 2 (Liszt); Selection from The Czarevitch (Lehír). 8.45, Weather and News. 9.0, Concert (contd.): Overture, Oriolanus (Becthoven); The Oxford Symphony in D (Haydm); Siegfried Idyll (Wagner); Suite No. 1 from L'Arlésienne (Bizet). 10.0 (approx.), Close Down.

STRASBOURG

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STRASBOURG

Orchestral Concert, conducted by Roskam.

12 Noon, Gramophone Music. 12.45 p.m.,
News. 1.0, Time and Exchange. 1.5, Light
Music on Gramophone Records. 2.0, Interval. 5.0, Orchestral Concert, conducted by
Roskam: March, El Capitan (Sousa); Waltz,
Wiener Blut (Joh. Strauss); La violette et
le mimosa (Fauchey); Overture, La part du
diable (Auber); Selection from The Prophet
(Meyerheer); Two Pieces (Rubinstein); (a)
Torch Dance of the Brides of Kashmir, (b)
Torcador et Andalouse; 'Cello and Pianoforte: Lamento (Dumas); Selection from
Don César (Dellimer). 6.0, Literary Talk.
6.15, Reading. 6.30, Concert by the Metz
Popular Concert Society, relayed from Metz;
Conductor, Ehrmann: Overture, Tancred
(Rossini); Boston Waltz (Bozi); Selection
from Faust (Gounod); 'Cello Solo; Air grave
(Delamay); Selection from La Traviata
(Verdi); Serenade. Sonvenir de Venise
(Bozi); Violin Solo, Les bords de la Moselle
(Boisdeffre); Selection from Les cloches de
Corneville (Planquette). 7.30, Time and
News. 7.45, Gramophone Music. 8.0, Press
Review in German, Lottery Results, and Anhoung Philharmonic Orchestra, conducted
by Monfemillard, relayed from the Palais
des Fêtes; Overture. The Magic Flute
(Mozart); Pianoforte Concerto No. 4 in G
(Beethoven); Pianoforte Pieces (Monfenillard); Symphony No. 5 in C Minor (Beethoven). In the interval at 9.30 (Approx.),
News. 10.30 (approx.), Close Down.

STUTTGART

MUHLAGKER, 832 kc/s, 360.5 metres; 1.5 kW. Relayed by Freiburg, 527 kc s, 570 metres.—12.25 p.m., Local News and Weather. 12.35, See Frankfurt. 1.30, Interval. 2.30, Talk: The German Christmas Carol. 3.0, Concert Relay. 5.0, French Lesson. 5.20, Talk: Berlioz Fantastic Symphony. 5.35, Time. Market Priese and Weather. 5.45, Talk on Astrology. 6.0, Transmission for all German Stations relayed from Berlin (Funkstunde). 7.0, See Frankfurt. 7.10, Favourite Descriptive Music—Concert by the Station Orchestra. conducted by Otto Seyfert: Cadet March (Sousa); In a Persian Market (Ketelbey); The Clock and the Dresden Figures (Ketelbey); Russtle of Spring (Sinding); Waltz, Donanwellen (Ivanovici); Russian Watch Parade (Eilenberg); 7.40, A Visit with the Microphone to a Metal-Goods Factory. 8.10, The Fantastic Symphony (Berlioz) on the One Hundred and Thiriteth Anniversary of the Composer's Birth. The Würtemberg Symphony Orchestra, conducted by Ferdinand Drost. 9.0, See Frankfurt. 9.20, Topical Talk. 9.30, Local News, Weather and Sports Notes. 9.45 fill Close Down, See Langenberg. 12 Midnight, Close Down.

SUNDSVALL .- See Stockholm.

TOULOUSE

779 kc s, 385 metres; 8 kW.—8.0 a.m., Dance Music. 8.30, News. 8.35, Orchestral Music.

8.45, Songs. 12.15 p.m., Light Music. 12.30, News and Exchange. 12.46, Request Music. 1.0, Amusement Guide, Market Prices and Time. 1.5, Chansonnettes. 1.15, Accordion Solos. 1.30, Operetta Arias. 1.45, Opera Music. 2.0, News. 4.15, News. 6.0, News. 6.15, Music by an Argentine Band. 6.30, Operetta Arias. 6.45, Light Music. 7.0, Opera Arias. 7.15, News. 7.30, Violin Recital; Anbade d'annour (Monti); Serenade No. 1 in A (Drdla); Rondo brillante (Weber); Polichinelle (Kreisler). 7.45, Music by a Viennese Orchestra. 8.15, Sonna-Film Music. 8.30, Operetta Music. 8.45, Songs. 9.0, Concert by the Station Orchestra, conducted by Espy; Overture, Phèdre (Massenet); Chant sans paroles (Tchaikovsky); Snite from Muguette (Missa); Waltz, The Bue Danube (Joh. Strauss); Selection from Mignon (Thomas); You are my Heart's Delight (Lehár); March from The Fair Maid of Perth (Bizet). In the intervals. Opera Arias. 10.15, News. 10.30, Programme for Listeners in Morocco: Part I, Chansonnettes; Part II, Orchestral Music. 10.50, Tourist Talk. 11.0, Request Music. 11.5, Dance Music. 12.5 a.m. (Tuesday), Ilawaiian (Guitar Music. 12.15 Military Music. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—6.45 a.m. to 3.45 p.m., Programme from Turin. 3.45, Pro-gramme for Children. 4.10 till Close Down, See Turin. -6.45 a.m. to n. 3.45. Pro-

TURIN

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Mitan, 903 kc/s, 332.3 metres; Genoa, 559 kc/s, 312.8 metres; and Florence, 598 kc/s, 501.6 metres.—4.10 p.m., Concert, conducted by Tito Petralia. 4.55, Weather. 5.0, Agricultural Notes and Wheat Market Report. 5.10, Dopolavoro Notes and Tourist Report. 6.0, Time and News in Foreign Languages. 6.20, Gramophone Records. 6.50, Announcements, Giornale Radio and Weather. 7.0, Gramophone Concert. 7.30, Review of the Day's Events. 7.40, Comedy in One Act. 8.10, Chamber Music. 9.0, Dance Music on Gramophone Records. 10.0, Giornale Radio.

VIENNA

Gramophone Records. 10.0, Giornale Radio.

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed hy
Graz, 852 kc/s, 352.1 metres; 1nnsbruck,
1,058 kc/s, 283 metres; Klagenfurt, 652 kc/s,
453.1 metres; Lins, 1,220 kc/s, 245.9 metres;
and Salzburg, 1,373 kc/s, 218.6 metres.—11.0
a.m., Concert by the Wiener Symphoniker, conducted by Max Schönherr. 12 Noon,
Time, Weather and Programme Announcements. 12.10 p.m., Concert by the Wiener
Symphoniker, conducted by Max Schönherr.
2.0, Time, Weather and Exchange. 2.15,
Talk on the Milk Industry. 2.25, Programme for Children. 2.50, Clarinet Quintet
in B Minor, Op. 115 (Brahms), on Gramophone Records. 3.36, Talk: Ludwig Purtscheller, an Austrian Alpinist. 40, Talk,
with Gramophone Illustrations: Musical
Parodics. 4.25, Song and Pianoforte Recital
of Swiss Music by Alice Frey-Knecht (Songs)
and Walter Frey. 5.5, Dramatic Criticism.
5.23, Talk: Book and Publications in connection with the week's Talks. 5.50, Elementary English Lesson. 6.0, Topical Talk. 6.15,
Time, Weather and Programme Announcements. 6.25, Concert by the Wiener Symphoniker, with Songs, Balalaika Music and
Accordion Solos. 8.0, Octet in E. Flat for
four Violins, two Violas, and two Cellos,
Op. 20 (Mendelssohn), played by the SeidlakWinkler Quartet and the Anito-Ast Quartet.
8.35, Announcements. 8.50, Talk: Ivan Bunin,
the Nobel Prize Winner. 9.15, Talk: Etwin
Schrödinger, The 1933 Winner for the Nobel
Prize in Physics. 9.30, Gramophone Records
of Jack Payne and his Band. Announcements after the Programme.

WARSAW

WARSAW

warsaw

212.5 kc s, 1,411 metres; 120 kW.—10.57 a.m.,
Time Signal and Fanfare from St. Mary's
Church, Cracow. 11.5, Gramophone Records
of Old and Modern Dances. 11.30, Radio
Journal. 11.35, Weather. 11.38, Gramophone
Records (contd.). 12 Noon, Interval. 2.25,
Announcements. 2.30, Economic Notes. 2.40,
Scout Notes. 2.45, Aviation Notes and AntiGas Drill. 2.55, Tchaikovsky Song Recital,
relayed from Poznan, 897 kc s, 334.4 metres.
3.15, Baritone Song Recital by Matasiak:
Herod's Aria from Hérodiade (Massenet);
Arioso from Le roi de Lahore (Massenet);
Barcarolle from La Gioconda (Ponchielli);
Romance (Brogi); It tue pensiero (Rotoli);
E canto il grillo (Billi). 3.40, French Lesson.
3.55, Viola d'amore Recital, relayed from
Poznan. 4.20, Planoforte Recital by Anna
Mun: Sonata, Op. 101 (Beethoven); L'isle
joyense (Debnssy); Two Etndes (Chopin);
(a) in C Sharp Minor, (b) in F. 4.50, Agricultural Correspondence. 5.0, Talk: The
Association of Poles abroad. 5.20, Jazz
Music on Gramophone Records. 6.0, Programme Announcements. 6.5, Miscellaneous
Items. 6.25, Talk: Feminine Influences in
Recthoven's Life. 6.40, Sports Talk. 6.47,
Radio Journal. 7.0, Orchestral Concert. In
the intervals. Violin Solos, relayed from
Lwów, 788 kc s, 381 metres. 8.0, Reading.
8.15, Concert (contd.). 9.0, Dance Music
relayed from the Gastronomia Restaurant.
10.0, Weather and Police Notes. 10.5, Dance
Music (contd.).
ZURICH.—See Schweizerischer Landessender. ZURICH.-See Schweizerischer Landessender.

ATHLONE

DECEMBER THE TWELFTH

ATHLONE

725 kc/s, 413 matres; 60 kW. Relayed by Dublin, 1,382 kcs, 217 metres; and Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.30 p.m., Time Signal, Weather Report, Stock Report and Gramophone Concert, 6.0, Programme for Children. 6.45, News. 7.0, Gaelic Reading, 7.15, Poetry Recital by Cathleen Murphy, 7.30, Time Signal. 7.31, Concert by the Station Orchestra. 8.0, Soprano Solos by Mai Corkeran, 8.10, Pianoforte Solos by Olive Williams, 8.25, Baritone Solos by Ueslie Jones. 8.45, A Sketch, by The Munmers. 9.15, Song Recital by Erni Ritter, 9.30 to 10.30, Programme by the I.B.C. (Ireland), Ltd. 9.30, Light Orchestral Concert: Signature Time: Choo Choo; Sicilietta (von Blon); Smillin' through (Penn); Chauson (Friml); Selection from Waltzes from Vicnua (Joh. Strauss); Signature Tune: Choo Choo, 9.45, Concert of Dance Music: There's a New Moon over my Shoulder; Longing; Goodnight little Girl of my Dreams; Shame on you. 10.0, Programme arranged by the International Broadcasting Company (Ireland), Ltd.: Dance Music: Night Owl; Lazybones; Bless your Heart; Racing Commentary; If I had somebody to love; It's only a Paper Moon; Perla; Beautiful Girl. 10.30, I.B.C. Goodnight Melody, followed by News and Weather. 10.40, Irish Music. 11.0 (approx.), Close Down.

BARCELONA

BARCELONA

EAJ1, 858 kc/s, 349.6 metres; 9 kW.—6.0 p.m., Trio Concert. Prefude in C Sharp Minor (Rachmaninov); Hindu Song (Rinsky-Korsakov); Song (Malvezzi); Selection from The Tales of Hoffmann (Offenbach); Melody (Fauré); La lettre de Manon (Gillet); Selection from Der Freischütz (Weber). 7.0, Request Gramophone Music. 7.30, Exchange and Talk in Catalan. 8.0, Gramophone Music. 8.30, Educational Programme and News. 9.0, Chimes, Weather, Messages to Scamen, Exchange and Market Prices. 9.5, Part Relay of an Opera from the Gran Teatro del Liceo. 11.0, News. 11.5 (approx.), Opera Relay 11.5 (approx.), Opera (contd.).

BARI

1,112 kc/s, 269.8 metres; 20 kW.—6.45 a.m. to 12 (Noon), Programme from Rome. 12 (Noon), See Turin. 3.30 p.m., Quintet Concert. 4.10 to 7.0, See Rome. 7.0, News in Albanian. 7.15, See Turin. 7.30 till Close Down, See Rome.

BASLE,-See Schweizerischer Landessender.

BERLIN

BERLIN

DEUTSCHLANDSENDER

(REICHSSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—1.0
p.m., Gramophone Concert. 1.35, Talk, Floating a new company. 2.0, Relay of the Opening of the Riechstag. 2.15, Handwork for Children—How to build a Christmas crib. 2.30, Weather and Exchange. 2.45, Travellers' Tales—Readings from Marco Polo. 3.0, See Munich. 4.0, Handwork for Young People. 4.20, Concert of Contemporary Music: Elisabeth von Pander (Songs) and Bruno (Hintze-Reinhold (Pianoforte): Marienlieder (Oscar von Pander), accompanied by the Composer: Pianoforte Solo. Reigen und Romanzen (Jos. Haas). 5.0, Poetry Reading, followed by Reading (Albert Schweitzer). 5.25, Political Press Review. 5.45, Weather and News. 6.0, Transmission for all German Stations, relayed from Frankfurt. 7.0, Talk by Otto Kuhn, Chairman of the Berlin Stock Exchange: The Stock Exchange and Germany's Struggle for Equality. 7.10, Concert by the Augmented Station Orchestra, relayed from Reichenbach, in the Vogtland; Conductor, Edwin Lindner; Soloist, Rosalind Schirach (Soprano): Symphony No. 6 in B Minor—the Pathetic (Tchaikovsky); Extracts from Tannhäuser (Wagner); Rhapsody (Liszt). In the interval at 7.55, Talk: The First Performance of Siegfried Wagner's Opera, Der Heidenkonig. in Cologne. 9.0, Weather and News. 9.45, Weather. 10.0, Concert from Leipzig. 11.0 (approx.), Close Down

BERLIN

BERLIN

FUNKSTUNDE, 716 kc/s, 419 metres; 1.5 kW. Relayed by Zeesen, DJC, DJA, DJD, DJB and DJE.—12 (Noon), Gramophone Concert. Pianoforte Solos: (a) Three Sonatas (Scarlatti), (b) Prelude and Fugue in A Minor from "Das Wohltemperierte Klavier" (Bach); Ballad, Des Glockentürmers Töehterlein (Loewe); Selection from Hansel and Gretel (Ilumperdinck). 12.20 p.m., Programme from Hamburg. 1.5, Weather, News and Tides Report. 1.20, Programme to be announced. 2.0, See Berlin (Deutschlandsender). 3.0, See Heilsberg. 4.0 to 5.0, See Hamburg. 5.0, Song and Pianoforte Recital by Inge Brodersen (Sopramo) and Käthe Conrad. Songs (Robert Franz): (a) Der junge Tag, (b) Es hat die Rose sich beklagt, (c) Lieber Schatz, sei wieder gut zu mir; Two Pianoforte Pieces, Op. 119 (Brahms); Three Songs (Robert Franz): (a) Xachtlied, (b) Mutter, o sing mich zur Ruh', (c) Für Musik; Pianoforte Solos from Träume am Kamin, Op. 143 (Reger). 5.30, Punkstunde informs its Listeners. . 5.35, Talk: A German Cruiser in Forcign Seas, 5.45, Topical Talk. 6.0, Transmission for all German Stations, relayed from Frankfurt. 7.0, Announcement. 7.5, See Hamburg.

9.0, News. 9.30 till Close Down, See Hamburg. 11.0 (approx.), Close Down.

BERNE.-See Schweizerischer Landessender. BEROMUNSTER, -- See Schweizerischer Landessender. BODEN.—See Stockholm.

BODO,-See Oslo.

BORDEAUX-LAFAYETTE

BORDEAUX-LAFAIEIIE

986 kc/s, 304 metres; 13 kW.—6.15 p.m.,
Programme relayed from Paris (Ecole
Supérieure), 671 kc/s, 447.1 metres, followed
by Radio Journal, 7.35, News, 7.40, Talk
on Child Adoption, 7.55, Lottery Results.
8.0, Topical Talk, 8.15, News and Weather,
8.30, Nee Paris (Eiffel Tower). After the
Programme, Amusement Guide and Time.

BRATISLAVA

1,073 kc/s, 279.5 metres; 14 kW.—6.10, Serenade, Op. 36 (Novak), by the Station Orchestra. 6.40, See Prague. 7.0, Pianoforte Concerto in A minor, Op. 11, No. 1 (Chopin). 7.40, A One-Act Play (Naske). 8.10, See Brno. 9.0, See Prague. 10.0 (approx.), Close Down.

BREMEN,-See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—12.15 to 1.20 p.m., Programme from Leipzig. 1.20, Programme to be announced. 2.0, Market Prices and Exchange. 2.10, Everybody listen!
2.30, Programme for Children. 3.0 to 5.10, See Munich. 5.10, Market Prices and Talk. 5.35, Wireless Technical Talk. 5.45, Programme Announcements and Meat Market Prices.
6.0, Transmission for all German Stations, relayed from Frankfurt. 7.0, See Berlin (Deutschlandsender). 7.10, See Leipzig.
7.20, Aufruhr im Funkhaus—Radio Play (Heinz Bierkowski). 8.15, See Munich. 9.0, See Leipzig. 9.20, Time, Weather, Sports Notes, and Local News. 9.30 till Close Down, See Leipzig. 11.0 Gapprox.), Close Down.

BRNO

BKNO

878 kc/s, 342 metres; 35 kW.—3.0, Concert by the Station Orchestra, conducted by Janota, 3.55, See Prague, 4.15, Notes on Chess, 4.35, See Prague, 4.15, Notes on Music, 5.0, Review of Music, 5.15, Talk for Workers, 5.25, German Transmission: News, Talk on the History of Art and Agricultural Talk, 6.0, See Prague, 7.40, Reading, 7.55, Gramophone Music, 8.10, Opera in Old Prague—Musical Play (Firkushy), 9.0, See Prague, 10.0 (approx.), Close Down.

Gramophone Music. 8.10, Opera in Old Prague—Musical Play (Firkusny). 9.0, See Prague. 10.0 (approx.), Close Down.

BRUSSELS (No. 1)

1.N.R., 589 kc/s, 509.2 metres; 15 kW.—
12 Noon, Concert by the Small Station Orchestra, conducted by Leemans: Esquisse No. 2 (Aubert): Russian Minnet (Akimenko); Tambourin (Rameau); Intermezzo (Tchérepnin). 12.20 p.m., Schubert Song Recital by Mine. Boursault-Gys: Heidenröslein; Der Wanderer; Die Forelle; Ständchen. 12.35, Orchestral Concert (contd.); Serenade (Samazeuilh): La fille aux cheveux de lin (Debussy): Arabian Melody (Rousseau); Bohemian Dance (Schumann); Melody (Sokolov); Melody (Turina); Malaguena (Moszkovsky). 1.0, Le Journal Parlé, 1.10, Gramophone Records: Historie d'une Pierrot (Costa); Selection from Ball at the Savoy (Abrabam); Selection from Elat Minor (Tchaikovsky). 5.0, Chamber Music: Trio in E Flat, Op. 1, No. 1 (Beethoven); Trio (Turina). 6.30, For Children. 6.5, Review of the Week. 6.15, Quartet in G. Op. 76, No. 1 (Haydn) on Gramophone Records, 6.30, Concert by the Small Station Orchestra. conducted by Leemans: Minuet from Le Bourgeois Gentilhomme (Lully); Rigaudon from Dardanus (Rameau); Le coucou (Daquin); Minuet from Castor et Pollux (Rameau); Les papillons (Couperin); Andante for Flute (Mozart); Gavotte from Armida (Ghek), 7.15, Talk for Workers, 7.30, Women's Programme and Art Notes, 8.0, Concert by the Station Symphony Orchestra, conducted by Meuhemans: Soloist, Abel Bourdandue (Violin); Overture, Egmont (Beethoven); Violin and Orchestra: La folia (Corelli); Scherzo from Romeo and Juliet (Berlioz): Violin and Orchestra. Gipsy Rhapsody (Ravel); Divertissement on Russian Songs (Rabaud). 8.45, Talk: The Present and the Future, 9.0, Le gobelin merveilleux. Opereta in Two Acts (De Coniek). 9.555, Christus Vincit (Liszt). 10.0, Le Journal

BRUSSELS (No. 2)

N.I.R., 888 kc/s, 337.8 metres; 15 kW.—Programme in Flemish. 12 Noon, Lehár Gramophone Records, 1.0 p.m., Le Journal Parlé.
1.10, Concert by the Small Station Orchestra, conducted by Leemans: Comedy Overture

(Keler-Bela); Auhade à Kiki (De Boeck); Piëta (Albert); Gramoplione Records: Selection from Veronique (Messager); Potpourri (Dostal); Two Pianoforte Pieces (Moorkens); Potpourri, Radio-Budapest (Prichystal). 5.0, Concert by the Symphony Orchestra, conducted by Meulemans: Rubens March (Benoit); Flemish Rhapsody (Brusselmans); Four Old Flemish Songs (De Greef); Spanish Fantasia (Gavaert); Canadian Fantasia (Gilson); Village Dances (Grétry). 5.45, Programme for Children. 6.30, Pianoforte Recital by Franz Ceene; Rhapsody No. 6 (Liszt); Polonaise (Chopin); Paraphrase on Rigoletto (Verdi-Liszt); (Chopin). 7.0, Balalaika Solos: In the Village (Ippolitov-Ivanov); Serenade (Abt); The Red Sarafan (Varlamov); Cradle Song (Gretchaninov). 7.15, Talk. 7.30, Le Journal Parié. 8.0, Cabaret Programme. 10.0, Journal Parié.

BUCHAREST

BUCHAREST
761, kc/s, 394 metres; 12 kW.—11.0 a.m., Exchange, Tides Report and Gramophone Concert.
12 Noon, Radio Journal.
12.15 p.m., Light Music on Gramophone Records.
4.0, Concert of Variety Music by the Sibicano Orchestra. In the interval at 5.0, Gramophone Records.
6.0, Educational Talk.
6.20, Gramophone Records.
6.45, Talk.
7.0, Song Recital.
7.20, Symphony Concert by the Station Orchestra, conducted by Rogalski, Soloist: Koganof. Overture. Le baruffe chiozotte (Sinigaglia); Concerto in G Minor (d'Ambrosio); Symphony (Martucci). In the interval at 8.0, Talk.
8.45, Radio Journal.

BUDAPEST

BUDAPEST
545 kc s, 550.5 metres; 120 kW.—Also relayed on 840 metres from 6.30 p.m. till Close bown.—4.30 p.m., Pianoforte Recital by Lii Markus. 5.0, Programme for Workers. 6.30, Acts II and III of Tristan and Isolite—Opera (Wagner), relayed from the Royal Opera House. In the intervals: News. After the Opera Cigány Music. 10.15, Talk in Italian.

CASSEL,-See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres; and Skamlebaek, 0XY, 49.4 metres.—11.0 to 1.0 p.m., Light Music relayed from the Bellevue Strandhotel. 1.30, Concert by the Radio Orchestra, conducted by Lamy Gröndahl; Soloist: Alette Garde (Songs). 3.30, Reading. 4.0, Programme for Children. 4.30, Exchange and Fish Market Prices. 4.45, Talk. 5.15, Elementary German Lesson. 5.45, Weather and Announcements. 6.0, News. 6.15, Time Signal. 6.30, Educational Talk. 7.0, Time Signal from the Town Hall. 7.1, Irish Fantasy for Violin and Pianoforte (Stanford), by Louis Preil and Folmer Jensen. 7.20, Riders to the Sea—Play in One Act (J. M. Synge). 7.55, Introductory Talk to the following Transmission. 8.10, Acts 3 and 4 of Rigoletto—Opera (Verdi), relayed from the Royal Theatre. 9.45, News. 10.0, Dance Music, relayed from the Lodberg Restaurant. In the interval at 11.0, Time and chimes from the Town Hall. 11.30 (approx.), Close Down.

CORK .- See Athione. DANZIG .- See Heilsberg. DRESDEN .- See Leipzig,

FECAMP

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—10.30 a.m. to 12 Noon, Programme in English by the LB.C. 10.30, The Hour for Housewives. 11.0, Happy Hour. Part I, Orchestral Concert: Signature Tune; Selection from A Thousand and One Nights (Joh. Strauss); Her First Dance (Heykens); Midnight Waltz (Spoliansky); Song, Reflections in the Water (Loeb); Zigeuner, you have stolen my heart (Egen); Venetian Boatman's Song (Montovani); Toujours, toujours (Manilla); Waltz, The Blue Danube (Joh. Strauss). Part II, Dance Music: Lazybones; Let's Call it a Day; Oh Johanna; Somehody stole my Gal; Juzz Cocktall: Avalon; If you'll say Yes, Chérie; My Bluebird's singing the Blues; Signature Tune. 12 Noon, Programme in French. 3.30 to 6.0 p.m., Programme in English by the LB.C. 3.30, Torquay and Exeter Concert. Part I. Orchestral Music: Signature Tune, The Night by the Sea; bance of the Nymphs (Birch); Smilin' through (Penn); Song, A Bachelor Gay (Tate); Second Serenade (Heykens); Waltz from (Coppelia (Delibes); Four Jolly Sailormen (Germau); Musical Comedy Switch (arr. Hall); Waltz, Artists Life (Joh. Strauss). Part II, Dance Music: Signature Tune, The Bells of Normandy; The Gold Diggers Song; Blue Moments; Come out Vienna; The Cage in the Window; Mon amour; Who's afraid of the Big Bad Wolf: Thanks: Happy and Contented; Signature Tune. 4.30, The LB.C. Nursery Corner, Birthday Greetings. 5.0, Plymouth and Devonport Concert. Organ Recital: Ca c'est Madrid (O'Henry); Valse

poudrée (Popy); Song, Tired Hands (Sanderson); Nola (Arndt); Butterflies in the Rain (Myers); Song, Love's Old Sweet Song (Molloy); Selection, Illegal; Stein Song (Valle). 5.30, LB.C. Time Signal. 5.31, Concert (contd.); Family Favourites (arr. Ewing); Song. Poor Man's Garden (Russell); The Penguin's Patrol (Reaves); Isn't it heavenly (Meyer); Signature Tune. 5.45, Concert of Dance Music: Experiment; Dinner at Eight; Dawn in Montmartre; Moths around the Candle Flame. 6.0, Programme in French. 10.0 till Close Down, I.B.C. Programme in English by the I.B.C. 10.0 (approx.), Novelty Orchestra; Jolly Fellows (Vollstedt); That Tiny Teashop; Banjo Solo, Heather Bloom (Kirby); Dance Bagatelle (Bourdon); The Toymaker's Dream (Golden); Mandoline Solo. Loin du Bal (Gillet); The Ghost Walk; March, The Mighty Deep. 10.30, Dance Music: Signature Tune, The Bells of Normandy; My Moonlight Madonña; I was in the Mood; Tea for Two; Mi amor esta en el valle; The Man on the Flying Trapeze; Did my Heart beat; Dinner at Eight; Signature Tune. 11.0, Tunes from the Talkies and Shows: Signature Tune along; Selection from Nymph Errant; The Shadow Waltz; Come out, Vienna; Selection from Give me a Ring; I live for Love (Hammerstein); Fancy our meeting (Furber). 11.30, I.B.C. Time Signal, 11.31, Concert arranged by the International Broadcasting Company (Ltd.); Signature Tune, Come back to Erin; Selection from A Thousand and One Niglits (Joh. Strauss): In a Clock Store (Orth); Irish Song Medley (arr. Griffiths); Selection from The Chocolate Soldier (O. Strauss); Sahut d'amour (Elgar); My Old Irish Mother (O'Donnell); Hungarian Dance, No. 6 (Brahms); Invitation to the Waltz (Weber); Signature Tune, Come back to Erin, 12.5 a.m. (Wednesday), News Bulletin in English. 12.10 (approx.), Club Concert for Torrington Listraers: Signature Tune, The Chun Song; The Last Round Up; Swingy little thingy; Sophisticated Lady; Fli show you off; Jazz Cocktail; Cornflowers and Poppies; Don't blant me; Spanish Eyes; A Couple of Pals; Ah! but is it Love?; He was

FLORENCE.—See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel, and Trier, 1,157 kc. s, 259.3 metres —12.25 p.m., News and Weather. 12.35, Sec Langenberg. 1,20, Programme to be Announced. 2.0, See Berlin (Deutschlandsender), 3.0, See Stuttgart. 5.0, Italian Lesson. 5.20, Talk: Young People in Search of Professions. 5.35, Talk for the Seventieth Birthday of the Norwegian Painter, Munch. 5.50, Weather and News. 6.0, Transmission for all German Stations. Humour in German Opera—Concert by the Station Orchestra, conducted by Rosbaud. 7.0, See Berlin (Deutschlandsender). 7.10, Dialogue: The Bird Sanctuaries. 7.30, Pianoforte Quartet in C Minor (Brahms). 8.15, See Munich. 90, Time and News. 9.20, See Stuttgart. 9.30, Local News and Weather. 9.45, Programme of Light Music. 10.0, Concert of Folk Music by a Mandoline Band, Rudolf Claus (Bandonian), Hans Eisele (Zither), and Fritz Stumpp (Rhenish Songs). 11.0, Talk: The (Country of the Rhine and the Main. 11.45 (approx). Close Down.

FREDRIKSSTAD.—See Oslo. FREIBURG.—See Stuttgart, GENEVA .- See Radio-Suisse Romande. GENOA .- See Turin. GLEIWITZ,-See Breslau, GOTEBORG.—See Stockholm. GRAZ.-Sec Vienna, HAMAR.-See Oslo.

HAMBURG

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg and Hanover, 1,319 kc/s, 277.4 metres; and Kiet, 1,292 kc/s, 232.2 metres.—4.0 p.m., With Pick and Hammer-Incidents of the Miner's Life. 4,30, Concert by the Station Choir conducted by Gregor. 5.0, Gramophone Music. 5.45, Frankfurt Exchange and Hamburg Market Prices. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Frankfurt. 7.5, Das Liebe Nest—Musical Play in Three Acts (Wischer). 9.0, News. 9.30, Talk by Otto Knhn. Chairman of the Berlin Stock Exchange: The Stock Exchange and the Fight for Germany's Equality. 9.40, Concert by the Hamburg Philharmonic Orchestra, conducted by Secker. Overture, Fra Diavolo (Auber); Extracts from Hansel and Gretel (Hamperdinck); Polka from The

Bartered Bride (Smetana); Gipsy Dance from Carmen (Bizet); Waltz, Espana (Waldteufel); Overture, Flotte Bursche (Suppé); Waltz, Wiener Blut (Joh. Strauss); Tango (Brase); Selection from The Count of Luxembourg (Lehár).

HANOVER.—See Hamburg

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—10.30 a.m., Concert by the Small Station Orchestra, conducted by Eugen Wilcken. Overture, Athalie (Mendelssohn); Extase (Bizet); Love Duet (Thome); Suite, My Homeland (Frederiksen); Selection from Hérodiade (Massenet); Waltz Potpouri, Blütenkranz (E. Strauss); Two Pieces (Fauchey); (a) Morning Poeni, (b) Romanian Rhapsody; Overture, Der Operhall (Heuberger), 12.5 p.m., Grannophone Records. 2.0, Exchange. 2.20, Talk on Fashion. 2.30, Musical Improvisations for Children. 3.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken. Selection from The Princess in the Golden Slippers (Rust); Selection from Max und Moritz (Zimmer); Liliput garde (Zimmer); Plauderei aus der Kinderstube (Manfred); Ein Fest im Gnomenreich (Wittelborn); Two Xylophone Solos. Kinderstube (Manfred); Ein Fest im Gnomenreich (Wittelborn); Two Xylophone Solos. Kinderstube (Maters), A. Review of Books. 5.15, Market Prices and Ice Report. 5.25, Talk: What Everybody should know about Building. 6.0, Transmission for all German Stations, relayed from Frankfurt. 7.0, News. 7.5, See Hamburg. 9.0, News. 9.30, Talk: The Exchange and Germany's Struggle for Equality.

HILVERSUM

HILVERSUM

1.013 kc/s, 296.1 metres; 7 kW. up to 5.40 p.m., and 20 kW. from 5.40 p.m.—Programme of the General Broadcasting Society (A.V.R.O.). 10.40, Organ and Soprano Recital by Pict van Egmond and Marie Olsen; Organ Solos; (a) Praludium in E flat (Bach), (b) Adagio (Mendelssohn), (c) Allegro assai vivace (Mendelssohn); Soprano and Organ; (a) Tu virginum Corona (Mozart), (b) Recitative and Aria from Joshua (Handel), (c) Aria from Julius Cæsar (Handel); Organ Solos; Wedding March (Widor), (b) Fantasia on American Airs (Dicks); Soprano and Organ; (a) Wiegenlied (Reger), (b) Two Melodies (Dvorak), (c) La procession (Franck); Organ Solo; Improvisation (Egmond). 11.40, Time Signal. 11.41, Concert by the Wireless Orchestra, conducted by Nico Gerharz; Dem Lenz entgegen (Blankenburg); Overture. The Arabian Nights (Johnstein). Stausss); Tango (Mulder); Gay Nights (Mulder); Waltz (Rust); Melody (Lenschner). 155, Interval. 2.10, Concert by the Wireless Orchestra, conducted by Nico Gerharz: March (Schubert-Liszt); Nocturne from A Midsummer Night's Dream (Mendelssohn); Selection from Lohengrin (Wagner-Luigini). 2.40, Dressmaking Lesson. 2.40, Pianoforte Recital by Jan Odé; Sonata in Eflat (Mozart); Nocturne in F sharp, Op. 15, No. 2 (Chopin); Etude in G flat, Op. 25, No. 5 (Chopin); Reflets dans l'eau (Debussy); L'isle joyeuse (Debussy). 4.10, Concert by the Chidren's Choir, conducted by Jacob Hamel. 4.40, Programme for Children. 5.10, Talk arranged by the Liberal Protestant Radio Society (V.P.R.O.). 5.40, Concert of Light Music by Barnabas von Geczy and his Orchestra. 6.40, Grantophone Records. 7.10, English Lesson. 7.40, Time and News. 7.45, Concert (contd.). 8.40, Radio Play. 9.20, Concert hy the Concertgebouw, Amsterdam. Conductor: Eduard van Beinum. Soloist; Joseph Rogatchewsky (Tenor); Selection from Les Troyens (Berlioz); Aria from Maximillan (Milboud); Serenade from Le roi d'Ys (Laloi); Prelude to Act II of Gwendoline (Chabrier); Polish Feast from Le roi malgré lui (Chabrier). 10.10, Gramophone Records. 10.40, New HORBY.-See Stockholm.

HUIZEN

HORBY.—See Stockholm.

HUIZEN

160 kc/s, 1,875 metres; 7 kW until 3.40 p.m.

Transmitted from Kootwijk on 50 kW. from
3.40 p.m.—7.0, Programme of the Catholic Radio Society (K.R.O.). 7.40, Gramophone Music.

1.10, Religious Address.

1.140, Police Notes.

1.155, Concert by the K.R.O. Sextet; Gramophone Records in the interval.

1.40, Programme for Women.

2.40, Dressmaking and Millinery Lessons.

3.40 to 3.55, Interval.

3.55, Pianoforte Recital by Potharst: Sonatas in b and E (Scarlatti); Gavotte (Potharst); Grillen (Schmannn); Ronde des lutius (Liszt).

4.10, Song Recital by Holthaus: Three Songs (Schmann); (a) Ich wandre nicht, (b) Wanderlied, (c) Ich grolle nicht; Frühlingsglauben (Schmbert); Ungeduld (Schmbert).

4.25, Gramophone Music.

4.40, Pianoforte Recital (contd.); Noctume in E Flat, Op.

2 (Chopin); Ballad in F Minor, Op. 52 (Chopin); Ballad in F Minor, Op. 52 (Chopin); Bollad in F Minor, Op. 53 (Chopin); Bollad in F Minor, Op. 54 (Chopin); Bollad in F Minor, Op. 54 (Chopin); Bollad in F Minor, Op. 55 (Chopin); Bollad in F Minor, Op. 54 (Chopin); Bollad in F Minor, Op. 55 (Chopin); Bollad in F Minor, Op. 56 (Chopin); Bollad in F Minor, Op. 57 (Chopin); Bollad in F Minor, Op. 58 (Chopin); Bollad in F Minor, Op. 58 (Chopin); Bollad in F Minor, Op. 58 (Chopin)

DEC. 12th TUESDAY continued

Van't Woud: Selection from White Horse Inn (Stolz-Benatzky); Polka, Tritsch-Tratsch (Joh. Strauss); Four Russian Folk Songs. (a) Mother Volga, (b) The Volga Boat Song, (c) Evening Bells, (d) Two Guitars. 8.10, News. 8.15, Concert (contd.): March. King Cotton (Sousa); Kissing is no sin (Eysler); Semper fidelis (Sousa); Songs: (a) Monastery legend, (b) Geida, (c) Song from The (Zarevitch (Lehār), (d) Waltz Song. 8.40, Concert by the K.R.O. Orchestra, conducted by Gerritsen; Soloist, Else Rijkens (Soprano): Overture, Faust (Schumann); Air de concert (Mendelssohn); Le Ronet d'Omphale (Saint-Saëns); Selection from the First Symphony in D (Mahler); Gramophone Records: Soprano Solos (Wolf): (a) Traum, (b) Dir, (e) Soll ich denn sterben, (d) Ein solcher ist mein Freund; Overture to the Suite in D. No. 3 (Bach); Symphony No. 3 (C. Bach). 10.10, News. 10.15, Gramophone Music. 10.30, Concert by the K.R.O. Boys. 11.10, Gramophone Music. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

JUAN LES PINS 1,205 kc/s, 249 metres; 0.8 kW.—1.0 p.m., News. 1.15, Concert. 8.0, Amusement Gnide, Exchange and News. 8.10, Agricultural Re-port. 8.20, English Lesson. 8.35, Concert. 9.0, News and Weather. 9.15, Concert.

KALUNDBORG.—See Copenhagen.

KIEL.—See Hamburg. KLAGENFURT.—See Vienna.

KOSICE.-See Prague.

LAHTI

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by Helsinki, 815 kc/s, 368.1 metres.—5.15 p.m., Talks. 6.0, Orchestral Concert. Soloist: Erik Cronvall (Violin). Cancasian Suite (Ippolitov-Ivanov); Canzonetta from the Violin Concerto (Tehaikovsky); Overture, Russlan and Ludmilla (Glinka). 6.30, Dramatic Programme. 7.0, Pianoforte Recital by Michael von Zadora: Toccata in D minor (Bach-Busoni); Intermezzo, Op. 119 (Brahms); On Wings of Song (Mendelssolm-Liszt); Frühlingsnacht (Schumann-Liszt); Scherzo from A Midsummer Night's Dream (Mendelssolm); Two Fantasias on Themes of Paganini (Liszt). 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

p.m., Concert by the Station Orchestra, conducted by Kühn: Norwegian (Artists' Carnival (Svendsen); The Enchanted Lake (Liadov); Suite, Roma (Bizet), 120, Programme from Hamburg, 2.0, See Berlin (Deutschlandsender), 2.15, Lake (Liadov); Suite, Roma (Bizet).

1.20, Programme from Hamburg. 2.0, See Berlin (Deutschlandsender). 2.15, Sonata in D Minor for Tello and Pianoforte (Defesch), played by Paul Schmitt and Walter Wielsch. 2.30, Market Prices. 2.50, Political Address. 3.0, See Stuttgart. 5. 10 5.35, See Frankfurt. 5.35, Talk: The Aims of the Nordic Society. 5.45, News. 6.0, Transmission for all German Stations. 7c. layed from Frankfurt. 7.0, See Berlin (Deutschlandsender). 7.10, See Frankfurt. 8.0, See Munich. 9.20, Review of the Week's Events. 9.30, News. 9.45 till Close Down. See Frankfurt. 11.45 (approx.). Close Down. LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc, s, 319 metres.—2.0 p.m., Song and Pianoforte Recital by Young Artists: Scherzo in B Flat Minor, Op. 31 (Chopin); Songs (Brahms): (a) Meine Liebe ist grün, (b) Sapphische Odc, (c) Ständchen; Tarantella (Liszt); Three Songs (Beethoven): (a) Die Trommel gerührt, (b) Freudvoll und leidvoll. (c) Keine Sorg um den Weg. 2.45, Exchange. 3.0 to 5.10, See Munich. 5.10, Talk: The Life and Death of Captain Carl Hans Lody. 5.30, Talk: Aerial Defence. 5.45, News. 6.0, Transmission for all German Stations, relayed from Frankfurt. 7.0, See Berlin (Deutschlandsender). 7.10, Topical Review. 7.20, See Breslau. 8.15, See Munich. 9.0, News and Time. 9.20, Talk by Herr Wächtler: The Thuringian Landestheater, followed by Extracts from Martha (Flotow). 9.30, Concert by the Leipzig Symphony Orchestra, conducted by Steffen: A Women's Choir from the Pedagogic Institute, conducted by Losse: Overture. Figaro (Mozart); Serenade No. 12 in C Minor for Two Ohoes, Two Charinets, Two Horns, and Two Bassoons (Mozart); Romance from King Manfred (Reinecke); Extracts from the Traumspiel Suite (Reznieck); Four Songs (Brahms): (a) Nun stehen die Rosen in Blute, (b) Die Berge sind spitz und die Berge sind kalt, (c) Am Wildbach die Weiden die schwanken, (d) Und geht's du uber den Kirchhof; Two Songs (Zilcher): (a) Musicalisch bist Du nicht, (b) Intermezzo, Canon, Hent' wollen wir Instig sein (Haas); Little Suite, Op. 102 (Niemann). 11.0 (approx.), Close Down. LIVE.—See Vienna.

L IUBL JANA

522 kc/s, 574.7 metres; 7 kW.—10.0 a.m., Broadcast for Schools. 11.15, Gramophone

Records. 11.45, News. 12 Noon, Weather and News. 5.0 p.m., Programme for Children. 5.30, Gramophone Records. 6.0, French Lesson. 6.30, Educational Programme, 7.0, Song Recital. 7.45, Orchestral Concert. 8.30, Weather and News. 8.50, Concert (contd.). 9.30 till Close Down, Programme in English by the I.B.C. Dance Music: Spanish Sweetheart; My Wishing Song; Song of the Tramp; Flor de Cuba; I Lay me Down to Sleep; The Old Spotted Cow; Then the Moon Came Out; When my Little Pomeranian.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—7.0 p.m.,
Concerto in B, Op. 61 (Beethoven), on
Gramophone Records, by Fritz Kreisler and
the Orchestra of the Berlin Opera House, conducted by Leo Blech. 7.50, Variety Concert
by the Station Orchestra, conducted by Henri
Pensis: Carnival Overture (Glazanov); NutCracker Suite (Tchaikovsky); Voici que le
Printemps (Debussy); Piece (Batta); Three
Pieces (Granados); (a) Prelude, (b) Orientale, (e) Sous le Palmier. 8.50, News in
French. 9.0, Belgium Song Recital by Gustave Simon: La Clamear de Roland (Jodin);
A toi (Lebrun); Croix de Bois (Goby); Chanson frivole (Gaillard); Légende (Sarly); Carillon de Pâques (Houdret); Nocturue (Houdret); Les Trois Houssards (Rasse); Berceuse rose (Daneau). 9.30, Variety Concert
by the Station Orchestra, conducted by
Heuri Pensis. Selection from Mignon
(Thomas); Humoresque (Demaret); Berceuse
(Vreuls): Première Sérénade (Wallet); Roses
of Picardy (Wood); Selection from Paganin
(Lehár-Salabert). In an interval at 9.45,
News in German. 10.20, Dance Music on Gramophone Records.

MADRID

MADRID

ARANJUEZ, EAQ, 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Concert. In the interval at 10.45, News. 11.45, Light Music. 12 Midnight to 1.0 a.m. (Wednesday), Programme in English by the I.B.C. 12 Midnight, Light Music: Selection from The Count of Luxembourg (Lehár); Oh Sailor hehave (Dubin); The Company Sergeant Major (Sanderson); The Rebels are out (Waller); Selection from A Waltz Dream (O. Strans); Mi amor esta en el Valle (Barreto); There's Magic in the Air (Wachmann); Potpourri, Around the Volga (Dostal). 12.30 a.m., Danee Music: I've found the right Girl; Blue Moments; Don't blame me; There's a Cabin in the Pines; I raised my Hat; Morning, Noon and Night; Forty-Second Street; There's a new Day comin'. 1.0, I.B.C. Goodnight Melody and Close Down.

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange, Topical Talk and Dance Music. 7.15, Talk by Joaquín España Cantos, Talk on Hygiene. 7.45 (approx.), Dance Music. 8.0 (approx.), El Loro-Musical Comedy (Pittalinga), (First Prizewinner in the Station Musical Comedy Competition). 11.45, Radio Journal. 12 Midnight, Chimes. 1.0 a.m. (Wednesday) till Close Down, Programme in English by the LB.C. Dance Music: Sittin' in the Dark; Bomba-diddy-bom-hom; The School Song; Sweetheart Darling'; There's Something about a Soldier; Whistling under the Moon; Let's all be happy together; Spanish Sweetheart; In Sauta Lucia; A Waltz, a Night a Tune; The Song of the Slave; It's Sunday down in Caroline; From me to you; Waltz, Si petite; Reflections in the Water; When my little Pomeranian; Parade of the Minutes; Then the Moon came out. 2.0, LB.C. Goodnight Melody and Close Down. MALMO.—See Stockholm. MALMO.-See Stockholm.

MILAN .- See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—6.10, Concert by the Sokol Choral Society, conducted by Hradil. 6.40, See Prague. 7.0, Orchestral Concert. 7.40, See Prague. 7.55, See Brno. 9.0, See Prague. 10.0 (approx.), Close

MOTALA .- See Stockholm. MUHLACKER.—See Stuttgart.

MUNICH

MUNICH

563 kc/s, 533 metres; 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc s, 560 metres, and Nürnberg, 1,256 kc/s, 239 metres.

5.30 a.m., Gynnastics. 5.45, Gramophone Music. 6.15 to 8.45 (approx.) Programme from Leipzig, 9.15, Talk on Commerce. 9.55, Market Report. 10.15, Time and Weather. 10.50, See Leipzig. 11.0 a.m., Orchestral Concert Conducted by Erich Kloss: Overture. The Black Domino (Auber); Liebeslieder-Walzer (Brahms); La Chapelle de Gnillaume Tell (Liszt): Six Pieces for Small Orchestra (Müller-Rehrmann). (a) Gavotte, (b) Elegy, (c) Intermezzo, (d) Barcarolle, (e) Chinese Dance Music. (f) Serenade; Selection from Der Obersteiger (Seller); Venétienne et Sérénade (de Taye); Piedmontese Dance (Sinigaglia); March (Poldini). 12.15 p.m., See Leipzig. 12.25, Gramophone Music;

Overture, Waldmeister (Joh. Strauss);
Donaulieder-Walzer (Dietrich); Humoresque (Dvorak); Selection from Carmen (Bizet);
March Polka, Es war einmal zur schönen Maienzeit (Niel); Polka (Klarke); Waltz Song, Einmal am Rhein (Ostermann);
Drinking Song (Kistenmacher); March, Old Comrades (Teike). 1.0, See Leipzig. 1.10, Weather, Exchange and Programme Announcements. 1.20, Programme to be announced. 2.0, Talk for the Housewifc. 2.30, A Soldier discusses Some Books about the War. 2.50, Weather and Market Prices. 3.0, Concert by the Station Orchestra, conducted by Winter. Soloists: Marya Neitzel (Mezzo-Soprano) and Franz Rupp (Pianoforte): Overture, The Magic Flute (Mozart); Pianoforte Concerto in C minor (Beethoven); There Songs (Berlioz); Comedy Overture (Shigaglia). 4.30, Old Japan: Talk, with Gramophone Record Illustrations. 4.50, German and Italian Music of the Early Baroque Period by Max Meili (Tenor) and Annie Speckner (Harpsichord): Song of Praise, from Sinfonia sacra (Schütz); Tempro la cetra (Monteverdi); Toccata in D minor for Harpsichord (Froberger); Ohime ch'io cado (Alonteverdi); Motet from the Lute Book (Senfi); Ecco di dolci raggi (Monteverdi). S.10, Dialogue between two University Students: The Brown Shirt in the Universities. 5.30, Gramophone Records: Guitar Solo: Zwei Sternd'l am Himmel; Mouth Organ Solo: Selection from Carmen (Bizet). 5.45, Time, Weather, and Market Prices. 6.0, Transunission for all German Stations, relayed from Frankfurt. 7.0, See Berlin (Deutschlandsender). 7.10, See Leipzig. 7.20, See Breslau. 8.15, Wine and Song in the Sunny Palatinate—A Night in the Speyer Weimmuseum. 9.0, See Leipzig. 9.20, Weather, Exchange and Sports Notes. 9.30, See Leipzig. 11.0 (approx.), Close Down.

NAPLES .- See Rome.

NOTODDEN .- See Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 45.31 metres; and Rjukan, 671 kc/s, 447.1 metres; and Heidy, LCL, 6,990 kc/s, 42.92 metres.—4.0, Gramophone Records. 5.0, Talk for Housewives. 5.45, Recitation. 6.0, Annonneements, Weather, and News. 6.30, Talk. 7.0, Time Signal. 7.1, Concert by the Station Orchestra, conducted by Kramm: Overture. Die Fledermans (Joh. Strauss); Suite from Sylvia (Delibes); Narcissus (Nevin); Musette (Offenbach); Liehestraum (Liszt); Intermezzo (Gustavsen); Tambourin chinois (Kreisler); Old Dances (Nils Ursin); March (Ilm). 8.10, Literary Review. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Recital of Reidar Brögger Music for Two Pianofortes by Tore Sinding and Amund Raknernd: Extract from the Snite, Ostenfor Solen, venstenfor Manen; Concert Etude. 9.35 (approx.), Close Down.

OSTERSUND.-See Stockholm.

PALERMO

PALERMO

558 kc/s, 537.6 metres; 3 kW.—11.45 a.m., Giornale Radio. 12 Noon, Light Music. In an interval at 12.30 p.m., Time, Announcements and Weather. 1.0, Interval. 4.30, Programme for Women. 4.40, Grantophone Music. 5.10, Baillia Programme. 5.30, Interval. 7.0, Depolavoro Notes, Tourist Report, Agricultural Notes, and Giornale Radio. 7.20, Gramophone Music. In an interval at 7.39, Time and Announcements. 7.45, Rigoletto—Opera in Three Acts (Verdi). In the intervals, Talk and Announcements. 10.0. Giornale Radio.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—5.45 p.m., Le Journal Parié. 7.15, Weather. 7.25, News. 7.30, Gramophone Music. 7.45, Talk on the History of Art. 8.0, Scientific Review, 8.15, Talk on Politics. 8.30, Dramatic Pro-

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.10 a.m., Fanfare and Gramophone Concert. In the interval at 7.30, Press Review and News. 8.20, Press Review and News. 8.25, Gastronomic Talk. 12 Noon, News and Exchange. 12.5 p.m., Songs on Gramophone Records. 12.20, Sponsored Programme. 12.30, Sponsored Programme. 12.30, Sponsored Programme. 1.5, News and Exchange. 1.15, Gramophone Records of Bach and Laverne. 1.25, News and Exchange. 1.30, Gramophone Concert. 2.0, News and Exchange. 3.15, News and Exchange. 3.45, News and Exchange. 7.0, Gramophone Music. 7.5, A Sound Film. 7.15, Le Journal Parlé. 7.30, Gramophone (Concert. 8.0, Talk on the Music Itall. 8.5, Film Review. 8.20, News and Exchange. 8.35, Concert by the Petit Parisien Symphony Orchestra and the Kedrof Vocal Quartet: Conductor: Théodore Mathien; Overture, La farce du cuvier (Dupont); Eight Variations on a Themae of

Haydn (Brahms); Fantasia on Two Popular Angevin Airs (Lekeu); In the Steppes of Central Asia (Borodin); Danse macabre (Saint-Saëns). In the interval at 8.20, Ex-change. 10.30, News.

PARIS

RADIO-PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture. 7.46, Gramophone Records. Prelude (Denyn); Selection from Piccolino (Guiraud); Melody (Koch); Selection from Ariane (Massenet), 8.0, Weather and Press Review. 12 Noon, Gramophone Concert. Part I—Woods. La Diligence dans la Forêt (Schaffer); Selection from The Mill in the Black Forcst (Eilenberg); Sous bois (Staub); La Forêt qui chante (Charlys); La voix des chênes (Goublier); Adieu à la forêt from L'attaque du moulin (Bruneau); In the Forest near the Lake; The Nightingale's Song (Zeller); La Chanson de peupliers; Sous la fenillés (Thomé); Forest Murmurs from Siegfried (Wagner). Part II—Fields; La chanson des bles d'or (Beria); Papillon (Zoubalov); La petite église (Deimet); La raitière et le pot au lait (La Fondaine); Chante, chemineau (Persiani-Jourdan); Chant du berger from Mirella (Gounod); Les bœnts (Dupont); Les cigales (Goublier); Jemailles (Goublier); La processión (Franck); Les pommiers (Fremine); Extract from Die schöne Müllerin (Schubert). Part III—Villages; Melody from Die schöne Müllerin (Schubert); La petite maison (Beytes); Les vieilles de chez nous (Levadé); Dors, mon gars (Botrel); Retour de vêpres (Busser); Tout le pays l'a su (Borel-Clerc); Le petit quinquin (Desrousseaux). In the intervals, Exchange and News. 2.5 p.m., News and Announcements. 3.45, Exchange and Market Prices. 4.30, Elementary English Lesson. 6.20, Weather, Agricultural Talk, Exchange and Racing Results. 6,40, German Lesson. 7.0, Theatre Review. 7.20, Gramophone Records. Le rendez-vous (Rostand); Nocturne (Sarment); Le Cygne (Sully-Prudhomme); La forêt qui chante (Fremine); Finale from Toi et Moi (Geraldy). 7.30, Light Music. 7.45, Press Review, News and Connnercial Prices. 8.0, Concert of Chamber Music. The Radio Paris Quartet and Soloists: Martun (Pianoforte), Mme. Malnory Marseillac (Songs), and Mlle. Yvonne Save (Recitations), Pianoforte Quintet No. 2 (Fauré). In the intervals, News and Review by Pi

PITTSBURGH

RDKA; 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—7.0 p.m., Four Aces. 7.15, Musical Originalities, from New York. 7.30, KDKA Home Forum. 8.0, Rochester Orchestra, from New York. 9.15, Gongress of Clubs. 9.30, News and Market Reports. 9.45, Brown Palace Orchestra, from New York. 10.15, KDKA Kiddies' Klub. 10.30, The Singing Lady, from New York. 10.45, Orphan Annie, from New York. 10.45, Orphan Annie, from New York. 11.0, News, Pat Haley. 11.15, Sports Notes and Programme Preview. 11.30, Evensong. 11.45, Lowell Thomas, from New York. 12. Midnight, Amos 'n' Andy, from New York. 12.15 a.im. (Wednesday), Marvellous Melodies. 12.30, Lois Miller. Organist. Sports Notes and Programme Preview. 11.30, Evensong. 11.45, Lowell Thomas, from New York. 12 Midnight, Amos 'n' Andy, from New York. 12.15 aim. (Wednesday), Marvellous Melodies. 12.30, Lois Miller. Organist. 1.0 a.m. (Wednesday) to 2.30, New York Relay. 1.0, Crime Clues. 1.30, Adventures in Health. 1.45, Trade and Mark. 2.0, Musical Memories. 2.30, Programme to be announced. 3.0, Ortiz Tirado, from New York.

PORSGRUND .- See Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—3.0, Sre
Brno. 3.55, Programme for Children, 4.15,
Talk for Workers. 4.25, Gramophone
Records. 4.35, German Conversation
Lesson. 4.50, Gramophone Records. 5.5,
Agricultural Notes. 5.15, Talk for Workers.
6.25, News in German. 5.30, German Transmission: Two Educational Talks. 6.0, Time
and News. 6.10, Concert by the Prague
Wind Quintet: Louisa's Polka (Smetana);
Waltz (Kovapovic); Waltz in A Flat, No.
1, Op. 54 (Dvorák); Three Modern Dances
(Pacak); Quartet for Flute, Clarinet, French
Horn and Bassoon (Rossini). 6.40, Talk;
The Changing World. 7.0, Sonata in D
Minor (Novak) for Violin and Pianoforte, by
S. Novak and Kerel Solc, 7.40, Wireless
Notes. 7.55, See Brno. 9.0, News. 9.15,
Concert by the Station Orchestra, conducted by Jeremias: Suite (Bartos); Symphony (Webern); Theme and Seven VariaLions (Webern). 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE RUMANDE
SOTTENS, 743 kc/s, 403 metres; 25 kW.; and
Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15
a.m. (from Lausanne), Gymnastics. 11.28,
Time Signal from Neuchâtel Observatory.
11.30, News and Weather. 11.40 (from Geneva), Gramophone Concert. 12 Noon (from
Geneva), Financial Notes. 12.10 p.m. (from
Geneva), Gramophone Concert (contd.). 1.0,
Interval. 2.58, Time Signal from Neuchâtel
Observatory. 3.0 (from Lausanne), Concert

DEC. 12th TUESDAY continued

by the Small Radio-Lausanne Orchestra, conducted by Moser. Part I: Chamber Music: Sonatina in D for Plauoforte and Violins (Schubert); Sonatina for Two Violins (Mozart); Trio for Flute, 'Cello and Pianoforte (Weber). Part II: Light Music: Overture, The Land of Smiles (Lehâr); Suite (d'Aibert); Waltz, Plattergeister (Strauss); Selection from Tom Jones (German). Part III: Folk Music. Part IV: Dance Music. 5.0 (from Lausanne), Programme for Women. 5.30 (from Lausanne), Sports Talk. 5.55 (from Lausanne), Talk: André Gide and his Novel, Les Caves du Vatican. 6.40 (from Geneva). Programme of Readings and Carillon Recital for the Commemoration of the Escalade. 7.0 (from Lausanne), Chamber Music with Introductory Talk and Commemorary. 8.0 (from Lausanne), Cabaret Çoncert. 9.0, News and Weather. 9.10 (approx.), Close Down.

REYK JAVIK

KEINJAVIN

250 kc/s, 1,200 metres; 21 kW.—8.20 p.m.,
Musical Programme and Announcements.
8.35, Programme to be announced. 9.0,
Chimes and News. 9.30, Reading. 10.0,
Musical Programme: 'Cello Solo by Thorhallur Arnason; Quarret in C (Mozart) on
Gramophone Records, followed by Dance
Musical 1.30 (aprox.), Close Down. RJUKAN -See Oslo.

ROME

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres from 7.40 p.m., and 2RO, 11,810 kc/s, 25.4 metres.—6.45 a.m., Gymnastics. 7.0, Time, Giornale Radio, Announcements and Weather. 11.30, Gramophone Music. 12 Noon, Programme from Turin. In the Intervals, Giornale Radio, Exchange and Anouncements. 3.30 p.m., Children's Radio Review. 3.55, Giornale Radio, Exchange and Exchange. 4.10, Orchestral Concert. Melody (Tribuni): Two Pieces (Cortopassi): (a) Mattino di Pasqua. (b) Posilipo; Sempre allegro (Ansaldo); Violin Solo: Aria on the Fourth String (Colonnese): Selection from The Pearl Fishers (Bizet); Waltz, Bimbi di nessuno (Rampoldi); Melody (Roland). 4.55, Weather. 5.0, Wheat Market Report. 5.45 (Naples), Shipping and Sports Notes. 5.50, Lesson in Morse and Dopolavoro Report. 5.40, News in Foreign Languages. 6.20, Soprano Recital by Elena Cheli. 6.50, Giornale Radio and Sports Notes. 7.0, Time and Announcements. 7.15, Gramophone Music. 7.30, Review of the Day's Events. 7.40, Concert. Part I—Grieg Music. Soloists: Anita Landi (Soprano) and Ornella Paliti-Santoliquido (Pianoforte). Peer Gynt Suite: (a) Morning. (b) Anitra's Dance, (c) Ingrid's Lament, (d) Dance in the Hall of the Mountain King; Three Songs: (a) Der Schwan. (b) Ein Traum. (e) Die Prinzessin; Concerto in A Minor for Pianoforte and Orchestra, Op. 16: Topical Talk in Dialogue. Part 2—Music by the Dou Cossack Choir, on Gramophone Records.

SALZBURG.—See Vienna.

SCHENECTADY

WGY, 790 ko/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres, and by W2XAF on 19.56 metres.—
12.45 a.m. (Wednesday), Stock Reports. 1.0 to 3.45, New York Relay. 1.0, Blackstone Plantation. 1.30, Wayne King's Orchestra.
2.0, Ben Bernie's Orchestra. 2.30, Variety Programme. 3.0, Popular Programme. 3.30, Madame Sylvia of Hollywood.
3.45, Piano Pals and Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

LANDESSENDER
BEROMUNSTER, 653 kc/s, 459 metres; 60
kW.; Basle, 1,229 kc/s, 244.1 metres; and
Berne, 1,220 kc/s, 245.9 metres.—5.50 to 6.5
a.m. (Basle), (iymnastics. 11.0 (Zürich),
Notes for Housewives. 11.5 (Zürich), Light
Orchestral Music. 12.25 p.m., Time, Weather
and Exchange. 12.30 to 2.30, Interval. 2.30
(Zürich), Concert by the Small Station Orchestra, conducted by Scherhaum. 2.59,
Time from Neuchâtel Observatory. 3.0, See
Radio-Suisse Romande (Sottens). 5.0
(Berne), Programme for Children. 6.0
(Berne), Time, Weather and Notes on the
Broadcasts for Schools. 6.10 (Berne), Talk
on Bach and Handel, with Illustrations by
Alice Ehlers (Harpsichord). 6.50 (Berne),
Introductory Talk to the following Trausmission. 7.0, See Vienna. 9.30 (approx.), Close
Dowii.

SOTTENS.—See Radio-Suisse Romande.

SOTTENS.—See Radio-Suisse Romande

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres; Ostersund, 409 kc/s, 746.2 metres; and Sunds-

vall, 554 kc/s, 542 metres.—4.5 p.m., Popular Song Recital by Teddy Leif-Petersen. 4,20, Talk on Hunting. 4,50, Gramophone Music. 5,45, Talk in Swedish and French. 6.15, Weather and News. 6.30, Talk on Economics. 7.0, Brahms Concert by the Radio Choir, conducted by Axel Nylander: Rosmarin; Von alten Liebesliedern; Dein Herzlein mild; Waldesmacht; All meine Herzgedanken; Es geht ein Wehen; Vergangen ist mir Gluck and Heil; Das Mädchen; Der bucklichte Fiedler. 7.30, Talk on Antonomy, relayed from Uppsala, 662 kc/s, 453.1 metres. 8.0, Variety Programme. 8.30, Radio Report. 8.45, Weather and News. 9.0 (from Göteborg). Violin and Organ Recital, by Francesco Asti (Violin) and Folk Lundhorg (Organ). Organ Solos: Prelude and Figue in B Flat (Bach); Violin Solos: (a) Larghetto (Handel), (b) Romance in G (Beethoven); Organ Solos: Variations (Lundhorg); Violin Solos: (a) Adagio (Marteau), (b) Romance in E (Wilhelmy); Organ Solo: Prelude and Figue in D (Bach). 10.0 (approx.), Close Down.

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—10.30 a.m., Orchestral Concert relayed from Toulouse (PTT), 1,176 kc/s, 255.1 metres. 12 Noon, Orchestral Concert, conducted by Maurice de Villers. 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Orchestral Concert (contd.). 2.0, Interval. 4.45, Talk: The French Colonies—Morocco. 5.0, Orchestral Concert, conducted by Roskam: Selection from Tosca (Puccini); Adoration (Fillipucci); Waltz, Amore estinto (Razigade): Evohé (Razigade); Suite de danse (Pierné); Serenade in B flat (Widor); Selection from Die Teresine (O. Straus); Marche printanière (Monton). 6.0, History Talk. 6.30, Orchestral Concert, conducted by Maurice de Villers: Overture, Béatrice et Bénedict (Berlioz); Selection from Maronf (Rabaud); Ballet Music from Le roi de Lahore (Massenet): Selection from Samson and Delilah (Saint-Saüns); Suite pittoresque (Fourdrain). 7.30, Time and News. 7.45, Grannophone Records. 8.0, Press Review in German, Lottery Results and Announcements. 8.30, Programme relayed from Paris (Eiffel Tower). 10.30 (approx.), Press Review.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 1.5 kW. Relayed by Freiburg, 527 kc/s, 570 metres. — 12.25 p.m., Local News and Weather. 12.35, See Langenberg. 1.20, Programme to be announced. 2.30, Old German Chamber Music—Recital by Lore Fischer (Contratto) and Ilubert Griesen (Harpsichord). 3.0, Concert by the Station Orchestra, conducted by Gustav Görlich. Soloists: Itelmut Schulmacher (Violin). Richard Gross (Violin), Leo Hantz (Guitar), and Hans Hanus (Tenor). Part I—Overture. Jean de Paris (Boieldieu). Suite, In a Fairy Realm (Ketelhey): Selection from "The Queen of Spades" (Tchaikovsky); Suite campestre (Amadei). Part II—Old Viennese Dance Melodies and Songs; D'Schwamma-Tanz No. 1 (Weidinger); Die kecken Schnopper (Debiasy): Viennese Songs; Dances of Baden (Katzenberger); D'Schwamma-Tanz No. 2 (Weidinger). Part III—March, Bis früh um fünfe (Lincke); Waltz from The Geisha (Jones): Internezzo, Sehra (Siede); Waltz-Song Potpourri (Godwyn); Brucker-Lager Marsch (Kral). 5.0 to 5.35, See Frankfurt. 5.35, Talk: The Fostering of Culture in the New Reich. 5.50, Time, Market Prices and Weather. 6.0, Transmission for all German Stations, relayed from Frankfurt. 7.0, See Berlin (Deutschlandser). 7.10 to 8.15, See Frankfurt. 9.20, Topical Talk. 9.30, Local News, Weather and Sports Notes 9.45 till Close Down, See Frankfurt. 11.45 (approx.), Close Down. **STUTTGART**

SUNDSVALL.—Sec Stockholm.

TOULOUSE

TOULOUSE

779 kc/s, 385 metres; 8 kW.—8.0 a.m., Dance Music. 8.30, News. 8.35, Military Music. 8.45, Sound Film Music. 12.15 p.m., Accordion Solos. 12.30, News. 12.45, Request Music. 1.0, Amusement Guide, Market Prices and Time. 1.5, Orchestral Music. 1.15, Songs. 1.30, Orchestral Music. 1.45, Operetta Music. 2.0, News. 4.15, News. 6.0, News. 6.15, Military Music. 6.30, Songs. 6.45, Music by an Argentine Band. 7.0, Sound Film Music. 7.15, News. 7.30, La Valse (Ravel), by the Station Orchestra. 7.45, Accordion Solos. 8.0, Concert. Part I: Opera Music. 9.0, At the Music-Hall—a Radio Fantasy. 9.30, Organ Recital: Selection from Les millions d'Arlequin (Drigo); Bird Songs at Eventide (Coates); Hearts and Flowers (Tobiani). 9.45, Opera Music. 10.0, Music by a Viennese Orchestra. 10.15, News. 10.30, Concert for Listeners in Morocco. Part I: Sound Film Music; 11.15, Dance Music. 12. Midmight, News and Ainnouncements. 12.5 a.m. (Wednesday), Orchestral Music: Extracts from The Children's Corner (Debussy); España

(Chabrier); Overture, Raymond (Thomas); Fortissimo (Kálmán). 12.30 (approx.), Close

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—6.45 a.m. till Close Down, See Turin.
TRONDHEIM.—See Oslo.

TURIN
1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 598 kc/s, 501.6 metres.—4.10 p.m., Dance Music. 4.55, Weather. 5.0, Agricultural Notes and Wheat Market Report. 5.10, Dopolavoro Announcements and Report of the Royal Geographical Society. 6.0, Time and News in Foreign Languages. 6.20, Gramophone Records. 6.50, Announcements, Giornale Radio and Weather. 7.0, Gramophone Records. 7.30, Review of the Day's Events. 7.40, Choral Concert. 8.30, Variety Programme. In the interval, Art Notes. 9.30, Dance Music. 10.0, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in English. 7.0 to 7.15 p.m., Religious Information in Italian mation in Italian.

VIENNA

English. 7.0 to 7.15 p.m., Rengious Annalmation in Italian.

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—10.30, Concert by the Wiener Symphoniker, conducted by Max Schönherr: Overture, Max and Moritz (Wess); Carnival Suite (Zador); Waltz. Nilfluten (Jos. Strauss); Cello Solos: (a) Zigeunertaniz (Jeral), (b) Waldesruhe (Dvorak); Selection from Das Fürstenkind (Lehár); Waltz from Eugene Onegin (Tchaikovsky); Overture, Chal Romano (Ketelbey). In the Interval at 10.55, Weather Report. 12 Noon, Time, Weather and Programme Announcements. 12.10 p.m., Famous Artists (on Gramophone Records): Franz Völker: Aria from Fidelio (Beethoven); Pablo Casals: 'Cello Solo, Moment musical (Schubert); Lotte Lehmann: Der Erlkönig (Schubert); Gaspar Cassado: 'Cello Solo, Allegro spiritnoso (Senaille); Alexander Brailowsky: Hungarian Rhapsody No. 6 (Liszt); Alfred Piccaver: Prize Song from The Mastersingers (Wagner); Margherita Salvi: Aria from La Traviata (Verdi); Vasa Prilioda: Violin Solo, Danza delle streghe (Paganini); Enrico Caruso: Addio a Napoli. 2.0, Time, Weather and Exchange. 2.15, Talk: Austria's Part in International Sport for Women. 2.25, Programme for Children. 2.50, Sound Film Music (on Gramophone Records). 3.25, Halt and Lighting in Austria. 4.15, Song and Guitar Recital by Maria Kienzi (Songs) and Karl Scheit Guitar): Two Songs (Leukauf): (a) Geisha, (b) Anfrage; Two Songs (Kienzl): (a) Jetzt rede du, (b) Auf leisesten Sohlen: Three Songs (Zemlinsky): (a) Liebe Schwalbe. (b) Heilige Nacht. (e) Gefüster der Nacht; Suite for Gnitar (de Visee). 4.55, Talk: Rubens and Rembrandt. 5.20, Elementary French Lesson. 5.50, Concert by the Opus Schrammel Quartet: Two Pieces (Pauspertl); (a) Tanzpoëm (b) Liebelei; Two Pieces (Pauspertl); (a) Tanzpoëm (b) Liebelei; Two Pieces (Pauspertl); (a) Tanzpoëm (b) Liebelei; Two Pieces (Pauspertl); (a) Tanzpoëm (b)

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—10.57 a.m., Time Signal and Fantare from St. Many's Church. Cracow. 11.5, Gramophone Music. 11.30, Radio Journal. In the interval at 11.35, Weather. 12 Noon, Interval. 2.25, Announcements. 2.30, Economic Notes. 2.40, Concert of Light Music relayed from Lwów, 788 kc/s, 381 metres. 3.25, Savings Bank Correspondence. 3.40, Book Review. 3.55, Mozart Concert by the Station Symphony Orchestra, conducted by Glinski. Soloists: Wraga (Bass), Korolkiewicz (Baritone) and Junowicz (Flute). The Haffner Symphony; Concerto for Flute. Harp and Orchestra; Extracts from Don Giovanni. 4.50, Agricultural Notes. 5.0, Talk: Modern Poland. 5.20, Light Music from the Gastronomia Restaurant: Waltz. Madtleine (Waldtenfel); Serenade (Tosti); Selection from Sylvia (Delibes); Tango (Castrucho): Foxtrot (Winn-Noble); Barcarolle (Gall); Seviglia (Ranzato). 6.0, Programme Announcements. 6.5, Miscellaneous Items. 6.25, Topical Talk. 6.40, Sports Notes. 6.47, Radio Journal. 7.0, Madame Butterfly—Opera in Three Acts (Puccini), by the Cast and Orchestra of the Seala Milan (on Gramophone Records). In the interval, Reading. 9.25, Dance Music from the Femina Cabaret. 10.0, Weather and Police Notes. 10.5, Dance Music (contd.).

ZURICH.—See Schweizerischer Landessender,

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres; and Cork, 1,337 kc/s, 224.4 metres,—1.30 to 2.30 p.m., Time Signal, Stock Exchange Quatations, Weather Report and Gramophone Concert. 6.0, Programme for Children. 6.45, News, 7.0, Gaelie Talk, 7.15, German Lesson, 7.30, Time Signal, 7.31, Concert by the Station Orchestra, with Professor R, O'Dwyer in a Programme of his Compositions, 8.0, Badly sold—a Comedy in One Act (C. MacGarvey), by the Metro Radio Players. 8.30, The Station Orchestra. 8.50, Contraito Solos by K. Kirwan 9.0, Cello Solos by K. A., Pollaky, 9.15, Song Recital by E. M. Grace, 9.30 to 10.30, Programme by the J.B.C. (Ireland). Idd. 9.30, Concert of Dance Music; Sentimental Gentleman from Georgia; The One Man Bandt; My Wishing Song; Dear Stranger, 9.45, Dance Music; Signature Time, There's a New Day comin'; The Way I feel Tomight; Sittin' on a Backyard Fence; When the Sweet Magnolias bloom again; Shanghai Lil; Signature Time, There's a New Day comin', 10.0, Programme arranged by the International Broadcasting Company (Ireland). Ltd.: Orchestral Concert; Snacks in Bars (Egerer); The Cuckoo Waltz (Jonasson); Raeing Commentary; Waltz, The Blubanule (Strauss); Song; Come ont Vicana (Strauss-Rerbert); The Cuckoo Waltz (Jonasson); Raeing Commentary; Waltz, The Blubanule (Strauss); Song; Come ont Vicana (Strauss-Rerbert); The Gipses (Higgs); Hungarian Medley (arr. Legge). 10.30, U.B.C. Goodnight Melody, followed by News and Weatler, 10.40, Pine and Fiddle Inters by S MacAonghusa and P. O'Huigm, 11.0 (approx.), Close Down. (approx.), Close Down.

BARCELONA

BARCELONA

EAJ1, 853 kc/s, 349.6 metres; SkW. 6.0 p.m., Trio Coheert. Selection from Fanst (Gonnod); Romance without Words (Davisolov); Intermezio (Mommaert); Violin Solo; Novebetta (Caludi); Minuet (Paderevsky); Andantino (Mozart); Selection from Lilac Time (Schubert-Berté). 7.0, Request Gramophone Music. 7.30, Eveluange, Request Gramophone Music (contd.), and Belay from the Ayuntamiento. 8.0, Gramophone Music. 8.0, Gramophone Music. 8.0, Gramophone Music. 8.0, Chimes, Weather, Evelange and Market Pines. 9.5, Concert by the Radio Orchestra. 10.5, Violun and Phanotorte Regital. 10.40, Panec Music, relayed from the Case Lilione, 11.0, News. 11.10 (approx.), Dance Music Relay (contd.). 1.0 to 2.0 a.m. (Thursday), Programme in English by the L.B.C. 1.0, Hawaian Music; Hawaian Twilight; Hawaiian Waltz Medley (Traditional); Kilima (Traditional); Alona (Bowers); Kilima (Traditional); Alona (Clowers); Kilina (Traditional); Alona (Clitonkalani); Hawaiian Sunset (Vandersloot), 1.30, Dance Music; P.U. 123; Moonstruck; Reflections in the Water; Unica Blanket of Blue; Stay cut of my breams; Let's all call it a bay; Two Buck Tun from Timbur (op.; I cover the Waterfront, 2.0, LB.C. Goodnight Melody.)

BASLE. Sc Schweizerischer Landessender.

BASLE .- Schweizerischer Landessender.

BERLIN

BERLIN

DEUTSCHLANDSENDER

DER), 183.5 kc s, 1,635 metres; 10 kW. —
5.0 a.m. Weather and Ammonmements 5.15,
Programme from Berlin (Funkstunde), 5.30,
Weather and Treslay's Metto, 5.35,
See Berlin (Funkstunde), In the interval,
News, 7.45, Gymnastics for Women, 8.0,
See Berlin (Funkstunde), B. 400, Cymnastics
for Children, 9.6, News, 9.10, Mozart
Concert, 10.0, Topical Talk, 10.15,
Weather, 10.30, Talk for the Housewife,
11.0, Weather, 11.5, Granophone Concert;
Romance in F. Mimor (Felankovsky); Spring
Serenade (Lacomber; Un pea d'amour
(Silesn); Selection from The Gipsy Baron
(Glob, Strauss); Selection from Light
Cacalry (Suppér); Extase (Gamer); Ouvre
less youx blen (Massenet); Polyomiri of
Old Dames; Sourchir (Drdhe); Polyomiri of
Viciniese Songs; Licheslieder Walzer (Joh,
Strauss); Silberfischehen (Ketterer); Ber
Rose Hochzeitszug (Jessel), After the
Concert, Weather, 11.55, Time, 12.45 p.m.,
News, 1.0, Granophone Concert, 1.35, Talk
for Children's Songs, 2.20, Topical Talk,
2.30, Weather and Exchang, 2.45, Reading,
3.0, See Frankfurt, 4.0, A Visit to an
Engineering Works (on Gramophone
Resards), 4.25, Concert of Light Masie,
with Maria Ney, 5.0, Poems, 5.5, Organ
Recital by Hans Görner, 5.30, German for
Germans, 5.50, Weather and Ammonthesments, 6.0, Transmission for all German
Stations; Mozart Concert by Karf Ristenpart and his Chamber Orchestra; Overture,
H re pastore; Planoforte Concerto in D
Minor; Sympheny No, 33 in B Ffat, 7.0,
Today's Motto, 7.5 (approx.), Talk; Corman Christmas; German Goods, 7.10, Tigs,
Sailors and Launches—a Radio Sequence
of Sea Shanties by Hans Frincich Blunck,
Helmit Hausen and Others, with Musical
uterludes, 8.20, Dance Music by Otto
Kernbach's Bauth 9.0, News and Sports
Notes, 9.30, Technical Wireless Notes, 9.45,
Weather, 10.0, New Soules 9.45,
Weather, 10.0, New Soules 9.45,
Weather, 10.0, New Soules 9.45,
Weather, 10.0, New Soule

BERLIN

FUNKSTUNDE, 716 kc s, 419 metres; 1.5 kW. Rehayed by Zeesen, DJC, DJA, DJD, DJB, and DJE.—12 Noon, Bombay Programme, relayed from Loudon. 12.90

DECEMBER THE THIRTEENTH

p.m., Programme from Hamburg. 1.15, Weather and News. 1.35, Kurt Heise Song Recital by a Schoolgirls Choir, conducted by the Composer, 2.0, Berlin Exchange Quotations, 2.20, Concert of Music by Philipp Gretscher. The Station Choir, conducted by Heinzkarl Weigel. Soloists: August Richter (Tenor), and Alexander Ecklebe (Pianotorte); Da ich ein Kind war; Tarantella: Venezianisch: Larretha Siziliana; Two Songs for Tenor: (a) Enter der Linde. (b) Sechse, sieben oder acht; Griechischer Reigen. 2.45, Radio Report of the World's Wrestling Championship. 3.0, See Heilsberg. 4.0, Friedrich Hebbed Memorial Programme. 4.30, String Quartet in A Minor. Op. 41. No. 1 (Schamaun), by the Berber Quartet. 5.5, See Berlin (Deutschlandsender). 5.30, The Funkstunde informs its Listeners. . . 5.35, Review of the Week. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.5, Wisdom in Laughter Variety Programme. 8.0, Symphony No. 2 in C Minor (Bruckner). by the Station Orchestra, conducted by Ernst Practorits. 9.0, News and Sports Notes. 9.30, Dance Music, relayed from the Moka Efti. 11.0 (approx.). Close Down.

BERNE. See Schweizerischer Landessender.

BERNE. See Schweizerischer Landessender. BEROMUNSTER. - Sie Schweizerischer Landessender

RODEN, -- See Stockholm.

BODO. See Oslo.

Waltz Potpontri, Studio auf einer Reis (Kipke); March from Mamsell Thermul (Richardy); Selection from Die Puppenfee (Bayer); Sturmstådopp (Komzak). 11.0 (approx.), Close Down.

BRNO

BRNO

878 kC, s. 342 metres; 25 kV, 5.15 p.m.,
Topical Talk for Workers.
Transmission: News, Fischof Song Recital
and Talk for Workers. 6.0, See Prague.
6.55, Military Band Concert. 7.45, Song Recital by Marta Svorcikova: Recitative and
Aria from Athalia (Handel): Largo from the
Christinas Oratorio (Bach): Aria from the
Requiem (Verdi). 8.0, Concert by the
Station Orchestra, conducted by Janota,
Soloist: Cermak (Flute), Overture No. 1
(Blodck): Legends, Op. 170 (Drahlovsky):
Flute Concerto, Op. 19 (Trancek): Moraviau
Dances (Janacek), 9.0, See Prague, 9.30
capprox.), Close Down.

RDIJCCELC (Ma. 1)

BRUSSELS (No. 1)

BRUSSELS (No. 1)
1.N.R., 589 kc/s, 509.2 metras; 15 kW. 12
Noon, Concert by the Radio Orchestra, conducted by Franz André, Soloist; Géodel
(Baritone), Overture, Piccolino (Guirand);
Violin Solo: Finale à la zingara (Wieniawsky); In the Tea Shop of Hundred Steps
(Yoshitomo); The Phantom Brigade (Mydddeton); Xyophome; Czardas (Monti); Hornpipe
(Monti); Sound-Film Extracts; Selection
from Cydalise et le chèvre pied (Pierné);

THE BRUSSELS STUDIO ORCHESTRA, viewed from an unusual angle. The orchestra will broadcast a concert from Brussels No. 2 this evening at 8 o'clock.

BRATISLAVA

1,073 kc s, 279.5 metres; 11 kW, 4.35 p.m., Gram-phone Music. 4.40, Talk for children. 4.55, Hungarian Programme Scenes (Madach, 5.55, Talk for Housewives, 6.0, see Prague. 9.15 (approx.), Close Down.

RREMEN. - See Hamburg.

BRESLAU

BRESLAU

923 kg s, 325 metres; ao kw. Relayed by Gleiwitz, 1,185 kg s, 253.1 metres.—1.15 p.m., Programme arranged by the Post Office, with Gramophone Records, 2.0, Agricultural Prices and Exchange. 2.20 (from Gleiwitz), Talk; Experiences with a Volksempfänger (The People's Receiver), 2.35 (from Gleiwitz). Williand Kohler Programme, 3.0, See Leipzig. 4.30 to 5.10, See Leipzig. 5.10. Agricultural Prices and Amouncements. 5.25, Programme anomaced state and Meat Macket Prices. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender), 7.0, See Leipzig. 7.10, See Munich, 8.10, Concert of Austrian lolk Music by the Station Otehestra, conducted by Ernst Prade, and Soloists, 9.0, See Leipzig. 9.20, Tans. Weather, Sports Notes, and Tocal News. 9.30, Concert by the Station Orchestra, conducted by Ernst Topitz, Overture, La Part du Diable (Anher); Selection trom I Pagliacci (Leoncavallo); Mondschein-Sectemate (Eliemberg); Pizzicato (Criburka); Waltz (rom The Count of Luxembourg (Ledar); With Violins and Clarinets (Juel-Frederiksen); Humorous

Clock.

Violin and Orchestra: The Canary (Poliakin): Arabian Danies (Ring), 1.0 p.m., Le Journal Parlé, 1.10, Concert by the Small Station Orchestra, 5.0, Gramophone Records of Dance Music, 5.30, Concert by the Station Symphony Orchestra, conducted by Kimps, Soloist: Mile Dinsart (Piamoforte), Symphonie Sketches, La mer (Debussy): Piamoforte Concerto (Liszt): Gli necelli (Respight): Till Eulenspiegel, Op. 28 (R. Strauss), In an interval at 6.0, Talk: Shakospeare's, Julius Caesar, 7.15, Gramophone Records, 1.30, Hygiene Talk, 8.0, French Song Recital by Marthe Angeliei; Vocalise (Viilbermoz): Old Spanish Song (Aubert): Clair de lunc (Fanré): Serenade, Les pempliers (Philippart): Two Extracts from La verdure dorce (Imbert): Three Popular Corsican Melodies (Tomasi): (a) Naima, (b) Lamento, (c) Zilimbrina, 8.15, Julius Caesar Play in Five Acts (Statkespeare), arranged for Radio by Théo Fleischman, 9.50, Gramophone Record: Overture, Coriolanus (Beethoven), 10.0, Le

BRUSSELS (No. 2)

N.I.R., 888 ke s, 337.8 matres; 15 kW.—12 Noon, Concert by the Small Station Orchestra.

1.0 p.m., Le Journal Parlé. 1.10, Concert by the Station Orchestra, conducted by André: Soloist, (féodel (Baritone); Fardare militaire (Ascher); Overture. La Favorita (Donizetti); Hungarian Rhapsody No. 12 (Liszt); Waltz, Il bacia (Arditi); Popular Flemish Songs; Jungle Drums (Ketelbey); Salut d'among (Elgar); Humoresque (Dvorak); Marche

funebre d'un hanneton (Dubois); Revels, Dances (Montague Phillips). 5.0, Concert by the Small Station Orchestra, conducted oy Leenaus; Soloists, Wigy (Violin) and Adam (Clarinet): Overture, Sons la régence (Brusselmans); Oriental Song; Charki (Guillemyn); Algerian Song; The Wood Pigeon (Guillemyn); Screnade for Clarinet (Deterois); Improvisation (Mambour); Suite, Callirhoë (Chaminade); Ballad for Violin (de Boeck); Girl (Poot); Two Pieces (La Gye); (a) Solitude, (b) La caravane chemine; Oriental March (Gilson). 6.0, Gramophone Concert; Potpourri of Negro Spirituals (ar. C. White); Selection from The Mikado (Sultivan). 6.30, Pianoforte and Violin Revital by Lily Reinemund and Laurent; Sonata (Handel); Sonata in G (Brahms). 7.0, Gramophone Concert. 7.30, Hortientural Review. 8.0, Concert by the Station Orchestra, conducted by Amfe; Soloist, Mile, Brullez (Songs); Carnival (Ring); Selection from Orphens in the Underworld (Offenbach); Humoresque (Pworak); Woodland Pictures (Feltcher); Two Songs; Selection from The Love Parade (Schertzingert); Hot Stomp; Stomping (Wraskoff); Slow Drag; The Song of Jazz (Benson); Selection from Fatinitza (Soppé); Three Songs; Rhapsody in Bine (Gerslwin); Selection from The Merry Peasant (Fall); Saide from Hiawatha (Coleridge-Taylor); Bugle Call Rag (Pettis). In the interval at 8.45, Reading. 10.0, be Journal Parlé.

BUCHAREST

BUCHAREST

761, kc s, 394 metres; 12 kW.- 11.0 a.m., Exchange, Tides Report and Gramophone Concert. 12 Noon, Radio Journal. 12.15 p.m., Light Music on Gramophone Records. 4.0, Concert by the Station Orchestra. Overture, The Cutming Peasant (Dvorák): Suite from Louise (Charpentier); Schection from Samson and Delilah (Saint-Sains); Selection from Eine Nacht in Venedig (Job. Strauss); Bei Nacht (Komzak): Waltz from Raymond (Glazumov); Anbade (G'Ambrosio); Slav March (Tchaikovsky); In the interval at 5.0, Gramophone Records. 6.45, Talk. 7.0, Violin Recital by Marcel Gall. Prelude and Allegro (Pagnami - Kreisler); Romance (Hubay); Spanish Serenade (Pirani); Impromptu (Tor Aulin); Fantasia Mosé (Pagnami). 7.30, Talk. 7.45, Song Recital. Dubast wie rime Blume (Schumann); Der Hidalgo (Schumann); Rastlose Liebe (Schubert); Am Meer (Schubert); Two Arias (rom The Magic Flute (Mozart), 8.15, Dance Music, 8.45, Radio Journal. 9.0, Romanian Music by the Station Orchestra, conducted by Dunco. Dimeo.

BUDAPEST

BUDAPES 1

845 kc s, 550.5 metres; 120 kW.—Also relayed on 840 metres from 6.15 p.m. till Close Bown.—4.0 p.m., Concert by the Opera House Orchestra, conducted by Polgar, 6.15, Talk. 6.45, Pianoforte Recital by Geza Nagy. 7.30, Radio Play. 8.15, News. 8.35, Concert by the Budapest Concert Orchestra, conducted by Nikolaus Lukaes; Overture, Richzi (Wagnet); Schedion from Pierrette's Veil (Dohnanyd); Symphony No. 6—The Pathetic (Tehnikovsky). In the interval News. 10.0, Programme by the Hetenyi Schö Buday Trio, relayed from the Café Simplon.

CASSEL .- Sim Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc s, 281 metres; 0.75 kW. Relayed by Kalundborg. 260 kc/s, 1,153.8 metres; and Skamleback, 0 XY, 49.4 metres.—11.0 a.m., Town Hall Chimes. 11.2, Light Music from the Hotel of Angleterre. 11.15, Talk for Schools; The History of the Bible as portrayed in Songs. 11.45, Light Music from the Hotel of Angleterre. 12 Noon, Relay of the British Broadcasting Company's Transmission from Bombay. 12.30 p.m., Light Music from the Hotel of Angleterre. 10, Interval. 20, Gramophone Music: Scheetion from The Gipsy Baron (Joh, Stranss); Song from The Flower of Hawaii (Abraham); Savophone Solo (Dorsy); Russian Folk Song, Black Eyes; Black Eyed Susan Brown (Magidson); Das Glück ist trenlos (Doefle); Alpantzing (Schmadz and Krenger); Rendezvons bei Lehär (Lehär-Hruby). 2.30, Concert by the Station Orchestra, conducted by Emil Reessen; Overfure. Die Felsenmühle (Reissiger); Invitation to the Dance (Welor); Screnade in F for String Orchestra, Op. 12 (Herbert); Nowegian Rhapsody No. 4 (Svendsen). 3.15, Talk for Women. 4.0 (approx.), Concert (contd.): Overture. The Water Carrier (Cherabini); Bercense de Joeelyn (Godard); Ballet Music from Aida (Verdi); Waltz from Hansel and Gretel (Humperdinck); March from Tordenskjoid (Halvoren). 4.30, Exchange and Fish Market Prices. 4.45, Agricultural Talk, 5.15, Elementary English Lesson, 5.45, Weather. 5.54, Report of the Non-Political Radio Club. 6.0, News. 6.15, Time Signal, 6.30, Concert of Danish Music by the Radio String Orchestra, Conducted by Lamy Gröndahl; First Movement from the Novelletes, Op. 53 (Gale); Andante for Strings in A Minor, Op. 1 (Nielsen). 7.0, Chimes. 7.1, Discussion, relayed from the State Broadcasting Building; Co-operation and Private Enterprise. 9.30, News. 9.45, Dance Music from Nimb's Restaurant. 11.0, Time and Chimes from the

Wireless World

Town Hall. 11.5, Dance Music (contd.). 11.30 (approx.), Close Down.

CORK.-Sec Athlone. DANZIG .- Sec Heilsberg. DRESDEN.-See Leinzig.

FECAMP

to 12.0 Noon, Programme in English by the 1.B.C. 11.0, Halpy Hour; Part I: Request Programme, Part II: Light Music. 12.0 Noon, Programme in English by the 1.B.C. 3.30, 1sle of Wight Concert; Part I: Russian Music; Signature Tune. The Night by the Sea; March of the Russian Hussars (Traditional); Russian Folk Song and Dance (Traditional); The Twelve Robbers; Song of the Volga Boatmen (arr. Leontiev); Moonlight; Lovely Night (arr. Leontiev); Moonlight; Elvira; Sweet Dreams, Pretty Lady. 4.30, 1.B.C. Nursery Corner: Birthday Greetings. 5.0, Portsmouth and Southsea Concert; Part I: Light Orchestral Music; Intermezzo Selection (arr. Anciffe); Gold and Silver (Lchar); Song, Dark Red Rosse; Selection from The Student Prince (Romberg); Screnade (Heykens); Song, Melody Divine (Ruby); The Mill in the Black Forest (Elienberg). 5.30, 1.B.C. Time Signal. 5.31, Part II: Military Band Concert; New Colonial March (Hall); Squirrel Dauce (Smith); Song, When the Sergeant Major's On Parade (Longstaffe); Overture, Zampa (Herold); Birthday Serenade (Lineke); Song, Father O'Flynn (Traditional); Jolly Fellows (Vollstedt); Praeludium (Jarnefeld). 6.0, Programme in English by the 1.B.C. 10.4, Concert of Scottish Music; The Thistle (Myddicton); Song, Loch Lomond (arr. Diack); Meg Merrilies (arr. Diack); Song, My Ain Folk (Milla); Come o'er the Stream, Charlie (Traditional); Song, on the Banks of Allan Water (Horn); Medley of Scottish Reels (arr. Hannah); Wee MacGregor Patrol (Amers). 10.56, Dance Music; Signature Tune, Bells of Normandy; The Cage in the Window; All: but is it love? For Lave Time; Dancing Butterfly; Solitario,; Isnt this and Shows; Signature Tune, Elsa from the

FLENSBURG.-See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed hy Cassel, and Trier, 1,157 kc/s, 259.3 metres. 12 Noon, Bombay Programme, relayed from London. 12.30 p.m., Time and News. 12.40, Local News and Weather. 12.50 Fantastic Variations, Don Quixote. Op. 35 (Richard Strauss). on Gramophone Records. 1.30, News Bulletin. 2.30, Weather Forecast. 2.40, Time and Market Prices. 3.0, Concert by the Station Orchestra. Soloists: Erich Winkler (Pianoforte) and Hans Gorlich (Bass); Overture, King Stephen (Beethoven); Pianoforte Concerto. No. 2, in B Flat. Op. 19 (Beethoven); Old Dance Music, Overture, The Cunning Peasant (Dvorák); Aria from The Bartered Bride (Sinetana); Overture, Die Matrosen (Flotow); Aria from Martha (Flotow); Extracts from Faust (Gounod). 5.0 to 5.35, See Langenberg. 5.35, Talk: On top of the New Wireless Mast. 5.50, News and Time. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0, Topical Talk. 7.10 to 9.0, See Langenberg. 9.0, Time and News. 9.20, See Stuttgart. 9.39, Local News and

DEC. 13th WEDNESDAY continued

Weather. 9.45 till Close Down, See Stutt-gart. 12 Midnight, Close Down.

FREDRIKSSTAD.-See Oslo.

FREIBURG .- See Stuttgart.

GENEVA.-See Radio-Suisse Romande.

GENOA.-See Turin.

GLEIWITZ.-See Breslau,

GOTEBORG.-See Stockholm.

GRAZ.-See Vienna.

HAMAR.-See Oslo.

HAMBURG

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg and Hanover, 1,319 kc/s, 227.4 metres; and Kiel, 1,292 kc/s, 232.2 metres.—2.50 p.m., Ice Report. 3.0, Concert from Heilsberg.

4.0, Programme from Berlin (Funkstunde).

5.0, A Sketch in North German Dialect. 5.25, Extracts from Hansel and Gretel—Fairy Opera (Humperdinck). on Gramophone Records. 5.45, Frankfurt Exchange and Hamburg Market Prices. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.5, Programme from Berlin (Funkstunde).

HANOVER.—See Hamburg.

HANOVER.-See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 80 kW. Relayed by Danzig, 871 kc/s, 447.1 metres.—10.30 a.m., Concert by the Königsberg Opera House Orchestra. 12 Noon, Relay of the British Broadcasting Company's Transmission from Bombay. 12.45 p.m., Gramophone Concert. News in the intervals. 1.30, Programme arranged by the Post Office, with Gramophone Records. 2.0, Exchange. 2.20, Talk for the Housewife. 2.30, Programme for Children. 3.0, Potice Band Concert, conducted by Ernst Stieberitz. Hymn and Triumphal March from Aida (Verdi); Polonaise No. 2 (Liszt); Parade March (Roland); Finale from Das Nachtlager von Granada (Krentzer); Musica proibita (Gastaldon); Song, Wie berührt mich wundersam (Bendal); Overture, Le Lac des fécs (Auber). 4.0 to 5.0, See Berlin (Funkstunde). 5.0, Talk: Which is the best Camera? 5.15, Market Prices and Ice Report. 5.25, Talk: East Prussia in Peasant Costunes. 5.50, Weather, 6.0, Transmission for all German Stations, relayed from Berlin (Dautschlandsender). 7.5 to 9.0, See Berlin (Funkstunde). 9.0, News. 9.30, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW. up to 5.40 p.m.; and 20 kW. from 5.40 p.m.—11.10 a.m., ('oncert. 11.40, 'Concert by the Small V.A.R.A. Orchestra, conducted by de Groot: Bei Tage, bei Nachte (Knorr); Two Guitars (Horlick): Her First Dance (Heykens); Murmelndes Lüttchen (Jensen); Minnet (Paderevski); Lolita (Buzzi-Peccia); Bahillage (Gillet); Frühling in Wien (Stolz); Lustige Brüder (Vollstedt); The Birthday Greeting (Ketelbey); Minnet (Bolzoni); Flirtation (Stock); Si vons l'aviez compris (Denza): Im Prater bluh'n wieder die Bäume (Stolz); Graunophone Records; Unskann keiner (Heymann); Salut d'amour (Elgar); Minnet (Mozart); Donauwellen (Ivanovici): Gavotte tendre (Ganne); Chaconne (Durond); Bhumenlied (Lange); Dauish March, 2.40 p.m., Programme for Children, 5.10, Gramophone Records, 5.45, Organ Recital by Jong: Selection from Die schöne Galathee (Suppé): Penso a te (Tosti): Indian Lament (Dvorák); Selection from Forty-Second Street (Warren), 6.10, Literary Talk, 6.40, Song Recital, 6.55, Gramophone Records, 7.25, Gong Recital, 7.40, S O S Announcements and News, 7.55, Concert by the V.A.R.A. Orchestra, conducted by de Groot: Viennese Dances Nos. 1 and 2 (Gärtner); Ländler (Pachernegg); Liebesleid (Kreisler); Liebesfeid (Kreisler), 8.25, Radio Play (Duin), 9.25, Talk, 9.40, Bass Songs Recital by Lammen. 9.55, Concert by the V.A.R.A. Orchestra, conducted by de Groot: Norwegian Rhapsody (Svendsen); Hungarian Rhapsody No. 6 (Liszt); Jewish Rhapsody (Lewandowski); Javanese Rhapsody (Seelig); Slav Rhapsody, No. 1 (Friedemann), 10.40, Gramophone Records. 1.55, Done Music, 11.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

160 kc/s, 1,875 metras; 7 kW. until 3.40 p.m.
Transmitted from Kootwijk, on 50 kW from 3.40 p.m.—Programme of the Christian Radio Society (N.C.R.V.).—11.40 a.m., Police Notes. 11.55, Gramophone Records. 12.10 p.m., Concert by the Van der Horst Ensemble. Overture, Idomeneo (Mozart); Selection from Le

Cid (Thomas); Selection from The Pearl Fishers (Bizet); Adagietto and Intermezzo (Bizet); Moderato. Lento and Andante (Stradella); Selection from Alexander's Feast (Handel); Angelus (Massenet); Suite, Aus dem Nordlände (Juel-Frederiksen); Overture, Haus Heiling (Marschner). In the interval: Gramophone Records. 2.19, Talk for Women. 2.40, Religious Talk. 3.10, Gramophone Records. 3.25, Interval. 3.40, Violin Recital by Felderhof. Sonata, Op. 16 (Hendriks); Gramophone Records; Suite 1927 (Felderhof); Narcissus (Szymanovski); Spanish Dance (Falla-Kreisler). 4.40, Programme for Children. 5.40, Talk. 6.10, Programme for Children. 5.40, Talk. 6.10, Programme for Children. 5.40, Talk. 6.10, Programme for Children. 5.40, Talk. 5.10, Organ Recital by Parker. Romantic Overture (Keler-Bela); Frühlingsstimmen (Strauss); Potponri, A Musical Jigsaw (Ketelbey-Aston); The Parade of the Tin Soldiers (Jessel); Gavotte, Stephanie (Czibulka); Selection from The Barber of Seville (Rossini-Hubans). In the interval: News. 10.10, Gramophone Records. 11.10 (approx.), Close Down.

INNSBRUCK.—See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—12.30 p.m., Amusement Gnide and Miscellaneous Items. 1.0, News. 1.15, Concert. 8.0, Annusement Guide, Exchange and News. 8.10, Reading. 8.30, Concert. 9.0, News and Weather. 9.15, Concert. 10.30, Variety Programme.

KALUNDBORG.—See Copenhagen.

KIEL.-See Hamburg.

KLAGENFURT.—Sce Vienna.

KOSICE.—See Prague.

LAHTI

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by Helsinki, 815 kc/s, 368.1 metres.—5.15 p.m., Talk. 5.35, Song Recital. 6.0, Talk relayed from Pori, 662 kc/s, 453.1 metres. 6.20, Violin Recital by Yrjö kanen: Rondino on a Theme of Beethoven (Kreisler); Romance from the Concerto in A Minor (Wieniawski); Elegy, Op. 23, No. 2 (Kuski); Meditation from Thais (Massenet). 6.35, Humorous Talk. 6.45, A Visit to the Sanatorium for Tubercular Patients at Satakunda. 7.15, Choral and Orchestral Concert, relayed from the Sanatorium: Selection from Il Trovatore (Verdi); Songs; Gavotte (Gossec); Songs. 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12 Noon,
Bombay Programme. relayed from London.
12.30 pm., See Frankfurt. 12.40, News and
Weather. 12.50, Concert from Frankfurt.
1.30, Programme for Children. 2.30, Market
Prices. 2.50, Political Announcements. 3.0,
See Frankfurt. 5.0, German for Germans.
5.20, Talk on Race. 5.35, Talk by Prince
Biron von Curland. 5.45, Announcements.
6.0, Transmission for all German Stations.
relayed from Berlin (Deutschiandsender). 7.0,
See Frankfurt. 7.10, The German Christ.—
Radio Play (Wiechert). 8.10, Concert by
the Station Orchestra. conducted by Otto
Kuhn: Romeo and Juliet (Tchaikovsky);
Rheinische Nachtmusik (Niemann); Suite,
Ruralia Hungariea (Dohnanyi). 9.0, See
Frankfurt. 9.20, See Stuttgart. 9.30,
News and Sports Report. 9.45 to 12 Midnight, See Stuttgart. 12.30 a.m. (Thursday), Concert by the Station Orchestra. conducted by Wilhelm Buschkötter; Soloist:
Eghert Grape (Pianoforte); Firework Music
(Haudel); Concert Piece for Pianoforte and
Orchestra (Weber); Divertimento No. 15
in B Flat (Mozart). 1.30 (approx.), Close
Down.

LAUSANNE.-See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—11.0 a.m., Concert by the Station Orchestra, conducted by Hilmar Weber: Prelude to Der Alpenkonig und Menschenfeind (Muller); Selection from The Magic Flute (Mozart); German Dances (Beethoven); Variations on the Folk Song. Ach wie ist's mögleich dann (Raff); Scherzo and Finale from the Quintet for Wind Instruments (Onslow); Minuet and Duet for Violin and 'Cello from the Serenade, in E minor (Hofmann); Rhapsody in B minor (Svendsen), 12.15 p.m., News and Programme Announcements. 12.25, Gramophone Concert. 1.0, News. 1.10, A Saga. 1.50, A Fairy Play for Children (Schettle). 2.45, Market Prices. 3.0, Two Centuries of German Music—Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer. Soloist: Henriette Lehne (Contralto). Die Weihe des Hauses (Beethoven); Two Arias from Orpheus (Gluck): (a) Ach, ich hab' sie verloren, (b) So Klag'ich ihren Tod; Ballet Music from Pyramus and Thisbe (Hasse); Aria from The Messiah (Handel); Suite from

Euryanthe (Weber-Stueber); Songs (Cornelius): (a) In Lust und Schmerzen, (b) Zum Ossa sprach der Pelion, (c) Wiegenlied; Overture, Genoveva (Schumann). 4.30, Talk: Early Scandinavian Ceramics. 4.50 (from Dresden), Chamber Music. Doris Walde (Mezzo-Soprano). Marianne Tunder (Violin), Bernhard Gunther ('Cello) and Helmut Schaefer (Pianoforte). Sonata for Pianoforte and Violin, The Hunt (Steibelt); Songs (Schulz): (a) Ständchen, (b) Im Grunen, (c) Die Spinnerin, (d) Liebeszanber; Adagio and Rondo from the Pianoforte Trio, Op. 6 (Töpfer). 5.10, Reading. 5.45, Market Prices. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0, To-day's News. 7.10, See Munich. 8.10, Concert from Breslau. 9.0, News. 9.20, Announcements 9.30, Concert from Breslau. 1.10 (approx.), Close Down.

LINZ .- See Vienna.

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—7.0 p.m., Luxembourg Song Recital by Josy Klein. 7.30, Concert by the "Ad Artem" Trio: Trio No. 3 in G Minor (Schumann); Trio in G Minor (Chausson). 8.30, News in French. 8.45, See Paris (Radio Paris). In the interval at 9.25 (approx.), News in German. 10.30, Dance Music on Gramophone Records.

MADRID

MADRID

ARANJUEZ (EAQ); 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Concert of Popular Music. 10.45, Radio Chronicle. 11.0, Concert (contd.). 11.45, Light Music. 12.0 Midnight till Close Down, Programme arranged by the International Broadcasting Company. 12.0 Midnight, Dance Music: Signature Tune. Come back to Erin; When we went strolling round the Town; Swingey little thingey; Flor de Cuba; Hold Your Man; It's not a Secret any More; Egypt; The Shadow Waltz; The Grass is getting greener; Signature Tune. Come back to Erin. 12.30 a.m. (Thursday), Concert of Light Music: Waltz from Faust (Gounodt); Hawaiian Twilight (Traditional); Dutch Wedding (Russell); Will you dance through life with me? (Swabach); Xylophonia (Greene); The Clock is playing (Pierre); There's Magic in the Air (Wachsmann); Tunes from 1914 to 1930 (arr. Coward). 1.0, I.B.C. Goodnight Melody and Close Down.

MADRID

EAJ7, 707 kc's, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange, Topical Talk and Dance Music. 8.15, Topical Review. 8.30, Interval. 9.30, Chimes, Time, Topical Review. 9.45 (approx.), Concert by the Philharmonic Orchestral, conducted by Perez Casas. 11.45, Radio Journal. 12 Midnight, Chimes and Close Down.

MALMO.-See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

MORAV SRA-USI KAVA

1,137 kc/s, 263.8 metres; 11 kW.—3.0 p.m.,
Concert by the Station Orchestra, conducted
by Plichta. 3.50, See Prague. 4.35, Gramophone Music. 4.45, See Prague. 4.55,
Gramo-phone Music. 5.0, Market Prices, 5.5,
Talk. 5.15, See Prague. 5.25, Band Concert,
conducted by Subert. 6.0, See Prague. 6.10,
Medical Talk. 6.25, See Prague. 9.15 (approx.), Close Down.

MOTALA.-See Stockholm.

MUHLACKER.-See Stuttgart.

MUNICH

MUNICH
563 kc/s, 533 metres; 1.5 kW. Relayed by Augsberg and Kaiserslautern, 536 kc/s, 539 metres; and Nurnberg, 1,256 kc/s, 239 metres.—3.0 p.m., Sec Leipzig. 4.30, Sec Leipzig. 4.50, See Leipzig. 5.10, Music Talk, with Illustrations. 5.30, Pianoforte Concerto No. 1 in E Flat (Liszt), by Walter Gieseking on Gramophone Records. 5.45, Time and Weather. 6.0, Transmision for all German Stations. relayed from Berlin (Deutschlandsender). 7.0, Sec Leipzig. 7.10, Die Flucht in die Heimat, Radio Play (Weinberger). 8.10, Concert of Austrian Folk Music by the Radio Orchestra, conducted by Ernst Prade: Soloists, Kate Helbig, Kate Prause, and Gerhard Bertermann. 9.0, Sec Leipzig. 9.20, News. 9.30, Sec Breslau. 11.0 (approx.), Close Down.

NAPLES .- See Rome. NOTODDEN.—See Osio.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc s, 453.1 metres; and Hjukan, 671 kc/s, 447.1 metres; and Hjukan, 671 kc/s, 442.92 metres.—4.0 p.m., Song, Pianoforte and 'Cello Recital by Gudrun Breian (Mezzo-Saprano). Andreas Haarklou (Pianoforte), and Arne Melsom ('Cello), 'Cello Solos: (a) Cantabile (Cuil), (b) Lotus Flower (Bjarne Brunstad), (c) Tonadilla (Blas de Laserna), (d) Nocturne, Op. 9, No. 2 (C'hopin); Mezzo-Soprano Solos: (a) Zueignung (R. Strauss), (b) Höst pa heien (Sinding), (c) Sverige (Stenhammer); Pianoforte Solos: (a) Serenade (Backer-Gröndahl), (b) Dance of the Elves (Haarklou), (c) Berceuse, Prelude and Rigaudon (Grieg); Three Songs. 5.0, French Lesson. 5.30, Talk for



Girls. 6.0, Announcements, Weather and News. 6.30, Talk. 7.0, Time Signal. 7.1, Concert by the Station Orchestra and Soloists. Extracts from Orpheus (Gluck); Extracts from Carmen (Bizet); Duet from Samson and Delilah (Saint-Saëns); Extracts from Lit Kirsti (Arne Eggen). 8.40, Weather and News. 9.0, Topical Talk. 9.15, Duets, relayed from Stavanger, 1,247 &c. 19.40, metres. 9.45, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

OSTERSUND .- See Stockholm.

PALERMO

PALERMO

558 kc/s, 537.6 metres; 3 kW.—11.45 a.m., Giornale Radio. 12 Noon, Gramophone Music. In an interval at 12.30 p.m., Time, Announcements and Weather. 1.0, Interval. 4.30, Gramophone Music. 5.30, Interval. 7.0, Dopolavoro Notes, Tourist Talk, Agricultural Notes and Giornale Radio. 7.20, Gramophone Music. In an interval at 7.30, Time and Announcements. 7.45, Il trattato scomparso—Radio Play in Three Acts (Galar e Artu'). In the intervals, Light Music on Gramophone Records. 10.0, Giornale Radio.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals). -5.45 p.m., Le Journal Parlé. 7.15, Weather. 7.25, Talk on Politics, 7.45, Programme for Children. 8.15, Missa Solennis (Beethoven), relayed from the Queen's Hall, London. 9.0, (approx.), Close Down.

PARIS

PARIS
POSTE PARISIEN, 914 kc/s, 328.2 metres; 50 kW.—7.10 a.m., Fanfare and Gramophone Concert. In the interval at 7.30, Press Review. 8.0, Concert. In the interval at 8.20, Press Review. 8.45, Talk for Housewies. 12 Noon, Exchange, 12.5 p.m., Orchestral Concert. In the intervals at 12.30, Announcements and Exchange. 1.15, and 1.25, Exchange. 2.0, Exchange. 3.15, Exchange. 3.45, Exchange. 4.50, Exchange. 7.0, Gramophone Records. 8.0, Talk on Economics. 8.20, Exchange. 8.30, Ghosts—Play (Ibsen). 10.30, Orchestral Concert, relayed from the Restaurant des Champs-Elysées.

PARIS

PARIS

RADIO-PARIS. Call CFR, 174 kc/s, 1,725
metres; 75 kW.—6.45 a.m., Physical Culture.
7.30, Weather and Physical Culture.
7.30, Weather and Physical Culture (contd.).
7.45, Gramophone Music, 8.0, Weather and
Press Review. 12.0 Noon, Educational Talk.
12.15 p.m., Chopin Gramophone Concert:
Mazurka No. 4; Nocture in F Sharp; Prelude
No. 24; Scherzo in B Flat Minor. 12.30,
Organ Recital, relayed from the Gaumont
Palace: A Guy what takes his time (Rainger); I wake up smiling (Leslie); Selection
from Carmen (Bizet); You're too beautiful
(Rodgers). 1.0, Exchange and News. 1.5,
Gramophone Concert. In the intervals:
Exchange. 3.0, Exchange. 6.20, Weather
and Agricultural Talk. 6.45, Book Review. 7.0, Medical Talk. 7.20, Gramophone Music. 7.45, Commercial Notes
and News. 8.0, Elocution Lesson. 8.30,
News, Weather and Fashion Review. 8.45,
Concert given by the Lamourenx Concert
Society, conducted by Albert
Society, Conducted by Albert Society, Conducted by Albert
Society, Conducted by Albert Society, Conducted by Albert Society, Conducted by Albert Society, Conducted by Albert Society, Conducted by Albert Society, Conducted by Albert Society, Conducted by Albert Society, Conducted By Albert Society, Conducted By Albert Society, Conducted By Albert Society, Conducted By Albert Society, Conducted By Albert

PITTSBURGH

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W&KK on 48.86 metres and 25.27 metres.—7.0 p.m. Musical Originalities, from New York. 7.30, KDKA Home Forum. 8.0, Southern Symphonies, from New York. 8.15, Happy Days in Dixie, from New York. 8.45, Human Values. 9.0, Betty and Bob, from New York. 9.15, Utility Hall. 9.30, Frances Ingram. 9.45, News and Markets Reports. 10.0, Railroad Adventures, from New York. 10.15, KDKA Kiddies' Klub. 10.30, The Singing Lady, from New York. 10.45, Little Orphan Annie, from New York. 11.0, News. Pat Haley. 11.15, Sports Notes and Programme Preview. 11.30, Evensong. 11.45 to 12.45 a.m. (Thursday), New York Relay. 11.45, Lowell Thomas. 12 Midnight, Amos 'n' Andy. 12.15 a.m., Gems of Melody. 12.30, Potash and Perlmutter. 12.43, Programme to be announced. 1.0 to 3.30, New York Relay. 1.0, Crime Clues. 1.30, Dangerous Paradise. 1.45, Red Davis. 2.9, Warden Lawes. 2.30, John Mae Cormack and Orchestra.

PORSGRUND.-See Oslo.

PRAGUE

PRAGUE

614 kc's, 488.6 metres; 120 kW.—3.0, Sce

Moravská-Ostrava. 3.50, Programme for

Children. 4.35, Gramophone Records. 4.45,

Talk. 4.55, Gramophone Records. 5.5, Agricultural Talk. 5.15, Talk for Workers.

5.25, News in German. 5.30, German Transnission: Talk and Labour Market Report.

6.0, Time, News and Weather. 6.10, Advanced French Lesson. 6.25, A One-act

Comedy (Sacha Guitry). 6.55, Introductory

Talk to the following Transmission. 7.5,

Third Symphony. No. 3 in D Minor (Maller),

by the Czech Philharmonic Orchestra con-

DEC. 13th WEDNESDAY continued

ducted by Jirak, and Two Choirs; Soloist, Marta Krásová (Contralto). In an interval: Theatre Talk. 9.0, Time, News, Review of the Day and Sports Notes. 9.15, News in French. 9.30 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW and Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15 a.m. (from Lausanne), Gymnastics SOTTENS, 743 kc/s, 403 metres; 25 kW; and Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15 a.m. (from Lausanne). Gymnastics, 11.28, Time Signal from Neuchâtel Observatory. 11.30, News and Weather. 11.40 (from Geneva). Gramophone Concert. 12 Noon (from Geneva). Financial Notes. 12.10 p.m. (from Geneva). Gramophone Concert (contd.). 1.0, Interval. 2.58, Time Signal from Neuchâtel Observatory. 3.0, See Schweizerischer Landessender. 5.0 (from Lausanne). Programme for Children. 6.0 (from Geneva). Talk: The Alpine Lakes. 6.30 (from Geneva). Radio Chronicle. 6.59, Weather. 7.0 (from Geneva). Variety Items. 7.20, Concert by the Radio-Snisse Romande Orchestra, conducted by Echenard. Soloist: Mme. Delessert (Songs). 8.40, News and Weather. 8.50 (from Geneva). Talk: The Work of the League of Nations. 9.20 (from Geneva). Popular Programme. 9.40 (approx.), Close Down.

RJUKAN.-Sec Oslo.

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres from 7.40 p.m.; and 2RO, 11,810 kc/s, 25.4 metres.—6.45 a.m., Gymnastics. 7.0, Time, Giornale Radio, Announcements and Weather. 11.30, Gramophone Concert. 12 Noon, Orchestral Concert. Vado un momento (Rizza); Tango degli amanti (Cortopassi); Three Roses (Streckel); Suspiranno pe' tte (Lo Giudice); Selection from The Carnival Fairy (Kalmán); Waltz from the Film Paprika (Wachsmann); In a Persian Market (Ketelbey); Melody (Roland). Giornale Radio and Exchange, 4.10, Orchestral Concert. March. Vecchia guardia (Sinigaglia); Cradle Song (Respigli): Dolce conce (Cortpassi); Melody (Grothe); Selection from Al Lupo (Mule); Canta, Cuiquita (Barziza); Dimmi di si (Hammd). 4.55, Weather. 5.0, Wheat Market Report. 5.10, Dopolavoro Notes, Giornale Radio, and Announcements of the Geographical Society, 5.20, Report of the International Institute of Agriculture (in Italian and English). 5.55 (Naples), Shipping and Sports Notes. 6.0, News in Foreign Lauguages. 6.20, Set Turin. 6.35, Song Recital by Sara Bosisio (Mczzo-Soprano). 7.30, Review of the Day's Events. 7.40, Camen—Opera in Four Acts (Bizet). Talks and Notes on Art in the intervals.

SALZBURG.—See Vienna.

SCHENECTADY

SCHENECTADY

WGY, 790 ke's, 379.5 metres; 50 kW. Relayed at intervals by W2XAF, on 31.48 metres, and by W2XAD, on 19.55 metres.—
7.30 p.m., Two Seats in the Balcony, from New York. 8.0, Golden Treasury, from New York. 12.45 a.m. (Thursday), Stock Reports. 1.0 to 3.30, New York Relay. 1.0, George Olsen's Orchestra. 1.30, Waltz Time, Frank Munn (Tenor); Orchestra. 2.0, Ipana Troubadours. 2.30, Leo Reisman's Orchestra. 3.0, Variety Programme. 3.30, National Radio Forum, from New York, followed by Programme Resumé.

SCHWEIZERISCHER

LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: Basle, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—5.50 to 6.5 a.m. (Zürich), Gymnastics, 9.20 to 9.50 (Berne), Broadcast for Schools, 11.0 (Berne), Gramophone Music. 11.29, Time Signal from Neuchâtel Observatory, Weather and News. 11.40 (Berne), Gramophone Music, 12 Noon, Relay of British Broadcasting Company's Transmission from Bombay. 12.30 (Berne), Time, Weather and Exchange, 2.30 (Berne), Cinema Organ Music (on Gramophone Records). 2.59, Time Signal from Neuchâtel Observatory. 3.0 (Berne), Concert by the Radio Orchestra. 3.40, Folk Music by the Swahlen Village Orchestra. and Soloists. 4.10, Waltzes (on Gramophone Records). 4.30, Schubert Chamber Music. 5.0 (Berne), Programme for Children. 5.30 (Zürich), Talk: Chinese Poetry. 6.0 (Zürich), Time. Weather and Market Prices. 6.10, Gramophone Music. 6.20 (Zürich), English Lesson. 6.50 (Zürich), Concert by the Radio Orchestra. 7.30 (Zürich), Talk: Zürich in the Nineteenth Century. 8.0, Weather and News. 8.10 (Zürich), Talk: See Radio-Suisse Romands.

SOTTENS.-See Radio-Suisse Romande.

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239-5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1-167 kc/s, 257 metres; Motala, 222-5 kc/s, 1,348 metres;

Ostersund, 409 kc/s, 746.2 metres; and Sundsvall, 554 kc/s, 542 metres.—6.20 a.m., Musical Programme. In the interval: Gynnastics. 6.45, Divine Service. 11.30, Weather and Ice Report. 11.45, Market Prices. 4.0 p.m., Weather. 4.5, Programme for Children. 4.25, Talk relayed from Malmo, 1,301 kc/s, 230.6 metres. 4.45, Gramophone Music. 5.45, Microphone Report relayed from Malmo. 6.15, Weather and News. 6.30, Literary Review. 7.0, Symphony No. 2 in D. Op. 73 (Brahms), relayed from Götebork, conductor. Tom Mann. 7.45, Talk. 8.15, Six Songs (Jensen). 8.30, Talk on Hygiene. 8.45, Weather and News. 9.0, Dance Music, relayed from Bern Hall. 10.0 (approx.), Close Down. Close Down.

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—10.30 a.m., Orchestral Concert, relayed from Lyons (La Doua). 644 kc/s, 465.8 metres. 12 Noon, Gramophone Concert of Classical Music, 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Orchestral Concert of Light Music, conducted by Roskam. 2.0, Interval. 4.45, Talk in German: Lighting by Electricity. 5.0, Orchestral Concert, 6.0, Trio Concert, relayed from Lille, 1,128.5 kc/s, 265.8 metres. 7.0, Legal Talk. 7.15, Talk on Apprenticeships. 7.30, News. 7.45, Announcements, Lottery Results and Press Review in German. 8.15, Missa Solennis (Beethoven), relayed from the Queen's Hall, London. 10.30 (approx.), Press Review. 10.40 (approx.), Orchestral Concert, conducted by Jemine, relayed from the Grand Kléber Tavern: March, Salut à la France (Scassola); Waltz, Verschmähte liebe (Lincke); Overture, Martha (Flotow); Selection from Boccaccio (Suppé); You are my Heart's Delight (Lehár); Selection from Nina Rosa (Romberg); Overture, Les cloches de Corneville (Planquette); selection from Lilac Time (Schubert, Berté). 11.30 (approx.), Close Down.

STUTTGART

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 1.5 kW. Relayed by Freiburg, 527 kc/s, 570 metres.—12 Noon, Bombay Programme, relayed from London. 12.30 p.m., See Frankfurt. 1.40, Local News and Weather, 12.50, See Frankfurt. 1.30, See Langenberg. 2.30, Concert of Chamber Music by Students of the Academy of Music: Duettino concertante for Two Pianofortes (Mozart-Busoni); String Quartet in G. Op. 17. No. 5 (Haydin). 3.0, See Frankfurt. 5.0 to 5.35, See Langenberg. 5.35, Time, Agricultural Report and Weather, 5.45, Talk: Friedrich Hebbel. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0, See Frankfurt. 7.10 to 9.0, See Langenberg. 9.0, See Frankfurt. 9.20, What everyone should know. . . 9.30, Local News, Weather and Sports Report. 9.45, Gramophone Records. 10.0, Concert by the Station Orchestra, conducted by Gustav Görlich. 11.0, Screnade. 12 Midnight, Close Down.

SUNDSVALL.-See Stockholm.

TOULOUSE

TOULOUSE

779 kc/s, 385 metres; 8 kW.—8.0 a.m., Dance Music. 8.30, News. 8.35, Orchestral Music. 8.45, Opera Music. 12.15 p.m., Music by a Viennese Orchestra. 12.30, News. 12.45, Request Music. 1.3, Amusement Guide, Market Prices and Time. 1.5, Chansonnettes. 1.15, Opera Music. Dance from The Meistersingers (Wagner); Wedding Procession from Lohengrin (Wagner); Coronation March from The Prophet (Meyerbeer). 1.30, Opera Arias. Arias from Romeo and Juliet (Gonnod); Si j'étais roi (Adam); Don Quixote (Massenet); La Vivandière (Godart), and Tosca (Puccini). 1.45, Military Music. 2.0, News. 4.15, News. 6.0, News. 6.15, Operetta Arias. 6.30, Music by an Argentine Band. 6.50, Popular Music. In the interval: Talk, 7.15, News. 7.30, Scènes pittoresques (Massenet), by the Station Orchestra. 7.45, Opera Arias. 8.0, Accordion Solos. 8.15, Sound Film Music. 8.30, Orchestral Music. 8.45, Opera Music. 8.30, Orchestral Music. 8.45, Opera Music. Arias from: (a) Hérodiade (Massenet), (b) Lohengrin (Wagner); Trio from Faust (Gounod). 9.0, Concert by the Estudiantina Concert Society, conducted by Paris. Wedding March (Caunas); L'Angelus (Massenet); Cotillon de féte (Long); Adagio (Beethoven); Au crépuscule de la vie (Lavitrane); Visione (Mezzacapo); Cradle Song (Mendelssohn); Melody (Daring). In the interval: Chansonnettes. 10.15, News. 10.30, Concert for Listeners in Morocco, Arias from The Black Tulip (Tiarke). Beau Brummel (Halm), and Oh Papa (Yvain); Selection from La poupée d'arlequin (Darcy); Le Routet d'Omphale (Saint-Saëns); Selection from the Bird-Fancier (Zeller). 11.0, Request Music. 11.15, Dance Music. 12 Midnight, News and Announcements. 12.5 a.m. (Thursday), Songs. 12.15, Hunting Horn Solos. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.--6.45 a.m. till Close Down, See Turin.

TRONDHEIM.-See Oslo.

TURIN

TURIN

1,096 kc's, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 598 kc/s, 501.6 metres.—4.10 p.m., Song Recital. 4.55, Weather. 5.0, Agricultural Notes and Wheat Market Report. 5.10, Dopolavoro Announcements and Tourist Report. 6.0, Time and News in Foreign Languages. 6.20, Medical Talk. 6.35, Gramophone Records. 6.50, Announcements, Giornale Radio. Weather and Gramophone Records. 7.30, Review of the Day's Events. 7.40, The Czarevitch—Operetta in Three Acts (Lchár). In the intervals, Talk and Art Notes. After the Programme, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and 5,959 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in Spanish. 7.0 to 7.15 p.m., Religious Information in Spanish. mation in Italian.

VIENNA

mation in Italian.

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,055 kc/s, 232.1 metres; Innsbruck, 1,055 kc/s, 238.2 metres; Klagenfurt, 652 kc/s, 453.1 metres; Linz, 1,220 kc, s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—

11.0, Concert by the Wiener Symphoniker, conducted by Max Schonherr: Overture, Die Fledermans (Joh. Strauss): Waltz. Die Romantiker (Lanner); Viennese Dance Melodies (von Lilienau); Waltz. Die guten alten Zeiten (Jos. Strauss): Ballet Music from Rosamunde (Schubert. 12, Time and News. 12.10 p.m., Concert (contd.): Viennese Suite (Felkl); Waltz, Morgenblätter (Job. Strauss): Potpourri, Klassisch und Wienerisch (Komzak). 1.0, Interval. 2.0, Time. Weather and Exchange. 2.15, Talk: Pig-Breeding. 2.30, Talk: The Supernatural in Shakespeare. 2.50, Der Burger als Edelmann (R. Strauss), by the Vienna Philharmonic Orchestra, conducted by Clemens Krauss (on Gramophone Records). 3.25, Talk: The Will o' the Wisp in Legend and in Science. 3.40, Talk: What People should know about Raddium. 4.0, Talk. 4.20, Concert of Music by Leopold Welleba; The Mildner Quartet and Soloists: Anton Tausche (Songs) and Hans Weber (Pianoforte): String Quartet in C: Songs: (a) Kind und Frau. (b) Der Himmel hat eine Träne geweint, (c) Trinklied. (d) Barcarolle; Pianoforte Solo: Concert Waltz. 5.10, Talk: New Diseases. 5.35, Talk: Holiday Hostels for Young People. 6.0, Military Band Concert. In the interval, Time, Weather and Programme Announcements. 7.15, Topical Talk. 7.30, Ilebbel Programme & Song Recital in German and Experanto. with Commentary. 9.45, Dance Music, relayed from the Café Palmhof. After the Programme Announcements.

WARSAW

Misic, relayed from the Café Palmhof. After the Programme. Announcements.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—6.0 a.m., Time and Morning Hymn. 6.5, Gymuastics. 6.20, Records. 6.35, Radio Journal. 6.40, Records. 6.52, For Housewives. 6.55, Programme Announcements. 10.0, Press Review. 10.50, Art Review. 10.57, Time and Chimes from the Tower of St. Mary's Church, Craeow. 11.5, Orchestral Concert. Scherzo Waltz (O. Straus): Serenade from Les Millions d'Arlequin (Drigo): Selection from Where the Lark Sings (Lehàr); Tango (Albéniz); Gondoliera (Moszkowski): Chant d'amour (Paderevsky); Serenata del Diavolo (Billi). 11.30, Radio Journal. 11.35, Weather. 11.38, Concert from Lwów, 788 kc/s, 381 metres. 2.25 p.m., News. 2.30, Talk on Economics. 2.40, Soprano and Contralto Duets by Kama Norska and Cécile Lygrym. Four Italian Duets (Oddone); Duet from Mephistopheles (Boito); Two Duets (Mendelssolm); Clair de lune (Kazuro): L'Automne (Kazuro): Clarté lointaine (Maszynski); L'Aube (Tchaikovsky). 3.10, For Children. 3.40, Letter Box. 3.55, Oboc and Pianoforte Recital by Snieckowski and Urstein; Intermezzo (Macura); Romance in A Minor, Op. 94 (Schumann); Serenade of Love (Sulima). 4.15, Pianoforte Recital by Alexandre Wiehorski; Sonatas in D. A and C (Scarlatti); Melody (Gluck-Sgambati); Three Prelndes (Pachulski); Scherzo in B Flat Minor (Pachulski); Two Impromptus, Op. 13 (Zarembski); Pianoforte Suite, Op. 34 (Wielhorski); Two Etudes (Wielhorski), Op. 21 (Wielhorski); Two Etudes (Wielhorski), A.50, Agricultural Correspondence, Programme Announcements. 6.5, Miscellaneous Notes. 6.25, Reading. 6.40, Sports Notes. 6.47, Radio Journal. 7.0, Reading. 7.15, Concert by the Society for Old Music, relayed from the Conservatoire. Soloists: Korwin Szymanovsky (Songs). Wysocka-Ochlewska (Harpsichord), and Korycinski (Organ); Two Sonatas for Violin, Bass and Organ (Buxtehude); Canzona for Violin, Bassoon, Bass and Organ (Flexential); Freduce and Fingue for Organ (Buxtehude); Canzona for Violin, Bassoon, Bass and Organ (Flexential);

ZURICH.-See Schweizerischer Landessender.

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres; and Cork, 1,337 kc s, 224.4 metres.—1.30 to 2.30 p.m., Time Signal. Weather Report. Stock Report and Gramophone Concert. 6.0, Programmefor Children. 6.45, News. 7.0, French Lesson. 7.15, Talk. 7.30, Time Signal. 7.31, Lecture Recital by Grace O'Brien. 8.0, Soprano Solos by Violet Pearson. 8.15, Concert by the Station Orchestra. 8.45, Baritone Solos by Jay Ryan. 9.0, Organ Recital by W. S. Greig. relayed from Findlater's Church. 9.30 to 10.30, Programme by the LB.C. (Ireland). Ltd. 9.30, Concert of Light Music: Entry of the Gladiators (Fucik): Song. Drake goes West (Sanderson); Duct. The Keys of Heaven (Schubert-Berté). 9.45, Hawaiian Band Music: La Rosita (Dupont): Kilima Waltz (Traditional): Selection from Edac Time (Schubert-Berté). 9.45, Hawaiian Band Music: La Rosita (Dupont): Kilima Waltz (Traditional): Cara Mia (Brodsky): Sonthern Serenade (Norman). 10.0, Programme arranged by the International Broadcasting Company (Ireland). Ltd.: Dance Music: Honeymoon Hotel: There's no harm in hoping: Beloved: Racing Commentary: Balloons; In Santa Lacia; Oh. Johanna; Don't blame ne. 10.30, LB.C. Goodnight Melody, followed by News and Weather. 10.40, Pipe and Fiddle Duets by T. Small and F. Brazil. 11.0 (approx.). Down.

BARCELONA

BARCELONA

EAJ1, 858 ke/s, 349.6 metres; 8 kW.—6.0 p.m., Trio Concert. In the interval Tark, 7.0, Request Gramophone Records. 7.30, Exchange and Gramophone Records (contd.), 8.0, Gramophone Music. 8.30, Educational Programme and News, 9.0, Chimes, Weather, Exchange and Market Prices. 9.5, Catatan Review of the Week in Verse. 9.15, Music by the Radio Orchestra, followed by Part Relay of an Opera from the Gran Teatro del Licco. 11.0, News. 11.10 (approx.), Opera Relay (contd.).

BARI

1,112 kc s, 269.8 metres; 20 kW.--3.30 p.m., Programme for Women, 3.50 to 7.0 p.m., See Rome, 7.0, News in Albanian, 7.30 till (lose Down, See Rome,

BASLE.-See Schweizerischer Landessender.

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHSSENDER), 183.5 kc/s, 1,635 metres; 60 kW,—11.5 a.m., Gramophone Concert. Die Loreley (Silcher); Oalte Burschenherrlichkeit; Rheinglaube; Rudesheimer Wein (Hansen-Hausmann); In Krug zum grumen Kranze (Zollner); Elslein von Canb (Tilke); Japanese Waltz (Kleinmer); Waltz, Espana (Wahltenfel); Ljusteroralsen-Walzer (Ahlin-Ade), After the Concert, Weather, 11.55, Time, 12.45 p.m., News. 1.0, Gramophone Concert, 1.45, Programme for Children, 2.10, A Dialogne from Plato's Republic, 2.30, Weather and Exchange, 2.45, Book Review, 3.6, See Breslau, 4.0, Sofigs and Recitations, 4.25, Concert by Robert Gaden and his Orenestra, 5.6, Poems, 5.5 (approx.), Talk for Voung Peugle: What to learn at the Photographers, Exhibition, 5.30, Weather and Amouncements, 6.0, Transmission for all German Stations, relayed from Munich, 7.0, Today's Motto, 7.5 (approx.), Lumpenpack (The Pedlar's Pack.) — Radio Play (Guater Eich), 8.30, Sofigs, Opera Arias and Duets by Ly Botzon (Soprano), and Gotthold Ditter (Baritone), 9.10, News and Sports Notes, 9.45, Weather, 10.0, See Langenberg, 11.30 (approx.), Close Down.

BERLIN

BERLIN

FUNKSTUNDE, 716 kc/s, 419 metres; 1.5
kW. Relayed by Zeesen, DJC, DJA, DJD,
DJB and DJE.—2.20 p.m., Opera Duets on
Gramophone Records: Duct from H. Trovatore (Verdi); Duet from Madame Butterfly
(Paccini). 2.35, The Little Match Girl a
Play (Margarete von Offers, after Haus
Andersen, 3.0, See Heilsberg, 5.0, Book Review. 5.30, The Funkstunde informs its Listeners. . . 5.35, Topical Talk, 6.0, Transmission for all German Stations, relayed
from Municht. 7.5, A Dance Evening -Concert by the Station Orchestra, conducted
by Siegfried Schulz; the Station Conder, conducted by Heinzkarl Weigel, Willi Schönfield's Band and Soloists. In an interval at
9.0, News and Sports Notes. 11.0, Close
Down.

BERNE .- See Schweizerischer Landessender. BEROMUNSTER. - See Schweizerischer

BODEN,-See Stockholm.

BODO .- - See Oslo.

BORDEAUX-LAFAYETTE

BURDEAUX-LAFAYETTE

986 k.s., 304 metres; 13 kW. 6.15 p.m.,
Programme, relayed from Paris (Ecole Supérisure), 671 kc.s., 447.1 metres, followed by
Radio Journal. 7.35, News. 7.40, Talk on
Glass-making. 7.55, Lottery Results and
Charades. 8.40, Talk on Wine. 8.15, News
and Request Gramophone Records. 8.30,
Dramatic Programme, followed by Amuse,
ment Guide and Time.

BRATISLAVA

1.073 kc/s, 279.5 metres; 14 kW.-8.50 a.m., Programme from Prague. 10.0, Hydro-

DECEMBER THE FOURTEENTH

graphical Report. 10.5, Programme from Moravská-Ostrava. 10.55, Programme from Prague. 11.0, Agricultural Talk. 11.10, Programme from Prague. 11.35, Concert by the Station Orchestra, conducted by Kornel Schimpel. 12.35 p.m., Programme from Prague. 1.0, News in Slovak, German, and Hungarian. 1.10 to 1.15, Agricultural Notes, 2.30, Programme from Prague. 3.0, See Brno. 4.15, See Prague. 4.50, Cramophone Music. 5.10, Talk. 5.25, Band Concert. 5.55, Talk for Honsewices. 6.0, See Prague. 6.15, See Moravská-Ostrava. 6.35, See Brno. 6.50, See Prague. 7.30, See Brno. 9.0, See Prague. 10.0 (approx.), Close Down.

BREMEN.-See Hamburg.

BRESLAU

BREMEN.—See Hamburg.

BRESLAU

923 kc/s, 325 metres; 60 kW. Rehayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—11.0 a.m., Orehestral Concert: Overture, The Xuremberg Doll (Adam): Selection from Tutti in Maschera (Pedrotti); Waitz. In der Erimerung (Lincke): Violin Solo from Sylvia (Delibes): Austrian Peasant Dances (Pachernegg); A Wedding Day on Troldhaugen (Grieg); Swedish Wedding March (Södermann): Fantasia, Kontraste (Robrecht). 12.15 to 1.15 p.m., See Leipzig. 1.15, Programme arranged by the Post Office, with Gramophone Records. 2.0, Agricultural Prices and Exchange. 2.15, Book Review. 2.30, Programme for Children. 3.0, Orchestral Concert, conducted by Paul Arndt: Soloists: Erich Kerndorff (Cello) and Fritz Kämmer (Violin): Wedding March (Södermann): Overture, Le Roi d'Vvetot (Adam): Serenade in D minor for Cello (Volkmann): Rhapsody, Der Pesther Karneval (Liszl); Veneta Legende (Grunewald): Love's Dream after the Ball (Czibulka): Waltz, Am Wörther See (Koschat): Czardas for Violin and Orchestra (Monti): The Good Old Times (Joh. Strauss): Potponrri, Das treue dentschellerz (Weninger): March, Märkische Hende (Lincke). 4.30, Talk: The Prussiau Officer as Anthor. 4.50, Pianoforte Sonata in A flat. Op. 39 (Weber), played by Manfred Evers. 5.10, Agricultural Prices. 5.15 (approx.), Max von Scheinendorf Memorial Programme. 5.35, Programme to be announced. 5.50, Programme to be announced. 5.50, Programme to be announced. 5.50, Programme (Cooper): Song, Ich hab in den Himmel geschen from Das Veichenmandel (Hellmesberger): Song, Hab ich mur deine Liebe from Recaccio (Suppé): Hente Nacht from Apajune. der Wassermann (Millöcker): Waltz from Der 16stterätte (Goder). Duet from The Gipsy Baron (Joh, Strauss): Air from Liebe Trimme from Der (Götterätte (Lehâr): Song, Was ich längst erträmme from Der (Götterätte (Lehâr): One from Hae Hoheit die Tänzerin (Goder): Waltz from Das Süsse Model (Reinlardt): Duet from The Gipsy Baron (Joh, Strauss): Air from Liebe are saying in America. 9.45, Concert from Lear es saying in America. 9

BRNO

BRNO
878 kc s, 342 metres; 35 kW,—3.0 p.m., Concert by the Station Orchestra, conducted by Bakala. 3.50, Programme for Children. 4.15, Programme for Young Feople. 4.25, See Prague. 4.50, Gramondione Music. 5.0, Literary Review of the Weck. 5.15, See Prague. 5.25, German Transidission: News and Musical Faree for Radio. 6.0, See Prague. 6.15, See Moravská-Ostrava. 6.35, Talk on Films. 6.50, See Prague. 7.30, Il ne faut juter de tien -Play in Three Acts de Musset) with Old French Music, by the Station Orchestra. 9.0, See Prague. 10.0 (approx.). Close Down. Station Orchestra. 9. (approx.), Close Down.

BRUSSELS (No. 1)

BRUSSELS (No. 1)

I.N.R.; 589 kc s, 509.2 metres; 15 kW.—12.0 Noon, Concert by the Small Station Orchestra, conducted by Pierre Leemans; Marche, Salut à New York (Lepage); Waltz from The Sleeping Beauty (Tchaikovsky); Serenade (Leoneavallo); Potpourri (Mannfred); Violin Solo, Desir (Kalkman); Ballet Music from Isoline (Messager); Waltz (Klemer); Tango (Jacobs); Yvain Potpourri (Salabert), 1.0 p.m., Le Journal Parick 1.10, Gramophone Records; Japanese Maznika, La Monsmée (Ganne); Selection from Patience (Suffiyan); Song (d'Ambrosio); Selection from Colinette à la Com (Gréty-Prevost); Cramignons liègeois (Grétry-Prevost); Quadrille, Souvenirs de Bayrenth (Fairé-Messager); Fantasia (Costa); Amima (Lineke); Quel calme (Laverne); Selection from The Veomen of the Guard (Suffivan); Animal Anties (Wark); Viv' Monsieur Tinspector

(Laverus). 5.0, Records. 5.30, Programme for Children. 6.0, Talk: Women under the Hitter Régime. 6.15, Gramophous Records. 6.30, Concert by the Small Station Orchestra, conducted by Leemans: Marche des communiers brugeoi. (Dubois); Waltz (Fucik); Vidin Solo, Introduction and Humoresque (d'Ambrossio); Selection from Le cheminean (Leronx); Eternelle cantifiene (Goffin); Sérénade milionga (Huguet); Suite. Fête utpoine (Monton). 7.15, Talk for Workers. 7.30, Sports Talk. 8.0, Concert by the Radio Orchestra, conducted by Franz André; Rhapsody No. 2 (Friedmann); Bohemian Swite (Coleridge Taylor). 8.15, Cabaret Programme. 8.45, Talk: The Middle Classes, 9.0, Concert (contd.); Chant di départ (Mehul); Overture. The Thieving Magpie (Rossini); Oriental Suite (Popy); Invitation to the Waltz (Weber); Records; Melody (Jessel); Love's Dream after the Ball (Czibulka); Selection from The Tales of Hoffmann (Offenbach). 10.0, Le Journal Parlé.

BRUSSELS (No. 2)

DKUSSELS (No. 2)
N.1.R.; 888 kc s, 337.8 metres; 15 kW.- Programme in Flemish. 12.0 Noon, Gramophone Records: Coronation March (Saint-Saëns); Solvieg's Song (Grieg); Ständehen (Schubert): Prelude and Wattz from Fanst (Goutze): Da ich cin Kind war (Gretscher); Selection from Wild Violets (Stolz); Waltz. Morgenblätter (Stranss); Polichinelle (Rachmaninov); La campinera (Benedict); Selec-Goetze); Da ich ein Kind war (Gretscher); Selection from Wild Violets (Stolz); Waltz. Morgenblätter (Stranss); Polichinelle (Rachmaninov); La campinera (Benedict); Selection from The Bird Fancier (Zeller). 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by Pierre Leemans; Extracts from Les petitsriens (Mozart); Minuet from the Septet (Beethoven); Liebestraum (Liszt); Recitations; Die Jagd (Mendelssolan); Traumerri (Schumann); Gavotte (Gossec); March from the Hungarian Rhapsody (Schubert). 5.0, Concert by the Radio Orchestra, conducted by Franz André. Soloist; Misson (Violino. Song (Meulemans); Match from The Prophet (Meyerheer); Overture, Fingal's Cave (Mendelssolm); Finaic of the Violin Concert in E (Vieuxtemps); Extracts from Ramutatcho (Pierné). 5.45, V.J.V.K.A. Programme. 6.20, Talk. 6.30, Programme (Schubert Liszt), on Gramophone Records. 7.20, Talk on Horticulture. 7.30, Programme for Women. 8.0, Orchestral Concert, arranged by the Vercenigde Vrienden of Henriven. Soloists; Huderman (Pianoforte), and De Decker (Pass), March, De Vercenigde vrienden and Meens); Overture. The Caliph of Bagdad (Boiledien); Descriptive Piece, Le retour ath pays (Gilson); March, bowa (Meens); Pianoforte Solos; (a) Impromptu in k. Flat. Op. 90, No. 2 (Schubert), (b) Spanish Dances (Albánix); Bass Solos. 9.0, Catholic Talk. 9.15, Concert (contd.); March, Cavan (Meens); De Vlaamsche Leenw (Miry). 9.55, Evening Prayer. 10.0, Le Journal Parlé.

BUCHAREST

Foli, kc s, 394 metres; 12 kW. -11.0 a.m., Exchange, Thes Report and Gramophone Concert. 12 Noon. Radio Journal. 12.15 p.m., Gramophone Records. 3.15, Programme for Children. 4.0, Concert of Variety Music by the Dimeo Orchestra. In the Interval at 5.0, Radio Journal. 6.0, Educational Talk. 6.20, Talk. 6.40, Opera Music on Gramophone Records. In the intervals: Reading and Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 120 kW. Also relayed on 840 metres from 5.15 p.m. till Close Down.
—4.30 p.m., Grannophone Records, 6.20, Concert. 7.25, Talk. 8.0, Military Band Concert. 9.10, News. 9.30, String Quartet No. 2 (bohmányi), by Melles Quartet. 10.0, Cigány Band Concert, relayed from the Hungaria Hotel.

CASSEL.—See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc s, 1,153.8 metres; and Skamlebaek, 0.XY, 49.4 metres.—11.0 a.m., Time and Chimes from the Town Hall. 11.5, Music by the Arnold Nielsen String Ensemble, relayed from the Ritz Restaurant, 1.40 p.m., Viedin Recital by Henry Jensen; Andantino (Martini-Kreisler); Waltz (Field-Burmester); Canto amoroso (Sammartini-Ehman); Gavotte (Ramean-Burmester); Lullaby (Henriques); Allegretto (Boecherini-Kreisler), 2.0, Light Music from the Wivex Restaurant, 3.45, Programme for Boys, 4.30, Exchange and Fish Market Prices, 4.45, Talk, 5.45, English Lesson, 5.45, Weather, 6.0, News, 6.15, Time Signal, 6.16, Talk: Democracy and Dictatorship; The Soviet Republic, 6.45, Druish Lesson, 7.10, Concert of Viennese Music, by the Synchony Orchestra, conducted by Fritz Mahler, relayed from the State Broadcasting Building; Extracts from Boccaccio (Suppé); Ex-

tracts from A Night in Venice (Joh. Strauss). 9.15, News. 9.20, Reading of New Danish Poetry. 9.55, Dance Music, relayed from the National Scala. 11.0, Time and Chimes from the Town Hall. 11.5 (approx.). Dance Music (contd.). 11.30 (approx.). Close Down.

CORK,-See Athlone. DANZIG.-See Heilsberg. DRESDEN .-- See Leipzig.

FECAMP

HELAMP

1,328 kc s, 225.9 metres; 10 kW.—10.30 to
11.30 a.m., Programme in English by the
1,B.C. 10.30, Happy Hour: Part 1.—Orefless
tral Concert; Part 11.—Dance Music. 11.30,
Programme in French. 3.30 to 6.0.p.m., Programme in English by the 1,B.C. 3.30, Concert for Worthing and Littlehampton
Istemers: Part 1.—Accordion Band Music:
Signature Tame. The Night by the Sea;
Milano; The Valse of the Gigolo (Mexander); Song, Smoky Mountain Bill (Robinson); In Far Away Donegal (Alexander);
Awx printenps (Alexander); Song, 4 don't work for a Living (Lee); Emilienne (Alexander); Cocktails (Cuvelier); Part 11.—
Dance Music: Did my Heart beat; The Man on the Flying Trapexe; Let's make up; I'll take an Option on you; For you, just you, my Baby; When Autumn comes around; Lightning. 4.30, The 1.B.C. Nursery (Orner); Birthday Greetings. 5.0, Concert for Brighton and Hove Listeners; Part 1.—Orchestral Concert: The Dance of the Tea Dolls (Smith-Hagan); Love sends a Little Gift of Rosses (Openshaw); Song, My Romance (Washington); The Musical Clock of Madame Pompadour (Coack); Barcarolle (Waldtenfel); Mandoline Solo: Capriceio Mazurka (Arienzo); Foxtron Medley, White Horse Inn (Charell); Vienna, Vienna (Foss). 5.30, LB.C. Time Signal. 5.31, Part II.—Hawaiian Band; Hula, Hula; Isle of Paradise (Earl); Tango des rosses (Senerler); My Waikiki Mermaid (Traditional), 5.45, Concert of Dance Music; Everyone boves my Marguerite; Goofus; If you'll say Ves, Cherie; Vilin, 6.0, Programme in French. 10.0 (approx.) till Close Down, Programme in English by the LB.C. 10.0 (approx.), Variety Concert: The Clatter of the Closs (Flynn); Song, Ding, Bong, Ding (Hargreaves); Sketch, The School Master; Banjo Solo: Flappercette (Green); Orchestra; Morgenblätter (Joh. Stranss); Song, Roll up the Carpet (Klages); The Jody Whistlers (Jonian); The Gold Dinger's Song; A Couple of Pals; Signature Tune, 11.0, Talkierine; Times from the Talkies and Shows; Signature Tune, Sittin' in the Dark; Eve got up the Window; The Holes of the Mouley of the Moor (Pola); Th FLENSBURG,—See Hamburg, FLORENGE,—See Turin.

FRANKFURT

FRAINFUK 1
1,157 ke's, 259.3 metres; 17 kW. Relayed by
Gassel and Trier, 1,157 ke's, 259.3 metres,—
5.0 a.m., Programme from Langenberg,
5.0 Programme from Stuttgart, 5.45, Programme from Langenberg,
6.10, Weather, 6.15, Autonomeenent,
6.20 (approx.). Gramophone
Concert, 7.15, Announcements, 7.25, Programme from Langenberg,
9.45, Hint for the Housewife, 10.0,
9.45, Hint for the Housewife, 10.0
Concert 10.40. Programme Anounce gramme from Langemoerg, 9.0, News, 9.45, Hints for the Housewife, 10.0, Cancert, 10.40, Programme Announcements, Weather and Economic Notes, 11.0, Grams phone Concert, 12.15 p.m., Time and News, 12.25, Local News

and Weather. 12.35, See Stuttgart. 1.40, Programme for Young People. 2.30, Weather Forecast. 2.40, Time and Market Prices. 3.0, See Langenberg. 5.0 to 5.35, See Stuttgart. 5.35, Readings. 5.50, News and Time. 6.0, Transmission for all German Stations, relayed from Munich. 7.0, Topical Talk. 7.10, Stories of the Rhine and Main District. 7.45, Concert of Serenades by the Station Orchestra, conducted by Hans Rosbaud. 9.0, Time and News. 9.20, See Stuttgart. 9.30, Local News and Weather. 9.45 till Close Down. See Langenberg. 12 Midnight, Close Down.

FREDRIKSSTAD .-- See Oslo.

FREIBURG.-See Stuttgart.

GENEVA .- See Radio-Suisse Romande.

GENOA.—See Turin.

GLEIWITZ.—See Breslau.

GOTE BORG .- See Stockholm.

GRAZ.-See Vienna.

HAMAR.-See Osto.

HAMBURG

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg and Hanover, 1,319 kc/s, 227.4 metres; and Kiel, 1,222 kc/s, 232.2 metres.—3.0 p.m., Programme relayed from Heilsburg. 5.0, Gramophone Records. 5.25, Talk by Captain Otto Hersing: How U Boat 21 saved the Dardanelles. 5.45, Frankfurt Exchange. German Stations, relayed from Munich. 7.5, Dance Music, relayed from Berlin (Funkstunde). In the interval, Time and News. 9.30, Programme from Berlin (Deutschlandsender). 9.45, Dance Music, relayed from Berlin (Funkstunde). sender). 9.45, Dance Berlin (Funkstunde).

HANOVER,-See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 571 kc/s, 447.1 metres.—10.30 a.m. (from Danzig), Police Band Concert. conducted by Ernst Stieberitz: March, Am deutschen Rhein (Ries); Overture, Tanta-usqualen (Suppé); Serenade (Drigo); Suite of National Songs (Tehaikovsky); Selection from L'Arlésienne (Bizet); Das Leben ein Tanz (Kremser); Hungarian Rhapsody No. 1 (Liszt); Oriental Suite (Suppé); March, Unter dem Gardestern (Stieberitz). 12.5 p.m., Gramophone Concert of Light Music. News in the intervals, 2.0, Exchange, 2.20, Book Review, 2.30, Two Young Hilterites discuss Dr. Goering, 3.0, Concert of Operetta Music by the Station Orchestra, conducted by Engen Wilcken; Overture, Der Bettelstudent (Millöcker); Traum-Walzer (Millöcker); Selection from Das Pensionat (Suppé); Waltz, Roses from the South (Joh, Strauss); Selection from Das Pensionat (Suppé); Overture, Poet and Peasant (Suppé); Overture, Poet and Reasant (Suppé); Overture, Poet

HILVERSUM

HILVERSUM

1,013 kc/s, 256.1 metres; 7 kW. up to 5.40 p.m. and 20 kW. from 5.40 p.m.—Programme of the General Broadcasting Society (A.V.R.O.).—10.10 a.m., Violin and Pianoforte Recital by Rosette Polk and Georgien Gantzert; Sonata in C (Mozart); Ballad and Polonaies (Vieuxtemps); Sonata in F (Becthoven); Gavotte (Mehul); Tambourin chinois (Kreisler). In the interval at 10.40, Recitation. 11.40, Time. 11.41, Concert by the Station Orchestra, conducted by Nico Treep; Overture, Marinarella (Fneik); Suite phrygienne (Brusselmans); Aus Mozarts Reich (Urbach); Summer Night in Madrid (Glinka); Gramophone Records; Selection from White Horse Inn (Benatzky-Krome); Liebeslieder-Walzer (Joh. Strauss); Extase (Geame); Angels and Imps (Dicker); Gramophone Records; Parade of the Tin Soldiers (Gessel); Melody (Rust); Love Song (Samartini); Minuet (Boccherini); March, New Comrades (Krul). 1.55 p.m., Interval. 2.10, Song Recital by Disjobs Ising. 2.40, Dressmaking Lesson. 3.25, Gramophone Records. 3.40, Programme for Hospitals. 4.10, Concert by Barnabas von Geczy and his Orchestra. 4.40, Radio Play for Children. 5.10, Concert by Barnabas von Geczy and his Orchestra. 4.40, Radio Play for Children. 5.10, Concert by Barnabas von Geczy and his Orchestra. 4.10, English Lesson. 7.40, Time. 7.41, News. 7.45, Concert by the Station Orchestra, conducted by Albert van Raalte; March from The Rims of Athens (Beethoven); Invitation to the Waltz (Weber); Dance (Grieg); Chant sans paroles (Tchaikovsky); Chanson de Matin (Elgar); Selection from The Sheeping Beauty (Tchaikovsky); Polish Dance (Scharwenka); Overture, Les Dragons de Villars (Maillart), 8.40, A Radio Play. 9.25, Concert by the Station Orchestra. conflucted by Albert van Raalte; Soloist, Henriette Bosmans (Pianoforte): Extracts from Rosamund (Schubert); Pianoforte Concerto in A Minor, Op. 54 (Schumann); Overture, Fingal's Cave

DEC. 14th THURSDAY continued

(Mendelssohn). 10.25, Gramophone Records. 10.40, News. 10.50, Light Concert.

HORBY.-See Stockholm.

HUIZEN

HUIZEN

160 kc. s. 1,875 metres; 7 kW. until 3.40 p.m.
Transmitted from Kootwijk on 50 kW. from
3.40 p.m.—11.40 to 1.40, Programme of the
Catholie Radio Society (K.R.O.). 11.40,
Police Report. 11.55, Concert by the K.R.O.
Orchestra, conducted by van 't Woud: Overture, Das Leben ein Traum (Eilenberg);
Selection from Schön ist die Welt (Lehar);
Ballet des parfums (Popp); Selection from
Countess Marritza (Kalman); Gramophone
Records; Marche tzigane (Staz); Overture,
Vivat Academia (Zimmer); Novelettes (Coleridge-Taylor); Valse des fleurs (Tchaikovsky); Overture, The Merry Wives of Windsor
(Xicolai). 1.40 till Close Down, N.C.R.V.
Programme. 1.40, Handwork Lesson. 2.40,
Gramophone Records. 3.25, Interval. 3.40,
Religious Programme: Bible Reading and
Baritone and Organ Solos. 4.40, Handwork
Programme for Young People. 5.10, Pianoforte Recital by Mme. Duin-Koerts; Chromatie Fantasia (Bach); Fantasia in C minor
(Mozart); Gramophone Records; Sonata,
Op. 13 (Beethoven); Polonaise, Op. 26, No. 1
(Chopin). 6.10, Talk. 6.25, Gramophone Records. 6.40, Police Report. 6.55, Ecclesiastical Notes. 7.10, Press Review. 7.40,
Sacred Concert by a Male Voice Choir. a
Mixed Choir and Soloists, relayed from St.
Martin's Church. 9.10, Talk. 9.40, Kews.
9.50, Organ Recital by Zwart. 10.40, Gramophone Records. 11.10 (approx.), Close Down.
INNSBRUCK.—See Vienna.

INNSBRUCK.—See Vienna.

JUAN LES PINS 1,205 kc/s, 249 metres; 0.8 kW.—8.0 p.m., Amusement Guide, Exchange and News. 8.10, Pashion Review. 8.20, Talk: Present Day Superstittions. 8.40, Concert. 9.0, News and Weather. 9.15, Literary and Musical Programme.

KALUNDBORG.—See Copenhagen.

KIEL.—See Hamburg.

KLAGENFURT.-See Vienna.

KOSICE .-- See Prague.

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by Helsinki, 815 kc/s, 368.1 metres.—5.15 p.m., Talk. 5.40, Violin Recital by Fritz Kihl: Playera (Sarasate); Valse triste (Scott); Nocturne (Kuula); Le plus que lente (Debussy); Caprice (Paganini). 6.5, Talk. 6.30, Concert by the Station Orchestra. Soloist: Gunnar Calenius (Songs). 7.45, News in Finnish 8.0, News in Swedish.

LANGENBERG

LANGENBERG

635 kc s, 473 metres; 60 kW.—12.25 p.m.,
News. 12.35, See Stuttgart. 1.30, Programme for Children. 2.0, Gramophone Records. 2.30, Market Prices. 2.50, Political Announcements. 3.0, Concert. Part I:
Choral Concert (on Gramophone Records).
Part II: Music for Two Pianofortes by Egbert Grape and Hans Haass, March, Waltz,
and Tarantella from the Suite for two Pianofortes (Rachmaninov). Part III: Trio in
C, p. 87, for two Oboes and English Horn
(Beethoven), by Karl Hurtung, Ernst Mylenbusch and Otto Hirnet. Part IV: German
Opera Music (on Gramophone Records).
Overture, Euryanthe (Weber); Quintet from
The Mastersingers (Wagner); Recitative
and Aria from Fidelio (Beethoven): Overture. The Magic Flute (Mozart); Recitative
and Aria from Fidelio (Beethoven): Overture. The Magic Flute (Mozart); Recitative
and Aria from Fidelio (Beethoven): Overture. The Magic Flute (Mozart); Recitative
and Aria from Fidelio, Greethoven): Overture. The Magic Flute (Mozart); Recitative
and Aria from Fidelio, Greethoven): Overture. The Magic Flute (Mozart); Recitative
and Aria from Fidelio, Oseture. 5.0 to 5.35, See Stuttgart. 5.35,
Topical Talk. 5.45, Announcements. 6.0,
Transmission for all German Stations, relayed from Munich. 7.0 to 9.20, See Frankfurt. 9.20, A Flying Visit. 9.30, Talk by
Kurt Sell: What people are Talking about
in America. 9.48, News. 10.0, Dance Music
by the Station Dance Band, conducted by
Otto Kühm. 11.30, Serenade (on Gramophone
Records). 12 Midnight, Close Down.
LAUSANNE.—See Radio-Suisse Romande.

LAUSANNE.—See Radio-Suisse Romande

LEIPZIG

LEIPZIG

770 kc s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc s, 319 metres.—12.25, Gramophone Concert: Siegfried's Rhine Journey from The busk of the Gods (Wagner); Six German Dances (Mozart); Allegro giocos from the Fourth Symphony (Brahms); Scherzo capriccioso (Dvorak); Prelude to the First Act of Lohengrin (Wagner). 1.0, News. 1.10, Film Report. 1.20, Talk on Taxation. 1.35, Gramophone Records. 2.0, Handwork for Children. 2.25, Topical Talk. 2.45, Market Prices. 3.0, Concert relayed from Breslau. 4.30, Talk: Prussian Officers as Writers. 4.50, See Breslau. 5.10, Talk: The Jews. 5.30, Talk: Friedrich Forster. 5.45, Market Prices. 6.0, Transmission for all German Stations, relayed from Munich. 7.0, Today's News. 7.10, See Munich. 7.30, See Breslau. 9.0, News. 9.20, Amouncements. 9.30, Concert by the Emde Orchestra: March. Stirn and Faust (Orth); Overture, The Thieving Magpie (Rossini); Intermezzo, Tanz der

Kobolde (Kapp); Waltz, Erimerungen (Doring); Serenade. Unter Deinem Balkon (Wismar); Foxtrot, Come in my Gondola (Raffaelli); Tango, Xenita (de Micheli); Tango, Italioh, kleines Fraulein (Lesso-Valerio); Foxtrot. Das ist das einzig Wahre (Stolz); Beim Sonnenwirt ist a Hochzeit heut (Stauch); Slow Foxtrot, Du bist meine grosse Leideneschaft (Kirchstein); Foxtrot, Heut' war ich auf dem Fundburo (Kollo); Waltz, Einmal nur kommt das Gluck (Profes); Du sprichst vom Wetter (Kruger); Tango, Kreuz des Sudens (Blaauw); Tango, Es muss wohl etwas um die Liebe sein (Frey); Foxtrot (Montagnini); Waltz, In lauschiger Nacht (Zichrer); Slow Foxtrot, Nieselpriem, schlaf nicht immerzu (Mercer), 11.0 (approx.), Close Down.

LINZ.-See Vienna.

LJUBL JANA

522 kc/s, 574.7 metres; 7 kW.—11.15 a.m., Gramophone Records. 11.45, News. 12.0 Noon, Weather and Gramophone Records. 5.0 p.m., Talk for Women. 5.30, The Letter Box. 6.0, Serbo-Croat Lesson. 6.30, Request Gramophone Records. 7.0, Programme relayed from Belgrade, 698 kc s, 429.7 metres. 9.0, Weather and News. 9.20, Dance Music.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—7.0 p.m.,
Gramophone Records. Overture, A Midsummer Night's Dream; Overture (Medelssohn-Pares), by the Symphony Orchestra,
conducted by Elie Cohen; Spanish Caprice,
(Rinsky-Korsakov), by the London Symphony Orchestra, conducted by Albert
Coates. 7.40, Talk: Interior Decoration,
7.45, German Concert by the Station Orchestra, conducted by Henri Pensis,
Soloist: André Cassedanne (Violin); Violin
Concerto in A minor (Bach); Overture,
Egmont (Beethoven); Pastoral Suite (Atterberg); A Summer Night (Spies); Overture,
Jocosa (Clemus). 8.50, News in French.
9.0, Song Recital by Elisabeth Corty. Uber
Nacht (Wolf); Du holde Kunst (Schubert);
O Sonnenschein (Schumann); Er ist's
(Wolf); Sagt holde Frauen (Mozart); Liebe
schwärmt auf allen Wegen (Schubert); in
der Frühe (Wolf). 9.30, Variety Concert by
the Station Orchestra, conducted by Henri
Pensis. Waltz, The Blue Danube (J.
Strauss); An den Frühling (Grieg); Les
ioyenses Filenses (Gillet). 9.45, News in
German. 9.55, Songs on Gramophone Records. Songs from The Fower of Hawaii
(Abraham); Songs from Dic Dreigroschenoper
(Weill). 10.20, Dance Music by the Radio
Jazz Band, conducted by Ferry Jusa.

MADRID

MADATO

ARANJUEZ (EAQ); 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Programme relayed from Madrid (EAJT). 12 Midnight till Close Down, Programme in English by the I.B.C. 12 Midnight, Dance Music: Morning, Noon and Night; They didn't believe me; Don't blame me; The Wedding of Mr. Mickey Monse; African Lament; With yon here and me here; Cecilia Mia; Tick Tock. 12.30 a.m. (Friday), Tango Band: Adios Argentina; Phere was a poor Musician; Solitario; Te fuiste ja, ja; Tango de Paques; Nunca; Perdite; Will yon dance through Life with me? I.B.C. Goodnight Melody and Close Down. Down.

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchauge, Announcements and Programme for Children. 8.15, Topical Review. 8.30, Interval. 9.15, Talk in English. 9.30, Chimes, Time and Radio Journal. 9.45 (approx.). Madre, la mi madre—One-Act Play (Borrás); A Ese . . . —Farce (Martin Recerra and Isaac Pachecho). 11.45, Radio Journal. 12 Midnight, Chimes, 1.0 a.m. (Friday) till Close Down, Programme in English by the I.B.C. Light Music. Overture Medley (arr. Peters); Fishers' Hornpipe; Hawaiian Sunset (Vandersloot); Montana Moon (Freed); A Song, A Kiss, A Girl (Gilbert); Love's Old Sweet Song (Molloy); Lady, play your Mandoline (Levant); Wiesbaden March (Anderson); Steal away (Huntly); My Mother's Garden (Hauley); Garbo Gitano (Bruguera); Speak Easy (Gen-Ser); A Penny for your Thoughts (Cuevas); Drifting down the Shalimar (Moll); The Buffoon (Curzon); I've found the right Girl (Lupino). 2.0, LB.C. Good-night Melody and Close Down.

 ${\bf MALM0.} {\bf -} See \ \ {\bf Stockholm.}$

MILAN.-See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—5.30, German Transmission: A Play (Hugo von Hoffmannsthat), 6.0, See Prague. 6.15, Recita of Silesian Songs by Marie Vojtkova. 6.35, See Brno. 6.50, See Prague. 7.30, See Brno. 9.0, See Prague. 10.0 (approx.), Close Down.

MOSCOW

KOMINTEM, RW1, 202.5 kc s, 1,481 metres; 500 kW.—3.0 p.m., News. 3.30, Educational Talk. 4.30, Red Army Programme. 5.30, Programme for Workers on Collective Farms. 8.30, Answers to Correspondence. 7.0, Concert. 8.0, Review of the Wcck in German. 8.55, Chimes from the Red Square. 9.5, Review of the Weck in French. 10.5, Talk in Spanish, Bringing up Children.

MOTALA.-See Stockholm.

MUHLACKER.-See Stuttgart.

MUNICH

MUNICH
563 kc/s, 533 metres; 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 569 metres; and Nürnberg, 1,256 kc/s, 239 metres.—3.0 p.m., See Breslau. 4.30, See Breslau. 4.50, See Breslau. 5.10, Agricultural Talk. 5.30, Songs by Friedrich Brodersen (Baritone) on Gramophone Records. 5.45, Time, Weather and Agricultural Talk. 6.0, Transmission for all German Stations. Christmas Concert by the Station Orchestra, conducted by Hans Winter. the Station Chamber Choir, and Soloists. Christmas Concerto for Violin and Strings (Torelli); First Part of Die Erwartung—Lyrie Play (Jos. Haas); Pastorale in D for Organ and Orchestra (Rheinberger). 7.0, See Breslau. 9.0, See Leipzig. 9.20, News. 9.30, Talk: What People are saying in America (on Gramophone Records). 9.50, Light Music and Dance Music from Leipzig. 11.0 (approx.), Close Down).

NAPLES .- See Rome.

NOTODDEN.--See Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 515 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 477.1 metres, Porsgrund, 662 kc/s, 463.1 metres, Rjukan, 671 kc/s, 447.1 metres, and Jelöy, LCL, 6,990 kc/s, 42.92 metres.—4.0, Concert by the Station Orchestra, conducted by Krannu: Norwegian Bridal Procession (Greig); Suite. Summer in Norway (Torjussen); Piece (Sandell); Albumblatt (Gyldmark); Serenade (Gade); Minute (Stenberg); Selection from Sigurd Jorsalfar (Grieg); Mustalainen (Merikanto); The Song of the Spider (Sibelius); Four Dances (Hjellemo); March (Egge). 5.0, German Lesson. 5.30 p.m., Divine Service. 6.0, Announcements, Wcather and News. 6.30, Gramophone Records of Grieg Music and Nansen's Tribute to Amundsen. 7.0, Time Signal. 7.1, Agricultural Programme. 7.30, (Concert by a Boys' Choir, relayed from Trondheim Cathedral. Soloist; Einar Bonsaken (Organ): Organ Solo: Pretude in C minor (Bach); Choir: (a) Bosanna, to the Son of David (Jomilli), (b) Evening (Mendelssohm), (c) Christmas Carol (Reimann), (d) Song (Mendelssohn); Organ Solos: (a) Josus meine Freude (Reger), (b) O Welt, ich möcht' dich lassen (Brahms); Noël (Karsten Sollicim). 8.20, Talk. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Light Music and Popular Music by a Cornet Ensemble. 9.45 (approx.), Close Down.

OSTERSUND.-See Stockholm.

PALERMO

PALERMO

558 kc's, 537.6 metres; 3 kW.—11.45 a.m., Gramophone Radio, 12 Noon, Gramophone Music. In an interval at 12.30 p.m., Time, Aunouncements and Weather. 1.0, Interval. 4.30, Gramophone Music. 5.0, Programme for Children. 5.30, Interval. 7.0, Dopolavoro Notes, Agricultural Notes and Giornale Radio. 7.20, Gramophone Music. In an interval at 7.30, Time and Announcements. 7.45, Symphony Concert. conducted by La Rosa Parodi: Soloist, Vincenzo Mamningo (Pianoforte); Pianoforte Concerto in B Flat Minor (Martucci); Talk; H galante tiratore (Veretti); Pastorale (Jachino); Overture, Oberon (Weber). 10.0, Giornale Radio.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kg/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m., Creliminary and 6-dot Signals).—5.45 p.m., Le Journal Parlé. 7.15, Weather. 7.25, News. 7.30, Extracts from Le Pré aux Cleres—Operetta (Hérold). on Gramophone Records. 8.0, Talk on Polities. 8.15, Gramophone Concert. 9.0 (approx.), Close Down.

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.10 a.m., Fanfare and Gramophone Concert. In the intervals, at 7.20 and 8.20, Press Review, and at 8.45, Talk for the Housewife. 12 Noon, Exchange. 12.5 p.m., Gramophone Concert. 12.20, Announcements, 12.30, Concert. 1.5, Exchange. 1.10, Concert. In the interval at 1.25, Exchange. 1.50, Gramophone Concert. 2.0, Exchange. 3.15, Exchange. 3.45, Exchange. 4.50, Exchange. 7.0, Gramophone Record: Scherzo in E-minor (Mendelssohn). 7.5, Talk by André Maurois. 7.8, Agricultural Talk. 7.15, Le Journal Parlé. 7.30, Programme for Children. 8.0, Talk. 8.5, Topical Programme. 8.20, Exchange. 8.40, Song Recital. 9.0, Interval. 9.20, Concert. 10.30, News.

PARIS

PARIS

RADIO-PARIS. Call CFR, 174 ko/s, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture. 7.45, Gramophone Records: Quadrile from La Vie parisienne (Offenbach); Quadrille from La Mascotte (Audran). 8.0, Weather and Press Review. 12 Noon, Protestant Address. 12.30 p.m., Gramophone Concert: Magda Ogleafero (Pianoforte): (a) Allegro from the Concerto in D (Mozart), (b) Prelude and Sarabande (Debussy); Charles Panzera (Baritone): (a) Extract from The Damnation of Faust (Berlioz), (b) Extase (Duparc), (c) Lamento (Duparc), (d) Kaddish (Ravel); Hubermann (Violin): (a) La capricieuse (Elgar), (b) Waltz in A (Brahms), (c) La Clochette (Paganini); Elizabeth Schumann (Soprano): (a) Es ist voillbracht (Bach), (b) Two Arias from Figaro (Mozart); Light Music. 3.45, Exchange and Racing Results. 5.45, Legal Talk. 7.0, Radio Dialogue. 7.20, Gramophone Records for Children. 7.43, Press Review, Exchange and Announcements. 8.0, Variety Programme: La petite ville—Sketch (Variot-Verger); Les succes de Theresa et de Paulette Darty—Sketch; Items by Gilles and Julien; Music by Robert Macry's Orchestra. In the intervals: News.

PITTSBURGH

RDKA; 980 kc/s, 306 metres; 50 kW. Relayed by WaXK on 48.86 metres and 25.27 metres.—7.0 p.m., Musical Originalities, from New York. 7.30, KDKA Home Forum. 7.45, Pioneers. 8.0, State Federation of Pennsylvanian Women. 8.15, Rocliester Orchestra. from New York. 9.0, Betty and Bob, from New York. 9.15, Programme to be announced. 9.30, Business News and Market Reports. 9.45, Thursday Special, from New York. 10.0, Uncle Tom and Betty. 10.15, KDKA Kiddies' Klub. 10.30, The Singing Lady, from New York. 10.45, Little Orphan Annie, from New York. 10.45, Little Orphan Annie, from New York. 11.0, News, Pat Haley. 11.15, Sports Notes and Programme Preview. 11.30, Evensong. 11.45, Lowell Thomas, from New York. 12 Midnight, Amos 'n' Andy, from New York. 12.15 a.m. (Friday), Marvellous Melodies. 12.30, Lois Miller, Organist. 12.45 to 3.30, New York Relay. 12.45, Engineering Adventures. 1.0, Captain Diamond. 1.30, Adventures in Health. 1.45, The Revellers. 2.0, Death Valley Days. 2.30, Lady Esther Serenade. 3.0, Hands Across the Border.

PORSGRUND.-See Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—3.0, See
Brno. 4.15, Talk for Workers. 4.25, Gramophone Records. 4.35, Elementary French
Lesson. 4.50, Gramophone Records, 5.5,
Agricultural Talk. 5.15, Talk for Workers.
5.25, News in German. 5.30, German Transmission: Talk on Christmas Books for
Young People, and Agricultural Talk. 6.0,
Time. News and Weather. 6.10, An Appeal
for the Red Cruss Society of Czechoslovakia.
6.15, See Moravská-Ostrava. 6.35, See Brno.
6.50, Serenade for Strings, Op. 48 (Tchaikovsky). by the Station Orchestra, conducted
by Jeremias. 7.30, See Brno. 9.0, Time.
News. Review of the Day and Sports Notes.
9.15, Introductory Talk in Czech, German
and French to the following Transmission.
9.25, Pianoforte Recital of Czech Dances
(Smetana), by Jan Herman. 10.0 (approx.),
Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW; and Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15 a.m. (from Lausanne). Gymnastics.

11.28, Time Signal from Neuchâtel Observatory. 11.30, News and Weather. 11.40 (from Geneva), Variety Items. 12 Noon (from Geneva), Gramophone Concert. 1.0, Interval. 2.58, Time Signal from Neuchâtel Observatory. 3.0 (from Geneva), Dance Music and Songs. 4.20, Gramophone Records. 4.30, Dance Music. 5.0 (from Lausanne), Baking Lesson. 5.30 (from Lausanne), Baking Lesson. 5.30 (from Lausanne), Book Review. 5.55 (from Lausanne), Tourist Report. 6.5 (from Lausanne), Weather Palk. 6.30 (from Lausanne), Weather Report. 7.0 (from Lausanne), Weather Report. 7.0 (from Lausanne), Songs by French-Swiss Composers. 7.30 (from Lausanne), Dramatic Programme. 8.20 (from Lausanne), Dramatic Programme. 8.20 (from Lausanne), Donace Music. 10.0 (approx.), Close Down.

REYK JAVIK

250 kc's, 1,200 metres; 21 kW.—8.20 p.m., Musical Programme and Announcements. 8.35, Programme to be announced. 9.0, Chimes and News. 9.30, Reading. 10.0, Concert by the Radio Trio; Arias on Gramophone Records, followed by Dance Music. 11.30 (approx.), Close Down.

571 kc/s, 525.3 metres; 15 kW.—5.0 a.m., Gymnastics. 5.35, Concert. 10.0, News. 10.30, Weather. 2.10 p.m., Orchestral Con-cert. 3.10, Legal Talk. 3.40, Gramophone Concert. 4.0, Talk: The Human Soul. 4.30,

DEC. 14th THURSDAY continued

Violin Sonata in G (Grieg). 5.0, Variety Programme. 5.30, English Lesson. 6.0, Weather. 6.5, Frederica—Operetta in Three Acts (Lehar). In the intervals, Weather and News. 8.40, Dance Music.

RJUKAN.-See Oslo.

ROME

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milam (Vigentino), 662 kc/s, 453.1 metres from 7.40 p.m.; and 2RO, 11,810 kc/s, 25.4 metres.—
12.5 to 1.15 p.m., Programme from Turin. In the interval at 12.30, Giornale Radio and Exchange. 1.0, Time and News. 3.30 (Naples), Programme for Children and Sports Notes. 3.50, Giornale Radio and Exchange. 4.0, Talk. 4.10, Concert of Chamber Music. Tima Bari (Violin). Gina Schelfini (Pianoforte), Gino Del Signore (Tenor), and Carmen Garcia Cornejo (Songs). Sonata No. 4 in b for Violin and Pianoforte (Handel): Tenor Solos: (a) Baci amorosi e cari (Mozart), (b) Prayer from The Jewels of the Madonna (Wolf-Ferrari), (c) Aria from La, Bohême (Leoncavallo): Violin -Solos: (a) Old Viennese Song (Kreislér), (b) Rondo capriccioso (Saint-Saéns); South American Songs, sung by Carmen García Cornejo. 4.55, Weather. 5.0, Agricultural Report. 5.10, Dopolavoro Notes and Tourist Report. 5.20, Announcements. 6.0, News in Foreign Languages. 6.20, Pianoforte Solos by Piera Caporali. 6.50, News. 7.0, Time and Announcements. 7.30, Topical Talk. 7.40, Orchestral Concert. Soloist: Cloe Elmo (Soprano). Prelude, Fugue and Choral for Orchestra (Bach); Soprano Solo, Recitative and Aria, Ah peridio! (Reethoven): Bacchanale from The Seasons (Glazunov). 8.15 (approx.), Il velo impigliato—Comedy in One Act (Rocca). 8.45 (approx.). Concert (contd.).: Extracts from Iris (Mascagni). After the Programme: Miscellaneous Notes. 9.15 (approx.), Dance Music. 10.0, Giornole Radio.

SALZBURG.-See Vienna.

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAD on 19.56 metres.—12.45 am. (Friday), Stock Reports. 1.0 to 4.0, New York Relay. 1.0, Variety Programme. 2.0, Captain Henry's Show Boat. 3.0, Al Jolson; Paul Whiteman's Orchestra. 4.0, Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; Basie, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—5.50 to 6.5 a.m., Gymnasties. 11.0 (Zürich), Notes for Housewives. 11.5 (Zürich), Concert by the Small Station Orchestra, conducted by Max Scherbaum. 12.25 p.m. (Zürich), Time, Weather and Exchange. 12.30 to 2.30, Interval. 2.30, Gramophone Concert. 2.59, Time Signal from Neuchâtel Observatory. 3.0, See Radio-Suisse Romande (Sottens). 5.0 (Basie), Gramophone Concert. 5.30 (Basie), Talk on Wagner. 6.0 (Basie), Time, Weather and Road Report. 6.5, Concert by the Radio Orchestra. 7.0 (Basie), Time, Weather and Road Report. 6.5, Concert by the Radio Sequence (Paul Meyer-Gutzwiller and Werner Hausmann). 7.30 (Basie), Recital of Unfamiliar Violin Music by Rodolfo Felicani. 8.0, Weather and News. 8.10 (Basie), Programme by Fritz Worm. 9.15 (approx.), Close Down.

SOTTENS.--See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by
Boden, 242 kc/s, 1,239.5 metres; Göteborg,
932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257
metres; Motala, 222.5 kc/s, 1,348 metres;
Ostersund, 409 kc/s, 746.2 metres; and
sundsvall, 554 kc/s, 542 metres, -4.5 p.m.,
Studio Service. 4.30, Song Recital by
Sixten Liedbergius. 4.45, Gramophone
Music. 5.45, Chess Lesson relayed from
Kalmar, 1,205 kc/s, 249 metres. 6.15,
Wenther and News. 6.20, Concert by the
Station Orchestra. conducted by Grevillin;
and Soloists. 7.50, Salvation—Radio Play
(Martinson). 8.45, Weather and News. 9.0,
Elementary English Lesson, relayed from
Jönköping, 1,490 kc/s, 201.3 metres. 9.30,
Concert by Jean Naumann's Orchestra, relayed from Malmö, 1,301 kc/s, 230.6 metres.
Overture, The Migic Flute (Mozart);
Waltz (Jos. Strauss); Rococo Minuet
(Haydn); Selection from The Gipsy Baron
(Joh. Strauss). 10.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—10.30 a.m., Orchestral Concert relayed from Lille, 1,128.5 kc/s, 255.8 metres. 12 Noon, Gramophone Concert: Overture, Der Opernball (Heu-berger); The Mill in the Black Forest

(Eilenberg); Waltz from Eva (Lehár); Selection from The Gipsy Princess (Kálmán); Aria from Rigoletto (Verdi); Marechiare (Tosti); Selection Der Bettelstudent (Millöcker); Hungarian Rhapsody No. 12 (Liszt); Scouts (Billaut). 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Orchestral Concert, conducted by de Villers: Marche des petits Pierrots (Bosc); Valse des Brunes (Ganne); Suite No. 2 from L'Arlésienne (Bizet); Selection from L'Arlésienne (Bizet); Selection from L'Attaque dn Moulin (Bruneau); Rhapsody No. 14 (Liszt). 2.0, Programme for Children. 3.0, Orchestral Concert conducted by de Villers; Oveture, Martha (Flotow); Selection from La Fille de Madame Angot (Leocq); Waltz from The Dollar Princess (Fall). 3.30, Elocution Lesson. 3.45, Concert (contd.), Suite for Orchestra (Capri); Scenes gitanes (Razigade). 4.15 (approx.), Close Down.

STUTTGART

MUHLACKER, 832 ko/s, 360.5 metres; 1.5 kW.— Relayed by Freiburg, 527 kc/s, 570 metres.—12.25 p.m., Local News and Weather. 12.35, Concert by the Station Orchestra, conducted by Gustav Gorlich. Soloists: Ileimut Schuchmacher and Helmut Thomas (Violin). Overture, Alphonso und Estrella (Schubert); Romantic Suite (Lautenschlager); Duet for Two Violins (Beriot); Waltz, Am schonen Rhein gedenk ich dein (Keler-Bela); The Wedding of the Marionettes (Kockert); Waltz, Morgen-blatter (Joh. Strauss); March, Frei weg (Latann). 1.30, Interval. 2.15, Reading. 2.30, Christian Friedrich Hebbel Memorial Programme. 3.30, Concert from Langenberg. 5.0, Spanish Conversation. 5.20, Talk on Superstition. 5.35, Time, Agricultural Report and Weather. 5.45, Talk: Cobineau and the Race Question. 6.0, Transmission for all Gernam Stations, relayed from Munich. 7.0 to 9.20, Sec Frankfurt. 9.20, What Everyone Should Know ... 9.30, News and Sports Report. 9.45, till Close Down, See Langenberg. 12 Midnight, Close

SUNDSVALL.—See Stockholm.

TOULOUSE

TOULOUSE

779 kc/s, 385 metrcs; 8 kW.—6.0 p.m., News. 6.15, Military Music. 6.30, Programme for Children. 7.0, Chansonnettess. 7.15, News, Racing Results and Market Prices. 7.30, Petite Suite (Debussy). 7.45, Light Music. 8.0, Accordion Music. 8.15, Vienuese Orchestra. 8.30, Sound Film Music. 8.45, Balalaika Music. 9.0, Orchestral Music. 9.15, Carmen—Opera (Bizet). In the interval at 9.45, Sponsored Music. 10.15, News. 10.30, Concert for Listeners in Morocco. 10.45 (approx.), Carmen (contd.). 11.45, Dance Music. 12 Midnight, News, Weather and Announcements. 12.5 a.m. (Friday), Orchestral Music: Suite. Mother Goose (Ravel); Dance of the Seven Veils from Salomé (R. Strauss). 12.15, Music by an Argentine Orchestra. 12.30 (approx.), Close Lown.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—6.45 i.m. to 3.45 p.m., Programme from Turin. 3.45, Programme for Children. 4.10, Mezzo-Soprano Song Recital by Gemma Baruch, with Introductory Talk. Sento nel cor (Scarlatti); Non m'è grave (Mercello); Se cerca, se dice (Pergolesi); Resta in pace idol mio (Cimarosa); Chi vuol la zingarella (Paisiello). 4.55 till Close Down, See Turin.

TRONDHEIM.-See Oslo.

TURIN

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 95 kc/s, 312.8 metres; and Florence, 598 kc/s, 501.6 metres.—4.10 p.m., Chamber Music. Apologo e Scherzo (Terni); Aria (Bach); Scherzo (Grieg); Il trillo del diavolo (Tartini); Siciliana (Ceminiani); Extract from Joshua (Handel); Gipsy Songs, Nos. 5 and 7 (Dvorak). 4.55, Weather. 5.0, Agricultural Notes and Wheat Market Report. 5.10, Dopolavoro Announcements and Tourist Report. 6.0, Time and News in Foreign Languages. 6.20, Gramophone Records. 6.50, Announcements, Giornale Radio. Weather and Gramophone Music. 7.30, Review of the Day's Events. 7.40, Relay of an Opera. In the intervals, Talk, Literary Notes and Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in French. 7.0 to 7.15, Religious Information in Italian.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 882 ko/s, 352.1 metres; Innsbruck 1,058 ko/s, 283 metres; Klagenfurt, 662 kc/s 453.1 metres; Linz, 1,220 kc/s, 245.9 metres: and Salzburg, 1,373 kc/s, 218.5 metres.—10.36 a.m., Orchestral Concert, conducted by Berl Silving. Overture, Fürstin Pauline und Makart (Silving); Waltz, Frühlingsbotschaft (Fucik); Haydn Fantasia (Schenker); Selection from The Mask (Hubay); Pieces (Kreisler); (a) Liebesfreud, (c) Schon Rosmarin; Paraphrase on the Song. O sole mio (Di Capua-Oscheit); Melody (Golwyn); An der Donau, wenn der Wein bluht (Grothe-Melichar); Wenu du sagst, ich liebe dich (Eisemann); Potpourri, Johann Strauss spielt anf (Morena); Air from O du mein Osterreich (Mann-Weiss). In the interval, Weather. 12 Noon, Time and News. 12.10 to 1.0 p.m., Gramophone Concert. 2.0, Time, Weather and Exchange. 2.15, Talk: The Trebitsch (Chess Tournament. 2.30, Programme for Children. 2.55, Gramophone Concert of Operetta Music. Overture, Orpheus in the Underworld (Offenhach); Two Air; from The Dubarry (Millöcker-Mackeben); Air from Countess Maritza (Kâlmán); Selection from Die Fledermaus (Joh. Strauss); Two Airs from The Dubarry (Millöcker-Mackeben); Selection from A Waltz Dream (O. Straus). 3.35, A Discussion between an Architect and a Contractor; How to build a House. 3.55, Educational Talk. 4.20, Harpsichord and 'Cello Recital by Irene Reichert and Beate Reichert. Sonata in F for 'Cello and Harpsichord (Porpora); Sonata in D Minor for 'Cello and Harpsichord (Porpora); Sonata in D Minor for 'Cello and Harpsichord (Porpora); Sonata in D Minor for 'Cello and Harpsichord (Porpora); Sonata in D Minor for 'Cello and Harpsichord (Porpora); Sonata in D Minor for 'Cello and Harpsichord (Porpora); Garauber (Millors); March, Es lebe die Liebe (Kâlmán); Soprano Solo: Irgendeinmal kommt irgendwer (Ascher); Waltz, Liebesrezepte (Klehrer); Soprano Solo: Irgendeinmal kommt irgendwer (Ascher); Waltz, Liebesrezepte (Klehrer); Soprano Solo: Irgendeinmal kommt irgendwer (Ascher); Waltz, Lieb

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—10.57 a.m., Time Signal and Fanfare from St. Mary's Church. Cracow. 11.5, Gramophone Records of Cigány Music. 11.30, Radio Journal. 11.35, Concert of Classical Music for Schools, conducted by Mierzejewski. relayed from the Philharmonie. Soloist: Lipowska (Songs): Coriolanus Overture (Beethoven); Minuet (Boccherini): Finale from the Jupiter Symphony (Mozart). Songs: (a) Aria from Iphigenic en Tauride (Gluck), (b) Two Arias from Figaro (Mozart): Overture, Verbum Nobile (Moniuszko); Ballet Music from The Countess (Moniuszko); Ballet Music from The Countess (Moniuszko). Songs: (a) Le Canard (Niewiadomski). (b) The Maid (Friemann); Waltz and Krakowiak from Pan Twardowski (Rozycki); Mazurka, Batory (Namyslowski). 1.0 p.m., Weather. 1.3, Interval. 2.25, Announcement. 2.30, Exchange. 2.40, Gramophone Records of Opera Music. 3.40, Talk on Finance. 3.55, Dance Music. 4.50, Talk for Villagers. 5.0, Talk: Contemporary Poland. 5.20, Programme to be announced. 6.0, Programme to be announced. 6.1, Programme to be announced. 6.2, Miscellancous Items. 6.25, Topical Talk. 6.40, Sports Notes. 6.47, Radio Journal. 6.55, Interval. 7.0, Orchestral Concert, conducted by Nawrot. Soloist: Peter (Tenor): Overture, Phèdre (Massenet): R. Suite campestre (Amadei): Nocturne. No. 2 (d'Agrèves). Songs: (a) Air from Andrea Chénier (Giordano). (b) Spanish Song, Annapola (Lacalle). (c) Song (Mikulski): Selection from Cavalleria rusticana (Mascagni): Three Pieces (Leonevaullo). 8.0, Technical Talk. 8.15, Concert (contd.): Three Pieces (Mouton): (a) Paysage. (b) Ariette. (c) Divertissement. Three Songs: (a) Aria from Zaza (Leoncavallo). (b) It was a dream (Lassen). (c) Princessita (Padilla); Spanish Dances (Moszkovsky); Valse de Concert (Dworakowski). 9.0, Dance Music from the Adria. 10.0, News. Weather and Police Notes. 10.5, Dance Music (contd.).

WILNO

530 kc/s, 566 metres; 16 kW.—6.25 p.m., See Warsaw. 6.45, Miscellaneous Notes. 6.47, See Warsaw. 7.0, Symphony Concert on Gramophone Records, with Introductory Talk. 8.0, See Warsaw.

ZURICH.-See Schweizerischer Landessender.

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres, and Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.30 p.m., Time Signal, Wcather Report. Stock Report and Gramophone Concert. 6.0, Programme for Children. 6.45, News. 7.0, Gardening Talk. 7.15, Literary and Dramatic Talk by Oadh de Blacam. 7.30, Time Signal. 7.31, Concert by the Station Orchestra. 8.0, Pianoforte Solos by Sydney Green. 8.15. Tenor Solos by Aidan Roche. 8.30, Salvage—a Drama in Episodes, by L. P. Mitchell. 9.30 to 10.30, Programme by the I.B.C. (Ireland). Ltd. 9.30, Concert of Dance Music: Signature Tune, Young and Healthy; Dear Stranger; My Lucky Day; Ding. Dong. Ding; Sentimental Gentleman from Georgia; The One Man Band; Waltzing alone with you; There's a New Day comin'; Two Tickets for Georgia; Signature Tune, Young and Healthy. 10.0, Concert arranged by the International Broadcasting Company (Ireland). Ltd.; Military Band Music: Overture. Ruy Blas (Mendelssohn); Humoresque (Dvorak); March from Tannhäuser (Wagner); Racing Commentary; Selection from The Miracle (Humperdinck); Valse triste (Sibelius); Marche militaire (Schubert); The Benediction of the Daggers, from Les Huguenots (Meyerbeer). 10.30, I.B.C. Goodnight Melody, followed by News and Weather. 10.40, Songs and Stories by C. O'Byrne. 11.0 (approx.), Close Down.

BARCELONA

BARCELONA

EAJ1, 858 kc.s, 349.6 metres; 8 kW.—6.0 p.m., Trio Concert: Selection from Rienzi (Wagner); Neapolitan Song (d'Ambrosio); Valse en sourdine, No. 2 (Ackermans); Intermezzo from Cavalleria rusticana (Mascagni); Serenade (Bolaud); Selection from 1 Pagliacei (Leoncavallo); Duet from Boris Godunov (Mussorgsky). 7.0, Request Gramophone Records. 7.30, Exchange. 7.35 (approx.). Gramophone Records (contd.). 8.0, Gramophone Music. 8.30, Educational Programme and News. 9.0, Chimes, Weather, Messages to Seamen, Exchange and Market Prices. 9.10, Concert by the Radio Orchestra. 10.30, Dance Music from the Casa Libre. 11.0, News. 11.5 (approx.), Lance Music Relay (contd.). 12 Midnight (approx.), Close Down.

BASLE. See Schweizerischer Landessender.

BASLE. See Schweizerischer Landessender.

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHSSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—11.5 a.m. (approx.), Gramophone Concert. 11.55, Time. 12.45 p.m., News. 1.0, Gramophone Concert (contd.). 1.45, Taik: German Films. 2.0, Programme for Giris. 2.30, Weather and Exchange. 2.45, Reading of Travellers' Tales (Rollenhagen). 3.0, See Munich. 4.0, Talk: Musical Education as a National Duty. 4.25, Seandinavian Music, Song and Planof orte Recital by Lissie von Rosen and Walter Jentsch. 5.0, Poems, followed by Legal Taik. 5.30, Reading (Prugel). 5.45, Weather and News. 6.0, Transmission for all German Stations, relayed from Hamburg. 7.0, Today's Motto. 7.2 (approx.), Talk by Else Tschaunes: My Interview with President Roosevelt. 7.15, Concert, relayed from Leipzig. 8.0, Wireless Talk. 8.30. Das Blaue vom Himmel—Play (Wernet Hintz). 9.0, Weather and News. 9.25, Talk: Sport and the Raec. 9.45, Weather. 10.0, See Frankfurt. 11.0 (approx.), Close Down.

BERLIN

FUNKSTUNDE, 716 kc/s, 419 metres; 1.5
kW. Relayed by Zeesen, DJC, DJA, DJD,
DJB and DJE.—3.0 p.m., See Heilsberg.
4.0, Programme from Hamburg. 5.0, Discussion: The Sterilisation of the Unit. 5.25, The
funkstende informs its listeners . . . 5.50, Die
Kletterer—Poem (Editta Eriksen), with
Music by Wagner—Regeny. 6.0, Transmission for all German Stations, relayed from
Hamburg. 7.5, See Heilsberg. 9.0, Weather
and News. 9.30, See Heilsberg. 11.0 (approx.), Close Down.

BERNE.-See Schweizerischer Landessender. BEROMUNSTER. - See Schweizerischer

BODEN.-See Stockholm.

BODO.-See Oslo.

BORDEAUX-LAFAYETTE

PORDEAUX-LAFATEITE

986 kc/8, 304 metres; 13 kW.—6.15 p.m.,
Programme relayed from Paris (Ecole Supérieure), 671 kc/s, 447.1 metres, followed by
Radio Journal. 7.30, News and Lottery
Results. 7.40, Educational Talk. 7.55,
Lottery Results. 8.0, Spanish Lesson. 8.15,
News and Request Gramophone Records.
8.30, Concert by a Symphony Orchestra and
Soloists. After the Concert, Anusement
Guide and Time.

BRATISLAVA

1,073 kc/s, 279.5 metres; 14 kW.—6.10, Talk and Recitations. 6.25, See Prague. 7.0, Concert of Music by Jan Bella by the Slovak Philharmonic Orchestra and Soloists, relayed from the Redout Hall; Conductor, R. Beha. 9.0, See Prague. 9.30 (approx.), Close Down. BREMEN.—See Hamburg.

BRESLAU

923 kc s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc s, 253.1 metres.—11.0 a.m., See Munich. 12.15, See Leipzig. 1,15, Programme arranged by the Post Office, with Gramophone Records. 2.0, Agri-

DECEMBER THE FIFTEENTH

cultural Prices and Exchange. 2.15, Talk: Byangelicanism in Silesia. 2.35, Programme for Young People. 3.0, New Munich. 5.10, Agricultural Prices. 5.15 (approx.). Programme to be announced. 5.45, Announcements and Market Prices. 6.0, Transmission for all German Stations, relayed from Hamburg. 7.0 to 9.20, New Leipzig. 9.20, News. 9.30, Concert by the Station Orchestra, conducted by Rischka: Overture. Die schöne Galathee (Suppé): Selection from Der Openball (Heuberger); Waltz from Die Puppenfee (Bayer); Minnet (Boccherini): Ballet Music from La source (Delibes): Plandereien aus der Kinderstube (Mannfred); Polka-Mazurka, Korallenlippen (Lehár): Overture, Gri-Gri (Lincke): Die kleine Kompagnie (Ganglberger); Waltz, Lustiges Wien (Meisel): Flieger-Marsch (Dostal). 11.0 (approx.). Close Down.

BRNO

878 kc/s, 342 metres; 35 kW. 5.25 p.m., German Transmission: News, Talk on Goethe and Report on Exhibitions in Brno. 6.0, See Prague. 6.25, Introductory Talk to the fol-lowing Transmission. 6.30, Jenufa—Opera in (Janacek), relayed from

Dances from Khovanstchina (Mussorgsky);
La complainte (Liadov); Bacchanale (Glazunov); Orientale (Cui); Selection from Eugen
Onegin (Tchaikovsky); Violin Solo, Air and
Trepak (Sasanov-Dushkin); Second Caucasian Suite (Ippolitov-Ivanov); Pianoforte
Solo, Scherzo (Borodin); Gopak (Mussorgsky); Turkish March (Mussorgsky). 1.0
p.m., Le Journal Parlé, 1.10, Gramophone
Concert: Grand March, from Tannhäuser
(Wagner); Drinking Song, from Der Freischütz (Weber); The Jolly Whistlers
(Gennin); Prelude to Act 3 of Si (Mascagni); Selection from Stand up and sing!
(EBis.); Piece (Cerhueira); Selection from
The Windmill Man (Holles); Song from
Martha (Flotow); Le language du rossignol
(Gennin); Autumn March (Piatoli); Piece
(Goldfaden). 2.0, Educational Programme.
5.0, Dance Music from the St, Saweur
Palais de Danse. 6.15, Talk: The Clog Industry. 6.30, Concert by the Small Station
Orchestra, conducted by Leemans: Overture,
The Crown Diamonds (Auber); Ballet Suite
(Gyldmark); Noce villageoise (Godard); Au
printemps (Gounod); Entr'acte from The
Pet Dove (Gounod); Souvenir d'un bal
(Gounod); Pianoforte Solo, Selection from

PRAGUE. A typical view in the capital of Czecho-Slovakia. To-night, at 8 o'clock, the Prague station will broadcast a programme by the Band of the National Guards.

9.0, See Prague. National Theatre, 9.0 (approx.), Close Down.

BRUSSELS (No. 1)

BRUSSELS (No. 1)

I.N.R., 589 kc s, 509.2 metres; 15 kW.—12

Noon, Gramoplone Concert. 1.0 p.m., Le
Journal Parlé. 1.10, Concert by the Small

Station Orchestra, conducted by Leemans:
2.0, Broadcast for Schools.
5.0, Concert by the Radio Orchestra, conducted
by Franz André; One-Step. Yo Yo (Francois); Song from The Dubarry (MillöckerMackeben): "Cello Solo (Delamay); Song
from Viktoria and her Hussar (Abraham);
Orchestral Suite, Histoires (Ibert): Tango
(Rodriguez); Le bozuf sur le toit (Milhaud);
Siovak Dances (Feber); Selection from Monsieur Beaucaire (Messager); Butterfly Chase
(Kéler Béla); Fantasia on Spanish Melodies
(Broustet). 6.0, Educational Talk. 6.15, Request Gramophone Records, 6.45, Concerto
No. 2 in F Minor (Chopin), on Gramophone
records. 7.15, Talk. 7.30, Legal Talk and
Literary Review. 8.0, Concert by the Station Symphony Orchestra, conducted by
Jean Kumps; Soloist, Delvigne (Pianoforte):
Wallenstein's Camp (d'Indy); Pianoforte
Concerto in B Flat Minor, Op. 23 (Tchaikovsky). 8.45, Talk: The Walloons. 9.0, Concert (contd.): Snite in F (Roussel); Pianoforte and Orchestra: L'Isle joyense (Debussy); Andante for Strings (Dupare);
Waltz (Ravel). 10.0, Le Journal Parlé.

10.10, La Brabançonne.

BRUSSELS (No. 2)

N.I.R., 888 kc s, 337.8 metres; 15 kW. Programme in Flemish.—12 Noon, Concert of Russian Music by the Little Station Orches-tra, conducted by Pierre Leemans: Minia-ture Overture (Tchaikovsky); Persian

Le roi des Aulnes (Benoit); Ballet Music from Ascanie (Saint-Saëns). 7.30, Wireless Notes. 8.0, Concert by the Radio Orchestra. conducted by Franz André; Hungarian Moon (Benson); Foxtrot, Brother, can you spare a Dime? (Corney); Suite, Rustic Revels (Fletcher). 8.15, Round the World in Eighty Days—Radio Play (Hermynia zur Muhlen), after the Story by Jules Verne. 9.15, Concert (contd.); Overture, Le Postillon de Longjumeau (Adam); Finale from the Violin Concerto (Mendelssohn); Hungarian Dances Nos. I and 2 (Bralmis); Selection from Malbruck s'en vart-en guerre (Auric). 10.0, Le Journal Parlé.

BUCHAREST

BUCHAREST
761 kc/s, 394 metres; 12 kW.—11.0 a.m.,
Exchange, Tides Report and Gramophone
Concert. 12 Noon, Radio Journal. 12.15
p.m., Gramophone Records. 4.0, Concert by
the Station Orchestra; Soloist: Draghici
(*Cello*): Overture, Anacréon (*Cherubini);
Symphonic Poem, Die Moldan (*Smetana);
Prefude to Namouna (Lalo); Selection from
Manon (Massenet); Selection from Les
cloches de Corneville (*Plamonette); Selection from Die Puppenfee (Bayer); Waltz,
Singen, Jachen, tanzen (Ziehrer); Mazurka
(*Dvoråk); Bercense (Glinka); Serenade for
'Cello (Lalo); Piece (Notara); March from
The Prophet (Meyerbeer). In the interval
at 5.0, Radio Journal. 6.0, Educational
Talk, 6.20, Gramophone Records. 6.45,
Talk, 7.0, Symphony Concert by the Philharmonic Orchestra, conducted by Georgescorelayed from the Atheneom. In the interval at 7.50, Reading. 8.45, Radio Journal.

BUDAPEST

BUDAPEST

645 kc/s, 550.5 metres; 120 kW.-Also relayed

on 840 metres from 5.10 p.m. till Close Down.
3.20 p.m., A Radio Report from the Police
Barracks 4.0, Concert by the Police Band.
4.40, Karl Lotz Centenary Programme. 6.10,
Review of Foreign Politics. 6.30, Programme
relayed from the Royal Hungarian Opera
House, followed by Cigány Band Concert,
relayed from the Café Baross. Soloist;
Josef Lipozky (Hungarian Folk Songs).

CASSEL.—See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres; and Skamlehaek, OXY, 49.4 metres.—11.0 a.m., Time Signal from the Town Hall. 11.15, Broadcast for Schools. 11.45, Concert by the Harald Andersen String Ensemble, relayed from the Hotel d'Angieterre. 2.0 p.m., Concert by the Radio Orchestra, conducted by Fritz Mahler: Overture, Titus (Mozart); Contredanse (Mozart); Variations of String Orchestra, from the Emperor Quartet (Haydn); Viennese Dance (Beethoven); Suite (Leopold Mozart); Overture, Die Fledermans (Joh. Strauss); Five Songs; Overture and March from Turandot (Weber); Styian Dance from Das Testament (Kienzl); Waltz, Hofballtiaze (Lanner); Annen Polka (Joh. Strauss); Three Melodies from Der Rosenkavalier (R. Strauss); Dverture, Donna Diana (Reznicek). 4.0, Reading. 4.30, Exchauge and Fish Market Prices. 4.45, Talk. 5.15, German Lesson. 5.45, Weather. 5.54, Amnouncements. 6.0, News. 6.15, Time Signal. 6.20, Talk: Danish Customs. 6.50, Programme by Per Knutras. 7.0, Time Signal from the Town Hall. 7.1, Christmas Programme, relayed from the Döllefjelde Kirke: Choral Songs and Address. 8.0, Madammen i Sundgaarden—Play (Aase Hansen). 9.0, News. 9.15, Concert of Swedish and Norwegian Music. The Station Symphony Orchestra, conducted by Grondahl, Sinfonie singuilère in C (Berwald); Suite of Swedish Folk Melodies for Strings (Rosenberg); Carnaval à Paris (Svendsen). 10.0 (approx.), Close Down.

CORK .- See Athlone. DANZIG .-- See Heilsberg. DRESDEN .- See Leipzig.

FECAMP

to 12 Noon, Programme in English by the I.B.C. 11.0, Happy Hour: Part I—Accordion Band Music. Part II—Dance Music. 12 Noon, Programme in French. 3.30 to 6.0 p.m., Programme in French. 3.30 to 6.0 p.m., Programme in English by the I.B.C. 3.30, Bournemouth and Weymouth Concert. Part I—Choral Music. Part II—Dance Music. 4.30, I.B.C Nursery Corner. Birthday Greetings. 5.0, Southampton and Winchester Concert. Part I—Chorestral Music: Little Romany (Leon): Gipsy sing for me (Pola); Song, Thus lovely Rose (Sevier); Si petite (Claret); Midnight Waltz, Morphia (Spoliansky): Song. Deep in my heart (Loekton); Black Eyes (Ferraris); Czardas (Monti). 5.30, I.B.C. Time Signal. 5.31, Concert. Part II—Light Music. Selection from He wanted Adventure (Waller); Yodelling Rag Man (Torrani); My Girl ran away (Steinberg); The Dance of the Paper Dolls (Tucker); A Night in May (Strauss); Cowboy Joe; In Tulip Time beside the Water Mill (Ailbout); Dreams on the Ocean (Gung'l); Signature Time. 6.0, Programme in French. 10.0 (approx.) till Close Down, Programme in English by the I.B.C. 10.0 (approx.), Hawaiian Band Music: Hula, Hula (Lever); Alma Mia (Whidden); Honolulu Bay (Trad.); Naughty Hawaii (Carlo); Hawaiian Medley; Southern Serenade (Norman); Tomi, Tomi (Trad.); Cara Mia (Brodzsky). 10.30, Dance Music: Signature Tune. The Bells of Normandy; Ninon (Moretti); Conchita (Paolito); Moths around the candle flame (Randal); If you'll say Yes, Chérie (Noble); Happy Ending (Parr-Davies); Dear Stranger (Hansen); I was in the Mood (Pola); Little Miss Muffett (Perritt). 11.0, Talkie Time—Tunes from the Talkies and Shows: Signature Tune, Sittin' in the Dark; We'll all go riding on a rain-how; Solomon (Porter); A Girl lika Nina (Abraham); Selection from The Dubarry (Millöcker-Mackehen); I want a fair and square man; Truly Rural Gentleman (Heymann): Forty Second Street (Dubin): Waltz Medley, White Horse Inn (Charrell). 11.30, LB.C. Time Signal. 1.131, Club Concert for Lynton and Lynnounth Listeners: Part I—Selections from Opera. Signature Tune, 1

Tune, 'The Bells of Normandy; Learn to Croon; Ah! but is it love?; Wood Violets; Merry-go-round; I'll show you off; Men Amour; Nobody's Sweetheart; My Moonlight Madonna; Louisville Lady; A Couple of Pals; Little Nell; Lover; From me to you; Rockin' in Rhythn; Don't blame me; Goofus; Signature Tune. 2.0, 1.B.C. Goodnight Melody and Close Down.

FLENSBURG.-See Hamburg.

FLORENCE.-See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Gassel and Trier, 1,157 kc/s, 259.3 metres. 12.15 pm., Time and News. 12.25, Local News and Weather. 12.35, Gramophone Concert. 1.50, See Munich. 2.30, Weather. 2.40, Time and Economic Notes. 3.0, Concert by the Station Orchestra, conducted by Julius Schröder. Soloist: Richard Riedel (Tenor). Overture to (a) Maritana (Wallace), (b) The Bohemian Girl (Balfe), (c) Hunyady Laszlo (Erkel), (d) Kapitán Fracassa (Dellinger); Song from Farinelli (Zumpe); Selection from Der Bettelstudent (Millöcker) Song from Weiner Blut (Joh. Strauss), Song from Der arme Jonathan (Millöcker); Waltz from Der liebe Schatz (Reinhardt); March from Gasparone (Millöcker); Song from Der Kellermeister (Zeller); Song from Der Kellermeister (Zeller); Song from Der Gettergatte (Lehár); Bong from Die Juxheirat (Lehár). 50, See Langenberg. 5.35, Talk: Poetry and Prophecy. 5.50, News and Time. 6.0, Transmission for all German Stations. relayed from Hamburg. 7.0, Topical Talk. 7.10, See Stuttgart. 9.0, Time and News. 9.20, See Stuttgart. 9.30, Local News. 9.45, Concert of Light Music, relayed from Freiburg. 10.0, Concert by the Station Orchestra, conducted by Reinhold Merten: Overture, The Taming of the Shrew (Goetz); Ballet Music from Martha (Flotow); Overture, Peter Schmoll (Weer); Ballet Music from Martha (Flotow); Overture, Peter Schmoll (Weer); Ballet Music from Henry Wives of Windsor (Nicolai). 11.0, Talk for the Hundred and Thirticth Anniversary of the Death of Johann Gottfried Herder. 11.45 (approx.), Close Down.

FREDRIKSSTAD .- See Oslo. FREIBURG .- See Stuttgart. GENEVA.—Sec Radio-Suisse Romande. GENOA .- See Turin. GLEIWITZ .- See Breslau. GOTEBORG.—See Stockholm. GRAZ.-See Vienna, HAMAR .- See Oslo.

HAMBURG

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,12 kc/s, 269.8 metres; Flensburg and Hanover, 1,319 kc/s, 227.4 metres; and Kiel, 1,292 kc/s, 232.2 metres.—6.0 p.m., Transmission for all German Stations. Part I: South Germany and its People—Radio Sequence of Readings and Songs (Heiarich Andresen). Part II: Young People in Southern Germany—Radio Sequence of Readings and Songs (Walter Gättke). The Station Choir, conducted by Gerhard Gregor, and the Small Station Orchestra. Richard Germer (Songs), Bernhard Jakschtat (Songs to the Lute), Andresen Böttcher and Fleischer (Readings). 7.5, Concert relayed from Heilsberg. 9.0, Time and News. 9.30, Concert, relayed from Heilsberg.—Bee Hamburg.

HANOVER .- See Hamburg.

HEILSBERG

HANOVER.—See Hamburg.

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by

Danzig, 671 kc/s, 447.1 metres.—12.5 p.m.,

Granophone Concert. In the intervals at

12.20 and 1.0, News. 1.30, Programme arranged by the Post Office with Gramophone

Records. 2.0, Agricultural Prices and Exchange. 2.15, Programme for Children. 2.35,

Programme for Women. 3.0, Concert by

the Small Station Orchestra, conducted by

Eugen Wicken. Overture. Alfonso und

Estrella (Schubert); Selection from The

Bartered Bride (Smetana); In the Village

(Tchaikovsky); Intermezzo from I quattro

Rusteghi (Wolf-Ferrari); Transaktionen
Walzer (Joh. Strauss); Selection from Prec
iosa (Weber). 4.0, Programme for Ham
hurg. 5.0, Book Review for Young

People 5.15, Agricultural Prices and

Ice Report. 5.25, Talk: Peasant Cus
toms. 5.50, Weather. 6.0, Transmis
sion for all German Stations, relayed

from. Hamburg. 7.0, News. 7.5, Concert by

the Königsberg Opera House Orchestra, re
layged from the Stadthalle. Conductor:

Knappertshusch. Soloist: Julius Patzak

(Tenor). Third Symphony in F (Brahms);

Twc Tenor Arias from Cosi fan tutte (Mo
zart): Eine kleine Nachtmusik (Mozart);

Twc Tenor Arias, Till Eulenspiegel's Merry

Pranks (R. Strauss). 9.0, News. 9.30 (from

Danzig), Concert by the Municipal Theatre

Orchestra, conducted by Ernst Kallipke.

Ov.-rture. Abu Hassan (Weber); Waltz,

Schallwellen (Joh. Strauss); Lyric Suite

(Grieg); Slav Dance, Nos. 5 and 8 (Dvorak);

Potpourri. Wiener Spezialitäten (Hruby);

Lasst den Kort neht hägen (Lincke) Con-

FRIDAY DEC. 15th

continued

cert Waltz (Glinka). 11.0 (approx.), Close Down.

HILVERSUM

HILVERSUM

1,013 kc/s, 295.1 metres; 7 kW. up to 5.40 p.m. and 20 kW. from 5.40 p.m.—11.40 a.m. to 3.40 p.m., Programme of the General Broadcasting Society (A.V.R.O.). 11.40, Time Signal. 11.41, Concert of Light Music by Barmubas von Geczy and his Orehestra. with Gramophone Records. 1.50 p.m., Talk: Winter Fashions. 2.10, Gramophone Records. 3.40 till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). 3.49, Gramophone Records. 4.30, Programme for Children. 5.10, Concert by the Small V.A.R.A. Orchestra, conducted by de Groot: 6.0, Gramophone Records. 6.10, Organ Recital by Steyn: Overture, Poet and Peasant (Suppé): Melody (Stewart); Chantrusse (Lalo); Tango (Albeniz); In a Chinese Temple Garden (Ketelbey); Melody (May); Bei der blonden Kathrin (Leux); Marie Louise (Meisel); Waltzes (Nicholl); Orient Express (Mohr); Mademoiselle (Nesbitt); Das Puppenkonzert (Sarony); Whisper Waltz (Webster); Comedy Overture (Kéler-Bela). 7.40 to 10.40, V.P.R.O. Programme. 7.40, Divine Service, relayed from the Westerkerk. Amsterdam. 9.40, Ecclesiastical Notes. 9.45, News. 9.55, Recitations. 10.25, Gramophone Music. 10.40, V.A.R.A. Programme: Gramophone Records. 11.40 (approx.), Close Down.

HORBY .-- See Stockholm.

HUIZEN

HORBY.—See Stockholm.

HUIZEN

160 kc/s, 1,875 metres; 7 kW., until 3.40 p.m.

Transinited from Kootwijk on 50 kW. from
3.40 p.m.—Programme of the Catholic Radio
Society (K.R.O.).—11.55 a.m., Concert of
Light Music. 1.40 p.m., Gramophone Music.
2.40, Soprano Song Recital by Jeanne Poldermains: Aria from Judas Maccahens (Handel): Aria from The Seasons (Haydn); Aria
from Ellijah (Mendelssohn): Gramophone Records; Widmung (Schumann); Du bist wie
eine Bhume (Schumann); Du Freischütz (Weber). 3.25, Gramophone Music.
3.40, Interval. 3.55, Concert by the K.R.O.
Sextet. 5.10, Talk on Gardening. 5.40,
Organ Recital by Haak, with Hanny
Scheffelar Klots (Violin). Allegro (Guilmann); Romannee (Scarlatti); Ciaconna
(Vitali); Fugue in G Minor (Bach); Piece
(Mendelssohn); Serenade (Schubert);
Larghetto (Handel); Prelude and Allegro
(Pugnani-Kreisler); Choral in D (Guilmant).
5.40, Police Notes. 5.55, Gramophone Music.
7.25, Talk on Sports. 7.40, Concert by
Gregor Serban and his Romanian Orchestra.
8.10, News. 8.15, Orchestral Concert, conducted by Gerritsen. Soloist: M. Long
(Pianoforte). Overture, Prince Igor (Borodin); Pianoforte Concert in F Minor
(Chopin). 8.55, Gramophone Music. 9.10,
Pianoforte Solos by M. Long. 9.25, Orchestral Concert (contd.). The Swan of Tuonela
(Sibelius); Siegfried Idyll (Wagner); Selection from The Mastersingers (Wagner). 9.55,
Concert by Gregor Serban and his Romanian
Orchestra. 10.20, News. 10.25, Gramophone
Music. 10.40, Concert of Light Music. 11.40
(approx.). Close Down.

INNSBRUCK.—See Vienna.

INNSBRUCK,-See Vienna.

JUAN LES PINS

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—8.0 p.m.,
Amusement Guide, Exchange and News.
8.10, Esperanto Lesson. 8.30, Concert. 9.0,
News and Weather. 9.15, Concert. 10.30,
Variety ('oncert: Two Hearts and a Waltz
Refrain (Stolz); Mucking about the Garden
(Cumber); Let me dream in your arms
again (Nichoils); Ragamuffin Romeo (de
Costa); It happened in Monterey (Wayne
and Rose); Say a little prayer for me
(Nichols); Gipsy Melody (Nichols); The
First Week End in June (Ellis); It your
kisses can't hold the man you love (Ellis);
Melodies (Filiherto); Melody (Parada); My
Dream (Waldteufel); Waltz. Les Sirènes
(Waldteufel), 11.15, Programme of Light
Mnsie: Somewhere in Wyoming (Lesser);
Melody (Washington); Sentimental over
you (Dorsey); Canela (Sentis); Niagara
(Robrecht); Song (Brown); Mona Lisa
(Sullivan); Babama mama (Loftouse);
Waltz (Robrecht); A Day without you
(Dalin); Love me to-night (Rodgers);
Melody (Sherwood); Song (Sherman).
KALUNDBORG.—See Copenhagen.
KIEL.—See Hamburg.

KIEL.—See Hamburg. KLAGENFURT.—See Vienna.

KOSICE .- See Prague.

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by Helsinkl, 815 kc/s, 368.1 metres.—5.15 p.m., thoral and Orchestral Concert of Toivo Kuula Music, relayed from the University. Soloist: Alma Kuula (Songs). 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—11.0 a.m., Extracts from The Barber of Bagdad—Opera

(Cornelius). by the Station Orchestra, conducted by Kühn, and Soloists. 12.15 p.m., See Frankfurt. 12.25, News. 12.35, See Frankfurt. 2.0, Reading: Excursions in the Rhineland and Westphalia (Tolle). 2.15, Violin and Pianoforte Recital by Toni Fassbender and Hans Haass: Two Short Pieces for Pianoforte (Marpurg); Gavotte and Rondo from the Partita in E Flat for Violin (Bach); Waltz, Op. 9a, for Pianoforte (Schubert). 2.30, Economic Notes. 2.50, Political Announcements. 3.0, See Frankfurt. 5.0, English Conversation Lesson. 5.20, Talk on Genealogy. 5.35, The German Winter—Recitation of Three Poems (Rückert Lichtwer and Matthias Clandins). 6.0, Transmission Recitation of Three Poems (Rückert Lichtwer and Matthins Clandins). 6.0, Transmission for all German Stations, relayed from Hamburg. 7.0, Topical Talk. 7.10 to 9.0, See Stuttgart. 9.0, See Frankfurt. 9.20, See Stuttgart. 9.30, News. 9.40, Talk: Events in West Germany in the Coming Week. 10.0 till Close Down, See Frankfurt. 11.45 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—12.25 p.m., Gramophone Concert of Popular Music. 1.0, News. 1.10. Topical Report. 1.20, Reading (Goëthe). 1.50, Programme for Young People. 2.10, Talk: Oliver Cromwell. 2.25, Talk for Women. 2.45, Market Prices. 3.0 to 5.10, See Munich. 5.10, Sonata for Cello and Pianoforte (Buckner) by Alfred Patzak and Theodor Blumer. 5.45, Economic Notes. 6.0, Transmission for all German Stations, relayed from Hamburg. 7.0, To-day's News. 7.10, Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer; Soloists: Charlotte Gleissberg (Soprano), Wilhelm UP-richt (Tenor) and Phillipp Göpelt (Bass): Overture in C, Op. 115 (Beethoven); Galimathias musicum No. 32 (Mozart); Comic Duet for Soprano and Bass, Nun liches Weibchen, ziehst mit mir (Mozart); Three German Dances, Nos. 2, 4 and 6 (Mozart); Marches (Mozart). 8.0, Oliver Cromwell's Mission—Radio Play (Werner Gibricht). 9.0, News. 9.30, Concert relayed from Bresiau. 11.0 (approx.), Close Down.

LINZ.-See Vienna.

LJUBLJANA

LJUDLJANA

522 kc/s, 574.7 metres; 7 kW.—10.0 a.m.,
Broadcast for Schools. 11.15, Gramophone
Records. 11.45, News. 12 Noon, Weather
and Gramophone Records. 5.0, Gramophone
Records. 5.30, Yugoslav Lesson. 6.0, Talk
for Sokols. 6.30, Tourist Talk. 7.0, Programme relayed from Zagreb, 977 kc/s, 307
metres. 9.0, Weather, Gramophone Records
and News.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—7.0 p.m., Gramophone Concert. The Concertgehouw Orchestra. Amsterdam, conducted by Willem Mengelberg: (a) Sinfonia (J. C. Bach), (b) Waltz-Serenade for Strings (Tchaikovsky), (c) Overture, Tannhäuser (Wagner). New York Philharmonic Orchestra: Le Rouet d'Omphale (Saint-Saëns). 7.45, Concert by the Station Orchestra, conducted by Henri Pensis: Japanese Carnival (De Basque); Ocièbre Valse (Moszkovsky); Prélue à l'Après-Midi d'un Faune (Debussy); Nuit de Solitude (Clemus); Spanish Caprice (Rimsky-Korsakov); Barcarolle (De Sutter); Humoresque (De Taeye); Rhapsody No. 6 (Liszt). 8.50, News in French. 9.0, Aria Recital by Martha Horwa: Aria from Aleeste (Gluck); Alia from Aida, Return Victorious (Verdi); Elisabeth's Aria from Tannhäuser (Wagner); Aria from Louise (Charpentier). 9.30, Gramophone Concert: Selection from The Loves of the Three Oranges (Prokofiev), by the London Symphony Orchestra, conducted by Jero Copola. 9.50, News in German. 10.0, Concert by the Station Orchestra, conducted by Piero Copola. 9.50, News in German. 10.0, Concert by the Station Orchestra, conducted by Henri Pensis: Waltz (Kern); L'Elfe dans la Plaine (Brusselmans); Berceuse (Dvorák); Siamesische Wachtparade (Lincke). 10.25, Dance Music on Gramophone Records.

MADRID

MADRID

ARANJUEZ, EAQ, 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Concert of Popular Music. In the interval at 10.45, Radio Chronicle. 11.45, Light Music. 12 Midmight till Close Down, Programme in English by the I.B.C. 12 Midmight, Dance Music: Sweetheart Darlin'; I'm getting sentimental over you; Peter. Peter; A Woman should stick to her Man; With you beside me; P.C.123; Nobody's Sweetheart; At the Old Pig and Whistle. 12.30 a.m. (Saturday), Gramophone Records: Carmen Fantasia (Bizet); Marche militaire (Schubert); A Bed-Time Story; Remember my Forgotten Man (Dubin); A Perfect Day (Bond); Hawaiian Hotel (Traditional); The Deep Blue Sea (Brewer); Washington Greys March (Grafulla). 1.0, I.B.C. Goodnight Melody and Close Down,

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—7.0
p.m., Chimes. Exchange, Announcements, Programme for Women and Dance Music. 8.15,
Radio Journal. 8.30, Interval. 9.30, Chimes,
Time, Radio Journal and Extracts from La
Traviata—Opera (Verdi) on Gramophone
Records. 11.45, Radio Journal and Programme
Announcements for Listeners
Abroad. 12 Midnight, Chimes and Close
Down.

MALMO.-See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

MORAVSKA-OSIRAVA

1,137 kc/s, 263.8 metres; 11 kW.—3.0 p.m.,
Concert by the Station Orchestra, conducted
by Plichta. Selection from Philcinon et
Baucis (Gonnod); Suite for Two Flutes and
Strings, Op. 98 (Sibelius); Country Songs
(Aust); Sousedska (Tichy); Polka (Balling).
3.55, Talk on Grasse. 4.5, See Prague. 5.5,
Tourist Talk. 5.15, See Prague. 6.25, See
Brno. 9.0, See Prague. 9.30 (approx.), Close
Down,

MOTALA.-See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

MUNICH

563 kc/s, 533 metres; 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 550 metres; and Nūznberg, 1,256 kc/s, 239 metres.

5.30 a.m., Gymnastics. 5.45, Gramophone Concert and the Morning's Motto. 6.15, News. 6.25, Programme from Leipzig. 8.0, Programme from Breslau. 9.15, English Lesson. 9.55, Announcements. 10.30, Programme arranged by the Post Ollice, with Gramophone Records. 10.50, Programme from Leipzig. 11.0, Orchestral Concert, conducted by Kloss. 12.15 p.m., See Leipzig. 12.25, Gramophone Concert of Popular Music. 1.0, See Leipzig. 1.10, Announcements. 1.50, Programme for Women. 2.30, Talk. 2.50, Announced by Kloss. 12.15 p.m., See Leipzig. 12.25, Gramophone Concert of Popular Music. 1.0, See Leipzig. 1.0, Announcements. 3.50, Programme for Women. 2.30, Talk. 2.50, Announced by Kloss: Romantic Overture (Kéler-Béla); Canzone from the Fourth Symphony (Tchaikovsky); Norwegian Dances (Grieg); Selection from The Mastersingers (Wagner); Waltz, Golden Rain (Waldtenfel); Suite, On the Banks of the Nile (Platen); Slav Lullaby (Neruda); Heroic March (Schubert). 4.30, Talk with Gramophone Illustrations: Modern Japan. 4.50, Sonata, Op. 54, for 'Cello and Pianoforte (Juon) by Josef Köhler (Cello) and the Composer. 5.10, Talk: The Italian Dopolavoro Movement. 5.30, Gramophone Music: Am Brunnen vor dem Tore (Schubert); Sehnsucht nach dem Frühling (Mozart); Variations from the Kaiser Quartet (Haydn). 5.45, Time and Announcements. 6.0, Transmission for all German Stations, relayed from Homes and Leipzig. 10.0, Announcements. 10.10, Concert relayed from Breslau. 11.0 (approx.), Close Down.

NAPLES .- See Rome. NOTODDEN.—See Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 386 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Rjukan, 671 kc/s, 447.1 metres; and Jelöy, LCL, 6,990 kc/s, 42.92 metres.—4.0 p.m., Concert by the Radio Ensemble, relayed from Bergen, 824 kc/s, 363 metres. 5.0, French Lesson. 5.30, Recitation, relayed from Trondheim, 605 kc/s, 495.8 metres. 6.0, Announcements, Weather and News. 6.30, English Lesson. 7.0, Time Signal. 7.1, Beethoven Concert by the Philharmonic Orchestra, conducted by Kielland, Soloist: Elisabeth Reiss-Färden (Planoforte). Symplony No. 5 in C Minor; Planoforte Concert in G; Leonora Overture No. 3. 8.30, Agrientural Report, Weather and News. 9.0, Topical Talk, 9.15, Literary Review. 9.45 (approx.), Close Down.

OSTERSUND,-See Stockholm.

PALERMO

PALERMO

558 kc/s, 537.6 metres; 3 kW.—11.45 a.m., Giornale Radio. 12 Noon, Gramophone Music. In an interval at 12.30 p.m., Time, Announcements and Weather. 1.0, Interval. 4.30, Gramophone Music. 5.30, Interval. 7.0, Dopolavoro Notes, Tourist Report. Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. 7.20, Gramophone Music. In an interval at 7.30, Time and Announcements. 7.45, Orchestral Concert; Soloists. Lojacono (Violin) and Gonzaga (Soprano): Largo (Handel): Violin Concerto in A minor (Bach); Tranouto in laguna (Bettinelli); Two Soprano Solos (Santoliquido): (a) Supremo sonno, (b) Nel giardino; Microphone Confessions by Mario Taccari; Two Intermezzi (Spagnoli); Spanish Dance (Granados); En bateau (Debussy); Soprano Solos, Recitative and Ballad from I Pagliacci (Leoncavallo); Reverie (Croce). After the Concert, Popular Music on Gramophone Records. 10.0, Giornale Radio.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,550 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—5.45 p.m., Le Journal Parlé. 7.15, Weather. 7.25, News. 7.30, Impromptus (Chopin), played by Marie-Antoinette Pradier (Pianoforte), with

Commentary by André Delacour. 8.0, Talk on Politics. 8.15, Concert by the Symphony Orchestra, conducted by Edouard Flament; Soloists: Manouvrier (Flute) and Charon (Violin): Egyptian Suite (Wood); A Night in Lisbon (Saint-Saëns); Berceuse-fantasie (Cellier); Violin Solo; Selection from White Horse Inn (Stolz-Benatzky). 9.30 (approx.), Close Down Horse Inn (Stolz-Benatzky). Close Down.

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres;
60 kW.—7.10 a.m., Fanfare and Granophone
Concert. In the interval at 7.30, Press Review. 8.0, Concert. 8.20, Exchange. 8.45,
Talk for Housewies. 12 Noon, Exchange. 12.5 p.m., Granophone Concert. In the interval at 12.20, Announcements. 12.30, Concert. 1.5, Exchange. 1.15, Gramophone Records. In the interval at 1.25, Exchange. 1.30, Concert. 2.0, Exchange. 3.15, Exchange. 3.45, Exchange. 4.50, Exchange. 7.0, Gramophone Records. 7.5, Talk. 7.15, Le
Journal Parlé. 7.30, Concert by Rose Cornaz'
Ensemble. 7.55, Review of the Week. 8.0,
Talk on Music. 8.10, Interval. 8.20, Exchange. 8.30, Mam'zelle Carabin—Operetta
in Three Acts (Pessard). 10.30, News.

PARIS

PARIS

RADIO PARIS, Call GFR, 174 kc/s, 1,725
metres; 75 kW.—6.45 a.m., Physical Culture.
7.30, Weather and Physical Culture (contd.).
7.45, Gramophone Music. 8.0, Weather and
Press Review. 12 Noon, Jewish Talk. 12.30
p.m., Gramophone Records: Extracts from
Sigurd (Reyer); The Prophet (Meyerheer).
and Tosca (Puccini); Introduction to Act 1
of Fervaal (d'Indy); Aria from Fidelio
(Becthoven); Overture, Oberon (Weber);
The Death of Isolda, from Tristan and
Isolda (Wagner); In the Steppes of Central
Asia (Borodin); La procession nocturne
(Raband); L'apprenti sorcier (Dukas);
Scheherazade (Rimsky-Korsakov). In the
intervals, Exchange and News. 2.5, Announcements. 3.45, Exchange. 4.30, Elementary English Lesson. 6.20, Weather, Agricultural Talk. Market Prices and Racing Results. 6.45, Social Assurance Societies Reports. 7.0, Talk: The Post-War Novel, 7.20,
Gramophone Music: Il n'y a pas de raison
(Yvain); Two Songs from Les noces de
Jeannette (Massé); Pan y Toros (Mateo);
Les airs du poilu (arr. Salabért). 7.35,
Popular Music. 7.50, News and Commercial
Notes. 8.0, Readings. 8.30, News, Weather
and Gastronomic Talk. 8.45, Dramatic Programme: Four Sketches (Courteline): (a)
Un client serieux, (b) Le gendarme est sans
pitié, (c) La paix chez soi, (d) Les halances.
In the interval, News.

PITTSBURGH

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—7.0 p.m., Musical Originalities, from New York. 7.30, KDKA Home Forum. 8.0, U.S. Marine Band, from New York. 9.15, Utility Hall. 9.30, News and Market Reports. 9.45, Variety Concert from New York. 10.0, Uncle Tom and Betty. 10.15, KDKA Kiddies' Klub. 10.30, The Singing Lady, from New York. 11.0, News-Reeler, Pat Haley. 11.15, Sports Notes and Programme Preview. 11.30, Evensong. 11.45, Lowell Thomas, from New York. 12.15 a.m. (Saturday), Silvertoppers. 12.30. Potash and Perlmutter, from New York. 12.45, Programme to be announced. 1.0 to 3.30, New York Relay. 1.0, Popular Programme. 1.30, Dangerous Paradise. 1.45, Red Davis. 2.0, Let's Listen to Harris. 2.30, Variety Programme. 3.0, The Iron Master.

PORSGRUND.—See Oslo.

PRAGUE

PORSGRUND.—See Oslo.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—10.30 a.m.,
Novak Concert by the Station Orchestra,
conducted by Jeremias, with Introductory
Talk and Talk by the Composer; Selection
from Slovak Songs; Selection from Moravian
Folk Songs; Two Choral Pieces on Gramophone Records; Selection from a Children's
Ballad; Selection from Spring, Op. 51;
Selection from The Slovakian Suite, Op. 32.
10.55, Agricultural Talk. 11.0, Talk from
Bratislava, 11.10, Gramophone Records,
11.20, Aviation Weather Report. 11.25,
News. 11.35, Orchestral Concert, relayed
from Brno. 12.35 p.m., Talk for Workers,
12.45, Gramophone Records. 12.55 to 1.0,
Financial Notes and Weather Report. 2.30,
Gramophone Records. 2.40, Talk on Books,
2.50, Aviation Weather Report. 2.55,
Financial Notes. 30, See Moravská-Ostrava.
3.55, Medical Talk. 4.5, Concert by the
Ondricck Quartet: Pianoforte Quintet in B
Flat (Rimsky-Korsakov); String Quartet in
A (Borodin). 5.5, Agricultural Talk. 5.15,
Talk for Workers. 5.25, News in German.
5.30, German Transmision: Talk on Democratic Constitutions. 6.0, Time, News and
Weather. 8.10, English Conversation Lesson.
6.25, Recital of Serbian Songs (arr. Ludvik
Kuba), by Beevarová. 6.45, Talk on
Economics. 7.0, See Bratislava. 8.0, Concert by the National Guards Band. conducted by Labsky; Overture (Dalfé); Waltz,
Donanwellen (Ivanovici): Selection from
Madame Butterfly (Puccini); Polka (Labsky);
Selection from Fidlovacka (Skroup-Kostal):
Song (Cermak); Fanfare March (Zita), 9.0,
Time, News, Review of the Day and Sports
Notes. 9.15, News in Russian. 9.30 (approx.),
Closc Down.

DEC. 15th FRIDAY

continued

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW; and Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15 a.m. (from Lausanne). Gymnastics.

9.0 (from Geneva). Broadcast for Schools.

9.30, Interval. 11.28, Time Signal from Neuchatel Observatory.

11.40 (from Geneva), Gramophone Concert. 12 Noon (from Geneva), Financial Notes.

12.10 p.m. (from Geneva), Gramophone Concert (contd.). 1.0, Interval. 2.58, Time Signal from Neuchatel Observatory.

3.0, See Schweizerischer Landessender. 5.0 (from Geneva), Programme for Women. 5.30 Time Signal from Neuchâtel Observatory.
3.0, See Schweizerischer Landessender. 5.0 (from Geneva), Programme for Women. 5.30 (from Geneva), Esperanto Lesson. 5.40 (from Geneva), Esperanto Lesson. 5.40 (from Geneva), Talk on Bridge. 6.20 (from Geneva), Talk on Bridge. 6.20 (from Geneva), Hlustrated Talk: Newly released Gramoplone Records. 6.59 (from Geneva), Weather Report. 7.0 (from Geneva), Talk. 7.15 (from Geneva), Trio for Strings (Hindemith), by the Pro Nova Groupe. 7.35 (from Geneva), Cabaret Concert. 8.45, News and Weather. 8.55 (from Geneva), Tourist Report. 9.5, Sports Notes. 9.15 (from Geneva), Answers to Correspondence. 9.30 (approx.), Close Ibown. Close Down.

RJUKAN.-See Oslo.

ROME

ROME

Call 1R0, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres from 7.40 p.m.; and 2R0, 11,810 kc/s, 25.4 metres.—
12 Noon, Orchestral Concert: Foxtrot (Krugher); Fantasia on Italian Songs (De Micheli); Waltz, Nostalgia (Culotta); Slav Dance No. 9 (Dvorák); Selection from Iris (Mascagni); Tango del cuore (Doreno); Occhi neri (Ferraris); Caroline (Mann). In the interval at 12.30 p.m., Giornale Radio and Exchange. 1.0, Time and Announcements. 3.0, Pianoforte Recital by Vladimir Horowitz, relayed from the Acadamy of St. Cecilia. 5.0, Agricultural Report. 5.10, Dopolavoro Notes and Tourist Report. 5.20, Agricultural Report in Spanish, German and French. 5.45 (Naples), Shipping and Sports Notes. 6.0, News in Foreign Languages. 6.20, Gramophone Music. 6.50, Giornale Radio. 7.0, Time, Announcements and Sports Notes. 7.5, Gramophone Music. 7.30, Topical Talk. 7.40, Sponsored Programme. 8.40, Talk: Literature and Art. 8.50, Concert: Sonata in D for Violin and Harpichord (Nardini); Violin Solo, Gopak (Mussorgsky-Dushkin). 9.15 (approx.). Le arance della contessa—One Act Comedy (Del Testa). 9.45 (approx.). Concert (contd.): Intermezzo from I quattro rusteghi (Wolf-Ferrari); Carnevale romano (Mascagni): Wotan's Farewell and Fire Magic from The Valkyrie (Wagner). 10.0, Giornale Radio.

SALZBURG .- See Yienna.

SCHENECTADY

SCHENECTADY

WGY, 790 ke/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAD on 19.56 metres.—7.30 p.m., Friday Steeplechase, from New York. 8.15 to 8.30 (approx.), Georgia Wildcats. 12.45 a.m. (Saturday), Stock Reports. 1.0, Popular Concert. 1.30, WGY Farm Forum. 2.0 to 4.0, New York Relay. 2.0, Fred Allen; Ferde Grofe's Orchestra. 2.30, Popular Programme; Victor Young's Orchestra. 3.0, First Nighter—Sketch. 3.30, Old Time Priday Night Sociable. 4.0, Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW; Basle, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—5.50 to 6.5 a.m. (from Zürich). Ski-ing Lesson. 11.0 (from Basle). Gramophone Concert. 11.29, Time Signal from Neuclatel Observatory, Weather and News. 11.40 (from Basle). Gramophone Concert (contd.). 12.25 p.m. (from Basle), Time, Weather and Exchange. 12.30 to 2.30, Interval. 2.30 (from Zürich), Gramophone Concert. 2.59, Time Signal from Neuclatel Observatory. 3.0 (from Zürich), Concert by the Radio Orchestra. 3.45, Orchestral Concert, relayed from the Grand Café Esplanade, Zürich. 4.30, Popular Concert. 5.0 (from Zürich), Programme for Children. 5.30 (from Berne). Talk: Have Animals Souls? 6.0 (from Berne), Time, Weather, Exchange. Tourist Report and Winter ports Notes. 6.30, Orchestral Concert. 7.0 (from Berne), Recital of Chopin's Preludes by Betty Oelvray. 7.30 (from Berne), Talk: The Political (risis. 8.0, Weather and News. 8.10 (from Berne), Anmemirl—a Folk Play (Saphir). 8.50 (from Berne), Folk Dance Music by a Village Band. 9.15 (from Berne). Dialect Programme. 9.25 (approx.), Close Down.

SOTTENS.-See Radio-Suisse Romande.

STOCKHOLM

689 kc s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239-5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres;

Ostersund, 409 kc/s, 746.2 metres; and Sundsvall, 554 kc s, 542 metres.—4.5 p.m., Scout Programme. 4.25, Accordion Music. 5.0, Gramophone Music. 5.55, Talk on Foreign Politics. 6.15, Weather and News. 6.30, Sonata in A, Op. 47, for Violin and Plaunoforte (Beethoven) by Emil Telmänyi and Astrid Berwald. 7.5, Talk on Psychology, relayed from Malmö, 1,301 kc/s (230.6 metres). 7.35, Violin, Song and Plaunoforte Recital by Emil Telmänyi, Marianne Mörner and Astrid Berwald. 8.15 (from Göteborg), Reading. 8.45, Weather and News. 9.0, Military Band Concert, conducted by Leijdh: Romantic Overture (Kéler-Béla); Waltz, Wiener Blut (Joh. Strauss); Potpourri (Herbert); Extract from the Suite Master Olof (Aulin); Mazurka No. 6 (Svensson); Intermezzo Pick me up (Nordholm); Swedish Folk Melodies and Dances (arr. Widergren); Xylophone Solo: Jongleun Gallop (Dittnich); March (Lindell). 10.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.-No Trans-

STUTTGART

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 1.5 kW. Relayed by Freiburg, 527 kc/s, 570 metres.—12.15 p.m., See Frankfurt. 1.20, Reading of Swabian Ancedotes. 1.50, See Munich. 3.0, See Frankfurt. 1.50, See Munich. 3.0, See Frankfurt. 5.0, See Langenberg. 5.35, Time and Announcements. 5.45, Talk by a Goldsmith. 6.0, Transmission for all German Stations, relayed from Hamburg. 7.0, See Frankfurt. 7.10, Concert of German Music by the Württemberg Landes-Symphonie Orchestra and Soloists. Conductor: Drost. Overture and Duet from Figaro (Mozart); Pianoforte Solo: Impromptu (Schubert); Violin and Orchestra: Träumerei (Schumann); Agatha's Aria from Der Freischütz (Weber); Soprano Aria from Oberon (Weber); Overture, Abu Hassan (Weber); Overture, Light Cavalry (Suppé); Waltz. The Blne Danube (Joh. Strauss): Krakoviak and Trio from Der Bettelstudent (Millöcker); Polka, Elyen Magyar (Joh. Strauss): Overture, The Barber of Bagdad (Cornelius); Pianoforte Solo: Rhapsody in G. Minor (Brahms); Soprano Solo: Wiegenlied (Reger); Les Préludes (Liszt). 8.30, Great Comedians—Radio Sequence of Theatrical Anecdotes (Curt Elwenspoek). 9.0, See Frankfurt. 9.30, Local News. 9.45 till Close Down, See Frankfurt. 11.45 (approx.), Close Down.

SUNDSYALL.-See Stockholm.

TOULOUSE

TOULOUSE

779 kc/s, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Operetta Music. Selection from The Gipsy Princess (Kálmán); Les Cloches de Corneville (Planquette), and Frederica (Lehár). 6.30, Tourist Talk. 6.45, Chansonnettes. 7.0, Medical Talk. 7.15, News. Racing Results and Market Prices. 7.30, Harp Concerto in C Minor (Rimé). 7.45, Opera Music: Arias from Prince Igor (Borodin); Hamlet (Thomas), and La dame blanche (Boieldieu). 8.0, Light Orchestral Music. 8.15, Popular Melodies. 8.30, Concert by a Viennese Orchestra. 9.0, Extracts from Congress Dances—Sound Film (Heynann). 9.20, Orchestral Music. 9.30, Report from a Circus. 10.0, Opera Music: Meditation from Thais (Massenet): Overture. La Basoche (Messager); Aria from Werther (Massenet) and Entr'acte from Lakmé (Delibes). 10.15, News. 10.30, Concert for Listeners in Morocco. Part I: Opera Music. 12 Midnight, News. 11.15, Dance Music. 12 Midnight, News. 12.5 a.m. (Saturday), Extracts from Sound Films. 12.15, Military Music. 12.30 (approx.), Close Down

TRIESTE

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—6.45 a.m.
to 3.45 p.m., Programme from Turin. 3.45,
Programme fo: Children. 4.10, Chamber
Musie; Lidiu Bulaich-Zeller (Violin). Enrico
Martucci (Pianoforte). and Angusta Bassi
(Soprano): Sonata for Violin and Pianoforte,
Op. 9 (Saymanowski): Soprano Solos: (a)
Un certo non so che (Vivaldi), (b) Nel cor
più non mi sento (Paisiello), (c) Minuetto
allegro (Gaffi); Violin Solos: (a) Gipsy Air
(Espeyo), (b) Moto perpetuo (Novacck);
Soprano Solos: (a) Der Blumenbrier (Schubert), (b) Song (Brahms). 4.55 till Close
Down, See Turin.

TRONDHEIM.-See Oslo.

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 598 kc/s, 501.6 metres.—4.10 p.m., Chamber Music 4.55, Weather. 5.0, Agricultural Notes and Wheat Market Report. 5.10, Dopolavoro Amouncements and Report of the Royal Geographical Society. 6.0, Time Signal and News in Foreign Languages. 6.20, Gramo-

phone Music. 6.50, Announcements. Giornale Radio and Weather. 7.0, Gramophone Con-cert. 7.30, Review of the Day's Events. 7.40, Symphony Concert. In the interval, Talk. 9.0, Dance Music. 10.0, Giornale Radio.

VALENCIA

VALENCIA

1,121 kc/s, 267.6 metres; 1.5 kW.—1.0 to 2.0
a.m. (Saturday), Programme in English by
the 1.B.C. 1.0, Light Music: Selection from
The Count of Luxembourg (Lehár); Once I
fell in Love (Canaro); Heaven will protect
an honest Girl (Weston); The Clock is playing (Blaauw); Chanson (Friml); La Tourterelle (Damare); Tip-toe through the Tulips
(Dubin); Serenade from Les Millions d'Arlequin (Darcy). 1.30, Dance Music: You are
my Heart's Delight (Lehár); Oh. Johanna;
The Last Round Up; Cecilia Mia; You loving me; In a little Second-hand Store; My
first love to last; Play, Fiddle, play! 2.0,
1.B.C. Goodnight Melody and Close Down.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in German. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

German. 7.0 to 7.15 p.m., Religions information in Italian.

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; 1msbruck, 1,058 kc/s, 233 metres; Klagenfurt, 663 kc/s, 453.1 metres; Lins, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—8.20 a.m., Market Prices and Weather. 9.20, Broadcasts for Schools. 9.50, Tide Report. 10.30, Gramophone Concert of Styrian Folk Music. 10.55, Weather. 11.0, Orchestral Concert, conducted by Dostal. in an interval at 12 Noon, Time and Announcements. 2.15, Talk: Landscape Photography—A Walk through Nussdorf at Night. 2.30, Music Talk for Young People. 2.50, Opera Music on Gramophone Records. Duet from Manon (Massenet); Selection from The Barber of Seville 'Rossin); Duet from Migoletto (Verdi); Selection from The Bartered Bride (Smetana); Quartet from Fidelio (Beethoven); Duet from Figaro (Moxart). 3.30, Programme for Women. 3.35, Talk. 4.20, Song Recital by Lotte Walter. Five Songs (Schubert): (a) Wanderer an den Mond, (b) Wohin, (c) Sprache der Liebe, (d) Nachtigall, (e) Der Schmetterling; Four Songs (Schubman): (a) Widmung, (b) Das Veilchen, (c) Hochländisches Wiegenlied, (d) Marienwürrnchen; Four Songs (Brahms): (a) Die Mainacht, (b) Geheimuns, (c) Immer leiser, (d) Ständchen. 4.55, Tourist Report. 5.10, Talk: Suggestions for Rowing Excursions. 5.25, Sports Notes. 5.35, Gardening Talk. 6.0, Concert by the Wiener Symphoniker, conducted by Weinherger, Overture, Die Diva (Weinherger); Selection from Der Frauenfresser (Eysler); Waltz, Nachtschwärmer (Ziehrer); Mazurka, Lob der Frauen (Joh. Strauss); Love's Dream after the Ball (Czibulka), Overture, Madame Pompadour (Fall); Potpourri, Ein Abend im Maxim (Fucik); Waltz, Leben und Geniessen (Joh. Strauss); Overture, Barbe blene (Offenbach). In an interval at 6.35, Time and Announcements. 7.15, Die deutschen Kleinstädter (The Provincial German—Comedy in Four Acts) (Kotzebue). 9.15, Reading. 9.30, News. 9.35, Gramophone Concert of Light Music, followed by Announcements.

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—6.0 a.m.
Time Signal and Morning Hynn. 6.5, Gym.
6.20, Gramophone Music. 6.35, Radio
Journal. 6.40, Gramophone Music. 6.52,
Talk for Housewives. 6.55, Programme Annonucements. 10.40, Polish Press Review.
10.50, Art Review. 10.57, Time Signal and
Fanfare from the Tower of St. Mary's
Church. Cracow. 11.5, Gramophone Music.
11.30, Radio Journal. 11.35, Weather. 11.38,
Gramophone Music. 2.25 p.m., News. 2.30,
Talk on Economics. 2.40, Chamber Music;
Neutisch ('Cello) and Kalccki (Pianoforte):
Sonata No. 1 for 'Cello and Pianoforte (Saint-Saëns); Sonata for 'Cello and Pianoforte (Saint-Saëns); Sonata for 'Cello and Pianoforte (Brahms)...3.25, Gramophone Music.
3.40, Book Review. 3.55, Mezzo-Soprano
Recital, relayed from Poznan, 897 kc/s, 334.4
metres. 4.15, Pianoforte Recital by Marie
Bar: Variations in F (Mosart); The Propphet Bird (Schumann); Träumerei (Schimann); Rhapsody in G Minor (Brahms);
Sonata in F Sharp Minor (Scriabin); Canzona serenata (Medther); Danza graziosa
(Medther): Danza festiva (Medther). 4.50,
Agricultural Press Review from Wilno, 530
kc/s, 566 metres. 5.0, Talk. 5.20, New
Gramophone Records. 6.0, Programme Annonuncements. 6.50, Talk. 5.20, New
Gramophone Revords. 6.0, Programme Annonuncements. 6.50, Talk. What te do on Sundays.
6.25, Topical Talk. 6.40, Sports Notes. 6.47,
Radio Journal. 7.0, Talk on Music. 7.15,
Pierre Perkowski Concert by the Philharmonic Orchestra, conducted by Fitelberg,
and the Civil Service Choir, relayed from
the Philharmonie; Soloists: Colette Franz
(Violin) and Karwowska (Songs); Sinfonietta; Oratorio in Seven Parts for String
Orchestra, Soprano and Choir, conducted by
the Composer; Violin Concerto; Second Scene
from Swantewit. In the interval, Book
Review. 9.40, Dance Music from the Femina
Cabaret. 10.0, News. 10.5, Dance Music
(contd.).

ZURICH.—See Schweizerischer Landessender,



DECEMBER THE SIXTEENTH

ALGIERS

ALGIERS

825.5 kc/s, 363.3 metres; 13 kW.--7.10 p.m., Shipping Notes. 7.15, Weather. 7.20, Instrumental Solos. Violin Solos: (a) Estrellita (Ponce), (b) Valse Bluette (Drigo); Harpsichord Solos: (a) Le Coucon (Daquin). (b) Bourrée d'Auvergne (Landowska); Pianoforte Solos: (a) Etude No. 3 (Chopin). (b) The Musical Box (Von Sauer). 7.45, Two Arias from Le Roi d'Ys (Lalo). 7.55, News. 8.0, Time. 8.2, Lottery Results. 8.10, (Concert by the Station Orchestra: Selection from Le Roi l'a dit (Delibes); Selection from The Pearl-Fishers (Bizet). 8.30, News. 8.35, Gramophone Records. 8.45, Orchestral Concert (contd.): PreInde (Rachmaninov); Selection from Calendal (Maréchal). 9.40, News. 9.45, Songs by a Vocal Trio. 9.55, News.

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres; and Gork, 1,337 kc/s, 224.4 metres.—1.30 to 2.30 p.m., Time Signal, Weather Report, Stock Report and Gramophone Concert. 6.0, Gramophone Concert. 6.10, Gramophone Concert. 6.10, Gramophone Concert. 6.10, Talk to Farmers, 7.30, Time Signal, 7.31, The Messiah, Oratorio (Handel), by the Dublin Philharmonic Society, relayed from the McIntyre Hall, Dublin. 9.30 to 10.30, Programme by the I.B.C. (Iseland), Ltd. 9.30, Light Music: Augero March (Franco); When it's Moonlight on the Swance (Frankel); Fashionette (Glogaw); The Roaming Yodeller (Norton); The Parade of the Tin Soldiers (Jessel); In Pierette's Garden (Brooke); Love is the Thing (Washington); Xylophonia (Green). 10.0, Programme arranged by the International Broadcasting Company (Ireland). Ltd.: Dance Music: When Antumn comes around; Louisville Lady; Can't we meet again?; Racing Commentary; Life's so complete; Moonlight down in Lover's Lane; Shanghai Lil; I want to ring Bells. 10.30, I.B.C. Goodnight Melody, followed by News and Weather. 10.40, Baritone Solos by Liam Breathnach. 11.0 (approx.), Close Down.

BARCELONA

BARCELONA

EAJ1, 858 kc/s, 349.6 metres; 8 kW.—7.0 p.m., Request Gramophone Records, 7.30, Exchange and Gramophone Records (contd.). Exchange and Market Prices 9.5, Educational Programme. 9.35, Concert by the Radio Orchestra: Extracts from the First Symphony (Beethoven); A Prelude (Kark); Croquis chines (Leemans); Gavotte, Fête galante (Dreyer). 10.0, Gent d'ara, Catalan Comedy in Two Acts (Eduardo Coca). In an interval, News. 1.0 to 2.0 a.m. (Sunday), Programme in English by the I.B.C. 1.0, Military Band Music: War March of the Priests (Mendelssohn); The Hunting Scene (Bucalossi); Humoresque (Dvorák); Rebels are out, from Silver Wings (Waller); Distant Greeting March (Loring); Valse triste (Sibelius); The Father of Victory (Gaune); The Gladiator's Farewell (Blankeuburg). 1.30, Dance Music: Pagan Moon; Sundown in a little green Hollow; Symphony of the Breeze; Shadow Waltz; The Gold-diggers' Song; Can't we mect again? Sing to me; My Moonlight Madonna. 2.0, I.B.C. Goodnight Melody.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—3.30 p.m., Programme for Children. 3.55 to 7.0, See Rome. 7.0, News in Albanian. 7.30 till Close Down, See Rome.

BASLE.—See Schweizerischer Landessender.

BERLIN

BERLIN

DEUTSCHLANDSENDER
DER), 183.5 kc/s, 1,635 metres; 60 kW.—
5.0 a.m., See Hamburg. 5.5, News. 5.15, Programme from Berlin (Funkstunde). 5.30, Programme from Berlin (Funkstunde). 5.30, Programme from Hamburg. 5.34, To-day's Motto. 5.35, Programme from Heilsberg. In the interval, News. 7.45, Gymnastics for Women. 9.0, News. 9.10, Handwork Programme—llints for Christmas Presents. 10.15, Weather. 10.30, Reading of 17th and 18th Century Travellers' Tales. 10.45, Talk: Population and the Housing Problem. 11.0, Weather. 11.5, Broadcast for Schools. 11.55, Time Signal. 12.45 p.m., News. 1.0, Gramophone Concert of Light Music. 2.0, Talk for Children. 3.0, See Leipzig. 4.0, Sports Review. 4.20, Planoforte Trio in C mitor, Op. 1, No. 3 (Beethoven), by Charlotte Welland (Planoforte), Erich Röhn (Violin) and Schäfer ('Celio). 5.0, Poems, followed by a Discussion on Puppet Plays. 5.20, Variety Programme. 5.45, Rhineland Chimes. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Langenberg. 7.0, To-day's Motto. 7.3 (approx.). Talk: German Christmas—German Goods. 7.10, Dance Music. 9.0, News. 9.25, Talk: The Sports Champions of 1933. 9.45, Weather. 10.0, See Munich. 11.30 (approx.). Close Down.

BERLIN

FUNKSTUNDE, 716 kg/s, 41 metres; 1.5 kW. Relayed by Seesen, DJC, DJA, DJD, DJB and DJE.—1.35 p.m., Granophone Music. Waltz, Ich habe ein goldiges

Mådel geseh'n (Küssel-Obst); Anf Wiederschen, my dear (Hoffmann-Amberg); Intermezzo, Farbenspiele (Siede); Foxtrot (Baxter): Waltz, Bei der blonden Kathrein (Leux-Hannes); Foxtrot, Goldfisch (Perl); Foxtrot, Stenschnuppen (Kauler). 2.0, Exchange. 2.20, Discussion by Two Women Journalists. 2.30, Progranune in Dialect. 3.0, See Heilsberg. 4.0, Humorous Programme by Axel Lübbel. 4.25, 'Cello Concerto in B minor Op. 104 (Dvorák) by Adolf Steiner and the Station Orchestra, conducted by Engen Jochum. 5.0, The Joys of Winter Sport—Radio Sequence with Music, Songs and Gramophone Records. 6.0, Transmission for all German Stations, relayed from Langenberg. 7.5, Bunter Abend. Programme of New Popular Songs, Review of the Week and New Gramophone Records. Ria Rosal (Coloratura Soprano), the Völkner Duo, the Five Parodists, Luciano (Mouth Organ), Fritz Stege (Songs) and Willy Clahé and his Soloists. In the intervals, Suggestions for Christmas Presents and Surprises. In the interval at 9.0, Weather and News. 12 Midnight, Close Down.

BERNE.-See Schweizerischer Landessender.

BEROMUNSTER. -- Sec Schweizerischer

BODEN,-See Stockholm.

BODO.-See Oslo.

BORDEAUX-LAFAYETTE

BORDEAUX-LAFAYEIIE

886 kc/s, 304 metres; 13 kW.—7.0 p.m., Programme relayed from Paris (Ecole Supérieure), followed by Radio Journal, 7.55, Sports Talk. 8.0, News and Lottery Results. 8.5, English Lesson. 8.20, News and Request Gramophone Records. 8.30, Charmant soirée—A Fantasy (Paul Weill), relayed from Paris (Ecole Supérieure). 10.30 (approx.), (fala Concert, relayed from Toulouse (PTT), 1,176 kc/s, 255.1 metres.

BRATISLAVA

BRATISLAVA

1,973 kc/s, 279.5 metres; 14 kW.—3.0 p.m., Concert by the Station Orchestra, conducted by Dyk: Overture, Die Geschienne Frau (Fall); Selection from Polenblut (Nedbal); Opercta Potpourri, 3.50, See Prague. 4.15, A Marionette Play. 5.15, Talk for Housewives. 5.30, Gramophone Music. 5.45, Topical Talk. 5.55, Household Talk. 6.0, See Prague. 6.10, See Moravská-Ostrava. 7.15, See Prague. 9.15, See Brno. 10.30 (approx.), Close Down.

BREMEN.—See Marghume.

BREMEN.—See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—1.15, Programme arranged by the Post Office, with Gramophone Records.

2.0, Agricultural Prices and Exchange. 2.15, Catholic Notes.

2.35, Programme Announcements for the Coming Week. 2.45, Film Review. 3.0 to 5.10, Sec Leipzig. 5.10, Programme to be Announced. 5.20, Reading (Bousset). 5.50, Programme Announcements. 6.0, Transmission for all German Stations, relayed from Langenberg. 7.0, Sec Leipzig. 7.10, A Merry Evening in Oelse-Variety Programme. The Station Orchestra, conducted by Topitz, an Accordion Trio and Soloists. Commentary by Peters Arnolds. 9.0, See Leipzig. 9.20, Time and News. 9.30 till Close Down, See Munich. 12 midnight, Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—5.25 p.m., German Transmission: News and Songs to the Guitar. 6.0, See Prague. 6.10, See Moravská-Ostrava. 7.15, See Prague. 9.15, Concert by the Station Orchestra, conducted by Bakala. 10.30 (approx.), Close Down.

BRUSSELS (No. 1)

BRUSSELS (No. 1)

1.N.R., 589 kc/s, 509.2 metres; 15 kW.—12
Noon, Concert by the Radio Orchestra, conducted by Charles Walpot. Soloist: flarry Collin (Tenor). Radetzky March (Joh. Strauss); Waltz, Pomone (Waldtenfel); Overture, Lysistrata (Lincke); Characteristic Gavotte, An village (Gillet); Tenor Solos; Selection from The Tales of Hoffmann (Orfenbach): In the Harbour at Port Said (Armandola). 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Station Symphony Orchestra, conducted by Jean Kumps. Soloist: Avaert (Baritone). Carneval de Paris (Svendsen); Andante and Scherzo from the Symphony in D (Absil); Baritone Solos: Old French Songs; Piece for Flute and Strings, Le Matin (van den Eenden); Selection from Namouna (Lalo). 4.45, Talk: Belgium's Home Trade. 5.0, Concert by the Station Symphony Orchestra, conducted by Jean Kumps: Joyeuse marche (Chabrier); Fantasia on Popular Czechsłovak Songs; Dance (de Boeck); 'Cello Solo: Le Cygne (Saint-Saëns); Viennese Waltzes (Loncque); Petite suite (Ducasse); Ballet Music from The Cid (Massenet). 6.0, Talk: Walloon Sculpture. 6.15, Extracts from Le Châlet (Adam) on Gramophone Records. 6.30, Concert by the

Small Station Orchestra, conducted by Pierre Leenians: Overture, Gli Orazii e Curiazii (Cimarosa); Melody (Marsick); Dauza aragonesa (Granados); Flute Solo: Bulbul (Poldini); Pieces for Pianoforte and String Quartet (Debussy): (a) Danse sacrée, (b) Danse profane. 7.30, Science Talk. 8.0, Concert by the Radio Orchestra, conducted by Charles Walpot. Soloist: Mme. Suzanne de Gavre (Sougs); Florentine March (Fucik); Waltz, Dolorès (Waldtenfel); Overture. Poet and Peasant (Suppé); Songs: (a) Air from Le Pardon de Ploërmel (Meyerbeer), (b) Waltz from Mirella (Gounod); Selection from La Bohème (Puccini). 8.45, Talk. 9.0, Concert (Contd.): Overture. The Thieving Magnie (Rossini); Songs; Divertissement for Trumpet; Polkalinette (Wangermée); Waltz, Dans l'azur (Paradis); Selection from Le chemin du paradis (Heymann). 10.0, Le Journal Parlé. 10.10, Dance Music by Robert de Kers and his Cabaret Kings, relayed fron the Century Hotel, Antwerp.

BRUSSELS (No. 2)

N.I.R., 888 kc/s, 337.8 metres; 15 kW. Programme in Flemish.—12 Noon, Concert by the Station Symphony Orchestra, conducted by Meulemans: Overture. Il Seraglio (Mozart); Petite snite (Debussy); Schubert Songs for Baritone; Intermezzo (Candael); Serenade (Walpot); Polovtsian Dances from Prince Igor (Borodin). 1.0 p.m., Journal Parlé. 1.10, Concert by the Radio Orchestra, conducted by Walpot. Soloist: Harry Collin (Tenor). Potponrir Ein Souper bei Suppé (Morena); Waltz. Spring's Awakening (Scassola); Songs; Ballet Music from Le Cid (Massenet). 4.45, Reading. 5.0, Concert by the Small Station Orchestra, conducted hy Leemans: Overture, Le Muletier (Héroid); Love's Dream (Marsick); Cloches du Ciel (Dupnis); Selection from La Bohème (Puccini); Violin Solo: Guitar (Moszkovsky, Sarasate); Extracts from the Music to a Radio Play (Douliez); Divertissement Flamand (Vidal). 6.0, Concert by the Belgian Wind Instrument Quintet; Quintet (Taffanel); Scherzo (Boisdeffre); Quintet (Taffanel); Scherzo (Boisdeffre); Quintet No. 2 (Meulemans). In the interval at 6.15, Talk: Winter Sports. 7.0, Agrienthural Review. 7.30, The Valkyrie—Opera (Wagner). relayed from the Royal Flemish Opera Honse, Autwerp. In the intervals, Recitations, Journal Parlé and Gramophone Record: Romance in F (Beethoven).

BUCHAREST

761 kc/s, 394 metres; 12 kW.—11.0 a.m., Exchange, Tides Report and Gramophone Concert. 12 Noon, Radio Journal. 12.15 p.m., Gramophone Records. 3.5, Broadcast for Schools. 4.0, Dance Music by the Ghinda Jazz Band. In the interval at 5.0, Radio Journal. 6.0, Educational Talk. 6.20, Gramophone Records. 6.45, Talk. 7.0, Concert by the Carmen Choral Society, conducted by Ohiresco, relayed from the Atheneum. 8.45, Radio Journal.

BUDAPEST

BUDAPES I

545 kc/s, 550.5 metres; 120 kW. Also relayed on 840 metres from 7.0 p.m. till Close Down.

-11.5 a.m., Radio Concert. 12.30 p.m., Orchestral Concert. 3.0, Reading of Fairy Stories. 4.0, Wireless Lottery Results, fallowed by Variety Programme relayed from the Municipal Theatre. 6.30, The Letter Box. 7.0, See Vienna. 8.30, News. 8.50, Gramophone Records. 9.10, Weather Report. 9.45, Cigány Band Concert, relayed from the Café Patria. Soloist: Gyula Szantho (Hungarian Folk Songs). Patria. Soloi Folk Songs).

CASSEL .- See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres; and Skamlebaek, 0XY, 49.4 metres.—11.0 a.m., Time and Chimes from the Town Hall. 11.15, Talk for Schools. 11.45, String Ensemble Concert, relayed from the Bellevne Strandhotel. 1.30 p.m., Gramophone Concert: Arias from: (a) The Pearl Fishers (Bizet), (b) Tiefland (d'Albert). (c) The Valkyrie (Wagner); Treasure Waltz from The Gipsy Baron (Joh. Strauss-Dohnanyi); Aria from The Barber of Seville (Rossini); Chanson villageoise No. 2 (Popper); Duet from La Gioconda (Ponchielli). 2.0, Programme for Children. 2.30, Concert by the Mogens Hansen Instrumental Ensemble: Turkish March (Mozart); Waltz, Je t'aime (Waldteufel); Selection from Il Trovatore (Verdi); Valse caprice (Rubinstein); Intermezzo, Pizzicato (Pierrot); Waltz from Tosca (Puecini); Waltz from The Novelettes for String Orchestra (Glazunov); Serenade from Renaissance (Lange-Muller); Selection from Show-Boat (Kern) In the interval Reading 4.30. Exfrom The Novelettes for String Orchestra (Glazunov); Serenade from Renaissance (Lange-Muller); Selection from Show-Boat (Kern). In the interval, Reading. 4.30, Ex-change and Fish Market Prices. 4.45, Talk: Christmas in Siam. 5.15, French Lesson. 5.45, Weather Report. 5.54, Announce-ments. 6.0, News. 6.15, Time Signal. 6.30,

Talk on Music. 7.0, Time Signal from the Town Itall. 7.1, Christmas Concert. 7.45, Talk: The School for Blind Children. 8.15, Folk Music from Many Lands—Concert by the Radio Orchestra, conducted by Reesen: Fantasia on Russian Folk Songs. Kamarinskaya (Glinka); Slav Dances in Gminor and E Minor (Dvorák); Two Spanish Dances (Granados); Ilimmerland (Reesen). 9.0, News. 9.15, Concert by the Radio Orchestra, conducted by Reesen: Overture Les Brigands (Offenbach); Waltz, Dolores (Waldteufel); Gipsy Suite (German); In a Chinese Temple Garden (Ketelbey); Blues from Jonny spielt auf (Krenek); Russian Dance, The Cuckoo (Lehar). 10.0, Dance Music from the Ritz Restaurant. 11.0, Time Signal and Chimes from the Town Hall. 11.5 (approx.), Dance Music (contd.). 11.15 (approx.), Close Down.

CORK .- See Athlone.

DANZIG .- See Heilsberg.

DRESDEN.-See Leipzig.

FECAMP

1,328 kc/s, 226.5 metres; 10 kW.—11.0 a.m. till 12 Noon, Programme in English by the I.B.C. 11.0 a.m., llappy Hour. Part 1—Orchestral Concert. Part II—Dance Music. 12 Noon, Programme in French. 3.30 to 6.0 p.m., Programme in English by the I.B.C. 3.30, Concert for Tunbridge Wells and Isle of Thanet Listeners. Part I—I.B.C. Mcmbers' Request Hour. Signature Tune, The Night by the Sea; Schubertiana (arr. Finck); Cornflowers and Poppies (Waldteufel); The Clatter of the Clogs (Flynn); Little Miss Muffet (Perritt); The Lion and Albert; Round the Marble Arch (Williams); Selection from The Student Prince (Romberg). Part II—Dance Music. Stay out of my Dreams; Morning, Noon and Night; Mary Rose; Moths around the Candle Flane; The Cage in the Window; Caminito del Taller; I was in the Mood; For Love Time; Signature Tune. 4.30, The I.B.C. Nursery Corner: Birthday Greetings. 5.0, Concert for Bover and Folkestone Listeners. Part I, Gramophone Records: Old Fashioned Sweetheart (Gilbert); Hiawatha's Lullaby (Young); Hollyhock (Mayerl); Under Freedom's Flag (Nowowiesky); Too late, Tomorrow (Langenberg); Reminiscences of Gilbert and Sullivan; Wine, Woman and Song (Joh. Stranss); Pride of the Wolferines (Sousa). I.B.C. Time Signal. Part II. Banjo Solos: In the Moonlight (MeHnghl); Flapperette (Greer); St. Louis Blues (Hardy); Tattoo March; Signature Tune. 5.45, Dance Music: Whisting under the Moon; A Couple of Pals; About this Time next week; For Love Time. 6.0, Programme in English by the I.B.C. 11.0. Talkie Time: Tunes from the Talkies and Shows; Signature Tune, Sittin' in the Dark; Selection from Bitter Sweet (Coward); Oo! La La (Furbur); The Wind's in the West; Experiment (Porter); Yon ought to see Sally on Sunday; Langh, Clown, laugh (Florito); Will you think of me (May); Here comes the Showhoat (Rose); Signature Tune, Come back to Erin; Signature Tune, Come back to Erin, Signature Tune, Come back to Erin, Signature Tune, Come back to Erin, Signature Tune, Healon, Come of the Town; Wedding (Siede); Komm Zignay (Kalmán); Maure

FLENSBURG .- See Hamburg.

FLORENCE .-- See Turin.

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel and Trier, 1,157 kc/s, 259.3 metres.

-12.15 p.m., Time and News. 12.25, Local News. 12.25, Local News. 12.25, See Stuttgart. 1.30, Programme for Voung People. 2.15, See Stuttgart. 2.30, Weather. 2.40, Time and Economic Notes. 3.0, See Stuttgart. 5.0, Talk: Frontier Problems. 5.20, Review of the Weck. 5.35, A Flying Visit. 5.50, News. 6.0, Transmission for all German Stations, relayed from Langenberg. 7.0, Topical Talk. 7.10, See Langenberg. 9.0, Time and News. 9.20, See Stuttgart. 9.30, Local News and

Weather. 9.45 till Close Down, Sec Stutt-gart. 1.0 a.m. (Sunday), Close Down.

FREDRIKSSTAD.-See Oslo.

FREIBURG .- See Stuttgart. GENEVA.—See Radio-Suisse Romande.

GENOA .- See Turin.

GLEIWITZ .- See Breslau.

GOTEBORG.—See Stockholm.

GRAZ.—See Vienna.

HAMAR.-See Oslo.

HAMBURG

HAMBURG
Bremen, 1,112 kc, s, 269.8 metres; Flensburg
and Hanover, 1,319 kc/s, 227.4 metres, and
Kiel, 1,292 kc/s, 232.2 metres.—3.0 p.m., Concert, relayed from Heilsberg. 4.0, Programme relayed from Berlin (Funkstunde).
5.0, Christmas Books for the Hitter
Jugend. 5.25, Military Programme. 5.40
(from Kiel), Religious Address. 5.50,
Weather. 6.0 a.m., Transmission for all German Stations, relayed from Langenberg.
7.5 till Glose Down, Variety Programme relayed from Berlin (Funkstunde). In an
interval, Time and News. 12 Midnight,
Close Down.

HANOVER.-See Hamburg.

HEILSBERG

HANOVER.—See Hamburg.

HEILSBERG

1,085 kc | \$276.5 metres; 60 kW. Relayed by Danzig, 671 kc; \$47.1 metres.—10.30 a.m., Concert by the Small Station Orchestra, conducted by Wilcken. 12.5 p.m., Gramophone Concert of Popular Music: Die braune Wacht (Redl); Die kleine Kitlergarde (Kollo); An der Bonau, wenn der Wein blüht (Grothe); Hochzeit am Wolfgangsee (Stolz); Selection from Paganini (Lehār); Tenor Solo and Soprano Solo from Page des Königs (Gotze); Selection from Banditenstreiche (Suppé); Selection from Banditenstreiche (Suppé); Selection from Glückliche Reise (Künneke); O Deutschland hoch in Ehren (Lindemann); Im Rolandspogen (Mania); Ein rheinisches Mädchen (Hope); Emma Polka (Sommerfeld); Neckerein (Sommerfeld); Bravo! Bravo! (Dostal). In the intervals at 12.20 and 1.0, News. 1.30, Programme arranged by the Post Office, with Gramophone Records. 2.0, Agricultural Prices and Exchange. 2.30, Handwork Programme for Girls. 3.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken; Catalan Rhapsody (Ailbout); Two Violin Solos; (a) Valse caprice (Wieniawsky). (b) La capricieuse (Elgar); Rhapsody, España (Chabrier); Serenade and Piece (Cui); Tibetan Suite (Dreyer). 4.0 to 5.0, See Berlin (Funkstunde). 5.0, Traffic Report. 5.5, Programme Annonneements. 5.15, Agricultural Prices and Ice Report. 5.25, Review of the Week for East Prussia. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Langenberg. 7.0, News. 7.10, Military Programme. 8.10, Variety Programme from Berlin (Funkstunde). In an interval, News. 9.30, See Munich. 10.0 (approx.), Close Down.

HILVERSUM

AILVERSUM

1,013 kc/s, 296.1 metres; 7 kW, up to 5.40 p.m., and 20 kW, from 5.40 p.m., 9.55 a.m. mill Close Down, Programme of the Workers' Radio Society (V.A.R.A.). 9.55, Orchestral Concert with Recitations, 11.40, Concert; Gruss mir mein Wien (Komzak); Herbstrosen (Strauss); Dort do die Wälder grun (Brodski); Melody (Codini); Viennese Waltz (Benatzky); Slåv Dance (Dvorak); Selection from Schön ist die Welt (Lehâr); Gramophone Records; Two Guitars (Horliek); Russian Lullaby (Krein); The Butterflies' Dance (Kockert); Maruschka (de Leur); Het Zuiderkruis (Blaauw); Melody (Rhode); Gramophone Records; Los Banderillos (Volpatti; Tont Paris (Waldtenell); Tango (Briones); Signora aus Spaulen (May). 1.55 p.m., Gramophone Records. 2.40, Talk: The Marseillaise. 3.10, Concert of Light Music. 4.10, Film Talk. 4.25, Choral Concert. 4.40, Gramophone Records. 5.40, Literary Talk. 6.0, Gramophone Records. March (Gramm): Overture, Masaniello (Auber); Chimera (Fresco); Melody (Fresco); Ballet cgyptien (Luigini). 7.38, 8 O S Amnouncements. 7.40, Talk. 7.50, Gramophone Records. 7.55, Concert by the V.A.R.A. Orchestra, conducted by de Groot; Soloist, Ellen Schwarz (Sopramo): Overture, Don Pasquale (Donizetti); Selection from The Jewels of the Madonna (Wolf-Ferrari); Air from Rigoletto (Verdi); Selection from The Jewels of Holfmann (Offenbach). 10.10, News and Announcements. 10.25, Organ Recital by Steyn: Selection from The Tales of Holfmann (Offenbach). 10.10, News and Announcements. 10.25, Organ Recital by Steyn: Selection from The Golddiggers of 1933 (Warren); Ninon, Lach mir cimmal zn (Jurmanni): Selection from Gitta Alpar (Steyn): Selection from The Carevitch (Lehâr). 10.55, Gramophone Records. 11.40 (Approx.). Close Down. HORBY .- See Stockholm.

DEC. 16th SATURDAY continued

HUIZEN

HUIZEN

190 kc/s, 1,875 metres; 7 kW. until 3.40 p.m.
Transmitted from Kootwijk on 50 kW. from
3.40 p.m.—Programme of the Catholic Radio
Society (K.R.O.). 11.55 a.m., Sextet Concert:
Cadet March (Sousa); Salut d'amont
(Elgar); Alpenländer (Mader); Selection
from 1 Pagliacci (Leoncavallo); Nostalgio
(de Micheli); March. Con brio (Stabel);
Gramophone Music: Danse des Matclots
(Ebonet); Meditation (Massenet); Waltz.
Lustige Brüder (Vollstedt); Selection from
William Tell (Rossim); Serenata napolitama
(Rivelli); Finale. 1.40 p.m., Programme for
Young People, 2.10, Programme for Children.
3.50, Orchestral Concert, conducted by van 't
Wond: Vaandelmarsch (Spiere); Souvenir
de Chopin (Fetras); Wien bleibt Wien
(Schrammel). 4.10, Writing Lesson. 4.40,
Concert (contd.): Von Bilme zn Bühne
(Fetras), 4.55, News in Esperanto. 5.10,
Orchestral Concert, conducted by van 't
Wond: Overture. The Merry Makers
(Ganne); Suite, Four Ways (Coates); Weiterstürme (Fucik); Extase
(Ganne); Suite, Four Ways (Coates); Waiser
Friedrich March (Friedemann). 6.0, Press
Review. 6.25, Concert (contd.): Virginian
Rhapsody (Wood); Caravan (Scassola). 6.40,
Police Notes. 6.55, Talk. 7.15, Gramophone
Music. 7.25, Talk. 7.40, Concert of Light
Music. 8.10, News. 8.15, Gramophone Music. 9.10, Concert of Light Music. 8.40, The Light—a Radio
Sketch. 8.50, Gramophone Music. 9.10, Concert of Light Music. 9.30, The Learned
Woman—Comedy (Hageman). 10.0, Gramophone Music. 10.10, News. 10.15, Light
Music. 10.40, Gramophone Concert. 11.40
(approx.), Close Down.

INNSBRUCK .- See Vienna.

IUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—8.0 p.m., Amusement Guide. Exchange and News. 8.10, Esperanto Lesson. 8.30, Concert. 9.0, News and Weather. 9.15, Concert. 10.30, 9.0, News and weach Variety Programme.

KALUNDBORG, See Copenhagen.

KIEL.-See Hamburg.

KLAGENFURT. -- See Vienna.

KOSICE.—See Prague.

LAHTI

LAHII

167 kc s, 1,796 metres; 40 kW. Relayed by Helsinki, 815 kc/s, 368.1 metres.—5.15 p.m., Orchestral Concert, conducted by Linko, Hoch Heidecksburg (Herzer); Selection from Madame Butterfly (Puccini); The Skaters Waltz (Waltenfel); Metody (Kunla-Koskimies); Merikanto Potpomri, 6.10, Talk. 6.30, Dance Music, 7.0, Humorous Talk. 7.15, Dance Music (contd.), 7.45, News in Fimish, 8.0, News in Swedish, 8.15, Dance Music, relayed from the Grand Restaurant, 10.0 (approx.), Close Down.

LANGENBERG

LANGENBERG
635 kc/s, 473 metres; 60 kW.—12.25 p.m.,
News. 12.35, Concert from Stuttgart. 1.0,
See 12.35 p.m. Programme. 1.30, See Frankfurt. 2.15, See Stuttgart. 2.30, Economic
Notes. 2.45, Reading in Dialect. 3.0, See
Stuttgart. 5.0 to 5.35, See Frankfurt. 5.35,
Fiddle Solos. 5.45, Announcements. 6.0,
Transmission for all German Stations:
Beethoven in Bonn—Radio Sequence (Else
Pfall). The Chamber Choir, the Angmented
Station Orchestra and Soloists. Conductor:
Buschkötter. 7.0, See Frankfurt. 7.10,
Variety Programme in aid of a Winter
Relief Fund. 9.0, News. 9.45 till Close Down,
Programme relayed from Stuttgart. 1.0
a.m. (Sunday), Close Down.

LAUSANNE.-See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—11.0, Concert by the Station Orchestra. conducted by Theodor Blumer: Overture, Der Schauspieldirektor (Mozart); Orchestral Suite, Op. 39 (Dvorak); Lagunen-Walzer (Joh. Strauss); Saite, Jenx d'enfants, Op. 22 (Bizet); Two Pieces for Strings. Two Oboes and Two Horns, Op. 32 (Nicodė); Overture, Banditenstreiche (Suppe); Gallop, Tritsch-Tratscii (Joh. Strauss). 12.15 p.m., News. 12.25, Gramophone Concert of Patriotic German Airs. 1.0, News. 1.10, Review of Technical Periodicals. 1.30, Programme for Children. 2.10, Review of the Week. 2.30, Agricultural Notes. 2.45, Economic Notes. 3.0, Concert by the Leipzig Symphony Orchestra, conducted by Weber. Soloists: Margaret Tetzner (Soprano). Franz Hammerla (Clarinet) and Friedbert Sammler (Pianoforte). Overture, Das tapfere Schneiderlein (Handel); Recitative and Aria from The Merry Wives of Windsor (Nicolai); Selection from The Barber of Bagdad (Cornelius); Concertino in E. flat for Clarinet (Weber); Serenade for Small Orchestra (Fiedler); Air from Die Fledermaus (Joh. Strauss); Selection from Pagauini (Lehár). 4.30,

Dialogue: German Citizenship. 4.50, Harpsichord Recital by Anna Barbara Speckner. 5.10, A Modern Dictionary. 5.25, Talk: Schloss Grandstein. 6.0, Transmission for all German Stations, relayed from Langenberg. 7.0, News. 7.10, Concert in Aid of the Winter Relief Fund, relayed from Halle. The Littzow Quartet, the Central German Symphony Orchestra, conducted by Zschiesing, the Halle Choir conducted by Blanfuss, and Soloists. 9.0, News. 9.30 till Close Down, See Munich. 12 Midnight, Close Down. 12 Midnight, Close Down.

LINZ.-See Vienna.

LJUBLJANA
522 kc/s, 574.7 metres; 7 kW.—11.15 a.m.,
Gramophone Records. 11.45, News. 12 Noon,
Weather and Gramophone Records 5.9 p.m.,
Gramophone Records and Road Report. 5.30,
Talk. 6.0, Talk on Philosophy. 6.30, Review
of Foreign Affairs. 7.0, Dance Music. 7.30,
Song Recital. 8.0, Guitar Recital. 8.30,
Weather, News and Dance Music.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 209 kW.—7.0 p.m., Ballet Music from The Cid (Massenet), on Gramophone Records, by the New Symphony Orchestra, conducted by Eugène Goossens, 7.20, Botrel Song Recital by Venant Pauké (Baritone), 7.50, Theatre Review, 7.55, Pianoforte Concerto No. 4 (Saint-Saëns), by René Delporte and the Radio Orchestra, conducted by Henri Pensis, 8.30, Economic and Social Review, 8.35, Selection from Pelléas et Mélisande (Fauré), on Gramophone Records, by the Berlin Philharmonic Orchestra, conducted by Albert Wolff, 8.50, News in French, 9.0, Radio Luxembourg Musical Medley—International Concert by the Station Orchestra, conducted by Henri Pensis, and Soloists, 9.50, News in German, 10.0, Gramophone Concert: Radetzky March (Johann Strauss); Soprano Solo, Aria from Hamlet (Thomas); Frühlings-timmen (Johann Strauss); Overture, Carnaval Romain (Berlioz); Vocal Selection from Great Day (Youmans); Selection from Monte Carlo; Vocal Selection from The Desert Song (Romberg); Vocal Selection from No, No, Nanette (Youmans), 10.45, Dance Music by the Radio Jazz Band, conducted by Ferry Jusa.

MADRID

MADRID

ARANJUEZ (EAQ), 10,000 kg/s, 30 metres;
20 kW.—6.0 to 8.0 p.m., Programme for
Listeners in the Canary Islands, Guinea, and
Europe. 6.0, Popular Concert. 7.15, Talk.
7.30, Light Music. 8.0 to 10.30, Interval.
10.30, Popular Concert. 10.45, Radio
Chronicle. 11.0, Play (Castillo, Roman, and
Sorozaibal). 12 Midnight till Close Down,
LB.C. Programme. 12 Midnight, Light Music:
Blue Prelude (Bishop): But for you (Wachmann); I am so auxious, Dear (Gilbert);
Dauzas de Cosacos (Traditional): That's
Georgia (Young); O dem Golden Slippers;
Selection from Congress Dances (Heymann);
The Wedding of Mr. Mickey Mouse (Pola).
12.30. Dance Music: Roll mp the Carpet; Lay
your Head on my Shoulder; Oh! Johanna;
Young and Healthy; Let the World go drifting by; When my Little Pomeranian: My
Moonlight Madonna; The Gold-Digger's
Song. 1.0, Goodnight Melody and Close Down.

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange, Topical Talk and Talk by Teodoro de Iradier, followed by Dance Music. In the interval, Talk on Hygiene, 8.15, Radio Journal, 8.30, Interval, 9.15, English Lesson. 9.30, Chimes, Time, and Radio Journal. 9.45 (approx.), Concert. Part I. Soprano Solos by Carmen Ruiz: Aria from Katiuska (Sorozábal); Variations (Proch): Song from La rosa del Azafrán (Guerrero); Variations on Themes from Carnival in Venice (Benedict); Reading, Part H. Violin Solos by Jesus Fernandez: Concerto (Bruch); Capricioso (Elgar); Nocturne (Boulanger); Piece (Hubay); Perpetuum mobile (Ries), 11.45, Radio Journal, 12 Midnight, Chimes and Close Down.

MALMO.-See Stockholm.

MILAN.-Sec Turin

MORAVSKA-OSTRAVA

1,137 ke/s, 263.8 metres; 11 kW.-5.25 p.m., Harp Recital by Schroderova-Treglerová; Paraphrase on a Piece from My Country (Smetana-Trnecek); Fantasia (Saint-Saëns); Piece (de la Presle); Romance. Op. 11 (Skvorova-Falladova). 6.0, See Prague. 6.10, Technical Talk. 6.25, Dance Music. 7.15, See Prague. 9.15, See Brno. 10.30 (approx.), Close Down.

MOSCOW

KOMINTERN, 2025 kc s, 1,481 metres; 500 kW.—3.0 p.m., News. 3.30, Educational Programme. 4.30, Red Army Programme. 5.30, Programme for Workers on Collective Farms. 6.30, Talk: The Industrial North. 7.0, Extracts from Aleko (Rachmaninov) and The Fountain of Bachtchisarai

(Arensky). 8.0, Talk in German: The Foundations of the Soviet State. 8.55, Chimes from the Red Square. 9.5, Literary Programme in French. 10.5, Talk in Spanish: Sport in Soviet Russia.

MOTALA.-See Stockholm.

MUHLACKER,-Sec Stuttgart.

MUNICH

MUNICH

563 kc s, 533 metres; 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc s, 560 metres, and Nürnberg, 1,256 kc/s, 239 metres, —5.30 z.m., Gymnastics. 5.45, Granophone Music and the Morning's Motto. 6.15, News. 6.25, Orchestral Concert, conducted by Kaden. 7.20, Broadcast for Schools, 7.45, Orchestral Concert (contd.). 8.0, Programme from Breslau. 9.40, Agricultural notes. 9.50, Market Prices. 10.0, Rural Programme. 10.15, Time and News. 10.30, Programme arranged by the Post Office, with Gramophone Records. 1.0, Sec Leipzig. 12.25, Light Music on Gramophone Records. 1.0, Sec Leipzig. 1.10, Announcements. 1.20, Granophone Concert of Light Music. 1.40, Reading (Sepp). 2.0, Folk Song Recital by Robert and Lies Kothe and their Folk Song Choir: Nun heben wir uns zu singen; Streitlied zwischem Tag und Nacht; Die Himmelsmusikanten; Three Children's Songs: (a) Im Winter, (b) Schneemännlein, (c) Klein Häslein; Three Canons for Mixed Voices: (a) O klage nicht, (b) Glockenläuten von Stephani, (c) Nachtigallen-Kanon (Haydu). 2.20, Book Review. 2.40, Announcements. 2.50, Labour Market Report. 3.0 to 5.10, Sec Leipzig. 5.10, Programme for Young People. 5.40, Wireless Notes. 6.0, Transmission for all German Stations, relayed from Langenberg. 7.0, Sec Leipzig. 7.10, Bunter Abend. Part I. Concert by the Small Station Orchestra, conducted by Kloss, and the Muckenschnabel Accordion Quintet. Part II. Der Ansager (The Announcer)—Radio Farce (Max Fellheimer). 9.0, Sec Leipzig. 9.20, Announcements. 9.30, Report on the German Ice Championship, relayed from the Skating Rink. 10.0, Serenade by the Small Station Orchestra, conducted by Kloss. 12 Midnight, Close Down.

NAPLES .- See Rome.

NOTODDEN.-Sec Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 386 metres; Hamar, 522 kc/s, 574.7 metres; Notodden 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; and Rjukan, 671 kc/s, 447.1 metres; and Highan, 671 kc/s, 447.1 metres; and Jelöy, LCL, 6,990 kc/s, 42.92 metres.—4.15 p.m., Programme for Children, 5.15, Norwegian Music, 5.45, Talk on Economics, 6.0, Announcements, Weather and News, 6.30, Pianoforte Recital by Roll Brandt Rantzau—Music by Balakiciev Liadov, Leschetisky and Liszt, 7.0, Time Signal, 7.1, Talk, 7.30, Concert of Popular Music by the Station Orchestra, conducted by Kramm, 8.40, Weather and News, 9.0, Topical Talk, 9.15, Humorous Recitation, 9.45, Dance Music on Gramophon Records, 11.0 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

PALERMO

558 kc/s, 537.6 metres; 3 kW.——11.45 a.m., Glornale Radio 12 Noon, Concert of Light Music. In an interval at 12.30 p.m., Time, Announcements and Weather. 1.0, Interval. 4.30, Gramophone Music. 5.0, Programme for Children. 5.30, Interval. 7.0, Dopolavoro Notes. Tourist Report, Agricultural Notes and Glornale Radio. 7.20, Gramophone Music. In the intervals at 7.24, Sports Notes, and at 7.30, Time and Announcements. 7.45, I Granatieri—Operetta in Three Acts (Valenti). In the intervals, Talk and Book Review. 10.0, Giornale Radio.

PARIS

retres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Pre-liminary and 6-dot Signals).—5.45 p.m., Lournal Parlé. 7.15, Weather, 7.25, News. 7.30, Tartuffe—Conedy in Five Acts (Molière). 9.0 (approx.), Close Down.

PARIS

PARIS

POSTE PARISIEN, 914 ke/s, 328.2 metres; 60 kW.—7.10 a.m., Chimes and Sponsored Concert. In the intervals, Press Review and Talk for the Housewife. 12 Noon, Exchange. 12.5 p.m., Humorous Scenes (on Gramophone Records). 12.20, Interlude. 12.30, Humorous Programme by Leon Raiter. 1.5, Exchange. 1.15, Concert by the Station Quintet. In the interval at 1.25, Exchange. 2.0, Exchange. 3.15, Exchange. 3.45, Exchange. 7.0, Gramophone Records of Jean Clement. 7.15, Le Journal Parlé. 7.30, Gramophone Records of Jean Clement. 7.15, Le Journal Parlé. 7.30, Gramophone Records. 7.50, Topical Talk. 8.0, Theatre Talk. 8.20, Exchange. 8.30, Sponsored Programme. 9.0, Interval. 9.20, Dance Music. 11.15 (approx.), News.

PARIS

PARIO PARIS, Call CFR, 174 kc s, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture, 7.30, Weather and Physical Culture contd.), 7.45, Gramophone Music. 8.0, Weather and Press Review. 9.30, Concert arranged by the Société des Concerts, relayed from the Old Conservatoire. 12 Noon, Gramophone

DEC. 16th SATURDAY continued

Concert: Travadja (Messier); Melody (Sylviano); Argentina (Yatove); La bourrée populaire; On the Volga (arr. Scriabin); Nuit grisante (Borel-Cierc); Valse chaloupée (Duburg); La forêt qui chante (Charlys); Leila (Dauber); L'homme rouge (Borel-Cierc); On pardonne tout (Gael); Mismax (Mac Night); Si vous l'aviez compris (Denza); Along the Missouri (Christiné); Waltz from White Horse Inn (Stolz-Benatzky); Ay! Ay! Ay! (Freire); Dandy (Irusia); Dans une petite confiserie (Raymond); Melody (Nacio Herb-Brown); Un rêvc blond (Heymann); Je vous aime (Sunday and Bousquet); O ma bien aimée; Si j'aimais (Erwin-Pujol); C'halita (Chertzinger); Sous les ponts de Paris (Scotto-Salabert); Pompei (Learsi); A coup de Garcette (Lenoir); La valve des matelots (Loyraux); Place blanche (Mele-Craven); The Song of the Leaves (Young); Maurin des maures (Janin); Mutchico (Rodde-Galifer); Las Majas (Sentis). In the intervals, News. 2.0 (approx.), Addresses relayed from l'Académie des Sciences Morales. 3.0, Programme for Children. 5.45, Exchange. 6.20, Weather, Agricultural Notes and Talk, Market Prices and Racing Results. 6.45, Gramophone Music: Anbade printanière (Lacombe); Pas des écharpes (Chaninade); Gallito (Lote); C'est nous (Messier); Snite funambulesque (Messager); Normandie (Coquillot). 7.45 p.m., Review of the Latin Press, Commercial Notes and News. 8.0, Concert of Chansonnettes, arranged by Jean Rieux. In the interval at 8.20, News and Review by Jean Rieux. 9.15, Press Review and News. 9.30, Concert (contd.).

PITTSBURGH

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres. —7.0 p.m. to 10.15, New York Relay. 7.0, Musical Originalities. 7.30, Concert Echoes. 8.0, Words and Music. 8.30, Wealth of Harmony. 9.0, Dance Masters. 9.30, Concert Favourites. 10.0, Casino Orchestra. 10.15, Programme to be announced. 10.30, A Recreo—Bill and Alex. 10.45, Orphan Annie, from New York. 11.0, News, Pat Haley. 11.15, Sports and Programme Preview. 11.30, Evensong. 11.45, Izaak Walton League. 12 Midnight, Ernie Holst's Orchestra. 12.30 to 3.0 a.m. (Sunday), New York Relay. 12.30, Trio Romantique. 12.45, Engineering Adventures. 1.0. Economics in New Deal. 1.30, Sous les Ponts de Paris. 2.0, Jamboree. 3.0, Behind the Law.

PORSGRUND.—See Oslo.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—3.0 p.m.,
See Bratislava, 3.50, Woman in Music—Concert. 4.15, Talk for Workers. 4.25, Gramophone Records. 4.35, Czech Conversation
Lesson for Germans, 4.50, Gramophone Records. 5.5, Agricultural Talk. 5.15, Talk
for Workers. 5.25, News in German. 5.30,
German Transuission: Christmas Music. 6.0,
Tine, News and Weather. 6.10, Sce Moraveká-Ostrava, 7.15, Travel Talk. 7.30, Programme of Music and Recitations, relayed
from the Barracks. 8.30, Movement from
the Pianoforte Concerto in E flat (Liszt), by
Viktorie Svihlikova and the Station Orchestra. 9.0, Time, News, Review of the Day
and Sports Notes. 9.15, See Brno. 10.30
(approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE
SOTTENS, 743 kc/s, 403 metres; 25 kW; and Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15 a.m. (from Lausanne), Gymnastics.
11.28, Time Signal from Neuchâtel Observatory. 11.30, News and Weather. 11.40 (from Geneva), Gramophone Concert. 12 Noon (from Geneva), Financial Notes. 12.10 p.m. (from Geneva), Financial Notes. 12.10 p.m. (from Geneva), Financial Notes, 12.10 p.m. (from Geneva), Edwin Montagne—Play in Three Acts (Molles), with Music by William Tharin. 4.30, Concert relayed from Lugano. 5.0 (from Geneva), Programme for Children. 5.20 (from Geneva), Talk: Christmas Books for Children. 5.40 (from Geneva), Talk: Christmas Books for All. 6.30 (from Geneva), Radio (thronicle. 6.59, Weather Report. 7.0 (from Geneva), Travel Talk. 7.20 (from Geneva), Talk 7.55, Concert by the Radio-Suisse Romande Orchestra, conducted by Echenard: Marche militaire française (Saint-Saëns); Kéler-Béla Potpourri; Serenade for Vibraphone and Orchestra (Löhr); The Dolls' Tea Party (Rosen); Waltz, La housarde (Ganne). 8.50, News and Weather. 9.0 (approx.), Talk: The Work of the League of Nations. 9.30 (from Geneva). 10.30 (approx.), Close Down.

REYK JAVIK

250 kc/s, 1,200 metres; 21 kW.—8,20, Musical Programme and Announcements. 8.35, Programme to be announced. 9.0, Chimes and News. 9.30, Reading. 10.0, Concert by the Radio Trio: Choral Music on Gramophone Records, followed by Dance Music. 1.0 a.m. (Sunday), Close Down.

RIGA

571 kc/s, 525.3 meres; 15 kW.—5.0 a.m., Gymnastics. 5.35, Concert. 10.0, News. 10.30, Weather. 2.0 p.m., History Talk. 2.30, Gramophone Concert. 3.0, Concert by a Children's Choir. 4.0, Veterinary Talk. 4.30, Organ Recital: Pastorale (Guilmant);

Fantasia (Mozart); Bethlehem (Malling); Choral. 5.0, French Lesson. 5.28, Weather. 5.30, Dubrovsky—Opera in Three Acts (Napravnik), relayed from the National Opera House. In the intervals. Weather and News. After the Opera: Dance Music. 10.0, Close Down.

RJUKAN.—See Osio.

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres, from 7.40 p.m.; and 2RO, 11,810 kc/s, 25.4 metres.—12 Noon, Orchestral Concert: Carmen (Dostal); Sorriso infantile (Chesi); Jonny (Hollander); Carezza ed invocazione (Sinigaglia); Selection from Mephistopheles (Boito); Lorenza (Culotta); Gavotte from Mignon (Thomas); Foxtrot. Oh. bella (Weems). In the interval at 12.30 p.m., Giornale Radio. 1.0, Time and Announcements. 3.30, Programme for Children. 3.55, Giornale Radio and Exchange. 4.10, Orchestral Concert: Borrachitos de Granada (Hamud); Sotto la luna (Gragnani); In the Mystic Land of Egypt (Ketelbey): Tanganilla (Bazant); Selection from The Tales of Hoffmann (Offenbach); Canzone bohème (Rossi); Melody (Spoliansky). 4.55, Weather. 5.0, Agricultural Report. 5.10, Announcements. 5.45 (from Naples). Shipping and Sports Notes. 5.50, Atmospheric Signals. 6.0, News in Foreign Languages. 6.20, Violin Solos by Antonio Tattoli. 6.50, Giornale Radio and Sports Notes. 7.0, Time and Announcements. 7.40, Ramuntcho—Opera in Three Acts (Donandy). In the intervals, Reading. Atlzburg.—See Vienna.

SALZBURG.—See Vienna.

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres; and by W2XAF on 19.56 metres.—12.45 a.m. (Sunday), Stock Reports. 1.0, Variety Programme, 1.30, Antohal's Cubans, from New York, 1.45, Popular Programme, 2.0 to 4.0, New York Relay, 2.0, Baron Munchausen's Orchestra; Soloists. 2.30, Leo Reisman's Orchestra; Yacht Club Boys. 3.0, Saturday Night Dancing Party. 4.0, Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

LANDESSENDER

BEROMUNSTER, 553 kc/s, 459 metres; 60 kW.; Basie, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—5.50 to 6.5 a.m. (Basie), Gymnasties. 9.20 (from Zürich), Broadcast for Schools. 9.50, Interval. 11.0 (Berne), Gramophone Concert. 11.29, Time Signal from Neuchátel Observatory, Weather and News. 11.40 (Berne), Weekly Parliamentary Review. 11.50 (Berne), Gramophone Concert. 12.15 p.m. (Berne), Song Recital. 12.25 (Berne), Time. Weather and Exchange. 12.30 (Basie), The Listeners' Quarter-of-an-Hour. 12.45 (Basie), Review of Books on Music. 1.15 (Basie), Programme for Children. 2.0, Interval. 2.59, Time Signal from Neuchâtel Observatory. 3.0 (Basie), Accordion Duets. 4.30, Concert relayed from Lugano. 5.0 (Basie), Gramophone Concert. 5.30 (Basie), Talk for Girl Guides. 6.0, Chimes from the Zürich Churches. 6.15 (Basie), Time, Weather and Exchange. 6.20 (Basie), Gramophone Records. 6.30 (Basie), Talk. 7.0 (Basie), Choral Concert relayed from the tathedral. 8.10 (approx.), Weather and News. 8.20 (approx.), (Basie), Dance Music on Gramophone Records. 10.0 (approx.), Close Down.

30TTENS.—See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 932 kc/s, 322 metres; Hôrby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres; Oatersund, 409 kc/s, 746.2 metres; and Sundavall, 554 kc/s, 542 metres,—3.0 p.m., Concert of Light Music by Herman Märtensson's Ensemble: Overture. The Bohemian Girl (Balfe); Bohemian Romance (Boldi); Intermezzo and Waltz from Coppélia (Delibes); Selection from La belle Hélène (Offenbach); Aubade printanière (Lacombe); Tango (Komjati); Good-bye (Tosti); Invano (Tosti); Waltz (Abraham); Radetzky March (Joh. Strauss). 4.5, The Practical Corner. 4.20, Gramophone Music. 5.15, Buffalo Bill—Play for Children. 6.15, Weather and News. 6.30, Dialogue. 6.45, Old Dance Music. 7.15, Talk. 7.45, Silver Trumpets—Cabaret Programme. 8.45, Weather and News. 9.0, Dance Music. 10.0 (approx.), Close Down.

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—5.0 p.m., Concert by the Pasdeloup Concert Society, relayed from the Théâtre des Champs Elysées, Paris. 7.0, French Lesson. 7.15, Talk on Trees. 7.30, Time Signal and News. 7.45, Gramophone Music. 8.0, Press Review in German, Lottery Results and Announcements. 8.30, Saint-Saëns Concert for the Eleventh Anniversary of the Composer's Death. The Orchestra conducted by de Villers. Symphonic Poem, Phaëton; Havanaise for Violin and Orchestra; Christmas Oratorio for Choir, Orchestra and Soloists, 9.30, Press Review. 9.40, Concert by the Blue Jevils, relayed from the Palais des Fêtes: Fanfare March (Mongeot); Waltz, Lotosblumen (Ohlsen); Trumpet Solo: Mazurka (Petit); Saint Hubert, Fanfare for Hunting Horns; Napoleon Coronation March (Lesieur); Foxtrot; Whistling Solo; Hunting Horn Potpourri, Les Echos Champêtres; Ständchen (Schuhert); La grande Fanfare (Sombrun); French March (Lully); March of the King's Royal Musketeers (Lully); March of the King's Royal Dragoons (Lully); Soldiers' Songs with Clarion; Songs from Sidi-Brahim (Yves Noël), 11.0, Dance Music from the Savoy. 12 Midnight (approx.), Close Down.

STUTTGART

STUTTGART

MUHLACKÉR, 832 kc/s, 360.5 metres; 1.5 kW. Relayed by Freiburg, 527 kc/s, 570 metres.—12.15 p.m., See Frankfurt. 12.25, News. 12.35, Concert by the Station Orchestra, conducted by Görlich: March from The Bartered Bride (Smetana); Fantasia on Russian Folk Songs (Lindemaun); Mazurka from Polenblut (Nedbal); Waitz from Der Obersteiger (Zeller); March. Der Tausendkünstler (Blankenburg). 1.30, See Frankfurt. 2.15, Morse Lesson. 2.30, Talk on Flowers. 3.0, Concert by the Station Orchestra and the Schulrab Balalaika Orchestra: Conductor: Seyfert. Part I: Slav Rhapsody (Friedemann); Balalaika Orchestra; Two Russian Gipsy Romances; Two Hungarian Dances (Brahms); International Suite (Tchaikovsky); Balalaika Orchestra: Ukraine Dance Melodies; Oriental Suite (Bortkiewicz); Balalaika Orchestra: Potpourri (Schulrabe); Valse triste (Sibelius); Hungarian Dance (Drdla); Russian Dance, Troika (Tchaikovsky), Part II: Dance Music. 5.0 to 5.35, See Frankfurt. 5.35, Talk: Advent in Pre-Information Days and Now. 5.50, Time and Weather. 6.0, Transmission for all German Stations, relayed from Langenberg. 9.0, See Frankfurt. 7.10, See Langenberg. 9.0, See Frankfurt. 9.20, Talk: Things you should know . . . 9.30, News. 9.45, Der Himmel hängt voller Giegen—Sequence of Old Dance Music, by the Station Orchestra; conducted by Görlich. 11.0, Serenade. 1.0 a.m. (Sunday), Close Down.

SUNDSVALL.-See Stockholm.

TOULOUSE

TOULOUSE

779 kc/s, 385 metres; S kW.—8.0 a.m., Dance Refrains. 8.30, News. 8.35, Orchestral Music. 8.45, Opera Music. 12.15 p.m., Military Music. 12.30, News. 12.46, Request Music. 1.0, Amusement Guide and Time. 1.5, Operetta Music. 1.15, Music by a Viennese Orchestral. 1.30, Chansonnettes. 1.45, Orchestral Music. 2.0, News. 4.15, News. 6.40, News. 6.15, Accordion Music. 6.30, Operetta Music. 6.45, Extracts from Sound Films. 7.0, Military Music. 7.15, News. 7.30, Pianoforte Recital of Jazz Music. 7.45, Chansonnettes. 8.0, Orchestral Music. 8.15, Opera Music. 8.6etction from Madame Butterfly (Puccini). Don Quixote (Massenet), and I Pagliacci (Leoneavallo). 8.30, Music by a Viennese Orchestra. 8.50, An Address by General Damade. 9.0, Concert Version of Les Cloches de Corneville—Operetta (Planquette). 10.0, Accordion Music. 10.15, News. 10.30, Concert for Listeners in Morocco. Part I: Music by an Argentine Orchestra. Part II: Military Music. 11.0, Request Music. 11.15, Dance Music. 12 Midnight, News. 12.5 a.m. (Sunday), Variety Programme. 12.15, Orchestral Music. Liebeslieder (Joh. Strauss); Pavane pour une Infante défunte (Ravel). 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—6.45 a.m. to 3.45 p.m., Programme from Turin. 3.45, Programme for Children. 4.0 till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 598 kc/s, 501.6 metres.—4.10, Chamber Music (on Gramophone Records): Spanish Dance

(Popper); Chanson villageoise (Popper); La madre al figlio lontano (D'Annunzio-Pizzetti); Trio No. 1 in B Flat Minor (Schubert). 4.55, Weather. 5.0, Agricultural Notes and Wheat Market Report. 5.10, Dopolavoro Announcements and Tourist Report. 6.0, Time, and News in Foreign Languages. 6.20, Talk. 6.30, Gramophone Records. 6.50, Announcements, Giornale Radio and Weather. 7.0, Gramophone Records. 7.30, Review of the Day's Events. 7.40, A Comedy and Dance Music.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in Various Languages. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—10.30 a.m., Concert by the Wiener Symphoniker, conducted by Christoph: Overture, Masanicllo (Auber); Petite Suite (Coleridge-Taylor); Slav Rhapsody. 10.55, Weather. 11.0, Concert (contd.): Selection from Pierrette's Veil (Dohnanyl); Waltz, Golden Rain (Waldteufel); Pesther-Carneval (Liszt). 12.0 Noon, Time and News. 12.10 p.m., Gramophone Concert of Classical Music. 1.0, Interval. 2.0, Time and Announcements. 2.10, Italian Lesson. 2.35, Talk on Isolde Kurz for her Eightieth Birthday. 3.0, Mandoline Concert by the Austrian Workers' Musical Society, conducted by Bracharz: Overture, Semiramis (Rossini); Oriental Fantasia (Skocie); Two Pieces (Bass): (a) Am Sommerheidenweg, (b) Schlummerliedehen; The Skaters' Waltz (Waldteufel). 3.45, Christmas Songs. 4.0, Gramophone Concert: Overture, Oberon (Weber); Song, Voga Voga (Labriola); Petite Snite (Debussy). 4.35, Recital of Norwegian Folk Songs by Idar Tranar. 5.5, Talk with Gramophone Illustrations: Southern Slav Wedding Customs. 5.35, Topical Talk. 6.0, Choral Concert by the Schubert Society, relayed from the Kommerhaussaal. Conductor: Viktor Keldorfer. Soloists: Marie Schubert (Soprano), Franz Karl Fuels (Baritone), Franz Schütz (Organ), Otto Hellmann and Rudolf Kierner (Pianoforte); Male Voice Choir and Soprano Solos (Schubert): (a) Du bist die Ruh', (b) Gretchen am Spinnrad', (c) Das Echo; Male Voice Choir, with Baritone Solo: Der Einsiedler (Junk); Male Voice Choir, with Baritone Solo: Der Einsiedler (Junk); Male Voice Choir, with Baritone Solo: Der Einsiedler (Junk); Male Voice Choir, with Baritone Solo: Der Einsiedler (Junk); Male Voice Choir, with Baritone Solo: Der Einsiedler (Junk); Male Voice Choir, with Baritone Solo: Der Einsiedler (Fischer); Cag, Time and Announcements. 6.55, To-day's Motto. 7.0, Franz Lchár. Roloio Potpourri (Hruhy),

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—6.0 a.m., Time and Morning Hymn. 6.5, Gynn. 6.20, Gramophone Records. 6.35, Radio Journal. 6.40, Gramophone Music. 10.40, Polish Press Review. 10.50, Art Review. 10.57, [Time and Chimes from the Tower of St. Mary's Church. Cracow. 11.5, Gramophone Records. 11.30, Radio Journal. 11.35, Weather. 11.38, Records. 2.25 p.m., News. 2.30, Talk on Economics. 2.40, The Letter Box. 2.55, Aviation Report and Anti-Gas Brill. 3.0, Programme for invalids, relayed from Lwów, 788 kc/s, 381 metres. 3.40, French Lesson. 3.55, Slav Concert by the Station Orchestra, conducted by Oziminski. Soloist: Wraga (Bass): Overture Ruslan and Ludmilla (Glinka); Legend. Pan Twardowski (Munchheimer): Yugoslavian Songs; Slav Rhapsody. No. 3 (Dvorak). 4.50, Agricultural Report. 5.0, Talk on Natural History. 5.20, Polish Concert. 6.0, Programme Announcements. 6.25, Doetry. 6.40, Sports Notes. 6.47, Radio Journal. 7.0, Concert by the Station Orchestra, conducted by Nawrot. Soloist: Carnero (Songs). Overture. Wiener Frauen (Leliar): Bercuse and Tango (Malinowski); Songs, Waltz, Tout Paris (Waldteufel): Divertissement (Filipucci); Songs, Minuet (Fliederhaum): Selection from Wonder Bar (Katscher): Mazurka (Namyslowski). 8.0, The Letter Box. 8.20, Chopin Pianoforte Recital by Munz. Nocturne in B. Op. 9. No. 23; Two Mazurkas in A Minor, and A Flat; Waltz in F. Op. 34. No. 3; Ten Preludes, Op. 28; Impromptu in A Flat, Op. 29; Ballad in F Minor, Op. 52. 9.0, English Talk, relayed from Gracow, 959, kc/s, 312.8 metres. 9.15, Gramophone Dauce Music. 10.0, News. 10.10, Dauce Music from the Café Ziemianska. 11.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender



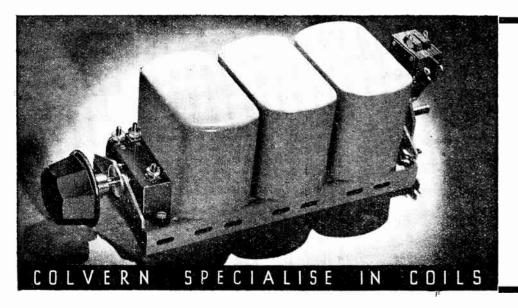
PRINCIPAL BROADCASTING STATIONS OF EUROPE

Arranged in Order of Wavelength

Metres.	kc/s.	kW.	Station.	Tuning Positions.	Metres.	kc/s.	kW.	Station.	Funing Positions.
935 875	155 160	7 8.5	Kaunas (Kovno) (Lithuania)		363.6 360.6	825 832	13 1.5	Algiers (Algeria)	
796	167	50	Lahti / Rinland)		355.9	843	50	London Regional (Brookmans Park)	
725	174	75	Rudio Paris CER		352.1	852	7		·
635	183.5	60	Berlin (Deutschlandsender) (Germany). (SW. Stn. DJA on 31.38 m., DJB on		349.6 348.8	858 86 0	7.6 10		
]	1	19.73 m., DJC on 49.83 m., DJD on 25.51 m., DJE on 16.86 m.)		345.2	869	11.5		
554.4	193	30	Daventry National		341.7	878	35		
546	194	7	Ankara (Angora) (Turkey)		337.8	888	15	Brussels II Velthem (Belgium). (In Flemish)	
181	202.5	500	Moscow, RV1 (Russia) $(S, W, Stn. on 25m.)$		335 334.4	896 897	5 1.9	\ 1 /	
146	$207.5 \\ 212.5$	13 120	Eiffel Tower, FL, Paris		332.2	903	50	Milan (Italy). (Relays Turin)	
112 380	217.5	100	Novosibirsk, RV76 I (Russia)		328.2	914	60	Poste Parisien (France)	
348	222.5	30	Motala (Sweden). (Relays Stockholm)		325	923	60	Breslau (Germany)	
200	250	5	Stamboul (Turkey) Reykjavik (Iceland)		321.9 318.8	932 94 1	10 0.25		
200	$\frac{250}{252}$	21 200	Luxembourg		318.8	941	1.5		
190 170	256	25	Tashkent, RVII (Russia)		315.8	950	1.6	Marseilles, PTT (France)	
154	265	30	Kalundborg (Denmark). (Relays Copenhagen)		312.8	959	1.7	Cracow (Poland)	
132	265	15	Monte Ceneri (Switzerland)		312.8	959 968	10 50	Genoa, IGE (Italy). (Relays Turin)	
117	268.5	40 60	Moscow, Popon KV98 (Kussia)		305.5	977	0.7	Radio Vitus (Paris). (SW. Stn. on 43.75 m.)	
083 071	$\frac{277}{280}$	35	Oslo (Norway)		307	977	0.75	Zagreb (Yugoslavia)	
035	290	36	Kiev, RV9 (Russia)		304	986	13	Bordeaux Lafayette, PTT (France)	
000	300	100	Moscow RV49 (Russia). (SW. Stn. on 50 m.)		301.5	$\frac{995}{1004}$	50 11	North National (Manchester)	
938	320	20	Kharhov, RV4 (Russia) Leningrad (Russia)		298.8	1013	20	Hilversum (Holland). (7 kW. before 4.40 p.m.)	
857 840	350 357	100	Budapest (Hungary)		200.1	3 - 4		(V.A.R.A., A.V.R.O. and V.P.R.O. programmes.)	
800	375	50	Sverdlovsk, RV5 (Russia)		293.5	1022	0.7	Limoges, PTT (France)	
750	400	1.3			293.5	1022	2.6	Kosice (Czechoslovakia)	
720	416.6	20			201	1031	13.2	Viipuri (Viborg) (Finland). (Relays Helsinki)	
689 574.7	436 522	1.5	Hamar (Norway) (Relays Oslo)		400.0		50	Scottish National (Falkirk) Bournemouth. (Relay Station)	
574.7	522	7	Liubliana (Yugoslavia)	1	000	104 0 1049	0.8	Montpellier (France)	
570	527	0.25	Freiburg (Relays Muhlacker)		284.8		0.7	Lyons (Radio-Lyon) (France)	1
568.1	528	2	Grenoble (France)		200.0		0.5	German Relays (Berlin, Magdeburg, Stettin)	
565 560	531 536	16	Kaiserslauten and Augsburg (Relay Munich)		200.0		0.5	Innsbruck (Austria). (Relays Vienna) Lisbon CT 1AA (Portugal). (Short-wave	
550	545	120	Budapest No. 1 Lakihegy (Hungary)		202.2	1063		Station on 31.25 m.)	
542	554	10	Sundsvall (Sweden). (Relays Slockholm)		281.2	1067	0.75	Copenhagen (Denmark)	
539.6	556	3	Palermo (Italy)		279.3	1074	13.5		
533 525	563 571	1.5 15	Riga (Latvia)	1	270.0		60	7	
517.2	580	100	Vienna (Bisamberg) (Austria)		974.5		1.3		
509	589	15	Brussels No. 1, Velthem (Belgium). (In French		980 8		20	Bari (Italy) (Relays Rome)	
501.6		20	Florence, 1FI (Italy) (Relays Turin) Tröndelag (Norway)		201.0		0.75		
495.8 488.6		120	Prague (Czcchoslovakia)		005.9		6.25		
480	625	50	North Regional (Manchester)		0000		11.2	Moravska Ostrava (Czechoslovakia)	
472.4		60	Langenberg (Germany)		261.5		50	London National and West National	
465.8		15	Beromünster (Schweizerischer Landessender)				17	Frankfurt-aM. (Germany)	
459.4	000	00	(Switzerland).		209.0		2.3 10	Hörby (Sweden). (Relays Stockholm)	
453.2	662	1	San Sebastian, EAJ8 (0.6 kW.); Klagen-		255.1		0.7	Toulouse, PTT (France)	
453.2	662	0.25	furt (0.5 kW.) (Austria) (relays Vienna). Agen (France)		253.1	1185	5		
453.2		4	Milan (Vigentino) (Italy). (Relays Rome)		252	1193	0.8	20110101010, 201101111,	
451.8	664	20	Madona (Latvia). (Relays Riga)			1205 1211	10.8	Trieste (Italy). (Relays Turin)	
447.1		0.5	Danzig (Relays Heilsberg)		245.9			D = - (0 Elasti) (Smithanland) (volume Rorom in	
447.1 441.2		50	Rome, 1RO. (SW. Station, 2RO on 25.4 m.)	,	· -			ster); Eskilstuna (0.2kW.), Säffle (0.4 kW.), (Sweden) (relays Stockholm); Linz (0.5 kW.) (Austria) (relays Vienna); Turku (Abo) (0.5 kW.) (Finland) (relays Helsinki). Basle (Switzerland). (Relays Beromunster)	'
435.4	689	55	Stockholm, SASA (Sweden)					(0.5 kW.) (Austria) (relays Vienna); Turku	
429.7	698	2.5	Belgrade (Yugoslavia)			1229	0.5	Basle (Switzerland). (Relays Beromunster)	
424.3 424.3		100	Madrid, EAJ7 (Union Radio)		242.3	1238	1	Beliast (N. Ireland)	
424.3	716	1.5	Berlin, Funkstunde (Germany)				0.5	Stavanger (Norway)	
416.4	720.5	5 5	Rabat (Morocco)			1256 1260	2	Nimes (France)	1
413	725	60	Athlone (Irish Free State)		237.2	1	3	Bordeaux, Sud-Ouest (France)	
408.7 403.8		16 25	Sottens (Radio Suisse Romande) (Switzerland)	,	235.5	1274	0.5	Kristiansand (Norway)	
398.9		25	Midland Regional (Daventry)				1.68		
394.2	761	12	Bucharest (Roumania)		232.2			Swedish Relay Stations	.
389.6		120	Leipzig (Germany) Toulouse (Radiophonie du Midi) (France)					Flensburg, Bremen and Hanover. (Relay	
385.1 385.1		10	Stalino, RV26 (Russia)	.	• -		40	Hamburg) Fécamp, Radio-Normandie (France)	
381	788	16	Lwow (Lemburg) (Poland)	1 .	225.9		10		
376.4	797	50	Scottish Regional (Falkirk)	·			1.5	Béziers (France)	. .
372.2		1.5	Hamburg (Germany) Seville, EAJ5 (Union Radio) (1.0 kW.)	;	218.	1373	0.2	Plymouth	1
368.1	815		Galicia EAJ4 (0.2 kW.) (Spain): Bolzano	<u> </u>	11 22000		0.5	Dublin (Polane Athlone)	.
	1		Galicia EAJ4 (0.2 kW.) (Spain); Bolzant (1.0 kW.) (Italy); Helsinki (10 kW.) (Fin land) (relays Lulti); Kharkov, RV20 (10kV (Russia).	V)	217	1382	1.2	Königsberg (East Prussia). (Relays Heilsberg	j
	0.5	0.5	(Russia). Fredriksstad (Norway). (Relays Oslo)	.]	ممنماا		1	Aberdeen	.
368.1 366.7		0.7	Radio, LL, Paris	.	. 211.	1420	1	Newcastle	.
364.1		1	Bergen (Norway)	•	· 209.	1430	1.2	magyarovar, anskow and rees (mungary).	
30 I. I									

xxiv

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- They are the most accurate coils ever made, accurate to a degree never before attained.
- Built to the highest standard of engineering precision, every coil is thoroughly tested and guaranteed.
- Insist on Ferrocart coils—the coils made by Colvern.
- Full details of Ferrocart coils are given in our Radio list No. 12. Send for a copy—it's free!

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I set Fio, Fii, Fi2, Fi3 ganged at 50/- per set.

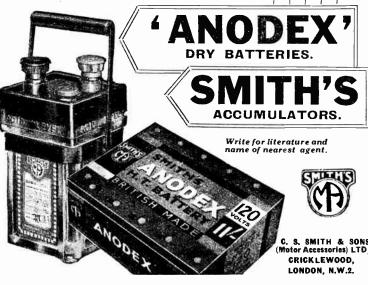
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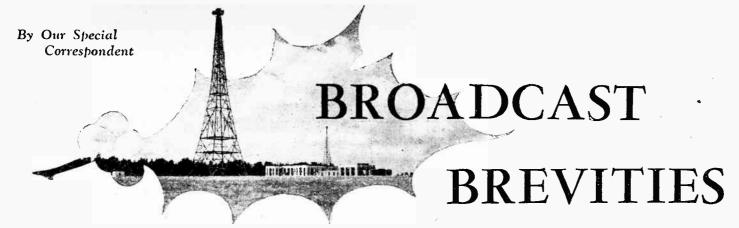
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Don't be "Cut Off" at Christmas

IN "Ye Old Yuletide" days our sympathics were usually directed towards the poor and needy gathering winter phewell, as the carol singers put it, but nowadays, on looking through the B.B.C. programmes for Christmas, I feel that our real heart-pangs should be reserved for the unhappy creatures without wireless sets.

A Great Day

Scintillating on my study table is a mass of bright programme details which make it embarrassingly difficult to pick and choose.

One thing is obvious. The spirit of Christmas will permeate the whole of the programmes on Christmas Day from the opening at 10 o'clock with a Christmas morning service relayed from Christ Church, Oxford, to the closing strains of the B.B.C. Dance Orchestra, directed by Henry Hall, at midnight.

First Real Broadcast Panto

The pantomime on Christmas Day and Boxing Day—and here is a bit of news—is to be performed for the first time in the real theatre atmosphere of St. George's

Hall. "Sindbad," to which I referred last week, is in the real pantomime tradition, having been originally produced by Arthur Collins at Drury Lane Theatre in 1906.

Audience of Little Londoners?

There is only one snag in the arrangements at the moment; who will form the audience? It has been suggested that the B.B.C. might fill those 450 empty plush seats with the Little Londoners who are attending the annual banquet on December 22nd organised by the trustees of the Treloar Crippled Children's Christmas Hamper Fund.

That they would make a noise, no one could doubt, but having stood with Paul Askew in his contrôl box last week I can boldly asseverate that practically all auditorium noises can be excluded from the mike

Gilbert and Sullivan

On another page are details of the great exchange of Christmas greetings between British citizens and friends of the Empire, so I will not duplicate what has already been

Following the pantomime on Christmas Day, Act II of "The Mikado," by Gilbert and Sullivan, will be given by the principals and chorus of the D'Oyly Carte Opera Company, who will go to a studio at Broadcasting House for the performance.

The B.B.C. Orchestra (Section E) will be conducted by Isadore Godfrey.

Mr. Lloyd George in the Studio

It has now become an established institution that the British Wireless for the Blind Fund should be the grounds for a microphone appeal on Christmas night. year the appeal will be made by Mr. Lloyd

A Christmas Mystery

In a divertissement programme, produced by Martyn C. Webster, and relayed from Midland Regional to the National transmitters, Mr. J. C. Cannell will tell, under



THE MICROPHONE MANNER. from the new British Lion film, "On the Air," showing Davy Burnaby (right) and Reginald Purdell in a duologue at the microphone.

the title of "The Mystery of the Christmas Bells," the true story of how the famous Houdini baffled the Mayor and magistrates of a Midland town one Christmas Day.

Organ Recitals: A Grumble

TO readers who have asked me whether organ recitals at Broadcasting House are rehearsed by both the organist and the balance and control department, I must answer yes and no.

It seems that the balance and control official is present while the organist is practising, if opportunity permits, but I fear that, more often than not, the man at control comes to the broadcast with a very uncertain knowledge of what the organist intends to do. Otherwise we should not be aware of those frantic rotations of the gain . control knob just when the player follows a soft passage with a double forte on the diapasons. I have often wondered whether, for organ broadcasts, at least, some form of automatic volume control could be devised, giving a proportionate increase or decrease to cope with the volume range of the microphone.

Inventors, forward!

When the Pedals Boom

By the way, I notice that practice on the organ at "B.H." is nearly always done during the luncheon hour when the staff are Nor am I surprised. The reverberation set up by the pedal notes is noticeable in many of the offices. Paste pots, inkwells, and scissors rattle helter-skelter across the desks-so I am told. B flat on the pedals rings the telephones—so I am also

Good News of Radio Drama

I DID suspect—and why conceal the fact? -that all these revivals of past radio plays was a sign that invention was running thin. It is all the more refreshing, therefore, to learn that we are about to hear a number of entirely new radio plays, beginning on December 30th with "Meet Mrs. Beeton," in which L. du Garde Peach will deal with the lady of cookery-book fame.

In March a new play about Napoleon and St. Helena-" Quarrel Island"-by Norman Edwardes, will be broadcast, followed by a new actuality play called "The Egypt's Gold," by Terence Horsley—a story of salvage.

Specially Commissioned Plays

In the second quarter of 1934 we are to be feasted with a series of twelve absolutely new and specially commissioned microphone plays which will be in the nature of a counterpoise to the twelve revivals ending with "The Three Musketeers."

Great Names on the Air

BERNARD SHAW, H. G. Wells, Winston Churchill and Lloyd George are among the names of those taking part in a new series of broadcast talks from January to March, entitled "Whither Britain?" Altogether, I hear, there will be twelve speakers, who will outline their individual solutions for the problems of to-day and to-morrow.

Youth Represented

Other names in the list are Ernest Bevin, Israel Sieff, Lady Rhondda and Quintin Hogg. I am glad to see the last name as representing the younger generation, who, after all, are most affected by the question.



ALTHOUGH the original A.C. Monodial has been superseded by a later version, even now it represents a highly advanced technique, and is still used by a large number of enthusiastic amateurs in its original form. Tone cor-

Continuous Tone Control rection is embodied in the design, and the frequency characteristics of the receiver are such that any

modification is seldom desirable.

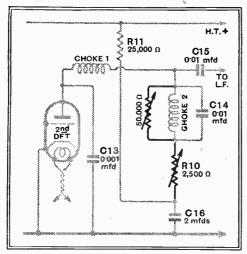


Fig. 1.—Applying variable tone control to the original "Monodial."

But, in order to satisfy the needs and tests of certain listeners, and to accommodate the characteristics of different loud speakers, it would sometimes be an advantage to make provision for manual control of tone. In the Monodial it is particularly easy to do this by replacing the fixed 1,000-ohm detector anode resistor (R10) by a variable resistance of about 2,500 ohms. Increasing the value of this resistance will tend to increase the proportional amplification of the lower register, and vice versa. As with almost all other systems of control, volume will be affected at the same time, and so compensating adjustments of sensitivity will usually be required when drastic tone correction is applied.

Another, and from some points of view even a better, tone control is obtained by shunting the tuned L.F. corrector circuit with a variable resistance of about 50,000 ohms. This method provides for attenuating high notes, and consequently for reducing heterodyne interference, but does not provide for tone control in the reverse direction. Both methods, shown in Fig. 1, may be used in combination.

UNDER ideal conditions, the audiofrequency output of a pair of pushpull valves is restricted to the transformer primary or output choke; a negligible proportion of this energy will flow through the H.T. supply circuits, and in conse-

A Selfdecoupling Circuit quence there should be little, if any, tendency towards undesirable interaction with earlier amplifying stages.

One of the great advantages of a pushpull set is that, for this reason, it is not prone to motor-boating, and, if this effect should ever become evident, we have a fairly clear indication that the circuit is in some way out of balance. The most probable cause for this will be that one of the output valves is defective.

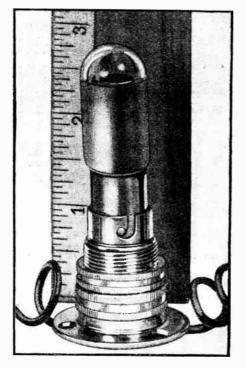
I was recently shown that the ordinary insulation test, as applied to a fixed condenser, does not give positive proof that everything is in order; for instance, a complete internal disconnection between foils and external terminals would not be revealed by such a

Neon Lamp Condenser Tests

test.

It is worth while pointing out that the neon test lamp—a use-

ful device that seems to be rather neglected by wireless people—is particularly



Suitable for testing purposes: a small neon lamp (Philips) which "strikes" at slightly over 100 volts.

handy for making rough-and-ready tests of fixed condensers. The procedure is to charge the condenser by connecting it across a source of high D.C. voltage, and then join it across the lamp. If everything is in order, a momentary flicker, of an intensity depending on the capacity of the condenser, its insulation resistance,

and the voltage of the charging source, will be produced in the lamp. Hightension voltage for charging purposes is usually obtainable from the receiver anode supply system, and, with a voltage of 250 or so, a condenser of as small a capacity as about

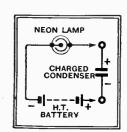


Fig. 2.—Testing low-capacity condensers with a neon lamp.

0.002 mfd. may be tested. Still smaller condensers may be dealt with when higher voltages are obtainable.

Even when a relatively low H.T. testing voltage is available, the neon lamp still has its uses. By charging the condenser, reversing it for correct polarity, and then connecting it in series with the source of voltage and the lamp, as shown in Fig. 2, a quick test may be made of the smallest fixed condensers in ordinary use. The principle is that the voltage of the supply must be insufficient to cause the lamp to glow until the additional voltage accumulated in the condenser is added in series. A condenser that is defective either in insulation or with regard to internal connections cannot accumulate a charge, or at any rate cannot hold it.

A^S an alternative to the insertion of a milliammeter in series with the detector anode circuit, it may be remembered that similar results can often be obtained by shunting a voltmeter across the bias resistor of an indirectly heated

Signal Strength Indicator detector valve. Naturally, this bias resistor will only be included in the cathode circuit when provision is

made for using the valve as a gramophone amplifier.

The advantage of this plan is that it may be put into execution without the need for breaking any existing connections. The voltmeter must be sufficiently sensitive to show clearly changes of a volt or two, and its addition in the manner suggested will not prejudice the operation of the set as a radio receiver.

GET REALITY!

at CHRISTMAS

Your set this Christmas can give reproduction more vivid and lifelike than you ever thought possible. Thousands of W.B. users have been astonished at the improvement the 'Microlode' has made in the performance of their sets.

Two typical letters :

"I wonder how many listeners realise (as I did when trying out the
"Microlode' pointer) how much volume is
wasted when the speaker is not correctly

wasted when the speaker is not correctly matched to the output valve."

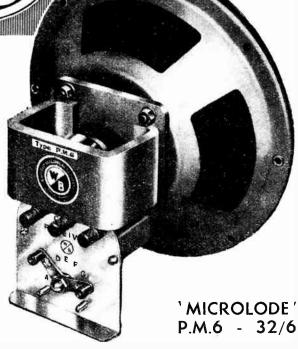
"I have connected mine up to my set (a straight 3-valve) and it's hard to realise it's only battery operated, so real is the reproduction, duc, of course, to the accurate matching ratio scheme."

'MICROLODE' P.M.4A - 42/-

Unique features evolved in the W.B. laboratories place this speaker in a different class from all other moving-coil reproducers The 'Microlode' feature, giving more perfect matching to the set than before possible, brings an evenness of response, obtainable in no other way The 'Mansfield' magnetic system, W.B. engineers' famous method of obtaining greater strength from the magnet, brings sensitivity, crisp attack and clear, brilliant top notes Hear one at your dealer's to-day and realise what you have been missing!

And here is a new way of obtaining radio in another room.

The 'Equilode,' just released, uses an adaptation of the Microlode principle. It is the ONLY extension speaker that will work perfectly from ANY set. It embodies also a volume control and "extension off" switch. As a Christmas present to yourself or a friend, it is ideal. Price 33/6. Or complete in handsome cabinet 48/6. Write for the folder.



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What To Do and What To Give

HE present year has seen the introduction of many important developments which, apart altogether from their technical merits, have the advantage, from our present point of view, that most of them are readily applicable to existing sets.

None of these innovations has exerted a greater influence on receiver design than the so-called battery economy circuits, which, although they differ in method, all have the same object—to prevent wastage of anode current by controlling its flow in sympathy with the modulation of the transmitter

modulation of the transmitter.

Class "B" amplification is now the most popular system and is easily added to any battery set. Almost invariably the present output valve will be converted into the driver, and the additional components required will be a Class "B" valve and holder, a driver transformer, and a special output transformer. In addition, it will often be desirable to have a new loud speaker—preferably of the permanent-magnet moving-coil type—as well, although a good moving-iron speaker works reasonably satisfactorily.

As to how the actual alterations involved in fitting Class "B" are carried out is largely a matter of taste. The old hand will probably prefer to obtain the components separately and to mount them in the most convenient position. But there are at least two alternatives to this plan; one may obtain a complete unit comprising the necessary components in some form of container suitable for ex-

ternal mounting, or the components may be fitted to a loud speaker, making a complete conversion unit.

Although Class "B" is now so popular, it would be incorrect to say that it is the only battery economy system to be considered. Quiescent push-pull amplification, for which special input and output transformers are generally needed, shows

CHRISTMAS is not only the customary season for giving presents; it also marks a period of intense activity among radio amateurs. This year most of us may look forward to a four-day holiday, and how could we spend it better than in improving our sets?

This article, then, in addition to suggesting gifts for wirelessly minded friends, is intended to serve as a guide to readers in planning their own activities over the holiday season.

signs of staging a "come-back," and there is also the system in which a metal rectifier controls output valve bias.

Much as we may dislike the idea, it sometimes becomes necessary to reduce the high-note response of our sets in order that heterodyne interference may be avoided. Hitherto this has too often been done in the crudest and most brutal way by the use of by-pass condensers, but now scientifically designed filters, which are more effective and introduce much

less dullness into reproduction, are available. They are easily fitted, and the results are more than gratifying.

Until one hears a broadcast receiver operated in ideal local conditions one hardly realises how annoying and distracting is the continual background of interference to which most sets installed in urban areas are subjected. Devices with which the listener himself can mitigate the interference are now available, and so it is hardly worth waiting in the hope that interference will eventually be suppressed at the source.

It may seem inopportune to suggest alterations to the aerial in the depth of winter, but, on second thoughts, outdoor exercise may prove a wholesome corrective to over-indulgence at the Christmas festivities! Be this as it may, it is an undoubted fact that the installation of a screened aerial, if properly carried out, does effect a noticeable improvement in the noise-to-signal ratio in the majority of cases. Briefly, two competing systems are available; one may either use a special low-capacity cable, which does not involve any alteration to the set or any extra appliances; alternatively, the screened down-lead may be ordinary rubber-insulated braided wire, in which case the severe losses which would normally occur must be neutralised by the fitting of proper impedance matching transformers at each end. Each system has its points, but the latter is undoubtedly preferable when a very long screened lead becomes necessary.

Wireless World

Wireless at Christmas Time-

No one who suffers from man-made electrical interference should fail to try the effect of connecting suitable filters to his mains supply. Two positions for these filters are available—either at the point where the mains enter the house, or in the feed lead to the set. Of these the first is undoubtedly the most effective.

Filters connected to the point of entry of the mains may be sub-divided into two types—those with chokes and those which consist merely of a pair of condensers. The design of the necessary chokes is somewhat involved, as their D.C. resistance must be sufficiently low to prevent any appreciable loss of voltage, because all the household supply current will pass through them. The simple capacity filter with which we are



Although we say it who shouldn't ! (The implication is obvious.)

here mainly concerned is, more often than not, quite effective, and may be installed without any risk or trouble, as suitable

self-contained units, complete with fuses, are now obtainable commercially.

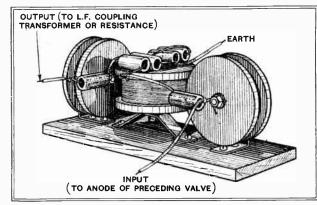
The second type of filter is directly connected to the set, and is often almost unbelievably effective, in spite of the fact that it can do nothing to prevent re-radiation of interfering high-frequency energy from the household wiring to the aerial. This filter, for which low-resistance chokes (small tuning coils will often serve) must be used, is shown diagrammatically in the accompanying composite sketch, which also illustrates the various other anti-interference devices that have been discussed.

But interference—and especially that of a type which should never occur in well-regulated

society—is not a pleasant subject to discuss at Christmas time. Let us turn to something more cheerful and point out the possibilities of improving our sets with the latest iron-cored tuning coils, which, when fitted with care and a little commonsense, add enormously both to sensitivity and selectivity. There is little reason to anticipate that this change will introduce instability, for the reason that

the new coils are generally so arranged that they will be rather more loosely coupled than those which they replace.

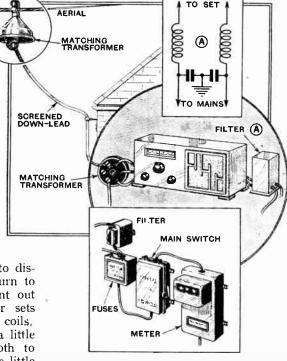
If, through inaccessibility or any other cause, it is not desired to replace all the coils in a receiver, it is worth while re-



A home-made whistle filter, showing the simplicity of external connections. Ready-made filters of various types are obtainable.

membering that certain iron-cored coils include provision for adjusting their inductance, and so they may be mixed with other types without impairing the alignment of a ganged tuning system.

Automatic volume control units of compact dimensions and completely self-contained are now available and offer the advantage that they may be fitted to existing sets without any trouble. Applied to short-range receivers, A.V.C. is of questionable advantage, but there can be no doubt that its inclusion in a highly sensitive set doubles the pleasures of distant listening. After giving it a trial, indeed, one wonders how we have ever got along without it. These units work at their best on long wavelengths, and so it follows that they are, strictly speaking, applicable mainly to superhetero-



Points at which anti-interference devices may be installed. A circuit diagram of the receiver filter A is inset.

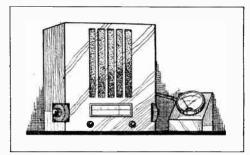
dynes, in which type of receiver they operate at intermediate frequency. But, nevertheless, the units are extremely valuable, even in a simple H.F.-det.-L.F. set, when it is used in conjunction with a superheterodyne converter or adaptor

for the reception of short-

wave signals.

A good loud speaker is such an obviously desirable thing that there is little need to stress its suitability as a present-either for self or anybody else. The most important recent advances have been in the direction of combining two moving-coil loud speakers of dissimilar characteristics, or, alternatively, of combining moving-coil and electrostatic instruments. Apart from the question of acoustic characteristics, one

must consider, when choosing a new instrument, the question of energising current for the field winding, and incidentally the resistance of this winding. For battery-driven sets, of course, this question does not arise, so far as moving-



A tuning indicator meter may be mounted outside the receiver cabinet.

coil instruments are concerned, for the reason that the self-energised permanent-magnet type is always used. In cases of doubt, the same type is a safe choice for mains sets as well.

Extension Loud Speakers

Many wireless users, who would appreciate a second loud speaker installed at a point more or less remote from the receiver, have hitherto been deterred from making this addition by reason of the difficulty in obtaining correct matching. But there is no longer any need to hesitate on this score, as the manufacturers have stepped into the breach and have shown much ingenuity in devising means whereby these extension speakers may be connected in a satisfactory way—electrically speaking—to existing sets.

A few hints on connecting extension speakers will be opportune, although, as a matter of fact, many instruments are now supplied with definite instructions. Originally, when a self-contained set was fitted with terminals for a second speaker, they were usually wired in shunt with the primary of the output transformer. Lately there has been a tendency to put the terminals across the secondary, which

39/6

See Advertisement Page 20.

EXTENSION SPEAKER



27/6 Sec Advt. Page 20



ACCUMULATOR
10 volt unit. Type C.H.
Price 6/3. See displayed
advertisement on page xxiv.

SPEAKER

will serve well enough.

Wireless at Christmas Time-

means that the speech coil of the remote instrument will be in parallel with that of the built-in speaker, and so a second output transformer will not be needed.

In either case, similar considerations arise with regard to matching. Usually the principle is accepted that the reproduction of the built-in instrument must be affected as little as possible and that a somewhat reduced volume will be tolerated at the remote point. Consequently, this latter speaker generally has rather a

cost is of vital consideration a movingcoil instrument should be chosen; the rasistances of the better-class instruments vary between 200 and 1,000 ohms per volt. Users of mains sets need a milliammeter more than any other instrument, as measurements of anode and screening grid current will give as much information as it is necessary to have about the condition of the valves. An instrument reading 50 milliamps at full scale will be quite suitable for the majority of although an addi-

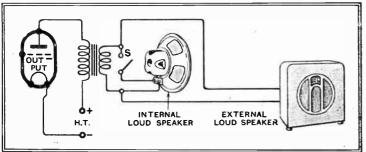
tional lower range is useful.

Except where

The more advanced wireless man will appreciate - the advantages of one of the modern multirange measuring devices, which combine in one instrument scales for volts, amperes, milliamperes,

sometimes ohms as well. Although the so-called "ohm-meter" is rather speered at by the highbrow technician, it is an extremely useful aid to quick testing, and often provides a clue to the location of a fault which would not be revealed by ordinary continuity indicators.

Some of the best multi-range instruments read A.C. as well as D.C.; provision for checking alternating voltages,



Micthod of connecting an extension low-impedance speaker to the secondary of a built-in output transformer.

higher impedance and so will take less than its full share of the available energy. Provision for adjustment, within certain limits at any rate, is usually made nowadays, and it is a simple matter to determine by trial and error the best operating conditions for one's own particular circumstances.

It is a source of amazement to some of us that so many wireless users-even

those who take an intelligent interest in their sets-manage to get along, apparently quite comfortably, without any measuring inwhatsostruments ever. To work on a set without the means of finding out whether the appropriate currents and/or voltages exist at vital points is like working blindfold, and, unless one happens to be particularly fortunate, it seems impossible that any wireless amateur, without some form of quantitative indicating device, can ever hope to obtain anything like the

performance of which his set should be capable. But already it would appear that a great number of people have learned their lesson, as meters are unquestionably being used in greater numbers. Now is the time for those who are meterless to make good the deficiency.

For battery-operated sets, a reasonably accurate three-range meter combining H.T. and L.T. voltage scales with a milliampere scale of from 0-15 or 0-30 mA.

INTERNAL LOUD SPEAKER (a) 6+ EXTERNAL LOUD SPEAKER H.T (b) INTERNAL LOUD SPEAKER H.T. EXTERNAL LOUD SPEAKER

High-impedance extension speakers. In diagram (a) the wiring is "live," but this disadvantage may be avoided by interposing a large condenser as in (b)

both of the mains and of heater circuits, will be appreciated by the more advanced amateur, who would also find use for one of the modern test sets and for testing gear generally.

Everyone who has fitted, or intends to fit, A.V.C. should provide himself with some form of tuning indicator. Although other devices are available, it is doubtful whether the amateur can do better than obtain a milliammeter of suitable range

(say, 0-10 milliamps) for connection in the anode circuit of the controlled valve or valves. Space may not always be available on the front panel for mounting this meter, in which case it must be fitted in a small box placed either on top or at the side of the receiver.

Short-wave broadcasting is of everincreasing importance, and to those who have previously concerned themselves only with the normal wavebands offers a new field of interest. One may either make a complete set, or, what is perhaps more usual nowadays, an adaptor to work with the normal receiver.

Turning to more general topics, is it not a fact that one never seems to have enough fixed condensers and resistances? However well we happen to be supplied with these components, it always seems that any experimental work or the testing of a new circuit is held up by the lack of a condenser or resistor of the desired value. Condensers of between 0.0001 mfd. and 8 mfd., and resistors between 50 ohms and 2 megohms, will never be wasted.

Battery users should see that their source of current supply is capable of meeting the Christmas demands, and now is the time to buy replacements or spares. The same applies to valves.

Mains apparatus in general, including indirectly heated valves, should be highly acceptable to all who are still operating battery sets in spite of the fact that an electrical supply is available. Where a complete conversion is undesirable, an eliminator will save the ever-recurring cost of H.T. battery replacements.

The conversion of existing sets for gramophone reproduction has lately been dealt with at length, and now is the time to put any ideas one has on the subject into practice. The essential gear-motor and turntable, pick-up and volume control potentiometer - may be disposed in numberless ways to suit the users' convenience.

THE RADIO INDUSTRY

REASSURING statement in connection with the forthcoming wavelength changeover has just been issued by Ekco. When the Lucerne plan comes into operation, users of existing sets will be supplied with an amended tuning scale at a purely nominal price. Further, owners of Ekco sets in the Bournemouth and Plymouth areas will be glad to know that these receivers will all tune to an even lower wavelength than 203.5 metres.

The latest development of the W.B. Microlode loud speaker is in the form of an instrument designed specifically for use as an extension speaker with existing sets, and known as the "Equilode." It includes a special universal matching device suitable for any set; both cabinet and chassis models are available.

<•>>

Constructional details and wiring plans of the Westinghouse battery superheterodyne rethe Westinghouse battery superheterodyne re-ceiver have just been published (price one shilling). The new set is similar to the A.C. model, and, of course, employs a Westector as a second detector and source of A.V.C. voltage. Another Westector acts as a battery economy device by automatically regulating the bias of the output valve in sympathy with modulation changes. modulation changes.

New Valves in Old Sets

Where Substitutions are Desirable, Merely Permissible, or Slightly Risky

ALTHOUGH the replacement of an old valve by a new one of improved characteristics will generally be beneficial, instability may sometimes result from the change. This article shows how such troubles may be avoided, and how to ensure that the new valve may be made to operate under best conditions.

EPLACEMENT of valves may be rendered inescapable by sheer decrepitude of the old ones, or may proceed from a desire to obtain some of the benefits of the recent extensive progress in valve design. In any case, it will probably be found that the original types are obsolete and not readily obtainable. So, in all likelihood, the said benefits will be thrust upon one, willynilly.

Some considerable time ago it was pointed out that the putting of new wine into old wineskins is liable to be an un-

economical proceed-ing, in that the wine will be spilled and the skins marred. The same tendency is present when new valves are plugged into old sets. Both valves and set may suffer, or at least give less than their best, because they were not designed to work in harness. A high-slope modern detector valve, for instance, substituted for an old type, might take an altogether excessive current; and, besides

being in an unsuitable adjustment for best performance, would give both itself and the battery (if any) a short life.

New valves, then, must be used with circumspection. Many of them—such as heptodes and double-diode combinations—are ruled out altogether, because they are not applicable to old receivers. Here we are to consider valves that can be plugged straight in, with (at the most) only minor

alterations, such as valve holders or operating voltages.

In what ways, then, do the new valves differ from old ones of the same general types? "Catkins," for example, look sensationally different from the glass valves that were previously universal. Actually, they are precisely equivalent to the glass valves bearing the same designations, so far as electrical characteristics are concerned. Their appeal is on the grounds of robustness, consistency, and non-microphony; and these should be given due consideration when the replacement

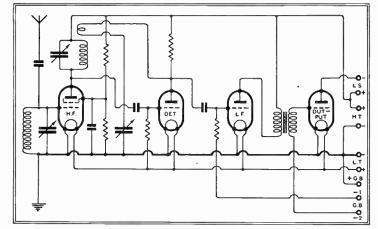


Fig. 1.—Typical circuit arrangement of a receiver designed a few years ago. The effect of substituting new valves is discussed.

of old-type valves becomes necessary. Whether the external construction is of metal or glass is of less importance than the electrical characteristics. The trend of progress in this respect has been mainly in the direction of increased slope, alias mutual conductance, or G for short. That means either that the internal resistance (impedance), Ra, has been reduced, or that the magnification factor, μ , has been

increased; or perhaps a bit of both. In any case the general tendency is to give more amplification. Just how much more depends on whether the other components happen to be such as to take advantage of the improved valve efficiency.

But let us get down to something rather more definite. Fig. I shows the skeleton circuit of a receiver which, disregarding details such as decoupling, is typical of the practice of a year or two ago. A screengrid H.F. stage is followed by detector, L.F. stage, and output. Your receiver may not happen to have all these stages, but it certainly has some of them.

Take the H.F. valve first. A typical battery S.G. valve of the period had a μ of 200 and a Ra of 200,000; G is $\frac{\mu \times 1,000}{Ra}$, or 1 milliamp. per volt in this case. A likely figure for the "dynamic" resistance of the tuned circuit is 50,000

fication of 200 is divided between itself and the tuned circuit in the ratio of 200,000 to 50,000. The tuned circuit, therefore, gets only $\frac{50}{200+50}$, or one-fifth of the whole. The amplification that is actually available for passing on to the detector is

ohms. This means that the valve's ampli-

How Amplification is Increased

thus 40.

This little calculation, of course, is just an example of the way all valve amplifiers work. The coupling is there to extract, as it were, as much as possible of the amplification, μ , which would otherwise simply be wasted in the resistance of the valve itself.

Now, suppose the new valve has a slope of 2 milliamps per volt. If Ra is as before, but μ doubled, then the stage gain is doubled. If, however, μ is as before and Ra halved—still giving the same slope—the original μ is divided in the ratio of 100 to 50, and the amplification actually yielded is $\frac{200 \times 50}{150}$, or about 67—a less

The response to a transmission which is off tune is increased practically 100 per cent. in either case, which means that the response to the wanted station, relative to interference, is unchanged if μ is doubled, but actually deteriorates if Ra is halved. From the point of view both of selectivity

pronounced increase.

New Valves in Old Sets -

and gain it is better to go for a high μ , other things being equal.

As a matter of fact, the figures given in the valve catalogues can be varied considerably by altering the operating volt-Reducing the screen voltage increases μ when the negative grid bias is small, and therefore tends to improve selectivity (Fig. 2). Unfortunately, it increases Ra still more rapidly, so there is a net loss in amplification. Still, it is a good thing to realise that the catalogue characteristics are not governed by the

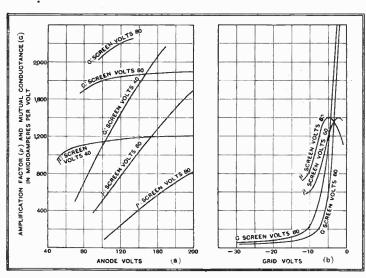


Fig. 2.--Characteristics "to order"; amplification factor and slope are determined by operating conditions.

immutable laws of the Medes and Persians. You may perhaps find that the increased amplification with the new valve is too much for stability, and the receiver goes off into self-oscillation. The correct thing is to trace the stray coupling that is the cause of the trouble—try turning the tuning coils round or moving them farther away from one another; but if that is too much bother you can at least make use of the more efficient valve to improve the selectivity by reducing screen voltage until stability is achieved all over the tuning scale.

Rules of Thumb for Bias

The details of correct biasing are fully supplied with the valve; so there is no need to go into it here, except to remark that failure to alter the bias tapping or cathode resistor may cause an excessive current to be drawn. Increased μ generally necessitates reduced grid bias; and decreased Ra increased bias. Sometimes, too, a new valve is found to give much poorer results, particularly if little or no bias is used. This is because grid current starts at a more negative grid voltage and damps the tuned circuit. Obviously, the cure is to increase the negative bias slightly.

It is possible to plug-in a variable-mu valve where a fixed-bias type previously dwelt, for the characteristics with a small fixed bias are much the same. But this is not particularly recommended, because it gives a lower slope for a given consump-

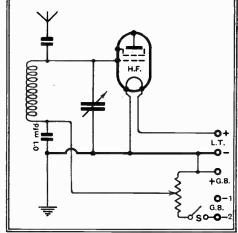
tion of anode current. You may, however, like to consider the conversion of your receiver to variable-mu volume control, which can be done by modifying the voltage-dropping resistors according to the makers' instructions. As a compromise, particularly in battery-driven sets, there is a type between the old fixed-bias valve and the "long-base" variable-mu; the Mullard PM.12M is an example. Instead of needing 20-40 volts maximum grid bias, 5-10 is enough for volume control. Of course, the control is not so perfect, but it is quite good if something is

done to prevent the excessive signal of a local station from being applied.

Fig. 3 shows one way of staging a variable-mu control. volume - control potentiometer is connected across the full grid-bias as supplied to the last valve. This takes current where formerly none was drawn, so a switch S is included to prevent the bias battery from wasting away with probably serious results on the power valve and H.T. battery. The resistance of volume control is not

important within close limits; about 1,000 ohms for each volt of grid-bias is a satisfactory figure. Neither is the capacity marked o.1 mfd. important-anything from 0.01 to 1.0 may be used.

Incidentally, although μ is pronounced a variable-mu valve is really a variable - mutual - conductance valve, though it is true the μ is somewhat affected at the same time.



-Providing adjustable bias for a variable-mu valve.

To be really up to date you might short-circuit the more recent S.G. developments by going straight on to an H.F. pentode. But remember that, while some have the usual five pins, others are fitted with seven.

(To be concluded.)

NEW BOOKS

ELEMENTS OF ENGINEERING ACOUS-TICS, by Dr. L. E. C. Hughes, pp. 159. (Ernest Benn, Ltd., 154, Fleet St., E.C.4. 1933. Price 8s. 6d.)

THE author of this book, who is lecturer in electrical communication at the City and Guilds Engineering College, London, has taken as a basis a series of articles published recently in the *Electrician* under the title "Engineering Acoustics." The book is primarily concerned with the system comprising microphone, amplifier, and reproducer, which is fundamental to telephony, broadcasting, gramophones, and talking pictures: the underlying principles involved in this system are adequately investigated and a clear account is given of methods of measuring gains and losses at each stage. Considerable attention is given to the causes of defective performance in microphones and loud speakers and the economic limitations to good production are made evident.

The factors which determine good performance are extended to include the acoustic properties of the studio and the anditorium. Thus the reverberant properties of rooms affect the ratio of direct to reverberant intensity. This quantity, called the acoustic ratio, is of æsthetic importance, and its calculation also involves the directional response of the microphone and loud speaker.

The inefficiency of the commercial telephone is remarkable: its transmission is limited to the band 500-2,000 c.p.s., its amplitude distortion is large, and a count of words spoken into the instrument shows that the intelligibility at the receiving end is only 50 per cent.

This is a text-book of fundamental principles and is recommended to the serious student who wishes to get down to the basis of engineering acoustics.

The Projectionist's Handbook, a Complete Guide to Cinema Operating, by R. Pitchford and F. Coombs.—After two introductory chapters on Elementary Electricity, Magnetism and Applied Electricity, the authors give practical advice and instruction on the many details with which the Cinema Projectionist should be acquainted, including film handling and making-up, projectors of various types, their care and adjustments, accumulators, valves, recti-fiers, sound reproducers and amplifiers, British Acoustic Films, Western Electric, and British Talking Pictures equipment, the arc, and much useful advice on the management and practical running of cinemas.

We believe this to be the first book published which deals with this subject in such a manner, and it should undoubtedly prove useful to radio amateurs interested in the details of The authors maintain that the cinematograph industry secures a large per-centage of its recruits from the ranks of the technically minded radio enthusiasts, and that the call for trained men of a standard of intelligence above the ordinary is becoming more and

more insistent.

Pp. 352, with numerous illustrations and dia-rams. Published by the Watkins-Pitchford Technical Publications, 34-35, High Holborn, London, W.C.1. Price 18s, 6d.

Igranic D9 Loud Speaker

In connection with the review of the Igranic Do loud speaker in our December 1st issue, we are asked by the makers to state that the current prices for this model are as follows; "Standard" 29s. 6d., Class "B" and "Q.P.P." 31s. 6d.

"One Moment, Please..!"



(I) The Milan announcer, Signora Rizzi and her husband, with the station musical box.

HOM should we admire most:
the man who first conceived
the idea of filling up programme gaps with interval
signals or the heroes who have put his
idea into practice? It is difficult to say.
Even in the case of the least beautiful of
these symbolic sounds, when objectors
have come to examine the actual mechanism producing the sounds, then it can be
said, with Goldsmith, that "fools who
came to scoff remained to pray."

The interval signals of the European stations fall into two distinct types. In the first, the sound is produced mechanic-

ally and picked up by a microphone or by a special magnet and passed through a valve amplifier to the normal speech input The equipment. second type is the product of any bright station engineer who has set himself the task of producing the sound entirely by electrical means. example is the oscillator system at Ljubljana used to produce the famous
"cuckoo" signal.
In the majority of

In the majority of stations, however, it is the semi-electric method which has found favour, and the contrivances seem to cover the whole field

of human ingenuity; indeed, in the small space at my disposal, it is impossible for me to describe more than a few of the most typical.

Up to a year ago the most honest and straightforward call was that of Katowice, which purported to be the sound of a hammer struck on an anvil, and actually was! One of the hall porters would come

EUROPE'S INTERVAL SIGNALS

MANY listeners to foreign stations must have wondered just how the various interval signals are produced. Here is an interesting first-hand description of some of the ingenious devices by means of which stations are able to proclaim their individuality and assist listeners in identifying them.

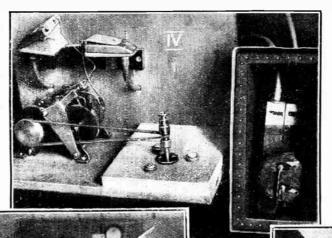
into the studio during each interval and deliver a series of steady strokes on a real anvil, the underlying idea being to symbolise the steel and iron industry for which Upper-Silesia is famous. Unhappily, the porter eventually lost interest in his rather tedions task and asked for more pay. So Katowice resorted to the present signal, which consists of two tiny hammers striking two tuned steel bars in turn, the sound being picked up by a small micro-

The note is picked up electromagnetically by placing a magnet immediately under the tongues. The same principle is now used at the Deutschlandsender and a number of other German stations. At Budapest, as can be seen from the illustration on next page, the first amplifier is contained in the same box as the signal mechanism. By the way, the Oslo station recently asked Budapest to supply two interval signals, which were duly sent.

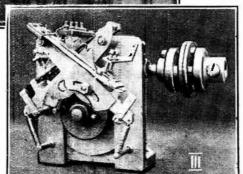
At Radio-Berne and at Lille use is still made of the simple musical box, which is played in front of the microphone.

One of the most amusing interval signals to examine is the "cuckoo" call at Wilno, produced by two small bellows, each blowing a tiny organ pipe. One pipe does the "cucking" and the other the "ooing." In the illusstration on this page the mode of operation can be

very clearly seen.







(II and III) Above is the "dummy" cuckoo at Ljubljana and (below) the switching mechanism for operating the valve oscillators which actually produce the call.

phone on the top of the appliance. So far as I am aware, Radio-Budapest was the first European station to adopt the musical-box principle. A number of steel tongues, tuned to different notes, are struck by small pins set in a revolving cylinder.

microphone is situated immediately below the organ pipes. The bellows are driven by a small motor.

At Turin, Milan, and the other North Italian stations the same principle is used, though a clockwork, instead of an electric, motor is employed, and it is necessary for the announcer to wind up the device. This method, although simple, has the great disadvantage that perfect silence must be observed in the announcer's studio during the interval.

No doubt many readers will realise that gramophone records are occasionally used to produce an interval signal, the original sound being recorded a number of times and then played just as long as the interval lasts. The disadvantage is that

Wireless World

One Moment Please-

records soon wear down under this continuous treatment.

An interesting example of an entirely electric interval signal is the "cuckoo" call at Ljubljana, which has been devised by Professor Osana, the chief engineer at the station, and is operated by oscillating valves producing two notes of audio frequency. A human touch is the provision of a stuffed cuckoo in a glass box in front

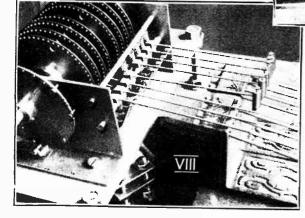


(VI) Here is a typical scene before the porter went on strike at Katowice. On the right (VII) is his mechanical successor.

of a dummy microphone "so as not to disappoint visitors to the studio!"

The original purpose of the interval signal was to

provide listeners with a means of knowing whether their sets were still operating satisfactorily during the periods between one broadcast programme and another. With the steady improvement in receivers this function has become almost unnecessary; on the other hand, there was never a time when identification signals were more



needed than they are to-day. And it is this consideration that prompts me to put in a plea for the universal adoption of some such means of identification by every station in Europe. It is this "signature tune" which can give every station an individuality of its own and also, which is more important, can enable the ever-grow-

ing army of distant listeners to recognise each transmitter and record it in his tuning chart.

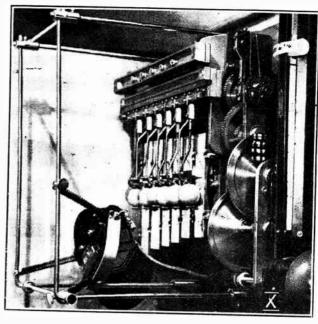
We do not ask for elaborate calls—the simpler they are the better for their purpose—but whether it be a musicalbox, a gramophone record or the tintinnabulation of bells, every station director who decides from this Christmas onwards to give his transmissions this extra touch of personality will be taking one more step towards international goodwill.

Opinions differ on the question of what is the ideal form of interval signal. A serious trouble has always been the difficulty of know-

ing whether a signal which gives intense

pleasure when played two or three times is likely to give the same satisfaction when repeated perhaps for ten minutes without intermission. It is to be feared that very few interval signals can pass this acid test. With all due respect to Ljubljana and Katowice, it must be admitted that few sounds in this noisy world are more maddening than

the score of monotony, but there is no doubt that the clock tick belongs to that class of monotonous sounds which are soothing rather than exacerbating. Will

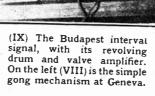


(X) The gongs and their associated microphone at Kalundborg.

the ideal interval signal be a compromise between the soothing and the stimulating type of call?

In America the very expression "interval signal" is beyond the comprehension of the ordinary listener, who is never asked to wait more than a few seconds between one item and the next. The American broadcaster has the greatest difficulty in retaining the interest of his audience during the programme, and he simply dare

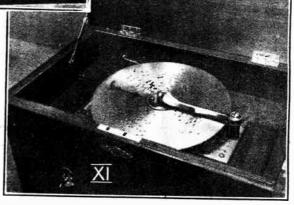
not trust the fickle fancies of his listeners during a silent period for a longer time than it takes to get from the armchair to the tuning knob. However, we in Europe seem to be in less of a hurry, and prefer quiet moments for reflection. Like the guests who attended Society dinners in London in the Regency days in company with a certain celebrated but rather too loquacious "talker," we are some-



the insistent call of Nature's most unsporting bird. And if the cuckoo call holds the palm in this respect, the constant repetition of even Chopin's "Polonaise in C Sharp Minor," as used at Warsaw, can become irritating

in the extreme.

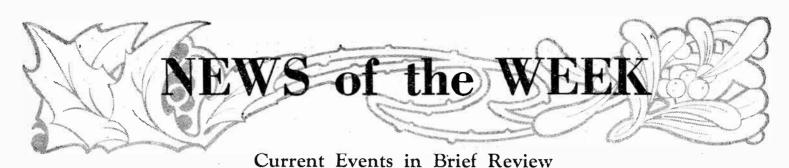
At the time when the B.B.C. chose a clock tick as the symbol of its waiting moments, there were many complaints on



(XI) The homely musical box at Berne.

times glad of these occasional "eloquent bursts of silence."

WANDERING WAVE.



Listeners' Greetings Broadcast

DANISH listeners having relatives or close acquaintances in Greenland are being permitted to visit broadcasting studios to utter a few Christmas greetings to their friends in the far north.

A Regular Programme Item?

THE idea of broadcasting Christmas greetings of listeners may be extended as a permanent arrangement. According to our Copenhagen correspondent, it is suggested that private individuals should be given the opportunity at intervals to broadcast to Danes abroad, the object being to strengthen the ties of kinship between Danes all over the world.

A New Christmas Game
THE keen wireless listener
should have an unusually discriminating ear, and this should
give him an advantage in some of
the Christmas games which are
being suggested for gramophone
enthusiasts. Promising material
for excitement should be found in
"Every-day noises as heard
through the microphone," a new
H.M.V. disc, C2600, giving familiar sounds recorded with varying
strength. Listeners are asked to
guess the identity of each sound.

150kW. from Sweden

VE learn that the Motala station, which relays the Stockholm programmes on 1,3,48 metres, is to double its present power output to 150 kW. in January next.

New Menace to Lucerne Plan

THE secret is out with regard to plans of the Swiss broadcasting authorities to increase the power of the three principal stations if the working of the Lucerne Plan is not successful. It is believed that various other European broadcasting organisations have similar plans.

If this is really the case it is difficult to believe that the Lucerne Plan will long be able to cope with the inevitable interference following a general all-round increase in power.

The New Paris Programmes

A LTHOUGH the Radio-Paris row under State direction, M. Henry de Jouvenel is to remain Programme Director. This will be good news to the many English listeners who have enjoyed the programmes of Radio-Paris under the old régimé. Incidentally, the programmes under State direction are to be considerably improved.

New Fish Story for Christmas

MARSEILLES is noted for its tall stories, but this one is the tallest ever. It appears that during the recent fêtes the sea front was bedecked with sixty loud speakers which provided a continuous concert. Moved by curiosity, or perhaps maddened by the noise, sheals of fish came shorewards and the local fishermen have secured record catches.

More High Power from France

THE first stone of another French high power Regional station was laid a few days ago at Marseilles by M. Stora, a member of the French Cabinet. The station is expected to be ready by July next year.

CHRISTMAS AND THE HOSPITALS

When thinking of your own arrangements for Christmas remember that there are still a good many hospitals where wireless is not yet available, and there are others with equipment so out of date or neglected that it is almost unserviceable.

If you are yourself in a position to help, either with technical service or in some other way, or can influence others to do so, remember that Christmas lime is the ideal occasion to make the effort.

Danish King's First Broadcast

THE King of Denmark gave his first broadcast on Sunday last, December 3rd, from the Copenhagen transmitter. His Majesty's speech was transmitted to America and relayed over the Columbia network. The royal microphone was installed at the Castle of Sorgenfri.



THE WORLD'S BIGGEST ORCHESTRA BROADCAST? A scene at Radio City, New York, during the inaugural ceremonies, showing what is described as "the world's biggest orchestra in the world's biggest studio." There was a large audience of celebrities.

English Talks from Warsaw

In his interesting talk in English from Warsaw on Friday last, Mr. Thad Ordon addressed more than six hundred correspondents who had written to him from this country. More than three hundred copies of the promised booklet on Polish history have been despatched, and a new supply specially ordered in view of the unexpected demand, will enable all who applied for the booklet to receive their copies within the next few days.

Full particulars of further broadcasts in English from Warsaw will appear in future issues of *The Wireless World*.

Television: A Free Lecture

A LECTURE on "The Progress of Television" is to be given by Mr. R. W. Corkling, F.P.S., at the Central Hall, Westminster, London, at 9 p.m., on Friday next. December 15th, under the auspices of the Institute of Patentees. The Rt. Hon. the Lord Askwith, K.C.B. will occupy the chair. Admission is by free ticket, obtainable on application to the General Secretary of the Institute, Mr. G. Drury Coleman, 39, Victoria Street, Westminster, London, S.W.1.

And Another

"ELECTRO-OPTICS in Television" is the title of a lecture to be delivered before the Television Society on Wednesday next, December 13th, at 7 p.m., at University College, Gower Street, London, W.C.t. The lecturer is Mr. L. M. Myers, B.Sc. Cards of invitation may be had on written application to Mr. J. J. Denton, 25, Lisburne Road, Hampstead, London, N.W.3.

Where Listeners Choose

L ISTENERS all over Europe will cast envious glances at Denmark where broadcasting subscribers are entitled to elect the programme directors. The Danish Radio Board consists of representatives of various groups of the community. One member is appointed by the Education Office, four are members of Parliament, and the publishers' and journalists' associations may appoint one member each. No fewer than six members are elected by listeners.

The next election of the whole of the new Radio Board takes place early in 1934. The candidates were chosen at an exciting meeting on November 22nd when the discussion was broadcast and listeners all over Denmark were able to follow the fortunes of their favourite candidates.

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Marconi VS 24

Variable-mu battery S.G.

Marconi VS24 is a new high-efficiency 2-volt variable-mu valve giving high and stable amplification with strict economy in H.T. and L.T. current consumption. VS24 is constructed on extremely robust lines and is thus remarkably free from microphonics, while its short gridbase simplifies both Automatic and Manual methods of volume control.

15/6



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VALVES

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Super-regenerative Receiver

WITH reference to articles on superregenerative receivers which appeared in your issues of May 18th and June 8th, 1932, followed by articles on May 26th and June 16th, 1933, the enclosed account of my experiments may be of interest.

These relate to the use of a separate quenching valve, which is assumed to vary the detector grid potential by means of a L.F. oscillating current. No mention is made of H.F. current in the quenching circuit, although a small H.F. choke or small resistance in the centre tap lead from this valve's grid circuit will stop super-regeneration, i.e., the quenching action is partly effected by H.F. currents in the quenching circuits. This view is apparently verified when the quenching valves L.F. grid coil and condenser are carthed through a tuned H.F. circuit which is capacity or L.F. filter coupled to the reacting detector grid circuit, as in the Figure. Using a small variable coupling condenser C₃ super-regeneration can be obtained with all but minimum values. Also, this effect can be controlled by tuning the H.F. circuits, and excellent reception, with absence of noise and broad tuning, is possible when adjusted to work

on the border line between—regeneration and super-regeneration.

Α low ampligives tude best results, and also a low anode resistance and low H.T. voltage are better than high values of both. This leads to the view that grid current is important, and the connection of another diode across quencher gridfilament substantiates this view. The quencher H.F. circuit can oscillate unsuitable

anode-grid coupling, without reaction being used in the detector circuit, thus stopping super-regeneration. This effect may be controlled and grid damping reduced by connecting the quenching valve's L.F. and H.F. circuits by a H.F. choke shunted by a small

Letters to the Editor:-

Super-regenerative Receiver

Loud Speaker Response Curves

The Editor does not hold himself responsible for the opinions of his correspondents

variable condenser (L₂-C₂). This condenser sharpens tuning and controls super-regeneration, and this circuit can be adjusted to separate W8XK and DJB or other similarly related frequencies.

Valve noise need be no greater than with any other type of receiver using an oscillating valve. With thorough shielding the detector valve can be coupled by a screened grid valve to an aerial to minimise reradiation.

The relationship between capacity and inductance in the L.F. oscillating circuits can be altered to suit the requirements of the H.F. circuits. Perhaps our mathematical friends will state that super-regeneration of this type is simply band-pass coupling or superheterodyne first detection boosted by L.F. oscillations, in which case the L.F. oscillations ought to be of a beat frequency which is equal to the difference between H.F.'s in quencher and detector grid circuits. The higher the frequency of the L.F. oscillations, the greater is the value of the H.F. coupling condenser required to produce super-regeneration.

I trust that these observations may be of use to short-wave enthusiasts, and, as a recent dweller in the Southern Hemisphere, I think an efficient three-valve set of this type with small battery requirements is ideal for "vast open spaces."

Swindon, Wilts. R. T. DALE.

Loud Speaker Response Curves

I SHOULD like to add to the remarks of Mr. Tyers on the interesting subject of speaker calibrations.

Taking a speaker curve by plotting points

N.T.

ODDOOD

C₁ or infd. C₁, L₁, circuit n = 10,000. L₂ = long-wave choke. C₂ = 0 to 16 m.mfd. C₃ = 0.40 16 m.mfd.

is liable to give very misleading results unless a very great number of points are plotted. The time taken to do this is very considerable and makes this method unsuitable for quick tests which are desirable in development work. Fortunately, recording milliamp, meters are available, and with their aid it is possible to devise apparatus which will draw out the characteristic as a continuous curve on paper. Such apparatus will reveal every peak and trough, and shows at a glance the nature of the response in the direction of the mike.

Electric lamps do not, as a rule, radiate green light downwards and red light side-ways, but the equivalent of this happens with most loud speakers. This raises the question of whether the curve giving the total forward radiation, or the curve taken with the mike on the axis, should be considered as the correct curve of a loud speaker.

Since the majority of loud speakers concentrate a beam of high frequencies forward along the axis, it generally happens that loud speakers show a considerable rise in the high frequencies on the axis and a serious loss of high frequencies everywhere else. The curve taken with the mike on the axis, therefore, only tells what the response will be like to the listener on the axis near the speaker, while the curve of total forward response gives the average of all points in the room. (In the case of very reverberant rooms the echo serves to even out the distribution.) In the case of ordinary living rooms, however, and particularly in very dead rooms, this average with ordinary speakers may not be obtainable in any one spot; the response as heard tending to be independent of the total forward radiation and approximating to the characteristic as measured for the direction of the listener.

With either type of curve, therefore, information as to the variation of characteristic with direction is required in order that the performance of the speaker under normal listening conditions can be judged.

In an ideal speaker the response should be the same in all directions to which the sound is intended to be distributed, and in such a case the axial curve would be identical with the curve of total forward radiation. This state of affairs, however, has not yet been achieved with ordinary moving coil speakers. Since listening generally takes place from a point more or less in front of the speaker, the axial curve, together with a curve taken 30° of the axis, will, in general, give satisfactory information of the oral effect of the speaker under examination. The practice of showing both has the further advantage of avoiding the very considerable labour which is involved in calculating from several curves what the R.M.S. total forward radiation is at each frequency, and plotting the resultant curve: P. G. A. H. VOIGT.

Correspondence, which should be as brief as possible, should be addressed to the Editor, "The Wireless World," Dorset House, Stamford Street, S.E.I, and must be accompanied by the writer's name and address

Readers' **Problems**

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Manual Control for A.V.C. Sets

BECAUSE it was convenient, and in spite of published advice to the contrary, a reader, who has constructed a set with A.V.C., has included a manual volume control of the type which operates by increasing the grid bias of the variable-mu H.F. valves in his set. The arrangement seems to work satisfactorily enough, but the A.V.C. system seems less capable than was anticipated of dealing with severe fading.

But surely this is what one would expect? If a receiver is to be capable of dealing with a fading signal, the A.V.C. system should be able to restore full sensitivity when it is needed. It cannot do this if negative bias on the controlled valves has been set manually at a higher value than optimum.

Isolated Aerial Circuit

IT has been noticed by a correspondent that the performance of his D.C. mains receiver, so far as silence of background is concerned, can be greatly improved by removing the earth lead from its terminal. But although hum is reduced by this procedure, there is a slight falling-off in sensitivity; we are asked to suggest means whereby this very acceptable freedom from hum may be retained, and the original sensitivity restored.

Our reader's experience is by no means an uncommon one. Of course, after removing the earth lead, the receiver is more or less effectively earthed through the mains, and so it is not surprising that its sensitivity suffers but slightly.

Most D.C. receivers are connected to earth in the manner shown in Fig. 1 (a), with a large condenser (C) interposed in the earth lead. Sometimes a reduction in the value of this condenser to some 0.002 mfd. will reduce hum without noticeably affecting senTHESE columns are reserved for the publication of matter of general interest arising out of problems submitted by our readers. Readers requiring an individual reply to their lechnical questions by post are referred to "The Wireless World" Information Bureau, of which brief particulars, with the fee charged, are to be found at the foot of this page.

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closed tuned circu.t, a double-wound aerialgrid transformer being employed. Unfortunately this may involve the replacement of the existing input coil.

Occasionally mains interference which manifests itself in this way may be reduced by inserting an H.F. filter in the power leads which feed the set. Alternatively, something may often be done by changing the position of one of the smoothing chokes.

Coil Positions

A PROSPECTIVE constructor of the A.V.C. Three asks in what order the tuning coils should be mounted.

In this receiver the aerial input end is at the back, and consequently the coils should be mounted in the following order, starting at the back of the set and working towards the panel: BP.1, BP.2, TC.1.

Interaction Between Components

IT is worth while emphasising the fact that when following a published receiver design, the substitution of certain compo-(particularly L.F. transformers, smoothing chokes and power transformers) of makes other than those used in the original design may be responsible for the introduction of hum. This is accounted for by the fact that the stray fields of different components are apt to vary considerably.

From a description of the effects noticed by a querist, we are inclined to think that

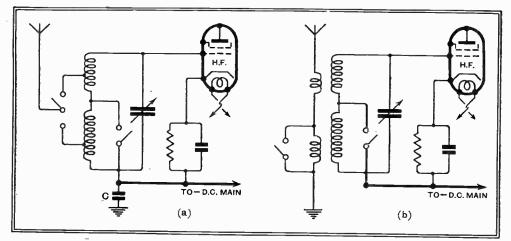


Fig. 1.--The conventional input circuit of a D.C. mains set, and an alternative arrangement which provides isolation between mains and earth.

sitivity, and we suggest that this alteration should first be tried. There is no need to disturb the wiring of the set, as the desired effect is obtained by connecting the condenser externally between the earth terminal and earth-two condensers in series.

A still better plan to adopt in the circumstances would be that shown diagrammatically in Fig. 1 (b). Here the aerial circuit is completely isolated metallically from the

the excessively noisy background of which he complains must be due to this cause. Fortunately, the cure is simple, and an experimental re-orientation of those components mentioned above should put matters Indeed, it is doubtful whether it right. will be necessary to touch anything but the L.F. transformer, which should be wired temporarily with flexible leads in order that its position may be altered while testing.

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Community Charging

IT is asked whether it would be an economical plan to charge about twenty-five L.T. accumulators direct from 220-volts D.C. mains—with, of course, the necessary resistance interposed. The reader who propounds this question tells us that he and a number of his neighbours propose to join forces in this matter, he asks us to publish a circuit diagram of a suitable scheme, and goes on to enquire whether the cost of a rotary converter to "step down" the mains voltage would be justified.

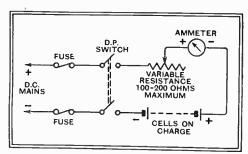


Fig. 2.—Charging series - connected L.T. accumulators directly from the mains.

We assume that all the accumulators to be charged will be dealt with at the same time, and that they are of the single-cell twovolt type. On this assumption, rather more than three-quarters of the total wattage taken from the mains will be wasted if direct charging be employed. That sounds terribly wasteful, but actually it is not so bad as it seems. A rotary converter would, of course. be much better, judged from the aspect of pure efficiency, but it would represent a considerable capital outlay which would hardly be justified unless the communal charging scheme were to be permanent.

A diagram illustrating the appropriate charging arrangements is given in Fig. 2. A definite value for the limiting resistance cannot be given, as the charging rate will be the rate of the smallest cell to be charged.

"Building a Whistle Filter"

REFERRING to the descripition of a lowpass whistle filter described in our issue of November 10th, information is requested as to the amount of wire needed for winding the three high-inductance coils.

Roughly six ounces of No. 40 D.S.C. wire will be needed for these coils.

The Wireless World INFORMATION BUREAU

THE service is intended primarily for readers meeting with difficulties in the coustruction, adjustment, operation, or maintenance of wireless receivers described in *The Wireless World*, or those of commercial design which from time to time are reviewed in the pages of The Wireless World. Every endeavour will be made to deal with queries on all wireless matters, provided that they are of such a nature that they can be dealt with satisfactorily in a letter.

Communications should be addressed to The Wireless World Information Bureau, Dorset House, Stamford Street, London, S.E.I, and must be accompanied by a remittance of 5s. to cover the cost of the service. The enquirer's name and address should be written in block letters at the top of all communications.

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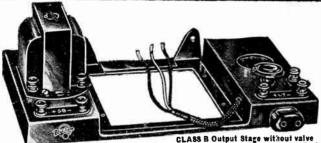
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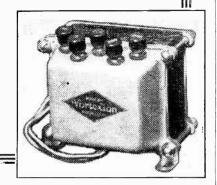
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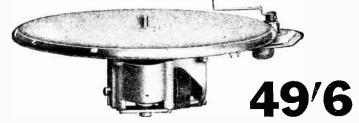




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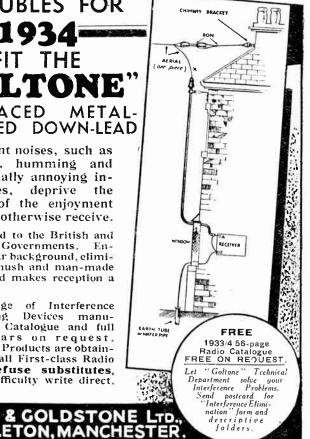
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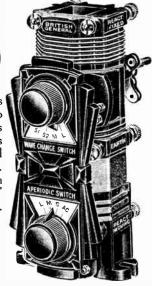
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10 -: p st 20.
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1 to 2, 4v. 2 to 4; open type 14 6, shrouded 16.6;

p 8t 1 ...
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R OTARY Converters, 220 volts D.C. to 200 volts A.C., capacities up to 0.44 K.V.A.; from £4/10.-Milo Engineering Works, Milo Rd., East Dulwich, S.E.22. 'Phone: Sydenham 4422 [4046]

GRAMOPHONES, PICK-UPS, ETC.

I S Your Weedroffe Pickup Still Giving Satisfaction? Complete overhaul costs 7-6; nick-ups (2 years' guarantee) at 25% each. J. B. Woodroffe, 93, Harwood Rd., S.W.6.

LOUD-SPEAKERS.

W EBBER 69/9 Super M.C., 6-volt, quality job, minus mains; nearest 63 5. Stock, Woodstock, Kingswood, Bristol. [4174]

TRADERS. Loud splakers of all kinds, with your other requirements: catalogue 6d. Person. Radio, Buston in Trent.

MOVING Coil Speakers, Magniyov 1935 type 142, 2,500 chins or 6.500 duns, at 26 -; 144 (some voltage as in 142), at 19 ; state if power or pentode transformer (litted hundbuckers); all carriage paid, cash with cider or co.d.; II D. Rodio Electrical Service, 9, Kingly St., London, W.I. (4185)

siter of cond. R.D. R dho Electrical Service, 9. Kingly St., London, W.I.

20 -!!! B.T.H. P.K. moving coil speakers, 6in, cone, new and unused, guaranteed; does speakers are the type as used in circuma sound epigpment, suitable for public address work; weight 3:th., and vastly superior to the cherp speakers now on the market, 100 volts, 150 volts, and 200 v. Its. D.C.

27 6 !!! 6-volt B.C. speakers, as above; C2 7.65 speakers as alove for 100-250 volts A.C., c. milete with field rectifier, brand new, ratios 1-1, 2-1, 20.1, and 30.1 microphone; 7 - cach.

MAGNAVON D.C. 142, 2.500 and 6,500 olius, 17.6; carriage paid, c.sh. with order or good, Ward, 2nd. Liberty of the carriage paid, c.sh. with order or good, Ward, 2nd. Ploor, 45, Farringdom St., E.C. (New address). [420]

EPTON Leads Again with Christmas Bargains !- B.T.H. energised speaker, power particule output transformer, power or pentode, 7in, cone, 12/6; Bentona P.M. speaker, power particule output transformer, power or pentode, 7in, cone, 12/6; Bentona P.M. speaker, power particule output transformer, power or pentode, 7in, cone, 12/6; Bentona P.M. speaker, power particule augusts, 8-11, Lipton, 93, Nw. R.d., Chingtord, E.4.

MERICAN Roia M.C. Speakers, K. Upe, 2,000, 2,500,

Now Rel., Chingtord, E.4.

AMERICAN Roia M.C. Speakers, K. type, 2,000, 2,500, and 6,500 chms standard model 75/in, cones 18f-; Senior 9in, cones, at 25/-; P.M.s. Standard and Seniors also in stock, cobalt magnets; state power or pentode when ordering; dual-balances; pairs matched to customers' requirements; P.M. Midgets, multi-atto (ransformers, 17/6; special, P.M.s., 75/in, cones, in patent baffle cabinet, black leatherette finish, at 32%, wonderful tone, reproduction crisp, no high note loss, and a drum sounds like a drum, not a tin kettle; also supplied for coast B. 2/- extra, makes a battery job sound fike a mains set; all goods carriage and the supplied of coast B. 2/- extra, makes a battery job sound fike a mains set; all goods carriage and to supplied for coast B. 2/- extra, makes a battery job sound fike a dampel addressed envelope and get real honest advice - K.C. Radio Electric, 14. Han fel St., London W.C.

get real honest advice - K.C. Radio Electric, 14. Handel 8t., London W.C.

RADIO AGENCIES Offer New Surplus—Moving coll speakers, permanent magnets, Ultra 95P.M., with multi-ratio transformer, list £4/25, at 47°; (one only slightly used) Wright de Costa A.C. Amiltorium speaker, complete with multi-ratio transformer, cost £18, at £6; Magnaxox, 1933, type 144, 120-170 D.C. (2.500 olms) or 200 250 D.C. (6.500 olms), complete with pentade transformer, listed 40° and 42° 6, at 19° cosh; F.S.A. Rola's, 75° in, cones, list 35°, at 18°; 9°n, cones, list 47° 6, at 25°, in voltages 2.000, 2.500, 6.500 olms, state if power or pentade transformer; permanent magnets, with ordinary or Class B transformer; permanent magnets, with ordinary or large 53°; all goods carriage paid, cash with order or large 53°; all goods carriage paid, cash with order or cool, Radio Agencies, No. 37, Albemarie 8t., Bond 8t., London, W.1. Regent 6240.

VALVES.

QUALITY American, 35, 51, 24, 42, 47, 41, 36, 38, 39, 10 -; 27, 45, 80, 7 s; others, 12 s. Evans, 26, Moss Grave, Urnston. [4193]

8/9 -Ostar Ganz valves, any type; bue a spare set while our stocks last, state type and voltage required; c.o.d., postage paid.-Ka. 167, City RJ. London, E.C.1.

Liveron Leads Again with Christmas Borgains! Lisen LCHLL. 5 11; Tungsram A.S.4100, 8'3; Bario S.G.215, S.G.V.M.215, Pen. 220, 7 6; det, 210, 3 6; super power, 4 9.—Epton, 93, New Rd., Chingford, E.4. (4208)

power, 4 9.—Epton, 93, New Rd., Chingson, res.

A I.I. Types of Brand New American Valves in Stuck,
first class makes, guaranteed; 247, 235, 224, 244, 236,
18, 19, 15, 242, 238, 46, 59, 89, 2 \cdot 7; 25, 224, 244, 236,
227, 8, 250, 281, 210, 17 6; post paid, each with order
or cond. Ward, 2nd Floor, 45, Farringdon St., E.C. thew
[4200]

address). [4200]
SPECIAL Offer, -Valves by world-famous Continuital
manufacturers, fully guaranteed, screen grid, variable
am screen grid, high magnification screen grid, low magnification screen grid, H. H., L.; all the above standard
mains type, 4.6 each. Ptemier Sundy Stores, 20-22, High
St., Clapham, S.W.4. Macaulay 2188 [3911]



The Mighty Voice Radio Realism

Five seconds spent in connecting this unit brings the magnificent volume of the All-Mains set to the owner of the battery receiver. With output and sensitivity increased at least five times all the realism of the studio can be enjoyed in the comfort of your home. Let the Christmas party dance to your battery set.

Model A-For Mullard P.M. 2B. B.T.H. PD220, Cossor 220B, Hivac B220, Marconiphone B21, G.E.C. B21, Clarion B22.

Model B-For Cossor 240B, Ferranti HP2. Clarion B24.

PRICE (Both Models

57/-

Class B Speakers

Class B Speakers suited to the characteristics of all Class B valves are included in the Rola range. Write for complete list to-day.

Extension Speakers

There is a correct Rola Extension Speaker for practically all British radio receivers. Write for Extension Speaker Broadsheet.

THE BRITISH ROLA CO. LTD., Minerva Road, PARK ROYAL, N.W.10. Phone: Willesden 4322-3-4-5-6.



12/6 each. Postage 6J

4/-

6/6

each

each. P_0 1/6 each.



(STANDARD TYPE)

4-Pin ... 8d. They may be easily mounted on chassis

5-Pin ... 9d. or raised baseboard. Sturdily built. Plate of highest quality insulating material. Resilient sockets guarantee full-surface contact with ANY type of valve pin and definitely prevent arcing. For casy entry and withdrawal the sockets move laterally and align with valve pins.

Valveholder with TERMINAL

Positive METAL to METAL wiring. Firm grip and full contact with ALL sockets with internal diameters from 1 in to 3 in battery sorket. Curved ends for easy insertion.

CLIX PANEL TERMINALS

Type B, with Hexagonal Shoulder for mounting Type A - 21cl. 4d.



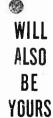
New Clix Folder "W."

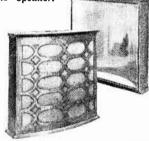
LECTRO LINX Ltd., 79a, Rochesier Row, London, S.W.1



of Scientists, Musicians, and all discriminating listeners that no Set, whether its price is £5 or £100, can fail to show an immeasurable improvement with the

PRIMUSTATIC Electrostatic Speaker.





It clarifies the reception and adds a teach of naturalness that no other medium can possibly do. See "The Wireless World" of September 15th, 2nd and 20th. As a dual combination this ELECTROSTATIC SPEAKER is the only worthwhile addition. (Frequencies reproduced up to 20,000~). Many hundreds of testimonials from delighted listeners. Hailed by the Radio Press all neer the world as the greatest advance in quality and retural reproduction. Used and recommended by Processor Einstein, etc., etc., 1 correspondent writes. "If people only knew how good radio can be with the "Primuslatic," they would not be without one."

PRICES: Model "D." size 14"...16", in 25, - Standard model, size 19 20 40/Super model, 27 × 24 × 6", in Chassis £2 10 0

All the models ore also witable for dual working.

TOR IMMEDIATE DELIVERY, POST FRIE, C.O.D.

OTDER TO-DAY FROM:

PRIMUSTATIC SALES (Primus Mfg. Co). Primus House, Willow St., London, E.G.2 'Phone: Bishopsgale 5681

Valves.-Contd.

NEWMAN, the Valve Mant-Just arrived, 2.000 brand new latest type American valves, all boxed, guaranteed R.C.A. manufacture; 235 11/-, 224 12/-, 236 13/-, 247 13/6, 237 13/-, 233 15/3, 245 8/-, 244 14/-, 227 8-, 226 6/-, 280 8/-, 242 14/-, 232 13/6, 647 16/-, etc., etc.; send us your enquiries, prompt attention for each or e.o.d.—Newmans, 309, Roman Rd., Bow, E.3. [3882]

COMPONENTS, ETC., FOR SALE.

 \mathbf{R}

R.

SELECTED Parts for ale, as new; c.o.d. or 'Wire-ess World' deposit system, which we recommend if in doubt as to the splendid value offered; we take risk of damaze in transit to our customers; goods tested for catters and guaranteed.

PARE Earl Dual Speakers, on baffle, 35 ·: Epoch 20c. speaker, new, 25 ·: R.I. Q.P.P. transformer and choke, second-hand, 19 ; Varley impedance matching transformer, 7 6, to bith resistance speakers; Clarkes 4v, 5 and, transformer, input 240v., 6₇6; Phillips datto, for 200v., 6 6, C.T.

B. Universal Log 0.06×5 Condensers, 3 6 pair; Colvern R2R coils, 4 6; valve rectifier unit complete, 150v. 50 m.a., 15 ·: H.T.4 ·:nd Varley transformer, 17 6; B.T.H. Golden disc induction motor, perfect, 22; Telsen 8.W. adapter, complete, 11 ·: J.B. 3-gang R3, with drive, 10 6.

S.W. adapter, complete, 11 st. a.b. begang r.o. were drive, 10 6.

CPELIAL Offer of Ry: Il's 4v, 3 amp, C.T. Filament Tronsformers, input 200 250v. 6 9 each to clear; Ry:Il's 4mf, 250v, working 3 6; all guaranteed 12 months, 6 c. 2 mf, 750v, working 3 6; all guaranteed 12 months, alate complete, fit bight spindle, read 0 100 from left to right; 5/6, pad free.

UMKNOBS, Polar 2g-ng, with drive complete, 10 s. 1932 model, new, grown; Polar disc drive, with Polar No. 4 0.0005 condenser, listed 9 s. 4 6 the two new.

METERS, moving coil, made for Ryall's Radio, guar-tion, all panel flush type, bakelite case, 0.20 m.a., 0.50 m.a., 21 - each; 0.250v., 32 6: 0.350v., 35/-; 1,000 ohm-per volt, zero adjuster, size 31/in. METERS, as above, moving iron, first grade, air damped, zero adjuster, 0.250v. A.C., 18-; non-damped, without zero, tellzv. 10 · : 0.250v., 12 · : 0.3 amps., 10 · 0.20 m.a. A.C. and D.C., 10 · ; 0.50 m.a., ditto.

damped, without zero, to 12v., 10 : 0.250v., 12 : 0.3 amps., 10 : 0.20 m.a. A.U. and B.C., 10 : 0.50 m.a. ditto.

MAGN CORE Class. H. Universal Choke, 5 6; Magnarative, 10 : 0.00 m.a. ditto.

MAGN CORE Class. H. Universal Choke, 5 6; Magnarative, 10 : 0.00 m.a. ditto.

RADIOPHONE Pois, with switch, 10,000 ohms. 2 6; without switch, 100,000 ohms. 2 6; without switch, 100,000 ohms. 2 5; PICLAL Offer of 3v. and Rectifier (valve) Chassis, from Vagerphone, all gataraticed, new, and very well made, chassis only, 20., with valves 80 .

RYALL'S RADIO Offer Reliable Resistance is specified, in values 100, 250, 500, 1,600, 2,000, 50,000, 10,000, 15,000, 20,000, 25,000, 30,000, 40,000, 50,000, 75,000 100,000, 150,000, 250,000, 30,000, 40,000, 50,000, 75,000 100,000, 150,000, 250,000, 30,000, 40,000, 50,000, 75,000 100,000, 150,000, 250,000, 30,000, 40,000, 50,000, 75,000 100,000, 150,000, 250,000, 30,000, 40,000, 50,000, 75,000 100,000, 150,000, 250,000, 30,000, 40,000, 50,000, 75,000 100,000, 150,000, 250,000, 50,000, 100,000, 100,000, 150,000, 150,000, 250,000, 100,000, 150,000, 150,000, 250,000, 100,000, 150,000, 150,000, 150,000, 150,000, 250,000, 150,0

PREMIER.

R.

DREMIER SUPPLY STORES Offer the Fellowing Sel Manufacturers' Surplus New Goods at a Fraction of the Original Cost, all goods guaranteed perfect, carriage paid ever 5 -, under 5 - postage 6d, extra (freland, carriage (Georgia))

paid ever 5 , under 5, postage 6d, extra (Ireland, carriage forward).

PLIMINATOR Kits, including transformer, choke, L. Westinghouse metal rectifier, T.C.C. condensers, resistances and diagram, 120v. 20 man, 20°-; trickle charger 6 ever 250v. 60 milliamps, with 4v. 2-4 amps. C.T., 1.T., 25 ; trickle charger, 6 everta; 250v. 60 milliamps, with 4v. 3-5 amps. C.T., L.T., 30°-; 200v. 100 milliamps, with 4v. 3-5 amps. C.T., L.T., 40°, 6; 300v. 60 milliamps, with 4v. 3-5 amps. C.T., L.T., 37°/6; 150v. 50 milliamps, 27°/6.

with 4v, 75 amps C.T., L.T., 37/6; 150v, 50 milliamps, 27-6.

T. G.C. Condensets, 750v, working, 2 mf., 3 6; 4 mf, 6 7, 4 mt, 450v, working, 4 mt, 5 6; 4 mt, 2 6; acucous electrolytic, 440v, working, 4 mt, 5 , 8 mt, 3 , 6 acucous electrolytic, 440v, working, 4 mt, 5 , 8 mt, 5 , 6 mt, 6 f, cach or 5 - per dozen; 4 mt, 5 , 8 mt, 5; Lirces 6d, cach or 5 - per dozen; 4 mt, 5 pm chassis from ting valve holders; shielded streen grid or pentode bads, 1-watt wire end resistance, any value; 0.1 condensers; one-off switches, push-pull; polar gauging devices; 0.02 condensers, 0.5 condensers, 0.1 condensers, 0.2 condensers, 50 condensers, DOLAR 3-gaug 0.0005 Condensers, split end vanes, totally screened dis-drive; 6 11.

MSCO Tripleganz, 0.2005 Condensers, with trimmers, 4 11.

T.C.C. Electrolytic Condensers, 100 miles many

A MSCO Tripleganz, 0,2005 Condensers, with trimmers, 4 '11.

A MSCO Tripleganz, 0,2005 Condensers, with trimmers, 4 '11.

T.C. Electrolytic Coadensers, 100 volts working, 15 mid., 1 3; 6 raf, 50%, 1/s.

PREMIER Chokes 40 ma., 25 hys., 4's; 65 m.a., 30 hys., 6; 150 m.a., 30 hys., 10/6.

PYE Chokes, 20 or 32 hys., 4's; Premier multicratio output transformers, giving 15 different ratios; 7/6.

H CH Industance Chokes, resistance 2,500 ohms, 80 hearys, 60 m.a., 5/6.

WESTINGHOUSE Meah Rectifiers, 120%, at 20 m.a., 6.6; 200%, at 50 m.a., 8/6; 200%, 60 m.a., 10/6.

H ARLEY Pickemp, complete with arm and volume control; 12/6.

BPITSH RADIOPHONE Wire Wound Potentiometers, with mains switch meorporated, 5,000 ohms, 10,000 ohms, 50,000 ohms, 10,000 ohms, any value; 3 6.

KOLSTER BRANDES Gramophone Motors, dual type, can be worked by chekwork or mains, induction type 106-250 volts, 25; complete with all fittings and turn-table.

(This advertisement continued on next page.)

SURPLUS RADIO BARGAINS

Come along and pick out your own Bargain.

LOOK AT THESE.

WEARITE MAINS TRANSFORMERS. Rectified
 WEARITE MAINS TRANSFORMERS.
 Rectified online

 online
 300 Volts at 60 M a.
 Heaters 2-0-2 up to 4 Amps.

 np to 4 Amps.
 Rectified Filament 2-0-2 up to 4 Amps.
 Rectified Filament 2-0-2 up to 4 Amps.
 For use with D.W.3 Rectifier

 condensers.
 14 Mid. Condensers.
 750 V. D.C.
 Test.
 T

DOUBLE SMOOTHING CHOKES. Mounted, sound

price 35 -, our price Single ditto, **4, 6** each. Postage 9.1.

Hundreds of other interesting bargains offered

Those unable to call should write for Free List "W. Ail goods sent per return, Cash or C.O.D.

SURPLUS RADIO, 94, HIGH HOLBORN, LONDON, W.C.1.



Follow the lead of the manufacturers and make your connections and nuts positively secure with—



AND LOCKING TERMINALS.

British Paten t 194937. The twisted teeth bite into the metal and prevent "slacking oft." The more the vibration, the tighter they grip. ASK YOUR DEALER FOR "SHAKEPROOF."



Manufactured by BARBER & COLMAN Lt 1., Brooklands, Manchester







IMPROVE RESULTS Many thousands pay tribute to

Many thousands pay trihute to the improved results and amazing economy of the Standard Wet Battery. Abundant pure wonderfully, cells are regenerative. Annual replenishment at small cost gives you H. T. that lasts for years at half the cost of dry batteries. Invest in a Standard. 120v. 12,500 m.a. \$2 complete. Carriage paid. ALL STANDARD BATTERY SPARES SUPPLIED The WET H.T. BATTERY CO., (W.W.) 26 Lisle St., Londor,

Add 50/- Weekly to Your Earnings by CHARGING ACCUMULATORS in your spare time.

Complete clant, incorporating Westinghouse Rectifiers, to charge 105 cells weekly. Trade Price, £4-4-0 or 8 - monthly.

MAINS' POWER RADIO, LTD., Romford, Essex-

MAKE IT A

Bring your Battery Set up-to-date. The Best way to convert—The Easiest way to convert—The Accepted way to convert—is by the

SOUND SALES CLASS "B" Price of Unit including lead & Plugs 35/-

SOUND UNIT

See illustration of Radio Gifts, Page 32.

(The first of its kind and still the finest.)

There are two ways of obtaining a Mains performance from your Battery Set:

1. Just plug-in the SOUND UNIT.

2. Incorporate Sound Sales Class-B Transformers and Chokes.

GET THE BEST EDOS.

GET THE BEST FROM YOUR MAINS, USE SOUNDS SALES MAINS TRANSFORMERS. The model illustrated on Radio Gift Page No. 32 is our latest and special classis mounting model for the NEW MONODIAL. Get details of our latest low consumption, totally enclosed, electrostatically shielded mains TRANSFORMERS with unique fuse tapped voltage selector. To adjust primary input you merely move the fuse; also, safety-first fuses in the H.T. secondary to protect the transformer against external short circuits. Ask for Lirt W.X."

REALLY GOOD REPRODUCTION.

REALLY GOOD REPRODUCTION.

"Practicol Wireless," after testing the SOUND SALESSERRATED SURROUND P.M.M.C. SPEAKER, said:—" For those who are looking for something really good in the way of reproduction we can confidently recommend this speaker,

"Wireless Trader" said:—" Adequate response at 60 cycles without frequency doubling. No bad resonance at 100 cycles as commonly found. . . Sensitivity above the average. . . a very commendable entry of this firm into the loudspeaker field."

Supplied fitted in

See illustration on Radio Gift Page 32 Supplied fitted in Cabinet for 12 6 extra

Specified by the Experts

SOUND Write for details of our Driver Transformer, an our full range of Transform

TREMLETT GROVE WORKS, JUNCTION ROAD, N.19.



HIGH VACUUM VALVE CO., LTD., 113-117, Farringdon Rd., E.C.1

Components, etc., for Sale.-Contd

(This advertisement continued from previous page.)

SPECIAL Offer.—Microphones by prominent manufac-turer, high sensitivity, uniform response, complete with stand, transformer and battery; listed \$3 15, our price 18/6.

PREMIER British Made Meters, moving iron, flush mounting, accurate; 0.45, 0.50, 0.100, 0.250 millionps, 0.4, 0.5 amps., all at 6%.

ORMOND Condensers, 2.gang, semi shielded, 2.6; wire wound potentioneters, 15,000 ohms, 1.6.

SPECIAL Offer of Mains Transformers, manufactured by Philips, input 110-115v, or 200-250v., output 180-0480 volts, 40 m.a., 4v, 1a., and 4v, 3a., 4/6; 200-0.200v., 4v, 1a., 4v, 3u, 4/6.

A LL Premier Guaranteed Mains Transformers have engraver terminal strips with terminal connections, input 200-256 volts, 40-100 cycles, all windings paper interleaved.

input 200-256 volts, 40-100 cycles, all windings paper interleaved.

PREMIER H.T.8 Transformers, 25 v. 60 m.a., rectified, with 4v. 3.5a., C.T., L.T., and screen primary, 15 v.; with Westinghouse rectifier, 25 v.

PREMIER H.T.9 Transformer, 300v. 100 m.a., ractified, with 4v. 3-5a., C.T., L.T., and screened primary, 15 v.; with Westinghouse rectifier, 26 v.

PREMIER H.T.10 Transformer, 200v. 100 m.a., rectified, with 4v. 3-5a., C.T., L.T., and screened primary, 15 v.; with Westinghouse rectifier, 26 v.

DOUBLE Spring Metors, made by Garrard, play five sides on 10 m. record, complete with turntable and all fittings: 17 6.

PECIAL Offer, Accumulator chargers, input 200-256v, A.C. to charge 2v and 4-volt accumulators at 1g amp.; owing to the high efficiency of the silver oxide rectifier employed charger may be used during broadcast; 9 6 each.

CENTRALAB Potentiometers: 50,000, 250,000 and 500,000 cluns, 2 v. each; ditto, wire wound, 200 chins and 400 cluns, 1 v.

A FLW More Only Western Electric 4211E's and

CENTRALAD JOHN CONTROL OF CONTROL OF SOLUTION AND JOHN CONTROL OF SOLUTION OF

Proceedings domining of the state of the sta

PREMIER Mains Transformers, output 460 0-400 volts, 100 m.a., 4v. 4.5a., 4v. 2-5a., with screened primary, 15 s. Premier Auto Transformers, 100-110 200-250 volts or vice versa, 60-watt, 7 9; 100-watt, 10 -.

SPECIAL Offer of Manufacturers Type Transformers, any input, output 250-0-250 volts, 60 m.a., 4v. b.t., 4v. 5a., tboth C.T.), 8 6; H.T.8 transformer, with 4v. 5-4a. (C.T.), 8 6; W.T.8 transformer, with 6v. 2.50 ohms, 17 6; D.C.152 Magna, 2.500 ohms, 37 6; all complete with humbucking coils; please state whether power or pentode required; A.C. conversion kit for above types, 10; Magnavo P.M. 7 in, cone, 18 6.

BULGIN 3 amp. Mains Switch, 1 -; lever switches, 2, 3 or 4 way, 3 pole, 1 - either type.

WESTERN ELICTRIC Mains Transformers, 300 0 300, 60 milliamps, 4v, 12 amps, 4v, 2-3 amps, 6, 6.

GRAMPION M.L. Loud-speakers, 9im. cone, handles 4 watts, 18 6.

GRAMPION M.L. Loud-speakers, 2,500 ohm field, 9in, cone, handles 6 watts, 21 - .

H.M.V. Condenser Block, 4 · 4 · 1 · 1 · 0.5, 256v, working, 3 5; citto, 400v, working, 5 6.

ELLIOT First-grade Mowing Coil Meters, 0.30, 0.50, 0.100, 0.150 milliamps, flush types, 17 6 each; 0.100, 0.150 milliamps, projecting types, 15 - each; 0.100, 0.150 milliamps, flush types, 17 6 each, 18 fields, 2.500 and 5.000 ohms, 100 and 200v.), with output transformer, 12 6; A.C. conversion kit for this peaker, 10 - extra, 10 T.C.C. Condensers, 250v. working, 4,4,1 mfg., 3,6; 6,4,2,2,2,2 mfd., 375v. working, 6,11; 4,4,1,6; PECIAL Offer of Wire Wound Resistances.—4 watts any value up to 10,000 chms, 1: 8 watts, any value up to 15,000 chms, 1: 8 watts, any value up to 15,000 chms, 1: 6: 15 watts, any value up to 10,000 chms, 2: 2.5 watts, any value up to 50,000 chms, 2: 6: 50 watts, any value up to 50,000 chms, 3: 6.

PREMIER SUPPLY STORES, 20-22, High St., Clapham, S.W.4. Macaulay 2188, Closed 1 of beck Wednesdays, open to 9 o'clock Saturdays, Nearest Station, Clapham North Underground.

PREMIER.

RADIO SUPPLIES Offer

(N. & K.) Farrand Inductors, trade supplied; (N. & K.) Anniors, 7-6.

Tuniors, 7-6.
 ESTINGHOUSE Metal Rectifiers, 300v. 60m., 10/6;
 Westinghouse (L.T.), 3-6; transformers for same, 8/6.
 K.B.) Moving Coil Speakers, 4-; 4-valve manufacturers chassis, 7-6; new calunct, set and speaker.

7/6.

I.M.V. Radiogram Cabines, 50'-: H.M.V. 11.5 mfd. and 10.5 T.C.C. condenser blocks, 3 6; H.M.V. (H.F.) clokes, 9d.

S. INCLAIR P.M. Moving Coil Speakers, 16/-: Epoch P.M. ditto, 12/6.

E. DISWAN Splitter Fuse Boxes, 2 6.

COLID Leather Portable Cases, 2'6; Harlie and Amplion pickups, 12'6; Burndept 0.0005 condensers, with drum drive, 1'-.

POSTAGE Extra.-131, Lee Rd., Lee Green, S.E.3.
[4212]

Three Ideal Gifts

EELEX SHORT-WAVE CONVERTOR.



Price 52/6

less valve

A wonderful invention that converts sets into all-wave receivers. No alterations necessary - when connected to the aerial and earth terminals stations between 16-190 metres can be tuned in. Will add 70 extra stations to the log of most

Short-wave reception is getting increasingly popular, more and more people are taking an interest in this fascinating side of broadcasting-the greater range that is possible on the short-waves attracts many enthusiasts who are interested in receiving programmes broadcast from America and all parts of the world. A wonderful gift for your friends.

EELEX TESTING PRODS.



A gift of Eclex Testing Prods will be welcomed by your constructor friends. The ideal testing instrument for the wireless enthusiast eliminating all danger of shock, burnt-out valves or displaced Price wires. Recom- 3/6 mended by all per pair. wireless papers.

EELEX TERMINALS.

The economical way to buy terminals. Set of 4 terminals and 24 indicating tabs; 40 letterings available. Unwanted nameplates can be exchanged at the local dealer's, provided they are unused, at the rate of 2 for every 3 returned. The ideal gift for 2/6 constructors. per set.

Write for Booklet C.2.-

J. J. EASTICK & SONS. EELEX HOUSE,

118. Bunhill Row. LONDON. E.C.1

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Length 12". Height 8".

REPRODUCTION OF OUTSTANDING QUALITY

MAINS ENERGISED. MAGNAVOX MOVING COIL LOUD SPEAKER

UNDISTORTED OUTPUT 2 WATTS YET WILL STAND ON YOUR MANTELPIECE

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An Ideal Xmas Gift

LONDON RADIO DEVELOPMENT SERVICES LTD.

56, HAZEL ROAD, KENSAL RISE, N.W.10 WILLESDEN 6180

Components, etc., for Sale.—Contd.

WOBURN RADIO Offer Following New and Bankrupt

WOBURN RADIO Offer Following New and Bankrupt Stock:—

FERRANTI Output Transformers, centre tapped multiratio, 32, 25, and 18-4, at 4/11; class B driver and choke, 9 6 pair, with suitable valve and 7-pin valve holder, 22.-; Westinghouse metal rectifiers, II.7.6, 6)-; Astra tuning condensers, COO, 1, 5; .0002 differentials, 1, 4; mica dielectric tuning condensers, COO, 1, 5; .0002 differentials, 1, 4; mica dielectric tuning condensers, COO, 1, 5; .0002 condensers, 750v. test, (.01 mfd., 1 mfd., 1 - 2 mfd., 1 - 3, 4 mfd., 2/3; Siemens, 3,500%, test, 0.01 - 0.01 mfd., 1 / 7, 4 mfd., 2750v., 2, 3; T.C.C. tibular 350v., working 0.1 and 0.01 mfd., 1 mfd., 1 - 3, 1 mfd., 1 mfd., 1 - 3, 1 mfd., 1 mfd.

MILDMAY RADIO EXCHANGE Offers the Following,

R EADY RADIO Meteor Screen Grid 3-valve Kits, with Mullard valves, moving coil speaker and cabinet; list price £8 17/6, £3 15 each.

ZONOPHONE 3-valve Kits, with Marconi valves, speaker and cabinet, in scaled boxes; 50%, listed £6/6.

GAMBRELL Senior Novotone, 35 -; Radiophone 4-gang, fully superhet condenser, 15 -; Ormond 2-gang, fully seconds, 10 -; Leweos and Wearite superhet coils, 4 6 each; B.P.F. R, 7 -; Leweos and Wearite superhet coils, 4 6 each; Ready Radio Instant output transformers, 7/6; R.I. Class B 0.V.37, 9 -; B.I. Class B output, 6 6; pair R.I. input and output Q.P.P., 15 - (second-hand); Tunewell 820-25 chokes, 7 -

M AICOMI Senior Type P.M. Speaker Magnets, 15—each; Colvern gang cods, bandpass, input and oscillator, 15—set of 3; Perranti 0-1.5 M.A. Meter, 27-6; Ferrant 0-150 ma., 17-6 Ferranti 0-500 ma., 20—; Elliott 0-100 ma., 14—; Weston type 506, 0-10 ma., 14—; 0-50 m.a., 14—; 0-1C-vidt, 7-6; Varley Nicore I transformers, 9—; Nicore II, 6-6; Multitone Toro, 6-1, 9/-.

PARMEKO Heavy Duty Choke, 30h, 50 man, 15's; Parmeko heavy duty L.F. transformer, 15 -; R.I. hypermu, 7 of feecond hand); Burndept pick-ups, 50 model, 14 s; B.T.H. Junior pick-up, with volume control, 13 s; Macconi K17 pick-up, 24 s; J.B. 0.00015 short wave condenses, 3 3; Lissen 3-gang smorthet coils, 14 s; Radio Pax, less base plate, 25 s; Colvert pair, K.B.L.C. and K.G.R., 17 s; Avo Muor, 29 s; pair Forranti coils, B.F.I. R.F.2 and sercons, 7 6; Colvert Kd.I.O., K.G.R. coils, 5 scach; Ferranti 3-chang condenses; fully screened, 12 s; Ferranti inductor lond-speakers, 15 s; pair Autonic coils, 9 s. Wearite frame aerial, 20 s Lewis, frame

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SOUTHERN RADIOS Wireless Bargains.—Set manufac-turers' guaranteed surplus.

M 11NS Transformers, -250-0-250 volts 60 m.a., 4v. 1a., 4v. 2-4a., 11/-; 250-0-250 volts 60 m.a., 4v. 1a., 4v. 2-3a., 4v. 1a., 12 ; 350-0-350 volts 60 m.a., 4v. 2-2/a., 4v. 2-4a., 13 6; 350-0-350 volts 120 m.a., 4v. 2-2/2d., 4v. 2-4a., 13 6; 350-0-350 volts 120 m.a., 4v. 2-2/2d., 4v. 3-5a., 4v. 1a., 16/-; 5v0-0-500 100 m.a., 4v. 2-a., 4v. 3-5a., 4v. 2a., 19 -; step-up or step-down transformers, 0. 100, 110, 200, 230 and 250 volts, 60 watt output, 14 9.

100-wat output, 14 9.

\$\frac{4}{2}\$ (100-wat output, 14 9.)

\$\frac{5}{2}\$ (100-wat output, 16 9.)

\$\frac{5}{2}\$ (100-wat output, 16 9.)

\$\frac{1}{2}\$ (100-wat output, 16

SPEAKERS. Permanent magnet speakers, 7in, cone, 23 (listed 49/6); D.C. mains energised, 2.500 to 6.500 ohms, complete with humbucking coils and transformets, 16 6 (list 39 6); Magnavex moving coil D.C., 2.500 ohms, 18/- each (list 39 6); G.E.C. Stork speakers, complete in magnificent cabinet, 19 6 (listed 23 15); Ormani speakers, complete in cabinets, 10 (listed 25); Blue Spot, 100 c., 13 6 (list 39 6).

FAMOS 4-pole Loud speaker Units; 7 's (listed 29 s)

CONSTRUCTORS Kits.—Ready Radio Meteor screen grid 3-valve kit, less valves, 26/*: with 3 Mullard valves (P.M.12a, P.M.2D.X., P.M.2a), 49 * (list £5 7 6).

READY RADIO "303" A Kits, complete with cabinet, M.C. speaker, less valves, £2 5; with 3 Mullard valves (P.M.11, F., P.M.2D.X., P.M.2), £3 5 (list P.S. 17, 6). valves £6 17 6

PEADY RADIO Meteor "A " 3 valve Sereen Grid Kit, complete with cabinet, M.C. speaker, less valves, £3 7 6; with 3 Mullard valves (P.M.12A., P.M.2D.X.), P.M.2A.) £4 10 (list £8 7-6)

(This advectisement continued on next page.)

CLASS 'B' MAINS UNITS.

If you wish to please the 'Radio Fan' at Christmas, give him a Heayberd Class 'B' Mains Unit. These Units are the only satisfactory models on the market, and employ the Cossor Neon Stabiliser Tube—thus enabling absolutely constant voltage regulation between 5 and 50 ma.

A.C. MODEL. OUTPUT: 130v. at 5-50 ma. TAPPINGS. H.T I Variable S.G. 40 100v. H.T.2 100v. H.T.3 130v. PRICE 97 6

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(In both cases the Cossor Neon Stabiliser is 7 6 extra.)

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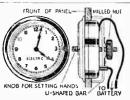
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Works on small battery lasting 12 months, or can be plugged into G.B. Battery without affecting reception. Uses practically no current. Fits into hole 31 dia. in any panel up to 1 thick. Easy to fix—no screws required. Only 3 from front of panel to back of case. Swiss movement. Hands set from front, Nickel plated bezel, Useful addition to any set.

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20 Stock Ratings
Type F.2, suitable for Battery sets, 150
MA blows at 300 MA Resistance 71
ohms, Voltage 200 Volts D.C.

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BRITISH RADIODYNE RECEIVERS, E.M. PLUS 4
RECEIVERS, LEVENSTRAND. ORR RADIO RECEIVERS. STATIONMASTER KITS. TRIOTRON VALVES.
BRG S.T. 400 KITS. AVOMINOR METERS. EQUILODE
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KNOW THEM THEIR COLOURS

These Resistors are made from a special compound that is guaranteed for ever. Cannot disintegrate. Con-stant resistance. Silent in operation. In the unlikely event of any Resistor not giving full satisfaction, we will replace it willingly, or refund purchase price, without any time limit.

A set of Resistors for any advertised Constructor's Kit sent post free by return for 8d per Resistor; or sample Resistor of any value sent for 8d post free together with COLOUR CHART.



from 50 ohms to 2 megolims
Each one a separate Colour
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> "unhesitatingly" gives the

SUPERHET MODEL S.4

"full marks on the score of sensitivity." selectivity and

READ WHAT "THE WIRELESS WORLD" SAID-TEST REPORT, 10th NOVEMBER.

"Accurate calibration -- on test we found the calibration to be far more accurate than is customary The set gave a very convincing performance on the score of selec-



livity and sensitivity. tatingly award full marks in both these categories. The power supply circuit is straightforward, and smoothing...reduces the hum to a negligible level '

These are just a few extracts. Why not try a Climax set for yourself? There are special appointed Dealers who will give you a demonstra-tion—in your own home if you wish—absolutely free.

Write to us for free literature describing the whole range of Climax receivers.

Climax Radio Electric Ltd., Haverstock Works, Parkhill Road, Hampstead, London, N.W.3

Components, etc., for Sale .- Contd

(This advertisement continued from previous page.)

R FADY RADIO 8 T.400 Kits, as specified by Scott Taggart, £2/19/6 each (list £4/17 6); Mullard Radio for Million 3-valve battery kits, complete with 3 Multard valves, £3 3 (list £6 2 6), in original scaled cirtons.

B.T.H. Senior Pick-ups. 1954 model, with volume control, 28 6 cach (list 37/6); Marconi pick-ups, 1954 Model No. 19, 25/- (list 32-6); H.M.Y. volume controls, 1/6 cach (list 12-6); Radiophone volume controls, with switch, 3 - each (list 19/6); Amplion loud-speaker units, 2-3 (list 12/6).

RECEIVERS.—Burgoyne 3-valve transportable, complete with 3 Cossor valves, batteries and accumulator, 23 2 6; Latest Class B 3 Burgoyne, complete with 3 valves, batteries, accumulator, moving coil speaker, in latest oblong cabinet, £5/5, new, in original cartons.

MISCELLANEOUS Bargains.

DUBILIER 4 mfd. Condensers (241, 1), 1.000 volt test, 2.9 each; 4.5 mfd., 1.000 volt test (2.25-2.25), 3/- each; mains switches, 3 amp. 250 volt, 8d. each, 7.6 dozen; Lumophon D.C. mains energised moving coil speakers, 6,500 ohms, with terminals, 11.6 each (fisted 39.6); Pifeo All-in-time radiometers, latest bakelite cased, 9/3 each (fist 12.6); Perrocart coils, G1, G2, and G3, 32/- per set; 8/T.4-500 coils, 5.6 per pair; Edison plug-in inductance coils, all values from 20 upwards, centre typped, 9d. each, 7.6 per dezen, assorted values; metal chassis, ready hored for 3 or 4 valves, 11in, 9²gin., 3³gin., 1/6 each (manufacturers cost 4.4).

A 1.1. Goods Guaranteed and Sent Carriage Paid.

BRANCHES at 271-275, High Rd., Willesden Green, N.W.10, and at 46, Liste St., W.C.2; please send all post orders to 323, Euston Rd., N.W.1, (near Warren St. Tube). Phone: Museum 6324, [4187]

M ETERS Moving Coil, Weston 301; 10 m.a. and upwards, 22.6; Galvos 30.0-30, 27/6.

N EW British Made, 1 m.a., 27/6; 250 volts (1,000 w. per volt), 32/6; Turners 20 m.a. upwards, 17/6; therma ammeters, 1.5a, 22/6; French 3-range, 3 m.a., 6v, 240v., 22/6; 2-range, 2 m.a., 240v., 20/-; German 2 m.a., 25/-; 2,000 volts, 32/6; assorted makers, 25 m.a. and upwards 10/6; laboratory apparatus in stock; meter repairs a speciality.—The Victa Electrical Co., 47, High St., Battersea, S.W.11. Phone: Batt. 0780.

WEST END RADIO STORES,—Genuine set manufac-turers' bargains; N. and K. Fatrand inductor

The turers' bargains; N. and K. Fatrand inductor speakers, 21/5.

FAY Home Recording Outfit, complete with diamond stylus, sound box, horn, etc. 5-6; blank rec. 15, 6in., 28, 9d., 8in., 5-6 per dozen.

FAY Microphones, with stand, transformer, battery, 18-6; bubilier 1,000-volt test condensers, 4 mid.

H 18 6; Dubilier 1.000-volt 1-st condensers, 4 mid. tapped, 2 6.

WESTINGHOUSE L.T.5 Rectifiers, complete with transformer for 200-250 A.C., D.C. output 12v, 1a., 16-6.

EDISON BELL Mains Transformers, 400-0-400v, 120-ma., 4v, 5a., 6v, 7.5v, 3a., 12-6; M.P.A. H.T.3 transformer, 200v., 180 m.a., 4v, 3a., 4v, 1a., 4, 9.

T.C.C. 8 mid. Electrolytic Condensers, vect or dry, 440v, working, 4.; Formo, 2 mid., 800v, test, 1-6.

COLLARO A.C. Grancophone Motor, automatic stop, 03-model, 35-; Webster A.C. automatic record changer, complete, £5-5, liste C18.

MAGNAVOX 2,000 or 2,500 chm M.C. Speakers, 1:-6; Songeliord Class B P.M. speakers, 19-6.

HARLLE Pick-ups, 18-model, 12-6; 22-6 model, 14-6; Polar 3-gang 0,0005 cendensers, 7-6; T.C.C. 8.25-mid., 500v, test, tapped banks, 2-6.

LARGE Stock of Modern Set and Radiogram Cabinets; postage extra on all orders by post.

WEST END RADIO STORES, 14, Lisle St., London, W.C.2, and at 382, Coldharbour Lane, Brixton, 8-W, [4177]

EBURY BRIDGE RADIO Offer the Following Stupendous Bankrupt and Set Manufacturers' Sur-

The Stupendous Bankrupt and Set Manufacturers' Surplus Bargains: —

A.C. H.T. Eliminator. 200-50 volts, output 150v, 30

n.a., 2 pos. tappings, one continuously variable, westinghouse rectified, finest components, guaranteed, no hum. 28 6; 3 pos. taps, for S.G., one continuously variable, 32 6, post 1-3.

D.C. H.T. Eliminators, 200-50v, output 150v, 30 m.a., por taps, for S.G., one continuously variable, 10.; 3 por taps, for S.G., one continuously variable, 10.; 3 por taps, for S.G., one continuously variable, 12.6, post spings, one continuously variable, 10.; 3 spings, one continuously variable, 10.;

Pd X-MANUFACTURERS' Mains Transformers, suitable Ferrocart III, tapped 200-50v., output 350-0-350v, 80 m.a., 4v. 2-3a., 4v. 3-4a. C.T., 9 6, post 9d.; a real

11 Ferrocart III, tapped 200-50%, output 350-0-350%, 80 m.a., 4v. 2-3a., 4v. 3-4a. CT., 9 6, post 9d.; a real snip.

12 Chokes, 50h at 50 m.a. C.L.; 5 6, post 9d.

13 EXMANUFACTURERS

14 Example Superior Superi

2 mi. 1 4, post 4d.; Hellesch 8 mf. Cleetrolytic, 3, 9, post free.
A LL Goods 3 Days' Approval against Cash or c.o.d.; your guarantee.

 $f{R}$ your guarantee. $f{R}$ BURY BRIDGE RADIO Co., 33, Ebury Bridge Rd., S.W.1 (near Victoria Station, No. 11 bus to Ebury Bridge). Sloane 8407.



Ratio 1/3.5, Inductance 260/80 henrys, 0/8 m/A

The Transformer

-chosen by engineers and musicians alike — specified wherever high amplification and nearly perfect reproduction are essential.

The FERRANTI AF6

Ratio 1/7.

Inductance 85/50 henrys, 0/6 m/A

affords really superb reproduction, at double the normal amplification, and is now used exclusively in the new Super-Het RADIOPAK -the "Matched Perfection Seven", by British Radiophone Ltd. described elsewhere in this issue.

A FERRANTI TRANSFORMER MAKES ANY SET A BETTER SET

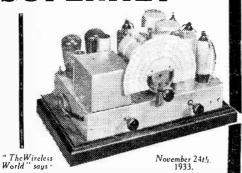


FERRANTI LTD., HOLLINWOOD. LANCS.

London: Bush House, Aldwych, W.C.2



About the FARADAY ALL-WAVE SUPERHET



World" says"

"Automatic volume control, which is of the greatest possible value when receiving short-wave stations which are subject to fading... a very stable and efficient circuit... admirably suited to short-wave conditions... the sensitivity and overall magnification would impress the most experienced short-wave enthusiast. Pittsburg WBXK and Bound Brook WBXAL, were well received in daylight during the afternoon... the background noise was reduced to a nepligible level... stability of the circuit, even on an indifferent earth system is above criticism, while the accurate calibration on the short wavelengths is a feature which is all too rare in sets... Twenty-three stations were, in fact, logged on the medium waveband in daylight, and the selectivity was sufficient to give adjacent channel separation on all stations..."

Full report published in "The Wireless."

Full report published in "The Wireless World," Dec. 1st, and particulars will be sent on application to the Sole Manufacturers.

FARADAY ALL-WAVE : WIRELESS :

1, Salcott Rd., London, S.W.11

'Phone: Battersea 2085

Electradix RADIO GIFTS and XMAS BARGAINS

S. G. BROWN'S BATTERY SUPERSEDER

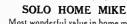


This provides H.T. from your L.T. 2-volt battery, rectified and smoothed. 3 tappings A boon to those who are not on the mains. Reduced from \$3 15 - New and \$7 6 Guaranteed 3 7 6

THE DIX-MIPANTA A.C. or D.C.

See Radio Gift, page 31. VEST POCKET TESTER.

A wonderfully versatile moving iron multi-range meter for service on A.C. or D.C. No projecting terminals. THREE ranges of volts: 0-7.5, 0-150, 0-300. Used for MILLIAMPS reads: 0-12½ m/A., and 0-75 m A. In black bakelite case. Measures only 2½ in. by 2½ in. Complete with pair of test leads and plugs 19/6



SOLO HOME MIKE.

Most wonderful value in home mikes.
Bakelite body, Ref. No. 11. 5'6 only.
Superior Type, No. 11B, 7 6. Fay Mikes,
factory throwouts, 8 -. Lesdix No. 10B
Pedestal 10in. high, 12 6. Lesdix Superior
Home Mike. No. 12BB Ring 14in. Pedestal, 18 6; Lafone
Hand Mike, 52 6. Genuine Eilsel Table Model, 55 -.
W.E. Table Model Eilsel, 5in. dia., for lectures, 35 -.
First-class Studio Recording Mikes, as new, ex a talkie
studio. Edison Bell, Goodson Grams, etc., B.T.H. Moving
Coil P.M., 25; Annulion, 25; Browns D, 212; Voight
Electrostatic, 210; Igranic Transverse, 213 10 : Western
Coil for \$20; famous Marconi-Reisz B.B.C. Model, 25.

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We are makers and carry the biggest and most
varied stock in London. Our famous Button
insets for detectaphone experiments are only 1 -.

MICROPHONE with leaflet. L.R. Volume Controls, 6d.
For making your own Mike, Carbon Granules in glass
capsule, Grade 1, 8d.; No. 2, 1 -; No. 3, fine, 1 6;
No. 4, extra fine, 2 -. Back Blocks, 3d. Diaphragms, 4d.
Button, with 2in. mica diaph., 1 6. Mounted on pedestal, 2 -.

MOTOR & GENERATORS. 220
volt to 500 volt 200 m.a., £5; 3-phase
380 volts 300 m.a., £6. S.M.D. Co.
12 volts to 800 volts maps., £4. D.C.
7; H.P. 400 volts 12 amps. to 100 volts 66 amps., £7.00 revs.
by E.C.C., £15. D.C. 115 volts 3 H.P. 23 amps. Motor
coupled to 110 volts 14 amps. 50 cycle 1½ K.W. A.C. Gen.
£12. 220 D.C. to 310 volt 300 m.a. and 12 volts 10 amps., £6.
Ditto to 480 volts 200 m.a. and 18 volts 20 amps., £6 to The heat bargains ever offered. Write for List "W."

ASK FOR OUR XMAS SALE LIST "W."

ELECTRADIX RADIOS,
218 Unper Thames Street, London, E.C.4.



ELECTRADIX RADIOS, 218. Upper Thames Street, London, E.C.4.

Components, etc., for Sale.-Contd.

J.B. Linacore Tuning Unit, 2 knobs, ganged switching and tuning, unpacked; 45 - Bromwich, Myton, War-wick. [4176

EKCO A.C.18 Eliminator, nearly new, 40/-; Ferranti 0.250 voltmeter, cost £3, 40 -...St. Clarc. Altwood Bailey, Maidenhead. [4192]

BIRMINGHAM RADIOMART.—Set manufacturers; surplus. Radiophone 27,6; straight 3-gangs dust cover and trimmers 12.6.

RADIOMART.—Utility 25/-; 2-gangs with concentric knob trimming wavelength disc dual 7,6.

RADIOMART.—TCC cleetrolytic bias condensers, boxed, 50mtd, 12v. or 6mtd, 50v. 7t-2d.

RADIOMART.—Millianmeters, all readings above 20m.a. 5 9; super 3in. model 6 9.

RADIOMART.—TCC 4×4×1mtd, 500v. test 3 3; 244× 214mt, 1,000v. test 2/9; Dubilier 4×2mt, 500v. test, 2/9.

ADIOMART. - Lotus super chassismount screened coils acrost set of three 5.

ADIOMART. Lotus super chassismount screened coils acrost set of three 5.

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ADIOMART. Lotus super lotus plus 9d.; 6ft. Lewcos twin scheened pickup cable 9d.; ditto single 6d.;

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ADIOMART. Lotus puper plus plus 9d.; filt. Lewcos twin scheened pickup cable 9d.; ditto single 6d.;

ADIOMART. Latest moving coil transformers for pickup pupil or power and pentode, snit Magnavox, etc. 56.

RADIOMART.-B.T.H. moving coil R.K. transformers 20-1, 10-1, 18- and 21-1, 23- and 25-1, each type, boxed, 3-6.

RADIOMART, Postage on less than 6 - 6d, extra; otherwise free; new and revised list now ready for stamp.-19, John Bright St., Birmingham. [4222]

I WATT Cathon Resistances, 500 clims to 1 megolin, 11d., 1 dozen plue postage special for quantities, -51, lleine Hill Rd., S.k.24. (4035)

DOUGLAS Coil Winding Machine for Sale, cheap, space required, almost new ani perfect condition; price £15,—Box 8830, c o The Wireless World. (4204)

TRADERS, save time, order from the house who still specialise in kits and components, all kinds; catalogue 6d. Persens Radio, W.W., Burton on Trent. [0410]

legue 6d. Perseus Radio, W.W., Burton on Trent. [0410] CHAL-ELEI TRIC Offers: New set makers surplus, all guarantees, all goods care, paid, as h with order, or cood, awing to the nearness of Ninas (ash with order makes a dimension in delivery of 4 days.

M. OVING Coll Speakers, Magnavox 1933, type D.C. 144, 2.000 ohms (110–175 D.C.) or 5.500 ohms (200–250 D.C.), fisted 40 - and 42 6 each, at 19 -; type 142, veltages as in 144, 85 in, cones, listed 50 - and 52 6, at 26 - (state if power or pentode transformer); Rola's K. type (U.S.A.) Juniors, 75 in, cones, at 18 -; Seniors, 9in, cones, at 25 -; in following voltages: 2.000 ohms (110–175 D.C.), 2.500 ohms, or 200–250 D.C. (650 ohms); (state if nower or pentode transformer); also number of Junior and Senior P.M.S. Ducls, and Class "B."

COLLS (6 each only) — Colvern Ferrocart, mounted on base with switching, E.I. E.2 and F.3, or G.I. G.2 and G.3, at 32 - per set (200 only); Eston from cored coils in cans, theoretical circuit enclosed for different circuits, at 5 - each.

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PHILIPS Output Transformers, specially wound on a nickel iron core, ratio 35-1 centre tapped input; 2.6 cach.

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PHILIPS Tone Controls Contained in Bakelite case, with on-off switch; 1, 6 each.

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SPECIAL Line of Berrage Moulton Moving Coll Speakers for Power and Pentode Input, field resistance, 2,500 ohms, fitted with transformer and 7in, cone; 12.6.

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J.B. Linacore Units, a few only, genuine surplus, at 51 - tate type, mains or battery; Belling Lee pickeups, 7 only, at 15 - to clear; Callaro pickeup and combined motor unit, with volume control, list 80, my price 63 -, 4 only, all goods new and unused, carriage paid, K.C. Radio Electric, 14, Handel 8t., London, W.C. [4488]

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4/= Talkie records, Columbia, 16in. diameter, 4/- each, or 4/14.5.

5/--screens, silvered, framed, superior (reverse white), 20×36in., carriage paid.

7/=-K.O.K. films for 28 mm, projectors, non-flam, on needs

8/=.-Sprockets for constructors, 35 mm., 16 mm., 9

9/=- 35 mm, films, complete, 1,000ft, subjects, no

10/~ Hlustuscreen, silver fabric, 48% 36in., 10.;

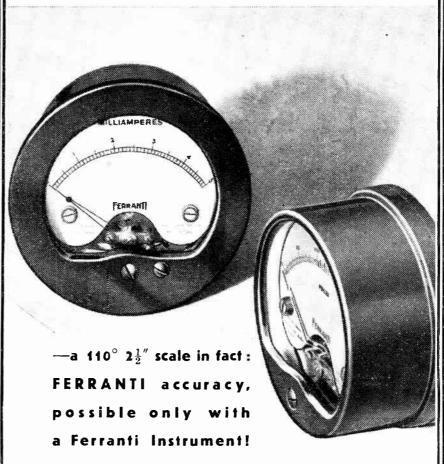
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16/-.-Rewinders, 2 mm. or 16 mm.; 35 mm., 25/-.-

19/-.-Kodatoy projector, new, complete with flex, bulb; everything ready to show.

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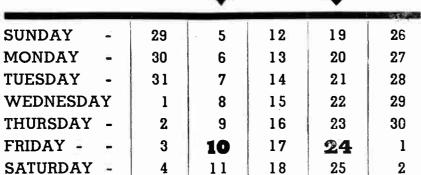
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(This advertisement continued from previous page.)

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- 25/--Standard projector mechanism, in running order.
- 27/ .—Projection tables, perfect, and of good appearance.
- 30 / _ Automatic 9 mm, cameras, 30 cach; 2 only.
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- 42/--Pathescope, 28 mm., makes own light, with films; 42%, to clear.
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CALIBRATION of Apparatus at Modified Rates to Amateurs is now conducted by a special section of Paul D. Tyer's laboratory; applications by letter only to: 28. Victoria St., London, S.W.1. [0406

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PATENTS and Trade Marks, British and Foreign,—Gee and Co. (II. T. P. Gee, Member R.S.G.B. and A.M. I.R.F.), 51-52. Chancery Lant. London, W.C.2. Thone: Holborn 1525.

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REWINDS of All Descriptions; mains transformers, mains transformers, multiple of the property of the property

Repairs.—Contd.

GUARANTEED Repairs by Experts, specialists for repairs to S. G. Brown and Amplion radio apparatus, also loud speakers, headphones, pick-ups, Blue Spets, any type rewound, remagnetised and adjusted, 4/-; post free; mains transformer repairs; terms to trade.—Howell, 91, Morley Hill, Enfield, Middlesex. [9716]

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SPOT Cash for Components, sets, etc.; any quantity.— Economic Radio Co., 96-98, South Lambeth Rd., S.W.8. [4075

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Wanted .- Contd.

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 $\mathbf{R}^{\mathrm{ADIO}}$ Valve Engineers, with experience of valve development or investigational work. Also

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A PPLICANTS for the above should give full particulars age, and salary required, heading their application with the post for which they are applying. Also

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Profession in Britain's Leading College; training fee
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Fully protected by 12 patents.

Obtainable from all Radio factors & dealer, COLLARO LTD., Culmore Works, CULMORE ROAD, PECKHAM, S.E.15.



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SPECIFIED FOR THE

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BRYCE MODEL A.B.573 C. TRANSFORMER

RECORD AUTOMATIC COLLARO

(與與與與自由與自由與自由與自由 BRYCE AERIAL SYSTEM interference 🌌 Defeats

Defeats interference by electric motors, trams, domestic appliances, etc., which often render reception impossible without a noisy background. Consists of a screened downlead with impedance matching transformers at each end. Entails only slight alteration to existing aerial.

Price complete Kit, including 50 feet of screened cable, £2-5-0.

See Full Report "W.W." Nov. 10th. Page 383.

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Complete Kit of 18 Super Precision, Vitreous Enamet METALLISED RESISTANCES. Price 17 % L.F. SMOOTHING CHOKE. Price 19/6.

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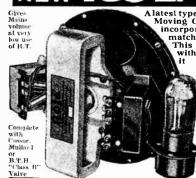
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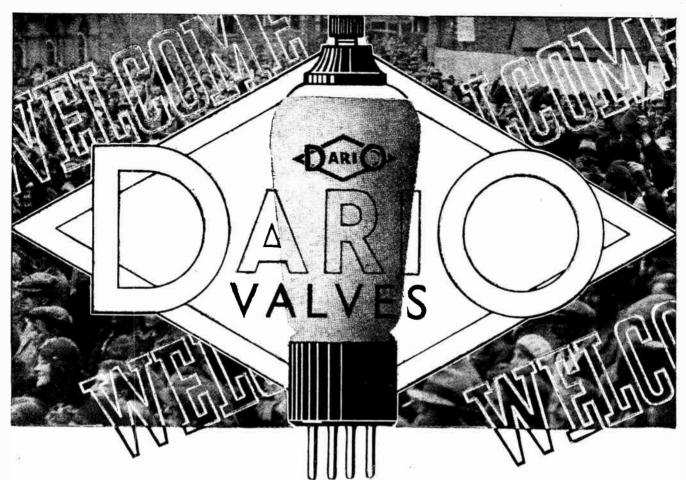
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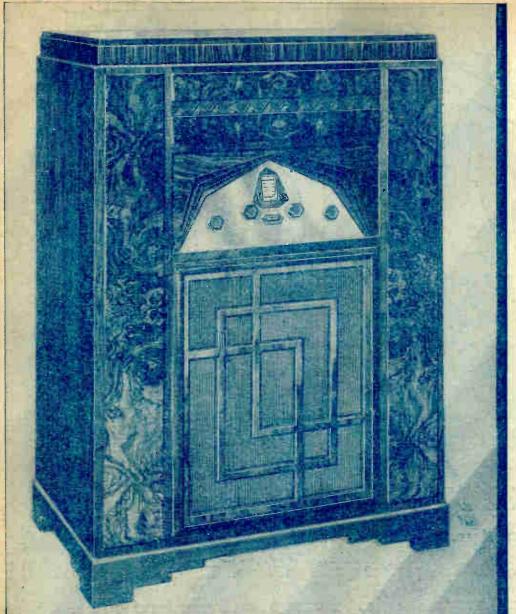
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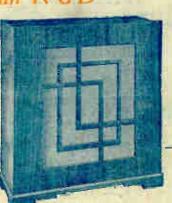
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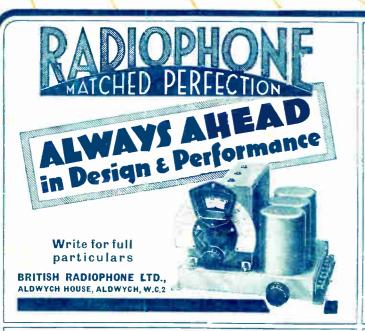
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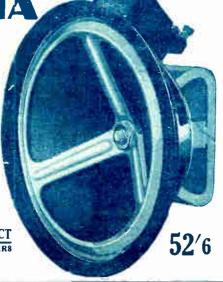
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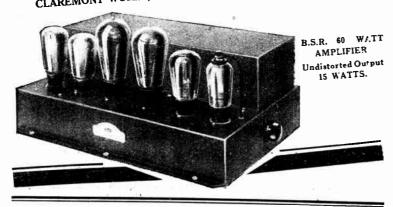
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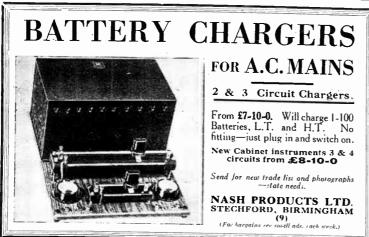
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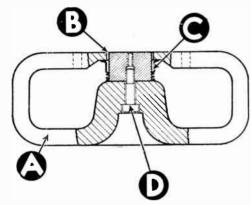
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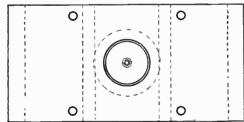
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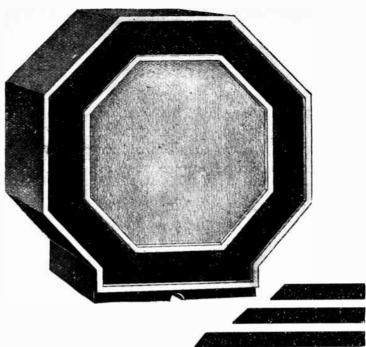
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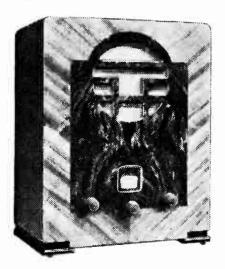
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ARCADIA Console 23 gns This model has the magnificent equipment and brilliant powers of the Magna Consolette, but here they are housed in a massive console cabinet of striking modern design. Height 3ft.

ARCADIA Radiogram . . 35 gns ***

** All valves in Ferranti sets are made by Ferranti Ltd.



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The Ferranti Fire provides warmth like magic—the heat is projected further—it will warm you even at the other side of the room—the lower portion of the room is flood-heated with radiant heat a minute after switching on—no need to wait for room to heat up—immediate heat comfort is available on account of enormous radiant heat yield (68½%).

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"Greenwich time always and unfailingly at your command!" No winding, no wondering. And the amount of current used by these Ferranti clocks wouldn't light a street lamp in Lilliput. Their designs, too, proclaim them 20th Century time-keepers. You have only to ask us or your dealer for a book let of designs and prices.

FERRANTI, LTD.,
HOLLINWOOD, LANCS.,
and BUSH HOUSE, LONDON



No. 746.

FRIDAY, DECEMBER 15TH, 1933.

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As many of the circuits and apparatus described in these pages are covered by patents, readers are advised, before making use of them, to satisfy themselves that they would not be infringing patents.

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EDITORIAL COMMENT

Do Transmitters Tire?

A Matter for Serious Investigation

N the correspondence columns of this issue we publish a letter in which the suggestion is put forward that wireless transmitting stations fall short of their initial efficiency after a time and never entirely regain the range enjoyed in the early days of their life, even though the standard of efficiency of the station in general may be well maintained.

Our correspondent is himself convinced that this phenomenon exists, and states that he and others have observed it over a period of some twenty years. He puts forward as a possible explanation that the effect may be the result of a change in the nature of the soil, resulting from the operation of the transmitting station, this change producing the effect of a gradual deterioration in the properties of the soil as a satisfactory earth.

We imagine that there is already sufficient information available in records at transmitting stations to go a long way towards proving or dis-proving this theory, and it only requires that those who have charge of these records should come forward with the

necessary evidence.

If it should be found that this theory is correct, then it is a matter of the utmost importance and might well be regarded as likely to have far-reaching effects on the efficiency of transmitting stations in the future. It would have to be conceded that if the operation of a transmitting station can so affect the conductivity of the soil as to produce such changes, then inversely it should be possible to treat the surrounding soil in such a way as to enhance the general efficiency of the station.

It will be interesting to see whether any observers having experience of these effects will come forward with evidence to confirm or refute this alleged phenomenon.

Mains Voltages

A Handicap to the Electrical Industry

E were gratified to see in last week's number of The Electrical Review an Editorial comment on the chaos which at present reigns in the matter of the variety of voltages at which electricity is still supplied in various parts of this country. It is stated that fewer than three-quarters of the 644 undertakings holding distribution powers declare the standard power of 230 volts, and of these well over 100 supply on the D.C. system. There are some 270 undertakings supplying at three or more voltages between 100 and 480, and in forty-three instances five or more voltage systems are employed.

The Electrical Review points out that the prospective purchaser of electrical equipment is hampered by the consideration of these complications. Those who may from time to time have to move from one location to another discouraged from purchasing domestic electrical apparatus, whilst at such times as Christmas the question of a friend's voltage supply always crops up as a factor to discourage the giving of electrical equipment as a present and to invite attention to some other gift as an alternative. The longer this chaotic state in the matter of voltages persists, the more expensive it must become to adopt standardisation, supply authorities being themselves responsible to the consumer to make good the effect of a voltage change.

High Quality Class "B" Amplification

How to Get the Best Out of the B.21 Valve

HE immediate effect of the introduction of Class "B" amplification into broadcast receivers has been the opening up of hitherto unrealised possibilities in the design and construction of economical battery sets. The term "economical" is used here to denote the type of set worked from the smaller types of dry batteries and consuming no more than 10 milliamps. Where cost of running is not an important consideration, good quality and volume can be obtained with Class "A" amplification by the provision of a large enough H.T. battery, but where this is not possible the need for

limiting the average H.T. current consumption to about 10 milliamps, rules out the possibility of obtaining sufficient output for any except the smallest rooms, as long as Class "A" amplification is retained for the output stage.

When the advantages of Class "B" amplification are available this

drawback in economical battery operation largely disappears, for with the same average consumption of H.T. current the maximum power output is increased from about 0.2 watt to I watt. This is due,

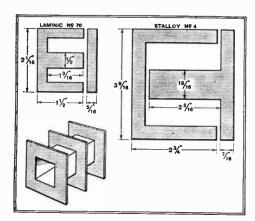
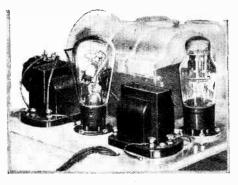


Fig. 1.—Dimensions of core stampings of "Stalloy" No. 4 and "Laminic" No. 70 from which the size of the bobbin for each style can be determined.

of course, to the fact that the Class "B" output valve consumes only enough current to reproduce the sound which is momentarily being amplified, while a Class "A" valve continuously absorbs enough current to handle the loudest undistorted output, even during quiet passages in the programme.



A few figures will serve to illustrate this point. In the case considered, where the "peak" output is about 1 watt, a B.21 valve working from a 120-volt battery will take an average H.T. current of 6 or 7 milliamps., but a Class "A" triode working at the same anode voltage

YLASS "B" amplification,

while affording a marked

saving in H.T. battery current,

is not without its special problems.

In this article the effect of

leakage inductance in the driver

and output transformers is dis-

cussed and it is shown that by

careful design reproduction of a

very high quality is obtainable

with this system.

will require over 30 milliamps. in order to be able to provide I watt of a.c. power for the loud passages. The striking economy — 75% — resulting from the use of the B.21 is responsible for the enthusiasm which designers of battery sets have felt towards this system of amplification.

Unfortunately, however, like most technical advances, Class "B" amplification is not without its difficulties, and the users of certain combinations of valves and transformers have in the past often been keenly disappointed in the tone-quality given by the new system. The harshness often noticeable in soft notes reproduced by this method was found to be all the more distressing by reason of the fact that the ear is accustomed to hearing such notes free from distortion; this effect has been called "Class 'B' jangle," and by many experienced workers was believed to be inseparable from Class "B" amplification.

During the development of the B.21 valve, investigation revealed the fact that the harshness already referred to was due to free electrical oscillations in the transformer windings and further that this tendency to oscillation could be reduced to an extent when it no longer spoilt the tone quality by careful attention to three points:

- (i) The design of the output valve.
- (ii) The design of the transformers.
- (iii) The filter circuit.

The first point has already been cleared up in the design of the B.2r valve, but in order to obtain really pleasing reproduction and the attendant economy in battery current with this valve, some little extra care and initial outlay in the matter of circuit components are needed.

By K. A. MACFADYEN

With regard to the valve design, it was found that the high magnification factor of a zero-bias valve was particularly conducive to electrical oscillation. Accordingly, the magnification factor was reduced to a value such that, given reasonably good auxiliary components, the tendency to oscillate was sufficiently small. This accounts for the negative bias of $4\frac{1}{2}$ volts which the B.21 requires. Incidentally there is another advantage in this, namely, that the valve can be biased to operate correctly over a much larger range of H.T. battery voltage than is possible with a zero-bias valve.

It is a familiar fact to radio amateurs that in a simple valve oscillator the tendency to oscillate is greater when the capacity is small, or the inductance large rather than vice versâ. In many practical cases it has been found that the leakage inductance of the output transformer

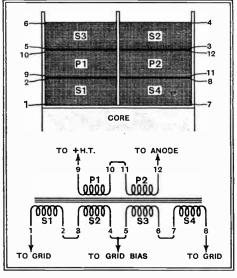


Fig 2.—Theoretical arrangement of the winding on the driver transformer and the method of interleaving the sections on the bobbin.

primary and its self-capacity constitute at oscillatory circuit. If the leakage inductance is kept as low as possible the tendency to oscillate will be much reduced. (It should be noted also that the same precaution ought to be observed in the design of the intervalve transformer.) It might be supposed that the same result could be achieved by increasing the capacity in the oscillatory circuit by joining a condenser across the transformer winding. It is true that some improvement can be secured in this way, but unfortunately it is found that by this means the frequency of the unwanted oscillation is reduced to a value at which the ear is very sensitive, and in consequence the result is not so pleasing as one might suppose.

We shall now consider the design of the

High Quality Class "B" Amplification-

It is not transformers in more detail. intended that the following details should be regarded as hard-and-fast, but they can be relied on to give satisfactory results and enable the user to derive the full benefits of Class "B" amplification. Slight modifications of these designs have been used with success, although any attempt to secure extreme cheapness in construction is likely to lead to a reappearance of the harsh reproduction.

If the "Stalloy" No. 4 stampings are found to be too bulky, equally good results may be obtained by the use of a smaller core of "Laminic," a high-permeability alloy obtainable from Messrs. Magnetic and Electrical Alloys, Ltd., Lancelot Road, Wembley. A very satisfactory core can be built from No. 70 "Laminic" stampings (0.015in. thickness, enamelled on one side preferably). correct bobbin-size may be readily deduced from Fig. 1.

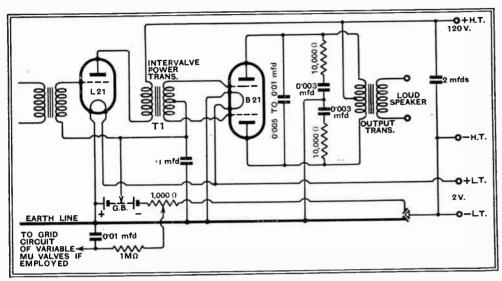


Fig. 3.—The complete Class "B" stage, including all the refinements necessary for good quality reproduction.

If a "Stalloy" core is used it should be of generous cross-section. The use of Sankeys' No. 4 "Stalloy" for both intervalve and output transformers enables reproduction of the highest quality to be obtained. The core should be built up so that the centre member is of square cross-section. This will necessitate the building of a bobbin out of thin fibre or other insulating material like that shown in Fig. 1. The correct dimensions can be deduced from the diagram of the stampings in the same figure. In winding the intervalve transformer, which has a centre-tapped secondary winding, the whole secondary is divided into four sections and the primary into two. The interleaving of these six coils confers freedom from flux-leakage and also electrical symmetry. The method of interleaving is shown in Fig. 2. This is brought about by first winding one section of the secondary (i.e., one-quarter of the total number of turns) on each side of the double bobbin shown in Fig. 1, following this by half the primary on each side, finishing up with the remaining half of the secondary divided between the two parts of the bobbin as before. All these coils should be wound in the same sense.

It is assumed that the ends of the six sections have been brought through the bobbin cheeks. Reference to Fig. 2 will show the correct method of connecting these together.

The above description need not be repeated for the construction of the output transformer. It is only necessary to interchange the words "primary" and "secondary."

The correct wire sizes and number of turns are given in the table below.

If the speaker impedance is different from 4 ohms, the transformer ratio is readily calculated from the approximate formula

Total primary turns _

Secondary turns

12,000 $\sqrt{\text{speaker impedance.}}$

In the above specifications, silk-covered wire can be used instead of enamelled, if a smaller wire-size is chosen, but, of course, a very slight drop in efficiency results.

Filter Circuit

This has an important bearing on the quality of reproduction, but Fig. 3, which includes the filter-circuit, is self-explanatory. The use of moving-coil speakers is strongly recommended for this type of output stage. The large reactance of the coils of moving-iron speakers is as much a disadvantage in this system as it is with "Q.P.P.

Distant Reception Notes

UDAPEST's new 120-kilowatt station was officially opened on December 2nd, and since then it has been going great guns. This is one of the easiest of European stations to receive after dusk now, and good reception is often possible in broad daylight. Budapest should become very popular with listeners in this country, for a variety of reasons. Interference is rare in the neighbourhood of its wavelength, fading is almost unknown, and, most important of all, excellent programmes are transmitted.

The regional organisation of the German stations is now an accomplished fact. There are three regional areas—the Northern, Western, and South-Eastern. The main stations in the Northern area are Berlin Funkstunde and Hamburg. In the Western area Mühlacker and Frankfurt are the key stations, and in the South-Eastern Breslau, Leipzig, and Munich. The National programme is transmitted by Zeesen, or, if you so prefer it, the Deutschlandsender Reichssender; but, since these jaw-breaking words mean simply German National transmitter, I cannot see why we should not either translate them into English or stick to the shorter and more familiar place name.

It will be interesting to see within the next few weeks whether the vertical aerial will be found in practice to have the antifading properties prophesied for it. Those already in use include Budapest's, Vienna's, Langenberg's, and Breslau's, and very shortly Mühlacker, Hamburg, and the new Berlin station will be using similar devices. On the far side of the Atlantic WLW will be equipped in the same way when the new station comes into operation, as it may do before these notes appear in print.

Best Reception for Years.

Reception conditions at present are better than they have been for many years. Fading is almost entirely absent, few important stations suffer from serious heterodynes except on odd days, and the field strength of foreign stations is such that with a modern set considerable use of the volume-control knob has to be made.

On the long-wave band matters are much improved. Huizen is clear on two or three days during the week, whilst Radio-Paris, Zeesen, Warsaw, Motala, Kalundborg, and Oslo all furnish excellent reception. Luxembourg appears to have developed a permanent and most distressing heterodyne.

The choice on the medium waveband is now so large that it is difficult to pick the twelve best stations. Budapest, Vienna, Brussels No. 1, Prague, Langenberg, Lyons Doua, Rome, Leipzig, Strasbourg, Breslau, Hilversum, and Heilsberg have virtually local-station reliability, but it would be easy to pick another dozen almost, if not D. EXER. quite, as good.

INTERVALVE TRANSFORMER.

No. 4 "STALLOY " CORE.

OUTPUT TRANSFORMER. (4 ohm speaker).

Primary:—6,400 turns (total) of 42 S.W.G. enam. and S.S.C. (2 sections of 3 200 turns).

Primary: -3.200 turns of 30 S.W.G. enam, and S.S.C. (4 sections of 800

Secondary:-6,400 turns (total) of 38 S.W.G. enam. and S.S.C. (4 sections of 1.600 turns).

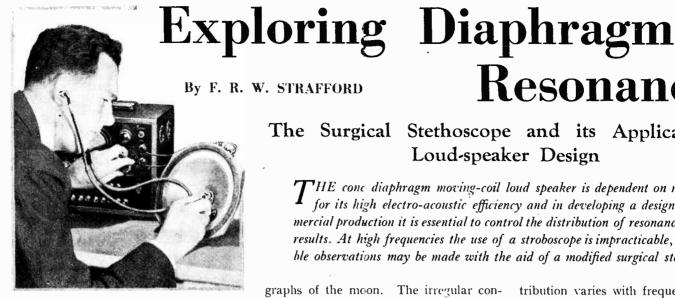
Secondary:—52 turns of 20 S.W.G. D.S.C. (2 sections of 26 turns).

No. 70 " Laminic " Core.

Primary: -6.000 turns of 42 S.W.G. enam. (2 sections of 3,000 turns). Secondary: -6,000 turns of 40 S.W.G. enam. (4 sections of 1,500 turns).

Primary:-4.000 turns of 38 S.W.G. enam. (4 sections of 1,000 turns).
Secondary:—82 turns of No. 22 S.W.G. enam, and S.S.C. (2 sections of 44 turns).

Resonances



The Surgical Stethoscope and its Application to Loud-speaker Design

THE cone diaphragm moving-coil loud speaker is dependent on resonances for its high electro-acoustic efficiency and in developing a design for commercial production it is essential to control the distribution of resonances for best results. At high frequencies the use of a stroboscope is impracticable, but reliable observations may be made with the aid of a modified surgical stethoscope.

THE complex behaviour of a loud speaker diaphragm while rendering the daily efforts of the B.B.C. is a subject for reflection and an opportunity for research, and as such has engaged, and still engages, the careful attention of physicists and sound engineers.

The physics of loud-speaker design indicate that, if the square of the diaphragm velocity multiplied by its radiation resistance was independent of frequency and was merely proportional to the electrical power supplied to the speech-coil windings, then the ne plus ultra of design would have been reached years ago. This would have resulted in an increase in the unemployment figures for scientists; so, in a way, Nature is beneficent to those who are rude enough to delve into her secrets!

It is well known (or should be) to readers that one of the main contributions to the success of the moving-coil type of loud speaker is the fact that the cone does not move as a rigid element at the higher frequencies. Were it to do so, a simple mathematical analysis would prove that the high-note response would be so severely attenuated that, apart from the introduction of an extremely steep filter system involving the use of an additional stage of audio amplification, this type of speaker would have fallen into obscurity. The high-note response is obtained, quite accidentally, by virtue of the "breaking up" of the diaphragm. While this term, though somewhat slangy, is popularly used, it is meant to infer that separate elements of the diaphragm are behaving in different manners at the same instant. While one element is moving forward to a certain maximum displacement, its neighbour may be busily engaged in doing nothing in particular, or moving in the opposite direction, or even in the same direction, with less maximum displacement.

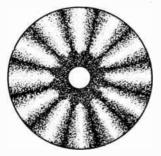
Modes of Vibration

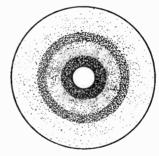
If the diaphragm could be successfully examined, by means of a stroboscope, at any single note of medium or high frequency, one might observe something akin to those picturesque telescopic photo-

graphs of the moon. The irregular contours, in this case, would be due to nodal and anti-nodal regious of vibration. These may be of circular, circumferential, or radial composition; the former two types possibly arranged symmetrically about the centre of the diaphragm at medium frequencies, but more inclined to asymmetry as the frequency is increased.

The shape and disposition of these nodal and anti-nodal regions definitely confer upon the diaphragm certain characteristics, which affect both the sensitivity and frequency response of the loud speaker in normal operation.

The type of nodal vibration which does attenuate the output of a loud speaker is of radial distribution, and occurs at the lower frequencies, extending into the bass regions. Like any other nodal vibration,





Sketches showing typical distributions of nodes at medium and high frequencies. (Left) Symmetrical radial nodes due to an auxiliary vibration of lower frequency than the funda-mental. (Right) Approximate sound distribution at 1,000 cycles. (The sound intensity is proportional to depth of shading.)

it is caused by asymmetry in the transmission properties down the section of the diaphragm, or incorrect terminating conditions at its periphery. Since it occurs at the lower frequencies where the diaphragm displacement is at a maximum, it may be examined stroboscopically and shows that the diaphragm has resolved into a number of radial sectors vibrating in phase opposition. effect naturally tends to neutralise the airparticle velocity over the surface of the diaphragm, producing an acoustic shortcircuit, as it were, and thereby restricting the sound output.

The circular and circumferential nodes occur from the medium frequencies upwards, and their number, shape, and distribution varies with frequency to a considerable extent.

How far they are related to the attenuation or augmentation of the output is an uncertain factor, and it is here that further research appears to be necessary.

Method of Operation

Modern loud-speaker development incurs the use of sound measurement devices which give a plotation of the frequency response from the whole area of the diaphragm. While characteristics thus obtained are of great service as a basis for experimental comparison tests, they do not reveal any relationship between the variations in frequency response with the type and distribution of the nodal Some other instrument is repoints.

quired whereby the explorations may be achieved and thus related to the frequency characteristic, and in this connection the surgical stethoscope, of conventional type, shows distinct promise.

The type fitted with a removable, bell - shaped mouth-piece is the instrument required, and in operation is worn in the conventional manner. The loud speaker is driven by a pure note oscillator, variable over the range of frequencies to be explored.

Fixing upon a suitable frequency, e.g., 500 cycles per second, the output is adjusted so that a reasonable acoustic output is obtained. Although there is a considerable background of sound when the stethoscope is worn, as soon as the mouthpiece is placed at approximately onequarter of an inch from the surface of the diaphragm it is quite easy to receive sufficient energy via this source to produce negligible masking from the direct output. The sensation must be realised by actual experiment rather than by a stretch of the imagination.

As the surface of the diaphragm is explored, the presence of nodal vibrations will be indicated by changes in the strength of sound received. A node will be indi-

Exploring Diaphragm Resonances-

cated where a region of comparative silence is observed, and an anti-node by the reverse effect. After a little practice it is possible to sketch the relative positions of the nodal vibrations, so that a series of sketches for different excitation frequencies may be evolved.

In a recent contribution by the writer,* the stethoscope was used to discover that certain auxiliary vibrations were accompanied by a series of perfectly symmetrishould materially assist the designer in understanding the complex action of the loud-speaker diaphragm at the higher frequencies.

At the time of making these notes the writer was, unfortunately, concluding his activities in loud-speaker research, so that the absence of the necessary equipment by which a complete investigation might have been made and published hereunder is a pity. Nevertheless, the stethoscope opens up a wide field of research of which advan-

taking the minimum current, and the extra 2 mA. was accounted for in the output stage. Thus in a receiver of this type maximum performance is returned for every milliamp.

of current expended, whether it be used in reaching out for distant stations or providing additional sound output from the loud speaker.



A new radio society has been formed at Gold-smiths' College, New Cross, S.E.5, where meetsmiths College, New Cross, S.E.5, where meetings are held every Monday at 7.30 p.m. All interested are invited to apply for further particulars to Mr. Albert L. Beedle, 15a, Fontenoy Road, Balham, S.W.12.

Cathode Ray Television

A lecture and demonstration of television, a recture and demonstration of television, using the cathode ray tube, was recently given to the Bristol Radio and Television Society by Messrs. Price and Parr, of the Edison Swan Electric Co., Ltd. Hon. Secretary: Mr. G. E. Benskin, 24, Stadium Road, Kellaway Avenue, Parietol. Bristol, 6.

O.P.P. Described

Q.P.P. Described

Quiescent push-pull will be the subject of a lecture by Mr. G. N. Fordyce at a meeting on Thursday next, December 21st, of the Edinburgh and District Radio Society. Non-members interested are asked to communicate with the Hon. Secretary, Mr. W. B. Winkler, 13, Lockharton Crescent, Edinburgh.

Loud Speakers of To-day

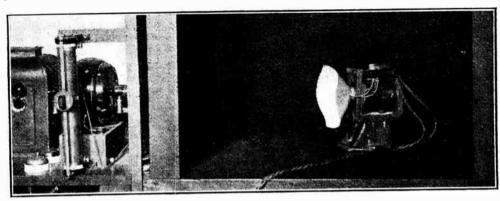
"Modern Loud Speaker Design" is the title of a lecture to be given by Mr. H. A. Hartley at the meeting on Monday next, December 18th, of the Newcastle-upon-Tyne Radio Society at 7.30 p.m. in the Church Hall, Holy Trinity War Memorial Church, Armstrong Bridge, Jesmond. Hon. Secretary: Mr. W. W. Pope, 9, Kimberley Gardens, Jesmond, Newcastle-on-Tyne.

A Short-wave Evening

Mr. C. L. Wood (5WY) will lecture on "Points in the Design of Short-wave Receivers" at the meeting at 8 p.m. on Monday next, December 18th, of the Exeter and District Wireless Society. All communications should be addressed to the Programme Secretary, Mr. E. H. Ware, "The Beeches," Woodbury, nr.

A Three-foot "Catkin"

A huge model, standing 3ft, high, of a Catkin valve was shown by Mr. Nixon, of the G.E.C., at a recent meeting of the Radio Section of the New Eltham Ratepayers' Association. The model was used to demonstrate the construction by steam by steam than Secretary. Mr. tion stage by stage. Hon. Secretary: Mr. A. E. Gillborn, 87, Montbelle Road, New A. E. Gillborn Eltham, S.E.9.



At low frequencies the formation of nodes in a cone diaphragm may be observed visually by means of a stroboscope

cal radial nodes, the number of which was directly proportional to the causation frequency; and in this case it therefore proved to be the indispensable tool of

Likewise, the comparison of various loud speakers (1) by taking the frequency response characteristics by modern methods, and (2) by observing the nodal distribution by the method outlined, * The Wireless Engineer, March, 1933, p. 141.

tage should be taken if this has not already been done, since these notes were compiled during the early spring of 1932.

As a point of interest, the stethoscope has many other useful applications to the designer and service engineer, in that it serves, admirably, in the location of various rattles and buzzes which are sometimes added, gratis, to a programme by virtue of some mechanical fault associated with the moving system.

Battery Economy with A.V.C.

Some Interesting Experiments with the Marconiphone "269" Portable Superhet

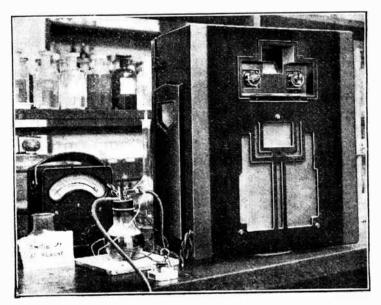
THE behaviour of a battery-operated circuit incorporating both automatic volume control and a quiescent push-pull output stage presents an interesting study from the point of view of H.T. current consumption in relation to signal strength. In both cases the current consumed is in proportion to the work which that particular section of the circuit is called upon to do, but the two factors are working in opposite directions. Thus for a weak signal the output stage is drawing very little current, but the H.F. stages are working at full magnification with a small bias, and are consequently taking the maximum H.T. current.

In a superheterodyne receiver in which a considerable fraction of the total current consumption is accounted for by the H.F. and I.F. stage, we may have the apparent anomaly of a set with an economical output stage taking less current as the signal strength is increased. An example of this is to be found in the Marconiphone "269" portable receiver, and in order to clarify the position some interesting experiments were undertaken by the makers with the aid of the copper voltammeter. This is a device for measuring the average value of a fluctuating unidirectional current, and for the purpose of the tests the voltammeter cell was connected in the negative H.T. feed lead. With no signal the standing H.T. current was between 12 and 13 mA. Tests were then made over periods of four or five hours on London Regional, Fécamp and Huizen,

the average currents being 7.5, 7.2 and 7.4 respectively. Next, a test was made on Daventry wave at maximum volume with occasional overloading on loud passages to ascertain the maximum average current consumption. The result worked out at 9 mA.

In the latter case the H.F. stages were

The copper voltammeter connected to a Marconiphone portable for investigating the combined effect of A.V.C. and quiescent output stage on the average H.T. consumption.





A reader's

solving the

"tripe and

onions"

mystery.

speedily on his trail, and pulling back the lapel of my coat to show an official badge, as I am told that American detectives do in the talkies, I immediately challenged

JNBIASED

him and soon had a full confession. It appeared that the Morse messages were requests for him to do certain shopping overlooked earlier in the day by his They were despatched over a period of half an hour at about the time that she knew he would be leaving the station and be able to pick them up from the loud speakers in the neighbouring houses. As for the transmitter itself, this consisted of nothing more than one of those pestilential violet-ray machines which I know to my cost have a considerable transmitting range even when an aerial is not attached to one side of the make and break.'

Possibly the most interesting part of the apparatus was the actual Morse sender. It consisted of one of the old war-time omnigraph machines with which any Morse message could be speedily set up and churned out again and again merely by turning a handle or in the more expensive models by merely starting a small electric motor.

Feeling thoroughly satisfied, I am inclined towards leniency, and have, therefore, contented myself with merely reporting the matter to the proper quarter, knowing full well that this will mean that nothing will be done, though the delinquents may not be so foolhardy as to start their malpractices again.



Quickly hurried back.

Ingenious Fraud

MY attention was arrested a week or two back by the superb artistry of a London pavement violinist.

Delightedly I hurried away to find an impresario friend, who not only occupies an eminent position in the musical world but, in addition, really knows something about music. He fully shared my enthusiasm, and for hour after hour we stood enraptured in front of our newly discovered Paganini.

Now and again he would pause for a rest, but never for long, and my friend was on the point of handing him a valuable contract for "the halls," complete with dotted line and fountain-pen, when I stretched out a restraining hand, for my keen powers of observation, dulled momentarily by the soppy and soporific effect of Isaacstein's "Melody in H," were jerked rudely into activity once more when I noticed that at the conclusion of each piece he furtively consulted the foreign programmes section of a singularly greasy and dog-eared copy of The Wireless World.

There was also a certain suspicious bulginess about his clothes, and yet another point that struck me was that he did not, when resting, remove the violin from his chin.



What finally decided me to take action, however, was the fact that he stood in a puddle of water. Accordingly I prodded him in the abdomen with my umbrella, thus compelling him to take a backward step out of the puddle in order to preserve his balance. Instantly the melodious notes from the violin gave place to a piercing high-pitched whistle.

As I had rightly suspected, he was working too near the oscillation point, and the sudden removal of his low-resistance earth connection had caused the concealed battery midget to fly off into oscillation.

One could not but admire his ingenuity. The aerial consisted of several wires sewn into the lining of his overcoat, the earth wire running down his leg and then through a hole in the sole of his boot to the hobnails.

It was only necessary for him, after glancing at his Wireless World foreign programme section, to put his hands inside his overcoat to tune in the station and start going through the motions of playing his violin while the midget moving coil in the body of the fiddle did the rest. Naturally, he had to keep his violin in situ, partly to conceal the loud speaker connection, which came out of the top of his collar, and partly to let him have both hands free for tuning

As for the risk of the public hearing the preliminary announcement, this was nil, since he could switch the loud speaker in or out of circuit by a tiny switch in the neck of the violin, his own listening being done by a tiny deaf-aid earpiece.

A Comfortable Receiver

WAS interested in the remarks made by the Editor of this journal the other day concerning the unsuitability of the present tuning dial arrangement, and of the general lack of originality which most

designs show.

It is my opinion that the whole design of our sets is radically wrong, as they should be fully controllable from the fireside chair. It is no good arguing that systems of remote control have been devised to prevent the necessity of rising in order to change the programme, as this only means a lot of complicated wiring to the set. What is needed is a pair of velvet-covered knee clamps to which the receiver could be clipped quite tightly in a few seconds.

As for the loud speaker, what more natural position for it than in the armchair on the other side of the fireplace where, so far as my own experience goes, it usually sits in the flesh?

Tripe and Onions

CANNOT too warmly thank all the many sleuths, both amateur and professional, who have sent me in suggested solutions of what has now become known as the great "tripe and onions mystery. (New readers should refer to The Wireless World for November 17th.) One reader was, however, very near the mark, as his sketch, which I gratefully reproduce above, bears silent witness. Fortunately, however, by an amazing piece of luck, I have been able to clear up the mystery myself, as I will now relate.

I happened to be somewhat late in journeying down one evening, and as I left the station of the unwholesome suburb in which my cousin lived, I suddenly heard the familiar Morse signals emanating from the loud speakers in the houses which I was passing. I was halting to hear whether the message pertained to kippers or sardines this time, when a little man in front of me, who had done likewise, quickly hurried back in the direction of the town. Needless to say, I was

New Valves

II.—How Amplification, Stability and Quality are Affected

N H.F. pentode with a 5-pin base may be plugged into any set designed for the corresponding S.G. valve (variable-mu or other-The other type, which is not wise). readily interchangeable, has a 7-pin base, in order that the suppressor grid and metal coating may be brought out to separate pins. This is necessary in many modern circuits, but we are not discussing them just at the moment. The Mullard VP4 and Cossor MVS/PEN. can be obtained "ready for use" with 5-pin bases.

Generally speaking, the pentodes have

slopes about equal to those of the most recent S.G. types. But the μ is enormous. Unless the dynamic resistance of the tuned circuit is exceptionally high (as with a high-efficiency iron-core coil) the increase in amplification is inappreciable. The other advantage of the H.F. pentode -ability to handle a very large signal amplitude-hardly concerns us, because only very recent designs require enormous

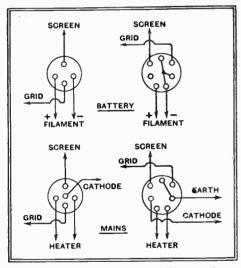


Fig. 4.—Changing over to H.F. pentodes: appropriate alterations to wiring when 7-pin valve-holders are employed.

signal voltages to be handled in the H.F. stages. If the old valve was a high-slope S.G. type, there is no reason to expect noticeable improvement on substituting a pentode with the same slope. The Mazda AC/S2/PEN., however, is rather exceptional with its slope of 6 milliamps per volt; and if one cares to go to the trouble of fitting a 7-pin valve-holder it is capable of giving a useful increase of gain. Fig. 4 shows how little alteration in wiring is involved in changing over to a 7-pin pen-

To pass on to the detector in Fig. 1; assuming the usual grid-leak type, there is no bias (until a station is tuned in). When a new valve with approximately

N last **l** week's issue the question of substituting new valves in general, and H.F. amplifiers in particular, was discussed. The special uses of H.F. pentodes and new detectors, L.F. amplifiers and output valves are now considered.

the same μ but a higher G is chosen, there is a likelihood that it will take an excessive current if it is allowed to. A resistance coupling (which, of course, includes the parallel-fed transformer) does not allow it, because the voltage actually on the valve anode drops correspondingly. But a directly fed transformer may be badly saturated. To avoid this difficulty the high slope may be taken in the form of increased μ . The result is then a proportional rise in amplification, which may not be an unmixed blessing. It increases the tendency to hum, motor-boating, microphony, overloaded output or underloaded detector. Apart from that, the high-slope triode, with a μ in the neighbourhood of 100, is likely to do more harm than good even to the amplification, by throwing a greater damping on the preceding tuned circuit. Altogether it is a bad move.

Drastic L.F. Changes

It may, however, be practicable to make use of the efficiency of modern valves to cut out a L.F. stage entirely.

This disposes of a possibly embarrassing excess of amplification; but, of course, the survivors must work double-shift. A good way of getting the necessary extra magnification to enable a whole valve to be saved is to use as the detector a S.G. valve; or, better still, an H.F. pentode, such as the Mullard SP4. The Mullard SP4.

latter type of valve is less tricky to get right; S.G. valves are apt to be disappointing unless all the working conditions are just so. But the great merit common to both (in addition to the large amplification) is the absence of damping on the input tuned circuit. Improved selectivity and sensitivity are secured at one stroke.

(Concluded from page 447 of last week's issue)

in Old Sets

Fig. 5 gives the circuit in the case of the Osram MSP4. Whether pentode is used or triode, the increased slope is likely to make oscillation much easierperhaps too easy. If so, it may be a sound plan to remove a few turns from the reaction coil. A good principle is to use as few reaction turns as will serve the purpose.

In view of the foregoing suggestions, the L.F. stage shown in Fig. 1 may have ceased to exist by the time we arrive there. It is quite superfluous with modern valves. But, supposing it to be too much trouble to uproot the stage, the same general principles are observed as heretofore, except that the existence of grid bias makes it possible to exercise more control on the anode current. Study of this point is particularly worth while in battery sets. It is seldom necessary or desirable to take more than about 2 milliamps.

Estimating Overall Magnification

The results given by resistance-coupled stages are calculated in just the same way as for H.F. stages, with this advantage, that the actual anode coupling resistance is much more likely to be known. On the other hand, the valve resistance is not quite such a simple matter, because the voltage on it is more or less considerably reduced. The valve resistance is consequently greater-sometimes quite a lot greater-than that specified in the valve list. In most cases one isn't far wrong in taking a figure 50 per cent. higher.

Now we come to the last stage. Some very high slopes have been attained by recent valves. There is the Micromesh PAI triode, with 12 ma. per volt, and the Mazda AC2/PEN. with 9 ma. per volt.

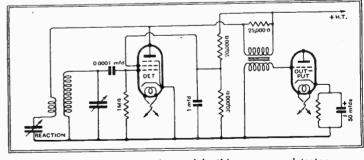


Fig. 5.—An H.F. pentode, used in this way as a detector, has several important advantages.

Such valves as these plugged into receivers several years old are not likely to be satisfactory. The AC2/PEN, has a 7-pin base, and thus cannot be immediately substituted.

The receiver must be designed to make proper use of these exceptional valves. But a mild degree of stimulation can be quite safely imparted to a rather tired

New Valves in Old Sets-

set by careful choice of replacements. As a general rule, assuming that the original valve suited the loud speaker, the best all-round results are given by a new valve in which the higher slope is about equally due to lower Ra (impedance) and greater μ . If anything, the tendency should be in favour of increasing μ rather than decreasing Ra. It is difficult to make a universally applicable recommendation, for there are so many things to take into account; but provided that one does not abandon oneself recklessly to an orgy of "slope," things cannot go very far wrong. Adopting the above rule, it is often possible to use the same grid bias as before —a definite advantage when auto-bias is employed. But the question of bias must be carefully gone into with the aid of the makers' slip. Fig. 6 compares curves for typical old and new small power valves, and the effect on the biasing question can be grasped from it. O is the curve for an old valve with a slope of about I ma. per volt. It is biased to the point marked—about $7\frac{1}{2}$ volts. The other three valves are all recent types with slopes of 3 ma. per volt; but A has the same μ and lower Ra, and obviously requires more bias. By the same token it requires more amplification preceding it to drive it fully. The maximum power output is also greater; but, as the impedance is only one-third that of valve O, the loud speaker is no longer properly matched, and the full benefit would not be obtainable without altering the loud speaker impedance to suit it.

Curve C relates to a valve having the same Ra, but three times the μ . Considerably less bias is required, and less grid swing to produce full output. The output is somewhat less, but not in the proportion of the bias, so the sensitivity (milliwatts output for a given grid swing) is higher. And the original loud speaker is correctly matched.

Curve B indicates more μ and less Ra: the same bias voltage is quite correct. The same amount of amplification is required of the preceding stages in the receiver, and the output is rather greater. The valve impedance is on the low side for the original loud speaker, but that is a very good fault.

The output pentode, being a relatively modern type of valve, has not changed much. New types have been brought out, but the original types have not shown much tendency to increase their slopes. Unless, therefore, the intention is definitely to alter the design of the receiver, there is not much to be said under this heading.

Pentode Valve Bases

There is one point that should not be forgotten when ordering a replacement. Originally, all output pentodes had the auxiliary grids connected to side terminals, the other electrodes being brought to 4- or 5-pin caps for battery and mains valves respectively. Now the side terminal is abolished and 5- and 7-pin caps substituted. So, unless you are prepared

to fit new valve-holders, you must take care to order side-terminal valves.

A quite appreciable all-round increase in working voltages of an A.C. set, and consequently in undistorted output, can be gained by the simple expedient of substituting a rectifier of low internal resistance, such as the Micromesh R series, for an old type. As these, and a number of other makes, have slow-heating cathodes,

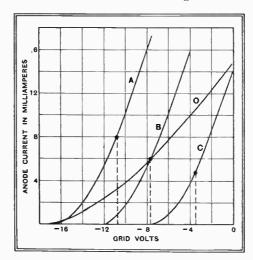


Fig. 6.- How the question of grid bias may be affected when fitting a new output valve.

there is no danger of the greater voltage jeopardising the smoothing condensers, because it is not applied until the load of the other valves has come on.

If, before embarking on valve replacements, the decoupling arrangements were no more than just good enough, the probability is that they will not be good enough when more lively valves are in operation. It is not always very easy to tell when this is so. Long before actual motor-boating or other obvious signs of distress



AT BUDAPEST. The base of the 1,020-ft. cigar-shaped mast of Hungary's new 120 kW. transmitter. The porcelain base supports a weight of 480 tons.

set in, there is distortion or loss of amplification, or both. So, in cases of doubt the decoupling should be augmented, or introduced if none exists. Decoupling can be made more effective by increasing either the resistance or capacity comprising it; but, in order to avoid dropping too many H.T. volts, the latter alternative is usually to be preferred.

to be preferred.

D.C. working is in a class by itself, and a most unhappy one. Valve designers seem to have been unable to make up their minds what to do about D.C., because every new batch has a different heater current. This wouldn't much matter with anything else, but on D.C. it matters vitally. All the current goes through all the heaters in series, so substituting a valve rated at a different heater current or voltage throws the whole set into confusion. It is a nasty business.

In any case, indirectly heated D.C. valves are quite recent, and so hardly come within the scope of this article. And the earlier D.C. sets were most unpleasant pieces of work, using all sorts of makeshifts, such as ordinary battery valves run in series. It is a case for set replacement rather than valve replacement.

THE RADIO INDUSTRY

THE ALTON BATTERY CO., LTD., of Alton, Hants, have obtained contracts for replating batteries at the telephone exchanges at West Hartlepool and Dudley. A number of large batteries are being exported to South Africa.

Purley Radio, Ltd., recently arranged a successful and well-attended recital of electronic music executed on the Electronde by Martin Taubmann. The Electronde, which was illustrated in The Wireless World of July 21st, is now actually on the market at the price of eight guineas complete: it includes two oscillator valves and a controlling valve, of which the function is to determine the suddenness with which a note is started or stopped, and thus the nature of the music may be controlled by the executant. The Electronde works with any broadcast set, and includes several ingenious and practical features, including what would be referred to in wireless circles as a "band-spreading" device, whereby the length of the invisible keyboard may be adjusted to suit the player. Four-electrode valves, which take their anode voltage from the L.T. battery, are used throughour. The makers are the Electronic Music Development Co., Ltd., 16a, Whyteleafe Road, Purley, Surrey.

We have received from Microfuses, Ltd., 36, Clerkenweli Road, London, E.C.r, a list giving full particulars of current-carrying capacity and resistance for all the standard fuses now available. These range from 3 to 750 mA., and may be supplied in three types suitable for 200-, 750- and 1,500-yolt circuits.

260-, 750- and 1,500-volt circuits.

A series of blue-print curves has also been prepared to show the time lag in milliseconds between the application of overload currents of different values and the actual breaking of the circuit.

Copies of the data sheet and of the "speed of fusion" curves relating to the particular fuse required will be sent to readers on application.

In a recent reference to a receiver by Messrs. Berry and Wilson, Ltd., of Mansion Works, Gt. Horton, Bradford, we referred to the instrument under the name "Distavox," this name having inadvertently been given to it by the manufacturers, who were unaware at the time that the name "Distavox" was the property of Distavox, Ltd., of 119, Bunhill Row, E.C.1.

Television Explained

VII.—Variable Speed Scanning

THE usual cathode ray television receiver can be used for the reception of all ordinary kinds of transmissions, whether they are effected by cathode ray tubes, Nipkow discs, or mirror drums. The receiving tube, in fact, merely performs in a different manner the functions carried out by a modulated light source and a mechanical scanning system. An alternative arrangement, however, is possible, and it is one which is not based in any way upon mechanical methods and which involves the use of cathode ray tubes at both transmitter and receiver. The tubes, moreover, can be of simpler construction than those normally used for television purposes, since a means of controlling the density of the electron beam is unnecessary. In the construction of the tube, therefore, the electrodes for modulating the electron beam can be omitted.

The system is due to Von Ardenne and is usually known as variable speed scanning; instead of the light spot traversing the screen at a steady rate to build up the scanning lines, its speed depends upon the light and shade in the picture. At first sight, the system appears complicated, and there are undoubtedly practical difficulties in the way of obtaining satisfactory results at the transmitting end. The basic theory, however, is delightfully simple, as is also the receiving equipment.

Brilliancy v. Speed

Suppose we set up a cathode ray tube and apply a saw-tooth waveform to one set of deflecting plates only. A single line of light will appear on the viewing screen, and we may enquire what governs the brilliancy of this line. Apart from factors such as the screen material, the construction of the tube, and its operating voltages, which for our present purposes we may take as constants, the important point is the speed at which the spot of light traverses the screen to produce the visible effect of a line through the retentivity of the eye. Provided that the speed of repetition is not so slow that the building up of the line becomes visible, the slower the speed of traverse, the more brilliant will the line appear. This carries with it also the assumption that the number of repetitions remains constant, which means that under certain circumstances the operating voltage on the plates of the cathode ray tube may not assume a true saw-tooth waveform.

It is of great importance fully to appreciate this point, so that it will be well to consider it in somewhat greater detail. Suppose that the spot of light is moving down the viewing screen 15 times a

second. The deflecting plates of the tube have applied to them a true saw-tooth waveform in which the potential rises steadily to its maximum value and then drops instantly to zero, so that the spot of light moves steadily across the screen, and having completed one line immediately drops back to its starting point ready for the next line. This condition is then the same as for ordinary cathode ray television scanning, save that in practice, another voltage is applied to the other set of deflecting plates to spread the lines out to form a picture and the frequencies are higher than we are here assuming.

Suppose now that we arrange matters so that the spot of light traverses the line more rapidly, and having completed a line, let it drop back ready for the next line as before. Instead of letting it commence the next line immediately, however, let us so arrange matters that an interval clapses equal to the difference of

mence the next line immediately, however, let us so arrange matters that an interval elapses equal to the difference of arrange matters so

This photograph shows some of the experimental gear employed for television by the variable-speed scanning system.

time of the two speeds of traverse. Whatever the actual speed of traverse, therefore, there will be exactly the same number of lines a second, but the higher the speed, the smaller will be the time during which the spot of light is actually traversing the picture. Obviously, therefore, the higher the speed, the less visible will be the line.

The Scanning System

This is the principle adopted in variable speed scanning. The light and shade in the picture is reproduced, not by variations in the intensity of the electron beam, but by variations in its speed of traverse. Over a dark portion of the picture the beam moves rapidly, but over the light parts much more slowly. It will be

THE possibilities of the cathode ray tube are not confined to methods which are basically similar to those of mechanical systems, and television can be arranged by purely electrical means. In this article, a new and attractive method is described, the particular advantage of which is the extreme simplicity of the receiving equipment.

obvious, therefore, that in an uncontrolled system of this nature the number of pictures a second becomes a very variable quantity. Should the picture predominate in light patches, the cathode ray beam moves more slowly than if it be largely dark, and a longer time is required for the complete traverse of the whole picture. Thus, there will be fewer pictures a second with a light object than with a dark.

In order to avoid this, it is usual to arrange matters so that the normal time

for a single scanning line is that for a white object. The usual line is darker than this, so that means are included to stop the beam at the end of the line and make it wait until the correct time has elapsed before starting the next line. In other words, a definite time interval is assigned to each line, and if the picture be such that the beam has scanned a line in a shorter interval, it must wait before it starts on the next line. In this way the number of scanning lines and pic-

tures a second is maintained constant as with ordinary cathode ray television methods.

One arrangement for achieving this form of television is illustrated diagrammatically in Fig. 1. The beam from the transmitting tube is focused on to a photocell or its equivalent, passing through a cinema film on its way. The oscillators provide voltages to the deflecting plates which cause it to describe a series of lines, just as in the case of an ordinary transmitter. If we now took the photo-cell current and applied it to the modulating electrode of a television type cathode ray tube, to the deflecting electrodes of which the synchronising voltages were applied, we should have an ordinary cathode ray television system.

Instead of doing this, however, the out-

Television Explained-

put of the photo-cell is applied to the oscillators controlling the deflection of the cathode ray beam. After suitable amplification, matters can be so arranged that a reduction in photo-cell current causes an increased voltage to be applied to the deflecting plates, so that when a dark portion of the picture passes in front of the beam, the speed of the latter is accelerated.

If we parallel the deflecting plates of the transmitting tube with those of an ordinary cathode ray tube fitted with a fluorescent screen, therefore, the beam in

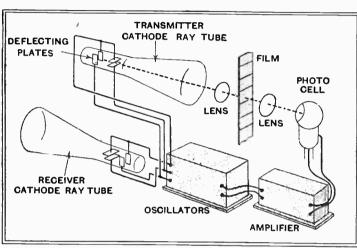


Fig. 1.—The details of the variable-speed scanning system are illustrated here. The receiving tube is shown as connected by wires to the transmitting apparatus; actually, of course, a radio link can be interposed.

the latter will vary in exact accordance with that of the transmitter, and the picture will appear on the screen. It will be observed that two sets of deflecting voltages are required, but as they are of widely differing frequencies, they can be carried by a single pair of wires, and separated at the receiving end by suitable filters. Alternatively, they can be used to modulate the carrier of a wireless station.

The extraordinary simplicity of this arrangement from the receiving point of view will now be apparent, for in addition to the receiver, nothing is required beyond the cathode ray tube, mains equipment for its operation, and suitable filters to separate the deflecting voltages. No oscillators or synchronising circuits are necessary. The cathode ray tube is thus analogous to a moving-coil loud speaker of the energised type, the mains equipment for its operation being not unlike that for providing the field current of the speaker.

Although this seems a striking advance, the transmitter is actually more complicated than that with ordinary methods, and the major difficulty of television, the wide sideband spread, is in no way alleviated. This may well explain the reason why experimenters in the transmitting field usually stick to the older systems. Nevertheless, it is to be hoped that more attention will be paid to this system in the future, for it possesses the supreme merits of lower cost and simpler operation on the part of the receiving equipment, and would thus appear more suitable for general use in broadcasting.

Lissen Car Radio Equipment

Six-valve "Straight" Receiver with Class "B" Output

R EADERS are doubtlessly familiar with the outward appearance of the Lissen motor car wireless equipment from the several illustrations that have already appeared in this journal, yet so far very little technical information has been available, but a recent demonstration afforded the opportunity for a more detailed examination, during which some interesting facts were revealed.

The receiver is intended mainly for bat-

tery operation, and consists of a six-valve "straight" receiver having three H.F. amplifiers, a duodiode, serving for detector and A.V.C. control. a. driver stage, and finally a Class "B" output output valve. This arrangement ensures a very high order of sensitivity coupled with a large power output -about two watts maximum - yet economical so far as battery consumption is concerned. There are three tuned circuits, for only the H.F. intervalve couplings are tuned, the aerial circuit be-

ing aperiodic. A.V.C. operates on all the H.F. valves and gives very good control indeed. There is a manual volume control, however, embodied in the L.F. amplifier. Lissen iron-cored coils are used, and the receiver unit is housed in a stout iron container measuring less than a foot cube and designed for sinking below the floor-boards in the car.

On the remote control unit, which is fixed to the steering column, are three controls, namely, tuning, volume and wave-band

modated in the front cockpit just under the dash. A further unit contains the H.T. battery, which may be located in any convenient part of the car. Alternatively, an H.T. converter driven by the car battery could be employed, and there is a model available with it incorporated in the receiver.

We understand that with the battery model about $2\frac{1}{2}$ amps. only are taken from the car battery.

Over a dozen stations were tuned in with ease and at good volume during daylight, and in the heart of London. The A.V.C. holds signals at a constant level once this is adjusted by the manual control despite rapid change in direction, screening by buildings or when passing under iron bridges.

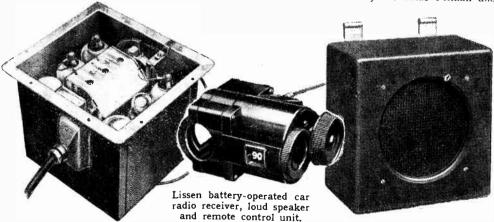
The controls are most conveniently placed and fall readily to hand, since they are grouped on the extreme right of the unit. The switching lever is a little inaccessible, especially when wearing thick gloves, as it is partially obstructed by the tuning knob; however, this is minor detail.

Tuning is not critical, yet the selectivity would appear adequate for the needs of motor car wireless, while the quality of reproduction is very good and well up to the best standard attainable with Class "B."

The battery model costs £25 and the converter style £30. The makers are Lissen, Ltd., Lissenium Works, Worple Road, Isleworth, Middlesex.

BOOKS RECEIVED

Worked Examples for Wiremen and Students, by H. Rees. A concise guide to D.C. circuit calculations. Each section begins with a brief summary of the principles involved, followed by worked examples and questions. The sections include:—Ohm's Law, Series and Parallel Circuits, Power and Energy, Resistance of Wires and Cables, Simple D.C. Measurements, Dynamo and Motor Calculations, Starting Resistances for D.C. Motors, and selected examination questions from City and Guilds and A.M.I.E.E. Examinations. Pp. 114+vii, with 23 diagrams. Published by Sir Isaac Pitman and



switching. A Bowden cable transmits the drive to the gang condenser, but the waveband switching and the volume control are electrically operated. A small relay is used for the former, and with it is combined the on-off switch and the loud speaker field switch. The tuning dial is wavelength-calibrated with the medium- and long-wave scales illuminated in different colours for easy identification.

The moving-coil loud speaker is a separate unit having its field energised from the car starter battery, and will usually be accomSons, Ltd., Parker Street, Kingsway, London, W.C.2. Price 3s. 6d.

Wireless for Beginners, by C. L. Boltz, B.Sc., explaining in non-technical language the general principles of wireless reception and the various types of receivers, loud speakers and radio-gramophones, with explanations and definitions of the terms used, and the functions of the various components. Pp. 227, with 114 diagrams and illustrations, and 5 plates. Published by G. G. Harrap and Co., 39, Parker Street, Kingsway, London, W.C.2, Price 3s. 6d.

BROADCAST BREVITIES

By Our Special Correspondent

Is the Public So Bad?

IT is feared in the B.B.C. Engineers' Department that brickbats will be flying in January next when the Lucerne Plan comes into operation, for the simple reason that the British wavelength changes are so slight. The engineers, who must have been studying psychology in their spare time, feel that many people will not bother to alter their tuning, but will simply boost up the apparent decline in signal strength by means of the H.F. or L.F. volume control. Result: Poorer quality. Further result: Brickbats.

However, I believe this is a case where the B.B.C. underestimates the intelligence of the British public.

B.B.C.'s Recording Section

A NEW department figures on the B.B.C. pay-roll. This is the Recording Section, with an engineer in charge, who, with the aid of a growing staff, will superintend every type of recording carried out by the B.B.C.

Systems Used

In addition to the well-known Blattnerphone system, two other methods are now There is the system employing a soft wax disc which goes through the ordinary pressing and baking processes of a gramophone record, and can be available for replaying in not less than six hours. Secondly, there is the platinum blank, which can be played back immediately, and costs only two shillings.

The B.B.C. rather favours this last method, although recognising that the quality is not quite so good as that obtainable from the other methods. It is, however, extraordinarily useful at rehearsals.

9999

Quick Progress at Droitwich

THE two 700ft, masts at Droitwich are now nearly completed, and in a week or two the first of the heavy apparatus will be delivered, including the Diesel generator sets, transmitters, rectifiers, and motor generators. These are now undergoing official tests at the works.

The first test signals from Droitwich may go out by April next.

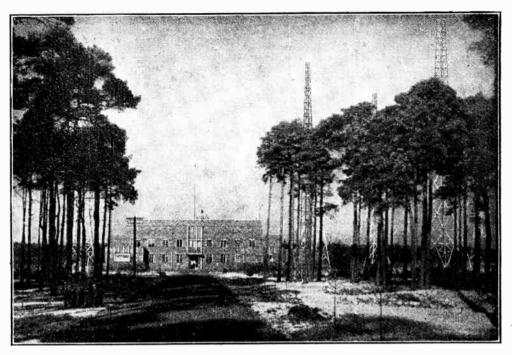
An Innovation

B.B.C. Prayer Book in Moon?" ran the me the other day. I imagined that the B.B.C. was taking another step towards including the whole solar system in its service area.

Actually, the note came from the National Institute for the Blind, and told how the B.B.C.'s book of prayers for the morning services is now issued in the system of em-bossed lettering known as "Moon" type. This was invented by the late Dr. William Moon, of Brighton, for the special benefit of the aged blind and others having difficulty in mastering the Braille alphabet.

News from Maida Vale

IN The Wireless World of September 1st last I was able to offer you the first exclusive photograph of the discarded skating



A fine scenic setting has been found for the new short-wave GERMANY'S "DAVENTRY." broadcasting centre at Zeesen, which will shortly open directional services to South Africa,
South America and the Far East. Omni-directional aerials will also be used.

rink in Maida Vale which the B.B.C. has now leased from the Ecclesiastical Commissioners for use as an auxiliary broadcasting studio.

The skating rink will fulfil exactly the same functions as the old No. 10 studio at Waterloo Bridge.

No "Proms" in the Skating Rink

There is no truth in the stories that the Promenade Concerts will be transported to this suburban retreat, or that the May Festival series will not be given in the Queen's Hall; nor is it likely that the "Music Hall" programmes will be broadcast from Maida Vale. There is every likelihood that the St. George's Hall will be retained permanently for B.B.C. use,

Broadcast Concerts from the National Gallery

OWEVER ugly the National Gallery, Trafalgar Square, may appear from the outside, no one can fail to admire the impressive interior, particularly under the cupola.

Strolling in there the other day, it oc-curred to me that here was a first-class broadcasting studio. Some years ago, if I remember rightly, hinchtime recitals were given in the Gallery with a small string orchestra; what more appropriate than a revival of this pleasant custom in a building which from all appearances should prove acoustically excellent for broadcasting? The novelty would also draw more visitors to the Gallery, which, to my mind, badly needs a "boost."

The New Fashion

NOT to be beaten by the films and the theatres, the B.B.C. is "going historical." I hear that the idea is to dwell on the great days of Queen Elizabeth, and one of the first efforts will be by Herbert Farjeon, who is working on a masque dealing with Good Queen Bess. It will form part of the "It Might Have Been" series.

History of a Later Day

I had a chat the other day with Leslie Baily, author of that other very successful historical piece, "Scrap Book," broadcast on Monday last. I understand that this may be the forerunner of a series. Actually, the idea was carried out in the North some years ago, and, like many another good scheme, has proved old enough to be new again.

50

Around Scotland

SCOTTISH Regional listeners on Christmas Eve will hear a programme taken from the three broadcasting stations in Scotland, entitled "Round the Country." Sclanders, in Glasgow, will sing songs by Handel, Roger Quilter, and other famous composers; Richard Garioch- playing in the Aberdeen studio, will give some familiar violin music, and Frank Philip will have two groups of songs to sing from Edinburgh.

Archbishop of Canterbury to Broadcast

The Sunday evening service at 8 o'clock on New Year's Eve will be relayed from Canterbury Cathedral. The Archbishop of Canterbury will give the address.

On New Year's Eve

Scotland will play its customary share in the New Year celebrations. The Watch Night service on New Year's Eve is to be relayed from St. Giles' Cathedral, Edinburgh, and included in the National programme. The broadcast will start at 11.45 p.m., and end at five minutes to midnight.

A Record Appeal

ON behalf of the London Hospital, Sir William Goschen, chairman, will broadcast an appeal on December 17th. It was on a Sunday in February, 1928, that Lord Knutsford, "Prince of Beggars," made his seventh and final quinquennial appeal during his long chairmanship of "The London," the largest institution of its kind in England. On that occasion he said, "I am specially anxious for the success of this year's effort, as I am seventy-three years of age, and it will be therefore in all human probability my last.'

His words proved prophetic, for a short time afterwards he died; but that last appeal bore fruit. A sum of £20,000 resulted from his few minutes' talk. Sir William Goschen aims in his broadcast on December 17th at least to equal the record of his predecessor.

Sims Reeves' Successor

FRANK TITTERTON'S heroic efforts to revive the songs of his brilliant predecessor in vocal art, Sims Reeves, continue unabated, and on December 30th he is to give another of these Sims Reeves recitals in the National programme. Titterton started shiging professionally after the war, during which he served in the Tank Corps, "and," he says, "I required a tank almost to myself, even at that time." His girth has since increased still more, and now, paradoxically, he uses one of the smallest cars on the market.

I believe his presence in a broadcast studio has a quite definite effect on the acoustics.

Some Toon!

 ${
m A}^{
m FTER}$ following several of the plays in the Radio Drama Festival series I have discovered that each is preceded by a signature tune in which the saxophone predominates. I have now identified this tune, and am still wondering why it was chosen to set its stamp on this great series by the British Broadcasting Corporation. It is Louis Alter's "Manhattan Serenade." Oh boy!

FOREIGN BROADCAST GUIDE

RADIO ALGER

(Algiers, North Africa).

Geographical position: 36° 45′ N.; 3° 11′ E. Approximate airline from London: 1,045 miles. Wavelength: 363.3 m. Frequency: 825.5 kc/s. Power: 13 kW.

Standard Time: Greenwich Mean Time.

Standard Daily Transmissions.

11.30 G.M.T.: (Sun.), 12.30. concert; news; 18.00, Oriental music; talks; weather; news; 20.00, main evening entertainment; 21.55, news.

Announcers: Man and Woman.

Opening Signal: Fanfare of the Sidi Brahim Trumpets (gramophone record).

Call: Allo! Allo! Ici le Poste de Radiodiffusion du Gouwernement Général des P.T.T. d'Alger. Often abbreviated between items to: Ici P.T.T. Alger.

Interval Signal: One stroke on gong.

Closes down with usual French formula, followed by La Marseillaise.

According to Lucerne Plan, this station will alter its wavelength to 318.8 m. (941 kc/s) on January 15, 1934.

In Next Week's Issue

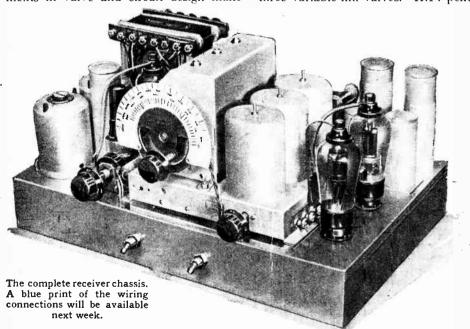
The Wireless World

Everyman A.C. Super

A Four-valve Receiver Employing the Most Recent Superheterodyne Improvements

HE standard of performance expected from a receiver is continually increasing, and this is particularly the case with the smaller class of set, for it is here that improvements in valve and circuit design make

The Everyman A.C. Super has only four receiving valves but includes a signal frequency H.F. stage, an I.F. stage with four efficient tuned circuits, and delayed automatic volume control operative on three variable-mu valves. H.F. pentodes



themselves most felt. Recent developments have led to a striking increase in the efficiency of the four-valve type of superheterodyne, which is now capable of a very satisfying performance.

are used for the H.F. and I.F. stages, and the Heptode provides a single-valve frequency changer which is both efficient and trouble-free. The pentode output

valve is rated to deliver over 3 watts output to the moving-coil loud speaker, so that the volume obtainable is ample for domestic purposes. Separate cabinets are employed for housing the speaker and the receiver; the former, therefore, may be used in another room if desired.

The tuning controls are few in number and the manual volume control is operative on both radio and gramophone. Hum is completely absent, and the sensitivity and selectivity are both sufficiently high for the reception of all worth-while Continental stations under average conditions, while background hiss is negligible. The A.V.C. system largely counteracts fading and keeps all the stronger stations at substantially the same volume level. A noise suppressor is fitted, with the aid of which the background so often found while tuning an A.V.C. set can be removed.

LIST OF PARTS

After the particular make of component used in the original model, suitable alternative products are given in some instances.

1 R.F. Super Radiopak, 110 kc/s British Radiophone 1 Bulb, 6 volts, 0.15 amp. Bulgin 615

2 I.F. Transformers, 110 kc/s Varley "Nicore" BP.42 (Colvern.)

1 Screened H.F. choke (R.I., Wearite.)

2 Fixed condensers, 2 mfds., 200v., D.C. working
3 Fixed condensers, 0.1 mfd., tubular
1 Fixed condenser, 0.005 mfd.
1 Fixed condenser, 0.01 mfd.
2 Fixed condensers, 0.0002 mfd.
3 Fixed condensers, 0.0001 mfd.
4 Fixed condensers, 0.0001 mfd.
5 CC. Type "M"
1 C.C. Type "M"
1 C.C. Type "M"
1 C.C. Type "M"

1 Electrolytic condenser, 50 mfds. 2 Electrolytic condensers, 4 mfds. 3 Electrolytic condensers, 8 mfds. (Dubilier, Peak, Telsen.)

(Dubilier, Peak, Telsen.)

2 Metallised resistances, 150 ohms 1 watt
1 Metallised resistance, 500 ohms 1 watt
1 Metallised resistance, 500 ohms 2 watts
1 Metallised resistance, 5000 ohms 3 watts
1 Metallised resistance, 5,000 ohms 3 watts
2 Metallised resistance, 20,000 ohms 1 watt
1 Metallised resistances, 20,000 ohms 1 watt
2 Metallised resistances, 250,000 ohms 1 watt
2 Metallised resistances, 1 megohn 1 watt
2 Metallised resistances, 2 megohns 1 watt
2 Metallised resistances, 2 megohns 1 watt
3 Metallised resistances, 2 megohns 1 watt
4 Metallised resistances, 2 megohns 1 watt
5 Metallised resistances, 2 megohns 1 watt
6 Watnet.)

1 Tapered volume control, 250,000 ohms Rothermel (Magnum.) Type 1-010-004.

1 Plain brown knob British Radiophone 1 Potentiometer, 5,000 ohms (Haynes Radio, Claude Lyons.) Watmel T.2

1 Smoothing choke, 10 henrys Sound Sales (Bulgin, Ferranti, Heayberd, Rich & Bundy.)

(Bulgin, Ferranti, Heayneru, Kich & Dunny,

1 Mains Transformer, Primary, 200 to 250 volts,
50 cycles; secondaries, 300-0-300 volts, 75
mA., 4 volts, 2.5 amps., centre-tapped;
4 volts, 4,5 amp. centre-tapped;
Rich & Bundy Type No. 233
(Challis, Heayherd, Savage, Vortexion.)

Bulgin S.80

Harbros

5 Valve holders, 5-pin W.B. Reversed Terminal Type W.B. Reversed Terminal Type (Bulgin, Clix.)

Westinghouse W.26 1 On-off Toggle switch (Claude Lyons.)
1 Double-pole double-throw switch

Bulgin S.98 British Radio Gramophone Co. (Bulgin.) 1 5-pin plug

4 Ebonite strouded terminals, A., E., pick-up (2) Belling-Lee "B"

1 Length of Screened Steeving

1 Loud speaker with pentode output transformer and 2,500 ohms field Rola F.6/P.2,500 Cabinets for set and speaker (C.A.C.) Peto-Scott

1 Plymax baseboard, $10\frac{1}{2}$ in, \times 16in, \times $\frac{3}{6}$ in Peto-Scott 20z. No. 20 tinned copper wire, aluminium, 12 lengths Systoflex, wood, etc.

Valves:—2 Ferranti VPT4, 1 Ferranti VHT4, 1 Osram or Marconi MPT4 (Catkin), 1 Osram or Marconi MU12,



OREIGN

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres and Cork, 1,337 kc/s, 224.4 metres.—1.0 to 4.0 p.m., Programme by the LB.C. (Ireland), Ltd. 1.0, Dance Music: I'm dancin' on a Radinbow; When the sweet Magnolias bloom again; Beautiful Girl; Do you recall?; Shanghai Lil; Moonlight down in Lover's Lane; Remember my Forgotten Man; Trouble in Paradise. 1.30, Dance Music: Love in the Moonlight; Happy Ending; Taugo Lady; Two Tickets for Georgia. 1.45, Light Music: Selection from White Horse Inn (Stolz-Benatzky); Song; Tell me to-night (Exton); Looking on the Bright Side (Flynn); Selection from Lilac Time (Schubert-Berté). 2.0, Dance Music: Thanks; Night and Day; Hold your Man; Everyone loves my Margnerite. 2.15, Orchestral Music: Gavotte from Mignon (Thomas); Serenade from Les millions d'Arlequin (Drigo); Meditation from Thais (Massenet); Chant sans Paroles (Tchaikovsky). 2.30, Light Music: The Best of the Bunch (Baptiste); There's an Empty Col in the Bunch (Byng); Waltz Clog Medley; Cuban Mazurka (Baptiste); Mandolinata (de Pietro); Colorado Moon (Hill); Dreams. 3.0, Tony Reddin and his Radiolians: Signature Tune. The Gold-Diegers' Song; Tony's Wife; Hlawatha's Lullaby; What are liftle Girls made of?; 90 in the Shade; My Moonlight Madonna; Music in the Air; King of Borneo; Headin' for a Weddin'; It's Sunday down in Caroline: The Cage in the Window; Shadows; Gin and It; Her name is Mary; Yvonne; Stand up and Sing; Adorable; Signature Tune. Let's call it a Day. 8.30, Concert by the Station Orchestra. 9.0, The Plain Songster Choir, conducted by Mrs. A. Boylan. 9.20, Lights Out—A Play, by the Dublin Repertory Company. 9.45, Vocal Duets by The Serenaders. 10.10, Irish Music and Eamonn Potts. 11.0, Time, News, Weather and Cose Inown.

BARCELONA

BARCELONA

BARCELONA

EAJI, 861 kc s, 348.4 metres; 8 kW.—11.0
a.m., Chines from the Cathedral and
Weather. 1.0 p.m., Gramophone Music.
1.30, Theatre Notes. 2.0, Sextet Concert.
3.0, Programme for Hospitals, with Gramophone Music.
4.0 to 5.30, Interval. 5.30,
Agricultural Talk.
6.0, Concert by the
Radio Orchestra. 6.30, Part Relay of an
Opera from the Gram Teatro del Licco.
9.0, Gramophone Music. 10.45, Chess
Lesson. Lesson.

RARI

1,112 kc/s, 269.8 metres; 20 kW.—9.0 a.m., See Rome. 9.30, Agricultural Talk. 9.45, Bible Reading. 10.0 to 11.0, See Turin. 11.30, See Rome. 11.45 to 1.15 p.m., See Turin. 3.0 (approx.) till Close Down, See Rome.

BASLE .- See Schweizerischer Landessender.

BELGRADE

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—11.15 a.m.,
Orchestral Concert. 12.30 p.m., News and
Time Signad. 2.0, Gramophone Records.
2.15, Talk. 2.30, Concert of Vugoslav
Music by the Ratni drugovi Orchestra.
3.30, Russian Music by the Galipolje Orchestra.
4.0, Dance Music (on Gramophone
Records). 5.55, Time Signal and Programme
Announcements. 6.0 to 9.0, Programme for
the Birthday of King Alexander 1. 6.0,
Orchestral Concert. 7.0, Vardar Musical
Play (Peter Krstie). 7.20, Recitation. 7.30,
Talk. 8.0, Vugoslav Songs by the Obile
Choir. 9.0, Time Signal Sports Notes and
News, followed by Gigány Music from the
Restaurant Rudnicamin. 10.0, Dance Music
(on Gramophone Records). 10.30 (approx.),
Close Down.



BERLIN

BERLIN

DEUTSCHLANDSENDER (REIGHSSENDER), 183.5 kc/s, 1,635 metree; 60 kW.—
5.15 a.m., Harhour Concert from Hamburg, 5.30, To-day's Motto, 5.35, See Hamburg, 7.0, Agrienthral Programme, 7.55, Chinnes from the Potsdam Garrison Church, 8.0, Morning Recital, followed by Chimes from the Cathedral, 9.5, Weather Report, 10.10, Talk on German Art, 10.15, Weather, 10.30, See Leipzig, 11.15, See Munich, 11.55, Time Signal, 12 Noon, See Leipzig, 1.0 p.m., Programme for Children, 1.45, Songs by Children, 2.10, Cinderella (after Grimm), played by Young Workers, 2.45, The Wonders of Nature—Talk on the Mistletce, 3.0, See Breslau, 4.0, Recital of Advent Songs, 4.30, Talk: Making an Adventskranz, 5.0, German Legends—a Radio Sequence (Hans Kuno Volkmann), 5.50, Rural Programme—Gramophone Music and Talk: A Winter's Day in a Village, 6.30, Siegfried von Vegesack reads from his Novel, Herren olme Herr, 6.45, Sports Notes, 7.5, See Munich, 8.15, See Stuttgart, 9.0, News, 9.45, Weather, 10.0, Seenande from Munich, 12 Midnight (approx.), Close Down,

BERLIN

BERLIN

FUNKSTUNDE, 716 kc/s, 419 metres; 1.5 kW. Relayed by Zeesen, DJC, DJA, DJD, DJB and DJE.—10.30 a.m., See Leipzig. 11.15 (approx.). Concert from Heilsberg. 1.0 p.m., Talk. 1.20, Programme for Children. 1.35, A Play for Children. 2.10, Talk: National Customs. 2.30, Radio Report from the Märkisches Museum. 2.45, Sports Notes. 3.0, Concert by the Station Orchestra, conducted by Geysel. 5.0, Talk: A Remedy against Old Age. 5.10, Dmlogne: A Visit to Grandparents. 5.30, Chamber Music Concert from the Central Institute for Education and Instruction. 6.30, Reading of Christmas Tales. 6.50, Sports Notes. 7.0, Announcements. 7.5, See Munich. 8.15, See Hamburg. 9.0, News. 9.30 to 11.0, See Hamburg. 11.0 (approx.), Close Down.

BERNE.—See Schweizerischer Landessender. BEROMUNSTER. — See Schweizerischer

BODEN,-See Stockholm.

BODO.-See Oslo.

BRATISLAVA

1.073 kc/s, 279.5 metres; 14 kW.—3.0 p.m., See Brno. 4.15, A Comedy in Three Acts (Hozo Lovrie). 5.55, Talk for Honsewives. 6.0, See Prague. 6.5, See Brno. 6.50, See Prague. 8.15, Concert by the Station Orchestra, conducted by Uyk. 9.0, See Prague. 10.0 (approx.), Close Down.

BREMEN.-See Hamburg.

BRESLAU

BRESLAU
923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz. 1,185 kc/s, 253.1 metres.—10.30 a.m., See Leipzig. 11.15, See Munich. 12 Noon, See Leipzig. 1.0 p.m., News. 1.10, Dialogue between an Office Worker and a Country Girl. 1.30, This Beautiful World—Gramophone Sequence. 2.30, Programme for Children. 3.0, Concert by the Station Orchestra, conducted by Gerhard Ewald Rischka. 5.0, Rorate coeli—A Christmas Story (Kolbenheyer). 5.30 (from Gleiwitz), Vocal Quartet Concert. 8.10, Programme

Announcements. 6.15, Topical Talk and Sports Notes. 6.30, Songs by English Sailors—Talk with Gramophone Illustrations. 7.5, See Munich. 8.15, Advent heisst Ankunft—Advent in Song. Legend and Poem. 9.0, See Leipzig. 9.20, Time, Weather, Sports Notes and Local News. 9.40, Wireless Technical Talk. 10.0, Seremade from Munich. 12 Midnight, Close Down.

BRNO

BRNO
878 kc/s, 342 metres; 35 kW.—11.15 a.m.,
Military Band Concert. 12.30 p.m., Agricultural Talk. 1.0 to 1.15, See Prague. 3.0,
Concert, relayed from the Stadium. 4.15,
See Prague. 5.0, German Transmission:
Concert of Contemporary Austrian Music,
6.0, See Prague. 6.5, Song Revital. 6.50,
See Prague. 8.15, Concert by the Station
Orchestra. 9.0, See Prague. 10.0 (approx.),
Close Down.

BRUSSELS (No. 1)

BRUSSELS (No. 1)

1.N.R., 589 kc/s, 509.2 metres; 15 kW.—10.0 a.m., Orchestral Concert, conducted by Martin Lunssens, relayed from the Conservatoire, Ghent. 11.30, Concert by the Small Station Orchestra, conducted by Pierre Leemans. 12 Noon, Orchestral Concert. 1.0 p.m., Le Journal Parlé. 1.10, Concert by André Felleman and his orchestra, relayed from the "Grand Hotel," Antwerp. 1.30, Monologues by Hélène Lefèvre. 1.40, Concert (contd.). 1.50, Report of the Football Match, Red Devils v. Cracow, relayed from the Centenaire Stadium. 5.0, Concert by the Radio Orchestra, conducted by Franz André. In the interval at 5.30 (approx.). Football Results. 6.0, Harp Recital by Mile. Flour. 6.30, Programme for Children. 7.0, Gramophone Records. 7.15, Religious Address. 7.30, Wireless Notes followed by Music Review by Marcel Poot. 8.0, L'Africaine—Opera (Meyerbeer), relayed from the Theatre Royal, Liège. In the intervals, Reading and Le Journal Parlé.

BRUSSELS (No. 2)
N.I.R., 388 kc's, 337.8 metres; 15 kW. Programme in Flemish.—10.0 a.m., Concert by the Small Station Orchestra conducted by Lee the Small Station Orchestra conducted by Leemans. 11.0, Gramophone Concert of Popular Music. 12 Noon, Orchestral Concert conducted by André Felleman, relayed from the Grand Hotel, Antwerp. 1.0 p.m., Le Journal Parlé, 1.10, Music by Sykes and his Orchestra. 5.0, Dance Music relayed from the St. Sanvenr Palais de Danses. 5.30 (approx.), Sports Results. 6.0, Gramophone Music. 6.15, Unamber Music by the Gertler Quartet. 7.15, Religious Address, 7.30, Le Journal Parlé, 7.55, Talk on Music. 8.0, Light Music by the Radio Orchestra, conducted by Franz André, Soloist, Mle. Derville (Soprano). 8.45, Reading, 9.0, Orchestral Concert (contd.). 10.0, Le Journal Parlé, Concert conducted by Franz André, Soloist, Mle. Derville (Soprano). 8.45, Reading, 9.0, Orchestral Concert (contd.). 10.0, Le Journal Parlé, 10.10, Orchestral Concert conducted by Ursmar, relayed from the Palace Hotel.

BUCHAREST

760 kc/s, 394.7 metes; 12 kW.—4.0 p.m., Concert of Variety Music by the Marco Orchestra. In the interval at 5.0, Radio Journal. 6.0, Educational Talk. 6.20. Gramophone Records. 6.45, Review of the Week. 7.0, Concert by the Station Orchestra; Soloist, Robert Shilton (Baritone). In the interval at 8.0, Talk. 8.45, Radio Journal. 9.0, Light Music relayed from a Restaurant.

BUDAPEST

BUDAPEST

545 kc/s, 550.5 metres; 120 kW.—Also relayed on 840 metres from 7.0 p.m. till Close Down. 8.15 a.m., News. 9.0, Divine Service. 10.0, Catholic Service. 11.30, Programme in Memory of Ernst Szöts, First Director of the Hungarian Broadcasting Association. 1.0 p.m., Gramophone Records. 1.30, Wireless Notes. 2.0, Agrientlural Talk 2.45, Orchestral Concert, conducted by Fridl. 3.30, Talk. 4.30, Reading. 5.0, Concert by Alexander Bura's Cigány Band. 6.15, Talk. 6.45, Sports Notes. 7.0, Radio-Play. 9.0, News. 9.20, Orchestral Concert, conducted by Emil Roos, relayed from the Café New York. 10.20, The Eugen Pertis Cigány Band, relayed from the Restaurant Royal.

CASSEL .- See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres; and Skamleback (OXY), 31.51 mctres...—11.0 a.m., Time Signal and Chimes from the Town Hall. 11.1, Concert of Viennese Music, relayed from the State Broadcasting Building. 12 Noon, Reading of Poetry in English. 12.20 p.m., Talk in German: The Origin of the Wandervogel Movement. 12.40, Poetry Reading in French. 1.0, Accordion Music. 1.25, Gramophone Concert. 1.55, Programme for Children. 2.25, Concert of Dance Music by the Louis Preil Band, relayed from the State Broadcasting Building. 4.0 (also on Skamleback). Divine Service, relayed from the Holmens Church. 5.20, Talk. 5.50, Weather. 6.0, Press Review and Sports Results. 6.15, Time Signal from the Town Hall. 7.1, The Hansen Family—Sketch (Locher). 7.15, Christmas Concert. 8.0, Old and New French Music by the Radio Orchestra, conducted by Reesen. 8.50, Press Review. 9.0, Two Humorous Sketches (Michael Zostenehko). 9.20, Offenbach Concert by the Radio Orchestra. 10.0, Dance Music, relayed from the Lodberg Restaurant. 11.0, Time and Chimes from the Town Hall.

CORK.-See Athlone. DANZIG .- See Heilsberg. DRESDEN .- See Leipzig.

FECAMP

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—8.45 a.m. to 12 Noon, Programme in English by the LB.C. 8.45, Military Band Music. 9.30, Orchestral Concert. 10.0, Dance Music: Signature Tune, Bells of Normandy; Oh, Johanna (Lawrence); Love locked ont (Noble); New kinda Blues (Lawrence); Black-eyed Susan Brown (Magidson); You're st ll in my Heart (Yellen); My Bluebird's singing the Blues (Robin); It's a Glory; La Cachimba de San Juan (Ognacio); Awful Sad (Ellington); I was in the Mood (Pola); That Naughty Waltz (Levy); The Last Round Up (Hill); Swingy little Thingy (Green); You've got everything (Donaldson); The Day you came along (Yoslow); The Cage in the Window (Gibson); Signature Tune, 11.0 to 12 Noon, Variety Programme. Part I. Orchestral Concert: Signature Tune; A Night in May (Strauss); The Jolly Whistlers (Gennin); Musette (Peter); The Coon among the Chickens (Ives); Selection, Aunt Sally (Woods). Part II: Every little bit of me; Lovable; By a Rippling Stream; Between the Devil and the Deep Blue Sea; My Gal Sal; There's a New Day conin' (Young). Night and Day (Porter); He was a Handsome Young Soldier (Pola); A Couple of Pals (Gilbert); Did my Heart beat? (Russell); I was in the Mood (Pola); Signature Tune. 12 Noon, Programme in French. 2.0 p.m. to 7.30, Programme in English by the I.B.C. 2.0, Popular Melodies: Signature Tune. Treside Fantasy; Valse des Henrs (Tchaikovsky); Little Girl; One Fine Day, from Madame Butter-

DEC. 17th SUNDAY

continued

(Ellington); Her First Dance (Heykens). 2.0, I.B.C. Goodnight Melody and Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel, 1,220 kc/s, 245.9 metres; and Trier, 1,157 kc/s, 259.3 metres.—10.30 a.m., See Leipzig. 11.15, Orchestral Concert. conducted by Oska Ernst. 12 Noon, See Stuttgart. 12.15 p.m., Gramophone Concert of New Records. 1.20, Talks arranged by the Wieshaden Board of Agriculture. 1.30, Radio Report from a Cattle Auction. 2.0, See Langenberg. 5.0, Christmas Carols, by a Gregorian Choir, relayed from the Benedictine Abbey of Maria Laach. 5.30, A Pleasant Interlude by Harry Cobler. 6.0, Dramatic Programme. 6.46, Sports Notes. 7.0, See Munich. 8.15, See Stuttgart. 9.0, Time and News. 9.20, See Stuttgart. 9.0, Time and News. 9.20, See Stuttgart. 9.0, Variety Programme. 11.0, Seenes from Hansel and Gretel—Opera (Humperdinck), on Gramophone Records. 1.0 a.m. (Morday), Close Down.

FREDRIKSSTAD.—See Osio.

FREDRIKSSTAD.-See Oslo. FREIBURG-See Stuttgart. GENEVA.-See Radio-Suisse Romande. GENOA .- See Turin. GLEIWITZ.-Sec Bresiau. GOTEBORG.—See Stockholm. GRAZ.-See Vienna. HAMAR.-See Oslo.

HAMBURG

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg and Hanover, 1,319 kc/s, 227.4 metres; and Kiel, 1,292 kos, 232.2 metres.—11.0 a.m., Sce Heisberg. In the interval at 11.55, Time and Weather. 1.0 p.m., Winter Solstice Programme in North Germany—Programme by the Hitler Jugend under the leadership of Baldur von Schirach. 2.0, Ludwig Uhland—Play (Ludwig Benninghoff). 3.0, See Berlin (Funkstunde). 5.0, The Christmas Rose—a Christmas Fairy Play (Sepp Bauer). 5.40 (from Kiel). A Christmas Picture Book—Orchestral Concert, conducted by Hans Döring. 6.20, Reading (Augustay). 6.35, Sports Notes. 6.50, Weather. 7.5, See Munich. 8.15, Concert by the Station Orchestra. conducted by José Eibenschütz. Soloist: Ilse Witter (Soprano). Overture, Tannhäuser (Wagner); Aria from Tannhäuser (Wagner); The Nutcracker Suite (Tchaikovsky); Waltz, Liebesgeständnis (Nicodé); Waltz from Liebe im Schnec (Benatzky). 9.0, News. 9.30, Concert of Light Orchestral Music, conducted by Gerhard Masz. Soloist: Willi Becher (English Horn). 10.15, Dance Music. 11.0 (approx.), Close Down.

HANOVER.—See Hamburg.

fly (Puccini); Polonaise in A (Chopin); An den Fruhling (Grieg); The Song is ended (Berlin); Autumn (Chaminade); Ballet egyptlen (Luigini); Signature Tune, Fireside Fantain; Orthestral Tune, Fireside Fantain; Chaminade); Grient (Chaminade); Ballet egyptlen (Luigini); Greent of Hawaii Chaminade); Grient (Chaminade); Grient (C

HEILSBERG

HEILSBERG

1,085 ke/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 ke/s, 447.1 metres.—11.0 a.m., Concert by the Königsberg Opera House Orchestra, conducted by Erich Börschel. In the interval at 1.155, Talk on Fashion. 1.0 p.m., Talk on Chess. 1.30, Discussion for Young People: Celebrating German Festivals. 2.0, Review of Books. 2.15 (from Danzig), Die Wunderglocke—Christmas Fairy Play (Brückel-Behrendt). 3.0, Concert by the Königsberg Opera House Orchestra, conducted by Brückner. In the interval at 4.0 (approx.). Sports Notes. 5.0, Programme for the One Hundred and Fiftieth Anniversary of the Birth of Max von Schenkendorf, relayed from Königsberg Castle, Choral and Instrumental Music and Readings. 6.0, Reading (Julius Havenann). 6.15 (from Danzig), Recital of Music for Two 'Cellos. 6.50, Sports Notes. 7.5, See Munich. 8.15, See Hamburg. 9.0, News. 9.39 to 11.0, See Hamburg. 11.0 (approx.). Close Down.

HILVERSUM

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW. up to 5.40 p.m. and 20 kW. from 5.40 p.m.—8.40 to 11.40 a.m., Programme of the Workers' Radio Society (V.A.R.A.). 8.40, Football Report. 8.43, Horticultural Talk. 9.10, Orchestral Concert. 10.0, Recitations. 10.20, Concert (contd.). 11.10, Address. 11.40 to 4.40 p.m., Programme of the General Broadcasting Society (A.V.R.O.). 11.40, Concert of Light Music by Barnabus von Géczy and his Orchestra. 12.40 p.m., Gramophone Records. 1.40, Talk on Books. 2.10, Concert by the Concertgebouw Orchestra. conducted by Pierre Monteux, relayed from the Concertgebouw. Ansterdam; Soloist, Berthe Seroen. 3.40, Song Recital. 4.5, Gramophone Records and Sports Notes. 4.40 to 5.40, Programme of the V.A.R.A. 4.40, Organ Recital. 4.55, Programme for Children. 5.25, Gramophone Records. 5.40 to 7.40, Programme of the Liberal Protestant Radio Society (V.P.R.O.). 5.40, Book Review. 6.25, Divine Service. 7.40 till Close Down, Programme of the A.V.R.O. 7.40,

Time and News. 7.55, Concert by the Wireless Orchestra, conducted by Nico Treep. Soloists: Grethe Weijnschenk-Hogenbirk (Soprano) and Henk Viskil (Tenor). 8.40, Songs of all Countries—sung by Nijland. 9.0, The Coronation Concerto in D. (Mozart) by the Wireless Orchestra, conducted by Nico Treep; Karel de Jong (Pianoforte). 9.25, Gramophone Music. 9.40, Concert of Light Music by Barnabas von Géezy and his Orchestra. 10.40, Gramophone Music. 11.40 (approx.), Close Down. HORBY.—See Stockhalm.

HORBY.-See Stockholm.

HUIZEN

160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m. Transmitted from Kootwijk on 50 kW. from 3.40 p.m.—8.10 a.m., Religious Programme of the Catholic Radio Society (K.R.O.). 9.10 to 11.55, Programme of the Christian Radio Society (N.C.R.V.). 9.10, Sacred Music on Gramophone Records. 9.30, Divine Service, relayed from a Church in Rotterdam. After the Programme, Sacred Music on Gramophone Records. 11.55 to 4.40 p.m., K.R.O. Programme. 11.55, Sextet Concert. In the interval at 12.40, Literary Talk. 1.25, Gramophone Records. 1.40, Talk. 2.10, Concert by an Orchestra and a Male Voice Double Quartet. 4.10, Programme for Invalids. 4.40 to 7.25, N.C.R.V. Programme for Invalids. 4.40 to 7.25, N.C.R.V. Programme, 4.40, Songs by a Women's Choir. 5.30, Divine Service Relay. 7.10, Sacred Music on Gramophone Records. 7.25, Flootball Results. 7.30, Austro-Dutch Exchange Programme. Part I. See Vienna. Part II. Concert by the KRO Orchestra. conducted by Gerritsen; Soloists: Denijs (Baritone), Hartvelt (Violin), and Boshart (Pianoforte): Austrian National Anthem; Address by Georg von Alexich: Ballad (v. Anrooy); Geliuw, Geliuw (Brandts-Buys); Hier onder 't ruischend geboomte (Kuiler); Chanson de Noël (Voormolen); Sarlotteke (Wierts); Im Wiener Dreivierteltakt (Wagenaar). 9.15, News. 9.20, Gramophone Records. 9.40, Malhler Concert: The KRO Orchestra. conducted by Gerritsen; Soloist, Denijs (Songs): Adagietto from the Fifth Symphony (Mahler); Kindertotenlieder. 10.20, Epilogue by the Small Choir. 10.40 (approx.), Close Down.

INNSBRUCK.-See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—9.15 p.m., Radio Concert. 10.0, Answers to Correspondents. 10.30 to 1.0 a.m. (Monday), Programme in English by the L.B.C. 10.30, Orchestral Concert. 11.0, Variety Concert. 11.30, Music by a Tango Band. 12 Midnight, Dance Music. 1.0 a.m., I.B.C. Goodnight Melody.

KALUNDBORG .- See Copenhagen.

KAUNAS

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—5.50 p.m., Gramophone Records. 6.10, Talk on the Lithuanian Language. 6.30, Lithuanian Programme: Talk Lithuanian Music, Recitation and Songs. 8.10, Talk: Parasites in the Animal Kingdom. 8.30, Concert. Cello Solos: (a) Cantabile (Cui), (b) Andacht (Popper); Xylophone Solo: Concert-Polka (Recktenwald); Overture, Quo Vadis (Scassola); Suite, In Sunny Spain (Elliot); Rondo capriccioso (Mendelssohn); Poème (Fibieh). In the interval at 8.50, Sports Notes. 9.30 (approx.), Close Down.

KIEL.—See Hamburg. KLAGENFURT.—See Vienna. KOSICE .- See Prague.

LANGENBERG

LANGENBERG

635 kc/s, 473 metres; 60 kW.—11.0 a.m., scenes from the Life of Mozart—a Radio Sequence with Mozart Music. 12 Noon, See Stuttgart. 12.15 p.m., See Frankfurt. 1.15, Agricultural Talk. 1.45, Talk for Parents and Children. 2.0, Programme for Children. 3.0 to 5.0, Gala Concert. Part I, Choral Music. Part II, The Fröhliche Fünf. Part III, Famous Marches by the Station Orchestra, with Commentary. 5.0, See Frankfurt, from the Benedictine Monastery of Maria Laach. 5.30, Java—a Radio Sequence with Javanese Music. 6.0, Gramophone Music, Anecdotes and Humorous Items. 6.45, Sports Notes. 7.5, See Munich. 8.15, See Stuttgart. 9.30, Kews. Weather and Sports Notes. 9.45 to 1.0 a.m. (Monday), See Frankfurt. 1.0 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—10.15 a.m., Talk on the following Transmission. 10.30, Gott ist unsere Zuversicht—Cantata (Bach), by the Municipal and Gewandhaus Orchestra, the Choir of St. Thomas, and Soloists. 11.15, See Munich. 12 Noon, Concert by the Leipzig

Symphony Orchestra, conducted by Theodor Blumer. 1.20 p.m., Topical Talk. 1.35, Gold and Silver Lace—Radio Report from Anneberg. 1.50, Pianoforte Recital. 2.25, Old German Christmas Carols, by the Leipzig Students' Madrigal Society. 3.0, See Breslau. 5.0, Das Spiel von den Heiligen Drei Königin (Felix Timmermans). 5.55, Talk: Frederick the Great. 6.15, Choral Concert with Extracts by a Choir and Speaking Chorus. 6.55, Sports Notes. 7.5, The Christmas Oratorio (Bach)—by the Gewandhans Choir. Soloists and Orchestra, relayed from St. Thomas's Church. 8.15, See Breslau. 9.0, News. 9.20, Sports Notes and Central German News. 9.40, See Munich. 12 Midnight, Close Down.

LINZ.—See Vienna.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—8.0 p.m.,
Concert by the Station Orchestra, conducted by Henri Pensis; Soloist: Dodja Feldin (Cello): 'Cello Concerto (Saint-Saëns); Italian Caprice (Tehaîkovsky). 8.50, News in French. 9.0, Concert by the Station Orchestra, conducted by Henri Pensis, 9.30, English Dance Music. 9.45, News in German. 9.55, Concert by the Station Orchestra, conducted by Pensis. 10.20, Dance Music on Gramophone Records.

LWOW

788 kc, s, 381 metres; 16 kW.—5.40 p.m., Gramophone Records. 6.0, Talk. 6.10, Announcements. 6.30, Nee Warsaw. 6.45, Programme Announcements. 6.50, Nee Warsaw. 8.15, Variety Programme. 9.15, Sports Notes. 9.25, Nee Warsaw. 10.5, Gramophone Records. 10.30, Close Down.

MADRID

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Programme relayed from Madrid (EAJ7). After the Relay, Radio Chroniele and Talk. 12 Midnight till Close Down, Programme arranged by the International Broadcasting Company (Ireland), Ltd. 12 Midnight, Dance Music: Signature Tune, Come Back to Erin; Isn't this a Night for Love; With you here and me here; Lou'siana Lullaby; Let the World godrifting by; Whistling under the Moon; Trouble in Paradisc; I've found the Right Girl; Mademoiselle; Signature Tune. 12.30 a.m. (Monday), Light Music arranged by the International Broadcasting Company; Kamschamola March; Gavotte from Mignon (Thomas); Tip-toe through the Tulips; Rose Dreams; Volante March; Over in Holland; Pagan Moon; Coal Black Mammy. 1.0, LB.C. Good-night Melody and Close Down.

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—8.0 to 9.0 a.m., Radio Journal. 2.0 p.m., Chimes, Time. Theatre Notes and Concert of Light Music. 4.0 to 7.0, Interval. 7.0, Chimes, Announcements and Dance Music. 8.30 to 9.30, Interval. 9.30, Chimes and Time. 9.45 (approx.), Pianoforte and Song Recital in Connection with the Music Competition. In the interval: Talk by Ramon Gomez de la Serna. 12 Midnight, Chimes. 1.0 a.m. (Monday) till Close Down, Programme in English by the I.B.C. 1.0, Concert of Light Music. 1.30, Popular Melodies, 2.0, I.B.C. Goodn'ght Melody and Close Down.

MALMO.—See Stockholm.

MALMO.—See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.-6.5 p.m., Variety Programme. 6.50, See Prague. 8.15, Concert by the Station Orchestra, conducted by Plichta. 9.0, See Prague. 10.9 (approx.), Close Down.

MOSCOW

MOSCOW

KOMINTERN, RW1, 202.5 kc/s, 1,481
metres; 500 kW.— 3.0 p.m., News. 3.30,
Talk: The Communist Manifesto. 4.30, Red
Army Programme. 5.30, Programme for
Collective Farm Workers. 6.30, Talk: Divers.
7.0, Gramophone Concert. 8.0, Talk in
German: Why there is no Unemployment
in Soviet Russia. 8.55, Chimes from the Red
Square. 9.5, Talk in English: Textile Manufacture in Soviet Russia. 10.5, Talk in
Swedish: Foreign Engineers in Soviet
Russia.

MOTALA .- See Stockholm.

MUHLACKER.-See Stuttgart.

MUNICH

MUNICH

563 kc/s, 533 metres; 15 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 580 metres.—10.30 a.m., See Leipzig. 11.15, Orehestral Concert, conducted by Erich Kloss, 12 Noon, See Leipzig. 1.0 p.m., Time, Weather and Programme Announcements. 1.10, Chess Lesson. 1.40, Light Music on Gramophone Records. 2.30, Programme for Children. 3.0, See Bresiau. 5.0, Talk: A Mediterranean Cruise on the Small Cruiser, Hamburg. 5.20, Song Recital by Amalie Metz-Tunner (Soprano). 5.40 (from Nürnberg), Kasper Hauser—A Radio Play (Wilhelm Kunze). 6.20, Accordion Recital. 6.55, Weather and Sports Notes. 7.5, Concert by the National Symphony Orehestra, conducted by Franz Adam. Soloist: Erich Kloss (Pianoforte). Pianoforte Concerto (Grieg); The Eighth Symphony (Beethoven). 8.15,

Wireless

See Breslau. 9.0, See Leipzig. 9.20, Weather, News and Sports Notes. 9.40, Serenade by the Small Station Orchestra, conducted by Erich Kloss. 12 Midnight, Close Down.

NAPLES .- See Rome, NOTODDEN.—See Oslo

OSLO

OSLO

277 kc/s, 1,633 metres; 60 kW. Relayed by Fredriksstad, 815 kc s, 368.1 metres; Hamar, 522 kc s, 574.7 metres; Notodden, 671 kc s, 447.1 metres; Porsgrund, 662 kc s, 453.1 metres; Rjukan, 671 kc s, 447.1 metres; and Jelöy, LCL, 6,990 kc s, 42.92 metres,—9.15 a.m., News. 9.20, Chimes. 9.30, Divine Service, relayed from the Christiausand Cathedral. 4.0, Concert by an Accordion Quintet. 4.40, Talk: Annong the Beachcombers, relayed from Trondheim, 605 kc s, 495.8 metres. 5.0, Concert by the Station Orchestra, conducted by Kramm; Festival Polomise No. 2 (Svendsen); Russian Fantasy, Saschinka (Schirmaton); Humoresque (Sjögren); Minuet (Bjerke); Autumn (Eggen); Gavotte (Thomas); Suite from Jocelyn (Godard). In the interval at 5.45, Reading, and at 6.15, Weather and News. 7.0, Time Signal, 7.4, Talk, 7.30, The Christmas Oratorio (Bach), relayed from St. Saviour's Church. The Cecilia Choir and Soloists; Elisabeth Munthe Kaas (Sopramo, Ingerid Trae Jersin (Contrato), Sigurd Hoff (Tenor), and Morten Vatn (Baritone), 9.5, Weather and News. 9.15, Topical Talk, 9.30, Concert.

OSTERSUND.-See Stockholm.

PALERMO

PALERMO
566 kc s, 539.5 metres; 3 kW.—9.25 a.m.,
Bible Reading, 9.40, Sacred Music. 10.5,
Agricultural Talk. 11.45, Giornale Radio.
12 Noon to 1.0 p.m., Light Music. In the
interval at 12.30, Time, Announcements and
Weather. 4.30 to 5.30, Gramophone Music.
7.0, Dopolavoro Notes and Giornale Radio.
7.20, Gramophone Records. In the interval
at 7.25, Sports Notes, Time and Announcements.
7.45, Concert of Opera Music, conducted by Russo. In the interval, Talk;
on Heinrich Schliemann, and Announcements. 10.0, Giornale Radio.

PARIS

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7
metres; 13 kW. Time Signals (on 2,650
metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—12.30 p.m., Orchestral Concert, conducted by Jean Hos.
1.0, News. 1.15, Concert of English Music
by Jean Hos and his Orchestra. 5.45. Le
Journal Parlé, 7.15, Weather, 7.25. News.
7.30, Gramophone Concert, 9.0 (approx.),
Close Down.

DEC. 17th SUNDAY

continued

DARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—10.0 a.m., Waldtenfel Waltzes on Gramophone Records. 10.5 Talk. 70.10, Press Review, 10.30, Gramophone Concert. 11.0, Gramophone Records. 11.30, Gramophone Concert. 12.15 p.m., Gramophone Concert of Music from Sound Films. 12.45, Sponsored Programme. 12.50, Half an Hour of Fantasy by Paul Weil. 1.25, Recitations by André Gandelette. 1.30, Gramophone Records. 7.0, Le Journal Parlé. 7.5, Hawaiian Music on Gramophone Records. 7.20, Sports Notes. 7.30, Catholic Review, 8.0, Extracts from Marnetta (O. Straus) on Gramophone Records. 8.30, Two Plays: (a) Allo Danton Police (Picard). (b) Victore—One-Act Comedy (Pierre Didier). 9.0, Interval. 9.20, Concert. 10.30 to 11.0, Programme in English by the LB.C. Variety Concert: Potpourri. Looking Backward (Pinck); Wrap me up in my Tarpaolin Jacket (Whyte); Waltz from The Maid of the Mountains (Fraser Simson); Sam, pick up tha' musket; Christy Minstrel Memories; The Man who broke the Bank at Monte Carlo; The Clatter of the Clogs (Flynn); Waltz Medley (arr. Simpkin). 11.0, LB.C. Good-night Melody and Close Down.

PARIS

PARIS
RADIO PARIS, Call CFR, 174 kc/s, 1,725
metres; 75 kW-7.45 a.m., Gramophone
Missic. 8.0, News. 8.30, Physical Culture,
9.20, Advanced English Lesson, 10.0, Elementary Book-keeping Lesson, 10.20, Advanced Book-keeping Lesson, 10.20, Spanish
Lesson, 11.0, Interval, 12 Noon, Rel gious
Address by the Reverend Father Lhande,
12.20 p.m., Sacred Missic, 12.30, Bilboquet
as a Vintager, 12.45, Gramophone Missic,
1.0, Musical Programme, 8.0, Light Music,
9.0, Symphony Concert, conducted by Engene
Bigot. In the intervals at 8.30 and 9.15,
News.

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres,—5.30 to 6.30 p.m., Radio City Concert, from New York, 7.0 to 9.30, New York Relay, 7.0, Bar-X Ranch, 7.30, Grenadier Guards Band, 8.0, International Tigits, 8.30, Variety Programme, 9.0, Railroad Adventures, 9.15, Morin Sisters, 9.30,

Vesper Services. 10.30, Grand Hotel, from New York. 11.0, Sunday Musteal, from New York. 11.15, Weather and Sports, 11.30, Ernie Holst's Orchestra, 11.45 to 2.45 a.m. (Monday), New York Relay, 11.45, Engineering Thrills, 12 Midnight, Vincent Lopez Orchestra, 12.30 a.m., Joe Penner, 1.0, Ezon Petri and Orchestra, 2.0, Gulf Headliners, 2.30, Walter Winchell, 2.45, Noveliers Quartet, 3.0, Programme to be amounced. Noveliers announced.

PORSGRUND.—Sec Oslo.

PRAGUE

PRAGUE

614 kc s, 488.6 metres; 120 kW.—10.0 a.m.,
Concert by the Station Orchestra, conducted by Jeremias. 11.0, Chimies and News.
11.15, See Brno. 12.30 p.m., Rural Programme. 1.0, Agricultural Notes. 1.15,
Topical Talk. 1.25, Interval. 3.0, See Brno.
4.15, Reading. 4.30, Talk by Svetozar
Ziykovic, Attaché of the Yugoslav Embassy;
King Meyander's Birthday, 4.35, Yugoslav
Song Recital by Valeria Kvapilová. 4.55,
Gramophone Records, 5.0, German Transmission: Music Review followed by Little
Scampudo—Comedy (Carlo Niccodemi). After
the Comedy, News. 6.0, News. 6.5, See
Moravská-Ostrava. 6.50, Dance Music by
Girsik and his Jazz Band. 7.30, Recitations,
7.45, Ten Slav Folk Poems, Op. 15 (Suk).
8.15, See Brno. 9.0, Time and News. 9.20,
Balse Music by the Pragne Pianoforte
Duo and Vilem Fleischhaus (Saxophone).
10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE
SOTTENS, 743 kc s, 403 metres; 25 kW.;
and Geneva, 460 xc s, 749.9 metres.—10.0
a.m. (from Lausanne), Gramophone Concert.
11.30, News and Weather. 11.40 (from
Lausanne), Gramophone Concert (contd.).
1.0 p.m., Interval. 2.0 (from Lausanne),
The Camp Fire—Programme of Addresses
and Music by Boy Sconts. 3.30 (from
Lausanne), Concert by the Small Radio
Lausanne Orchestra, conducted by Moser.
4.30, Interval. 5.0 (from Lausanne), Concert
of Chamber Music. 5.40 (from Lausanne),
Song Recital by Panl Milliquet. 6.0 (from
Lausanne), Religions Address.
6.40 (from
Lausanne), Planoforte Recital by Maurice
Perrin. 7.30, Concert by the Radio-Suisse
Romande Orchestra, conducted by Echenard.
8.30 (from Lausanne), L'Avalanche—One-Act

Play (Louis Poncet). 9.0, News and Weather, 9.15 (approx.), Close Down.

REYK JAVIK

REYKJAVIK
250 kc/s, 1200 metres; 21 kW.—11.40 a.m.,
Weather, 12 Noon, Divine Service, 4.0 p.m.,
Tea-time Broadcast, 7.45, Programme for
Children, 8.10, Weather, 8.20, Musicat
Programme and Announcements, 8.25,
Musical Programme, 9.0, Chimes and News,
9.30, Reading, 10.0, Violin Concerto (Elgar),
on Gramophone Records, followed by Dance
Music, 1.0 a.m. (Monday), Close Down,

RJUKAN.-Sec Oslo.

ROME

ROME

Call 180, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres, from 7.40 p.m.; and 280, 11,810 kc/s, 25.4 metres.—9.0 a.m., News, Sports Notes and Amisement Guide. 9.30, Agricultural Talk. 9.45, Bible Reading. 10.0 to 11.0, Sec Turin. 11.30, Gramophone Music. 11.45 to 1.15 p.m., See Turin. In the interval at 1.0, Time and Autonine ments. 3.0 (Naples), Programme for Children, Weather and Sports Notes. 3.15, Gramophone Music and Sports Notes. 4.0, Vocal and Instrumental Concert. Sports Notes in the intervals. 5.15, Football Reports. 5.30, Weather. 5.35 (approx.) to 6.30, Interval. 6.30, Sports Notes, Dopolavoro Report and Announcements. 7.30, Review of the Day's Events. 7.40, Famfan la Tulipe—Operetta in Three Acts (Varney). In the intervals. Reading and Theatre Giornale Radio after the Operetta.

SALZBURG.-See Vienna.

SCHENECTADY

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48
metres and by W2XAD on 19.56 metres.—
7.0 to 9.0 p.m. (approx.). New York Relay.
7.0, Gene Arnold and the Commodores. 7.30, Looking over the Week, John B. Kennedy.
7.45, Gems of Melody. 8.0, Wayne King's Orchestra. 8.30, Musical Programme. 12.45
to 3.45 a.m. (Monday), New York Relay.
12.45, Variety Programme, Wendell Hall.
10, Popular Programme. 2.0, Manhattan Merry-Go-Round. 2.30, American Album of Familiar Music. 3.0, Jack Benny; Frank Blick's Orchestra. 3.30, Musical Programme.
3.45, Musical Programme, from New York, followed by Programme, from New York,

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW; Basie, 1,229 kc/s, 244.1 metres; and



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Berne, 1,220 kc/s, 245.9 motres.—10.30 a.m.
(Zürich), Five Authors talk about their latest Books. 11.0 (Zürich), Gramophone Concert. 11.30, Time and News. 11.40, Orchestral Concert. 12.30 p.m., Concert by the Tscharner Orchestra. 1.30. Interval. 2.0 (Zürich), Programme to be announced. 4.15 (Zürich), Talk: Solitude. 4.45 (Zürich), Talk: Solitude. 4.45 (Zürich), Talk: The Avalanches of Mount St. Gothard. 5.15 (Zürich), Gramophone Records. 5.30 (Zürich), Talk: The Swiss Federation. 6.0 (Zürich), Time and Sports Notes. 6.5 (Basle), Concert by the Florenzia Mandoline Society. 6.50 (from Basle), Talk. 7.20, Wagner Concert by the Radio Orchestra. 8.0, News. 8.10 (Basle), Nietzsche v. Wagner—Radio Play (Joachim). 9.30 (approx.), (Basle), Sports Notes. 9.40 (approx.), Close Down.

SOTTENS .-- See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Böden, 242 kc/s, 1,239.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres; Ostersund, 402 kc/s, 746.2 metres; and Sundswall, 554 kc/s, 542 metres,—8.0 a.m., Rural Programme. 8.30, Gramophone Music. 9.10 to 9.50, Programme for Workers. 9.10, Religious Address, relayed from Uppsala, 662 kc/s, 453.1 metres. 9.30, Talk and Reading in Esperanto. 10.0, Divine Service. 11.45, Weather and Icc Reports. 1.0 p.m. (from Göteborg). Orchestral Concert. 2.0, Temperance Talk, relayed from Malmö, 1,301 kc/s, 230.6 metres. 2.30, Song Recital by Nonne Hall and Ericson-Bönick, relayed from Norrköping, 1,392 kc/s, 232.2 metres. 3.0 Elementary English Lesson. 3.30, Gramophone Music. 4.5, Programme for Children. 4.30, Reading. 5.0, Evensong. 6.15, Weather and News. 6.30, The Main Road—Play (August Strindberg). 8.0, Concert by the Radio Orchestra, conducted by Nils Grevillius; Soloist, Ernst Törnqvist (Violin). 8.45, Weather and News. 9.0, Concert (contd.): Comedy Overture (Westberg); Suite, Karelia (Sibelius); Piece (Grainger); Selection from Der Teufelsreiter (Kálmán). 10.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—9.30 a.m., Orchestral Concert, conducted by Maurice de Villiers. 10.45, Protestant Nervice in German. 11.30, Catholic Service. 12 Noon, Gramophone Concert. 12.45 p.m., News. 1.0, Gramophone Concert. 2.0, Agricultural Talk. 2.15, Interval. 3.0, Radio-Report of a Hunt. relayed from Toulouse, PTT, 1,176 kc/s, 255.1 metres. 4.30, Symphony Concert

DEC. 17th SUNDAY

by the Pasdeloup Concert Society, relayed from the Theatre des Champs-Elysées, Paris. 6.45, Medical Talk in German. 7.0, Sports Talk. 7.15, Gramophone Records. 7.30, News. 7.45, Gramophone Records. 8.0, Press Review in German, Lottery Results and News. 8.30, Three Short Lyric Plays (Alida and Pierre Calel): (a) Tante Lisette, (b) Jeanne Rose, (c) Le Pélerin du Conte bleu. In the Intervals, Poetry, Songs and Press Review. 10.30, Dance Music relayed from the Savoy. 12 Midnight, Close Down.

STUTTGART

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 1.5 kW. Relayed by Freiburg, 527 kc/s, 570 metres.—10.30 a.m., See Leipzig. 11.15, See Frankfurt. 12 Noon, Topical Talk. 12.15 p.m., Swabian Music on Gramophone Records. 1.15, Talk: The Swabian Forests. 1.30, Reading of two Dialect Tales. 2.0 to 5.0, See Langenburg. 5.0, Gregorian Chanty Recital. with Commentary. relayed from the Augustinian Monastery at Beuron. 5.30, Georg Schmückle Programme: Interview with the Author; Scene from Engel Hiltensperger; Reading: Das Duell; Poems. 6.15, Violin Recital by Hedwig Fassbaender. 6.45, Sports Notes. 7.5, See Munich. 8.15, Snow Flakes—A Sequence of Winter Pictures. with Music by the Station Orchestra. 9.0, See Frankfurt. 9.20, Topical Talk. 9.30, Local News, Weather, and Sports Notes. 9.45 to 1.0 a.m. (Monday), See Frankfurt. 1.0 a.m. (approx.), Close Down.

SUNDSVALL.—See Stockholm,

TOULOUSE

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385
metres; 8 kW.—11.0 a.m., Diance Music. 11.30,
Orchestral Concert. 12 Noon, Music from
Sound Films. 12.15 p.m., Operetta Music.
12.30, Catholic Service. 12.45, Songs. 1.0,
Amusement Guide, Exchange and Time. 1.5,
Music by a Viennese Orchestra. 1.30, Opera
Music. 1.45, Protestant Service. 2.0, Military
Music. 2.15, Agricultural Report. 2.30, Light
Music. 2.45, Opera Music. 3.0, Operetta Arias.
3.15, Accordion Solos. 3.30, Suite algérienne
(Saint-Saëns). 4.0, Chansonnettes. 4.15, Music
from Sound Films. 4.30, Spanish Music. 4.45,
Tango Songs. 5.0, Thé dansant. 5.45, Songs.
6.0, News. 6.15, Opera Music. 6.30, Opera
Music. 6.45, Orchestral Music. 7.0, Russian

Songs. 7.15, News. 7.30, Music by Pyrenean Choirs. 7.45, Military Music. 8.0, Opera Music. 8.15, Organ Recital. 8.30, Music from Sound Films. 8.45, Orchestral Music. 9.0, Concert Version of Thais—Opera (Massenet). 10.0, Orchestral Music. 10.15, News. 10.30, Operetta Music. 10.45, Music by a Viennese Orchestra. 11.0, Songs. 11.15, Dance Music. 12 Midnight, News. Weather and Announcements. 12.5 a.m. (Monday), Orchestral Music. 12.30 (approx.), Close Down.

continued

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—8.40 a.m., See Turin. 8.55, Mass from the Cathedral of San Glusto. 10.0, Religious Address. 10.20, Agricultural Report. 11.0 till Close Down, See Turin.

TRONDHEIM.-See Osio.

TURIN

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 598 kc/s, 501.6 metres.—8.40 to 8.55 a.m., Giornale Radio. 9.40, Agricultural Talk. 10.0, Mass from the Church of the Annunciation, Florence. 11.0, Bible Reading, 11.30, Gramophone Records. 11.45, Concert conducted by Tito Petralia. In the interval at 12 Noon, Time and Annuncements. 12.45 p.m., Gramophone Concert. 1.15, Interval. 2.30, Gramophone Records and Sports Notes. 2.45, Running Commentary on the races relayed from the San Siero Raceourse. 4.0, Concert of Dance Music. In the intervals, Sports Report. 5.0 to 5.20, Sports Review and Weather. 6.0, Time, Football Report, and Dopolayoro Announcements. 5.15, Gramophone Records. 6.50, Announcements, Sports Notes, and Gramophone Records. 7.40, Gloria—Opera (Cilea). In the intervals, Talk, Theatre Notes, and Announcements.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres, -9.50 a.m., Recital of Songs and Arias by Hermann Wiedemann (Baritone). 10.20, Choral Concert of Sacred Music. 11.0, Concert by the Wiener Symphoniker. conducted by Fritz Fall. Soloist: Hedwig Rosenthal-Kanner (Piano-

forte). 12.15 p.m., Mandoline Recital. 1.0, Interval. 1.35, Time, Programme Announcements, and Weekly News Service. 1.45, Talk: Fish for the Christmas Table. 2.5, Review of Books. 2.30, Beethoven Chamber Music, by the Auber Trio: Pianoforte Trio in E Flat, Op. 1, No. 1; Pianoforte Trio in D, Op. 70, No. 1, 3.30, Talk. 4.0, Concert by the Wiener Symphoniker, conducted by Max Schönherr. 5.40, Erika Mitterer reads from her own Works. 6.10, Talk. 6.40, Time and Announcements. 6.50, Serge Bortkiewicz in a Pianoforte Recital of his own Works. 7.30, Austro-Dutch Exchange Programme. Part I, Concert by the Wiener Symphoniker, conducted by Max Schönherr. Soloist: Maria Gerhardt (Soprano); Dutch National Anthem; Address by his Excellency Baron Michiels van Verduynen. Selection from Waltzes from Vienna (Strauss-Bittner-Korngold); Marche caractéristique (Schubert-Riedinger); Waltz, Frühlingsstimmen (Joh. Strauss); Selection from The Little Dutch Girl (Kalmán); Waltz, Tales from the Vienna Woods (Joh. Strauss); Die Welt kann ja so schön (Goctz); Waldvierteler Festmarsch. Part II, Dutch Programme. See Huizen. 9.16, Announcements. 9.30, Dance Music on Gramophone Records, followed by Announcements.

WARSAW

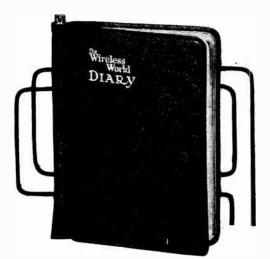
WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—10.45, Sacred Music (on Gramophone Records). 10.57, Time and Fanfare from St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Weather. 11.15, Concert of Swiss Music by the Warsaw Philharmonic Orchestra, conducted by Rothenbühler. In the interval: Talk. 1.0 p.m., Agricultural Talk. 1.15, Market Prices. 1.25, Song Recital (on Gramophone Records). 2.0, Talk: Talk. 1.16, Market Prices. 1.25, Song Recital (on Gramophone Records). 2.0, Talk: The Education of Young Peasants. 2.30, Popular Orchestral Music. In the interval: Announcements. 3.0, Programme for Children. 3.30, Gramophone Records of Arthur Rubinstein (Pianoforte). 3.45, Reading. 4.9, Talk: Cakes for Fête Days. 4.15, Concert of Silesian Songs by an Orchestra and Mixed Choir, relayed from Katowice, 734 kc/s, 408 metres. 5.0, A Play after Blizinsky. 5.40, Light Music (on Gramophone Records). 6.0, Programme Announcements. 6.5, Miscellaneous Items. 6.30, Talk for Young People. 6.45, Talk: Art in Warsaw. 6.50, Concert by the Station Orchestra. 7.50, Radio Journal. 8.0, Topical Talk. 8.15, Humorous Programme, relayed from Lwow, 788 kc/s, 381 metres. 9.15, Sports Notes. 9.25, Dance Music, relayed from the Café Gastronomia. In the interval at 10.0, Weather and Police Notes.

ZURICH.—See Schweizerischer Landessender.

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DECEMBER THE EIGHTEENTH

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres; and Cork, 1,337 kc/s, 224.4 metres.— 1.30 to 2.30 p.m., Time Signal, Weather Report, Stock Report and Gramophone Concert. 6.0, Programme for Children. 6.45, News. 7.0, Gaelic Talk. 7.15, Talk: Memories of Dublin by Mrs. Sheehy-Skeffington. 7.30, Time Signal, 7.31, Concert by the Students' Musical Union R.I.A.M., relayed from the Gresham Hotel, Dublin. 9.0, Mezzo-Soprano Solos by Cecily Kenny. 9.15, Tenor Solos by J. Torney. 9.30 to 10.30, Programme by the I.B.C. (Ireland), Ltd. 9.30, Light Music To the Spring (Grieg); Moment musical (Schubert); Sclection from La Bohéme (Puccini); Waltz from Coppélia (Delibes). 9.45, Dance Music: Willow, weep for me; Under a Blanket of Blue; Can't we meet again; Looking Forward. 10.0, Concert of Light Music arranged by the International Broadcasting Company (Ireland), Ltd.: Snacks in Bars (Egerer); Si Si (Remy); The Clock is Playing (Pierre); Racing Commentary by the Irish Hospitals Special Racing Commissioner; Cuckoo Waltz (Jonasson); Dear Old Southern Moon (Cavanaugh); Passion Flower (Kennedy); Little Romany (Leon). 10.30, I.B.C. Goodnight Melody, followed by News and Weather. 10.40, Gaelic Songs by Richard Brown. 10.50, Uilleann Pipe Solos by S. O'Laoghaire. 11.0 (approx.), Close Down.

BARCELONA

EAJ1, 861 kc/s, 348.4 metres; 8 kW.—
6.0 p.m. Trio Concert. Sclection from
Tristan and Isolda (Wagner); Appassionata (Ackermans); Minuet (Boccherini); Serenade (Murzilli); Entr'acte (Humphries);
Berceuse de Jocelyn (Godard); Selection from
Rigoletto (Verdi). 7.0, Request Gramophone
Music. 7.20, Sports Notes. 7.30. Exchange
and Talk in Catalan. 8.0, Gramophone
Music. 8.30, Educational Programme and
News. 9.0, Chimes from the Cathedral,
Weather, Exchange and Market Prices. 9.5,
Sponsored Programme. 9.35, Concert by
the Radio Orchestra. 10.0, Orchestral Music,
relayed from the Café Español (contd.).

BASLE.—See Schweizerischer Landessender.

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—6.0 p.m., Song Recital by Milos Zec: Air from The Magic Flute (Mozart); Air from La Juive (Halévy); Air from Simon Borcanegra (Verdi); Yugoslav Songs. 6.30, Talk. 7.10, Gramophone Records. 7.30, An Opera relayed from the National Theatre. In the interval at 9.0, Time Signal and News.

BERLIN

BERLIN

DEUTSCHLANDSENDER REICHSSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—
11.5 a.m. (approx.), Gramophone Concert.
11.55, Time Signal. 12.45 p.m., News. 1.0
Gramophone Concert: Part I, Weber Music: Invitation to the Dance; Arias from Der Freischütz; Perpetnum mobile; Lützow's wilde Jagd. Part II, Humperdinck Music: Extracts from Hansel and Gretel. 1.45, Talk: The Pilgrimage to Mecca (Dr. Ilolzapfel. 2.0, Programme for Women. 2.30, Weather and Exchange. 2.45, Reveiw of Books on German Aviation. 3.0, See Langenterg. 4.0, Talk: The Future of the Education of German Girls. 4.25, Recital of Songs by Greaner. Ilildebrand and Pfitzner, by Maria Peschken. 5.0, Poems. 5.5, Talk on Otto von Lilientbal. 5.20, Humorous Radio Report. 5.45, Weather and Announcements. 6.0, Transmission for all German Stations, relayed from Munich. 7.0, To-day's Motto. 7.5 (approx.), Talk on Knut Hamsun. 7.45, Request Concert on Gramophone Records. 9.0, News. 9.30, Talk: Sport and Physical Culture for Women. 9.45, Weather. 10.0, See Langenberg. 11.30 (approx.), Close Down.

BERLIN

FUNKSTUNDE, 716 kc/s, 419 metres; 1.5 kW. Relayed by Zeesen, DJC, DJA, DJD, DJB and DJE.—2.40 p.m., Concert of Christmas Carols: Christmas Carol for Mixed Choir (Heinrich Reimann) from the Christmas Songs for Soprano and Pianoforte: (a) Christhaum, (b) Christus, der Kinderfreud, (c) Christkind; Sacred Cradle Song for Women's A Capella Choir (Julius Weismann). 3.0 to 5.0, Programme from Heißberg. 5.0, Stories of Volcanic Eruptions. 5.30, The Funkstunde informs its Listeners. . . 5.35, Talk by Hanns Johns on his production of the Luther Drama, The Prophet. 6.0, Transmission for all German Stations, relayed from Munich. 7.0, Announcement. 7.5 to 9.0, See Hamburg. 9.0, News. 9.30, See Hamburg. 11.0 (approx.), Close Down.

BERNE.-See Schweizerischer Landessender.

BEROMUNSTER. — See Schweizerischer

BODEN.-See Stockholm.

BODO.-See Oslo.

BORDEAUX-LAFAYETTE

988 kc/s, 304 metres; 13 kW.—7.30 p.m., News and Market Prices. 7.35, Talk: Bordeaux a Century Ago. 7.50, Lot-tery Results and Charades. 8.0, Medi-cal Talk. 8.15, News. 8.30, Concert of Classical and Modern Music, with Songs. After the Programme, Amusement Guide and Time Signal.

BRATISLAVA

BRATISLAVA

1,073 kc, s, 279.5 metres; 14 kW.—3.0 p.m., Concert by the Station Orchestra, conducted by Dyk: Schubert Potpourri (Urbach); Czech Suite (Moor); Love Song (Becce); Potpourri of Czech Folk Songs (Leopold); March (Lukes). 3.50, See Prague. 4.15, Grantophone Records. 4.25, Talk. 4.40, Concert by the Station String Quartet in A minor, Op. 1 (Svendsen). 5.40, Talk for Workers. 5.50, Gramophone Records. 5.55, Talk for Housewives. 6.0, See Prague. 6.55, Recital of Slovak Folk Songs by Zotie Napravilova. 7.25, A Comedy (L. Plechaty). 8.0, Concert by the Station Orchestra, conducted by Dyk. Soloist: Topinka (Xylophone): Overture, The Caliph of Bagdad (Boieldieu); Prelude and Mazurka from Coppelia (Delibes); Folk Song Potpourri (Aust); Skoena (Chlup); Xylophone Solos (Steele): (a) Polka, (b) Gallop; Selection from Countess Maritza (Kálmán); Xylophone Solos: (a) Mazurka, (Topinka). (b) Gallop (Peter); Waltz. Winterstürme (Fucik): Sokol March (Rehor). 9.35, See Prague. 9.50 (approx.), Close Down. BREMEN.—See Hamburg.

BREMEN.-See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—11.0 a.m., Concert by the Station Orchestra, conducted by Ewaid Rischka: Overture, The Herinit's Bell (Maillart); Serenade in F (Volkmann); Selection from A Masked Ball (Verdi); Ballet Music from Faust (Gounod); Waltz, Die Hydropathen (Gungl); Intermezzo from Si (Mascagni); Hohenfriedberger Marsch 12.15 to 1.10 p.m. (approx.), See Leipzig, 1.15, Market Prices and Weather, 1.20, Programme arranged by the Post Ollice, with Gramophone Records. 2.0, Market Prices, Exchange and Shipping Report, 2.20, Talk: Books for Christmus, 2.40 (from Gleiwitz), Talk: Mistletoe, 3.0, Concert from the Café Vier Jahreszeiten. 4.30, Talk: The German Chemist throughout the Centuries, 4.50, Pianoforte Recital by Max Göldner: Intermezzo No. 2, Op. 119 (Brahms); Sonatina, Op. 89, No. 1 (Reger), 5.10, Market Prices, followed by Astronomical Talk: The Stars in December, 5.50, Programme Announcements and Weather, 6.0, Transmission for all German Stations, relayed from Munich, 7.0, See Leipzig, 7.10, See Munich, 7.30 to 9.40 (approx.), See Leipzig, 9.40, Time, Weather, Sports Notes, Local News and Colonial Market Report, 10.0, See Munich, 11.0 (approx.), Close Down.

BRNO

BRNO

878 kc/s, 342 metres; 35 kW.—5.25 p.m., German Transmission: News and Talks. 6.0, See Prague. 6.55, Nee Moravsk-0strava.

7.55, Talk. 8.10, Song Recital by Karla Tichá (Soprano); Ave Maria (Tomasek); Pamina's Aria from The Magic Flute (Mozart). 8.25, Concert by the Moravian Quartet: Passacaglia for Violin and 'Cello (Handel-Halvorsen); String Quartet in D Minor, Op. 76, No. 2 (Haydn). 8.50, Part Relay of an Orchestral Concert from Bratislava. 9.35, See Prague. 10.5 (approx.), Close Down.

RUSSELS (No. 1)

1.N.R., 589 kc/s, 509.2 metres; 15 kW.—12 Noon, Walloon Programme by the Small Station Orchestra, conducted by Pierre Leemans: La p'tite macrale (Rogister); Berceuse (Renard); Pièce Humoristique (Caludi); Serenade from L'Amant Jaloux (Grétry); Pièce (Sinton); Intermezzo (Brumagne); Pièce (Gaillard); Valeureux Liégeosis (Ramoux); March, Sambre et Mense (Planquette). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Music. 2.0, Broadcast for Schools. 5.0, Concert by the Radio Orchestra, conducted by Walpot: Selection from Cour d'amour (Derouette); Eternelle Cantilène (Goffin); Poursuite (Guillaume); Séduction (Guillaume); Pastoral Suite (Vreuls); Cadenza and Eastern Dances (Marsick); Interlude (Rogister); Airs Populaires de Charleroi (Wangermèe). 6.0, Christmas Carols by Mme. de Réal. 6.30, Concert by the Small Station Orchestra, conducted by Pierre Leemans: Overture, Alcée (Rogister); Danse lente (Franck); Violin Solo, Burlesque (Chaumont); Gavotte (Gossec); Tarentelle (Mawet); Pièce (Kalkman); Selection from La Bohème (Puccini).

7.15, Walloon Review. 7.30, Theatre and Film Review. 8.0, Concert by the Radio Orchestra, conducted by Walpot: Marche Wallonne (Ernotte); Tarentelle (Caludi); Violin Solo, Romanee (Vreuls); La Chasse (Gossec); Loustics en fête (Marsick); Petite Suite (Dancan); Popular Dances (Grétry). 8.45, Talk: Brussels and the Walloons. 9.0, Concert by the Symphony Orchestra, conducted by Arthur Menlemans: Ballet des Nations (Charlier); Eastern Fantasia (Mawet); Danse sacrée (Desprez); Selection from Hermann et Dorothée (Dupuis); Ronde Wallonne (Jongen). 10.0, Le Journal Parlé.

Company Section from Hermann et Dorothee (Dupuis); Ronde Wallonne (Jongen). 10.0, Le Journal Parlé.

BRUSSELS (No. 2)

N.I.R., 888 kc/s, 337.8 metres; 15 kW. Programme in Flemish.—12 Moon, Gramophone Music. 1.0 p.m., Le Journal Parlé. 1.10, Light Music by the Small Station Orchestra, conducted by Leemans: Americar. March, Holidays (Lauweryns); Waltz Potpourri from Walzerkrieg (Borchert); Marquisette (Maes); Selection from Les cent vierges (Lecocq); Mélodie enchanteresse (Ackermans); Melody (Wistenberg); Intermezzo, All Hampelmänner (Lindemann); Waltz, Pu' (Hem); Waltz, Ich trage dein Bild stets im Herzen (Knobel-Kiesow); One-Step, Olga (Flynn). 2.0, Broadcast for Schools. 5.0, Concert by the Station Symphony Orchestra, conducted by Meulemans: Selection from The Land of Smiles (Lehár); Waltz from The Count of Luxembourg (Lehár); Suite, Four Ways (Coates); Invitation to the Waltz (Weber). 5.45, Programme for Children. 6.30, Gramophone Concert: Overture, Poet and Peasant (Suppé); Fantasia on Louis XIV (Parés and Parijs); Scandinavian Dance (Runo); The Organ Player (Stept); Musical Saw Solo, Parlez-moi d'annour (Lenoir); A Cuckoo in the Nest (Sievier); Melody (Innes); Canzonetta (d'Ambrosio); Oriental Dance No. 6 (Glazunov); Overture, Le Cald (Thomas); March, The Invincible Eagle (Sousa). 7.15, Sports Programme: Sports Notes and Interview with M. Dervaes, the Former World (Champion Cyclist, 7.30, Reading, 8.0, Concert by Les Bons vivants Orchestra, conducted by Moortgat, relayed from Wetteren; Soloists, Lea Balthazar (Soprano); Piet Beirens (Tenor). André (Olijn (Baritone) and Rasschaert (Bass): Military March (Moortgat); Selection from The Caliph of Bagdad (Boieldieu); Troo Baritone Solos; (a) O zeg lieve sterre (Vander), (b) Kerstnacht (Haegen); Trio from Faust (Gounod). In an interval at 8.45, Talk. 10.0, Le Journal Parlé.

BUCHAREST

BUCHAREST

760 kc/s, 394.7 metres; 12 kW.—4.0 p.m., Concert by the Station Orchestra: March (Ertl); Spanish Waltz (Komzak); Overture, II Seraglio (Mozart); Selection from Andrea Chenier (Gordano); Selection from Where the Lark Sings (Lchár); Algerian Scene (Ketelbey); Slav Dances Nos. 16 and 11 (Dvorák); Berceuse (Squire); Potpourri of Romanian Melodies (Paschil). In the interval at 5.0, Radio Journal. 6.0, Educational Talk. 6.20, Gramophone Records. 6.45, Talk. 7.0, Chamber Music by the Sarvas Quartet. 7.30, Talk. 7.45, Song Recital by Sylvie Secosanu-Humita: Aria from Figaro (Mozart); Sonntag (Brahms); Spanish Song (Delibes); Aria from Rigoletto (Verdi); Two Songs (Dragoi); Song (Dima). 8.15, Pianoforte Recital. 8.45, Radio Journal. 9.0, Concert of Romanian Music by the Station Orchestra, conducted by Dinico.

BUDAPEST

BUDAPES 1

845 kc/s, 550.5 metres; 120 kW. Also relayed on 840 metres from 7.30 p.m. till Close Down.

4.0 p.m., Grannophone Records. 5.5, Talk. 5.30, Sacred Music. 6.30, Relay from the Royal Opera House: (a) The Tenor—Comic Opera in Three Acts (Dohnányi), after the Comedy by Ernst Goth; (b) Carnaval de Pesth—One-Act Opera (Liszt). In the intervals, News. After the Programme, Dance Music by the Bachmaun Band, relayed from the Hotel Britannia.

CASSEL.—See Frankfurt.

COPENHAGEN

1,067 k(-s., 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres; and Skamleback (OXY), 31.51 metres.—11.0 a.m., Time Signal and Chimes from the Town Hall. 11.1, Concert by the Harald Andersen String Ensemble, relayed from the Hotel d'Angleterre. 1.0 p.m., Interval. 1.50, Hints for Housewives. 2.0, Concert by the Radio Orchestra, conducted by Reesen: Overture, Titus (Mozart); Piedmontese Dance No. 1

In A (Sinigaglia); A Wedding Day on Troldhaugen (Grieg); Spanish Dance No. 5 (Moszkovsky); Selection from Il Trovatore (Verdi); Shepherd's Hey (Grainger); Interlude of Songs; Overture, Le Roi d'Ys (Lalo); Serenade (Rachmaninov); Skaters' Waltz (Waldteufel); Selection from Undine (Lortzing); Czardas from Der Geist des Vojewoden (Grossmann). 4.0, Reading in German. 4.30, Exchange and Fish Market Prices. 4.45, Talk. 5.15, English Lesson. 5.45, Weather Report. 5.54, Announcements. 6.0, News. 6.15, Time Signal. 6.16, Discussion about Books. 6.30, Monthly Review of Politics. 7.0, Time from the Town Hall. 7.1, Christmas Concert. 7.45, Programme for Girls—Radio Report from a Domestic Science School. 8.15, Recital of Schulbert and Schumann Songs by Gerhard Hüsch: Songs (Schubert): (a) Fischerweise, (b) Nacht und Traume, (c) An die Musik, (d) Am Meer, (e) Der Musensohn; Songs (Schumann); (a) Frühlingsfahrt, (b) Der Nussbaum, (c) Mondnacht, (d) Wanderlied. 8.45, News. 9.0, Concert of Danish Music by the Station Symphouy Orchestra, conducted by Gröndshl aud the Gerhard Rafin Quartet: Sinfonia impetuosa (Höffding); String Quartet No. 5 (Emborg). 10.0, Dance Music, relayed from the Wivex Restaurant. 11.0, Time Signal and Chimes from the Town Hall. CORK.—See Athlone.

CORK .- See Athlone.

· CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—6.0 p.m., Programme Announcements. 6.5, Talk: Recent Publications. 6.20, Miscellaneous Items. 6.25, Christmas in Old Poland—Musical Programme, relayed from Lwow, 788 kc/s, 381 metres. 6.40 to 9.0, See Warsaw. 9.0, Light Music, relayed from the Pavillon Restaurant. In the interval at 10.0, Weather Report, relayed from Warsaw. 10.30 (approx.), Close Down.

DANZIG .- See Heilsberg.

DRESDEN .- See Leipzig.

FECAMP

Noon, Programme in English by the I.B.C.
11.0, Variety Programme. Part I: Orchestral Concert. Part II: Dance Music. 12
Noon, Programme in French. 3.30 to 6.0
p.m., Programme in English by the I.B.C.
3.30, Military Band Concert for Chichester
and Bognor Listeners: Signature Tune. The
Night by the Sea; Tipperary (Judge Williams); Amorettentanz (Gungl); Song: Red
Devon by the Sea (Quilter); Parade of the
Tin Soldier's (Jessel); Selection from The
Vagabond King (Friml); Song: With a Song
in my Heart (Rogers); Serenade (Heykens);
Old Comrades (Teike). Part II: Dance
Music: Thanks; I was in the Mood; If
you'll say Yes, chérie; Roll up the Carpet;
Rockin' in Rhythm; It's the Talk of the
Town; Swingy little thingy; Old-Pashioned
Sweethearts. 4.30, I.B.C. Nursery Corner:
Birthday Grectings. 5.0, Concert for Ilastings and Eastbourne Listeners. Part I: Orchestral Music: Selection from Lilac Time
(Schubert-Berté); The Grasshopper's Dance
(Bucalossi); Pianoforte Solo: Rondo capriecioso (Mendelssohn); Barcarolle from The
Tales of Hoffmann (Offenbach); Waltzes
from Vienna (Griffiths); Voilin Solo: Cavatina (Raff); The Musical Clock of Madame
Pompadour (Noack). 5.30, I.B.C. Time Signal. 5.31, Concert. Part II: Accordion Band
Music; Accordion Joe (Wimbrow); Valse la
Reine (Alexander); Song: Mein Leedle Boy
(Terrell); Dinah (Lewis); Milano (Le
Clerq); Song: I don't work for a Living
(Lee; By the Shimmering Twilight Sea
(Williams); The Best of the Bunch (Alexander); Signature Tune. 6.0, Programme in
French. 10.0 till Close Down, Programme in
French. 10.0 till Close Down, Programme in
French 10.0, Gramophone Records: Waltz,
Vienna Maidens (Ziehrer); Fiddler Joe (London); The Wan on the Flying Trapeze
(U'Keefe); Please handle with care (Stride);
We'll all go riding on a Rainbow (Woods);
In the Moonlight (McHugh); Selection from
Noel Coward's Bitter Sweet. 11.0, Talkie
Time. Tunes from the Talkies and

Music by Guy Lombardo and his Band (Electrical Transcriptions): Vilia's Song (Lehâr): Don't blame (Fields); Waltzing in a Dream (Young); Stay out of my Dreams (Washington); Goofus (King); You'll never get up to Heaven that way (Lerner); Sweetheart Darlin' (Kahn); Morning, Noon and Night (Swanstrom). 1.0, I.B.C. Time Signal. 1.1, Dance Music: Signature Tune, Bells of Normandy; The Day you came along; La Cumparsita; The Last Round-up; My Lucky Day; In the Shade of the Old Apple Tree; Motha around the Candle Flame; Goodnight, little Girl of my Dreams; Lightning; I've found the Right Girl; You've got everything; My Moonlight Madonna; A Girl like Nina; Lazybones; Down in the Valley; Trouble in Paradise; Tick, Tock; Signature Tune, 2.0, I.B.C. Goodnight Melody and Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel, 1,220 kc/s, 245.9 metres, and Trier, 1,157 kc/s, 259.3 metres. 1-21.5 p.m., Time and News. 12.25, Local News and Weather. 12.36, See Stuttgart. 1.40, Advent and Christmas Songs by the Choir of the Lutheran Church, Offenbach. 2.30, Weather. 2.40, Time and Exchange. 3.0 See Langenberg. 5.0 to 5.35, See Stuttgart. 5.35, Talk: Problems of Dictatorship. 5.50, Weather, News, Exchange, Programme Announcements and Time Signal. 6.0, Transmission for all German Stations, relayed from Munich. 7.0, Topical Talk. 7.10, Ninth Symphony in D Minor, Op. 125 (Beethoven), relayed from the Saalbau: The Station Orchestra, the Choir of the Singakademie, Hans Hoeflin (Tenor) and Hans Hermann Nissen (Bass). 8.20, Light Music with Variety Interludes. 9.0, Light Music with Variety Interludes. 9.0, Local News and Weather. 9.45 to 12 Midnight, See Langenberg. 12 Midnight, Close Down.

FREDRIKSSTAD,-See Oslo. FREIBURG-See Stuttgart. GENEVA.-See Radio-Suisse Romande. GENOA.-See Turin. GLEIWITZ .- See Brestau. GOTEBORG.-See Stockholm. GRAZ.-See Vienna

HAMAR.-See Oslo.

HAMBURG

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg and Hanover, 1,319 kc/s, 227.4 metres; and Kiel, 1,292 kc/s, 232.2 metres.—6.0 p.m., Transmission for all German Stations, relayed from Munich. 7.5, Der kunterbunte Heilige vom Mälarsee—a Legend (Kurt Siemers), with Music by Carl Bellmann. 8.0, Goethe and Music—Concert by the Station Orchestra, conducted by José Eibenschitz; Soloist, Erna Kroll-Lange (Songs): Overture, Egmont (Beethoven): Two Songs from Egmont (Beethoven): (a) Freudvoll und leidvoll, (b) Die Trommel gerührt; A Faust Overture (Wagner); Selection from Faust (Unger); Overture to Goethe's Reinecke Fuchs (Bleyle); Symphonic Poem to Goethe's Ballad, L'apprenti sorcier (Dukas). 9.0, News. 9.30, Concert by the Station Orchestra, conducted by Gerhard Maasz: Carnival Overture (Dvorák); Poetischer Spaziergang (Brandts-Buys); Three Dances from the Music to Henry VIII (German); Masquerade from the Music to The Merchant of Venice (Sullivan); Die Mär vom tapferen Schneiderlein (Zimmer); Polka, Trissch-Tratsch (Joh. Strauss); Wattz, Transaktionen (Jos. Strauss); Columbus-Marsch (Ziehrer).

HANOVER.-See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—12.5 p.m., Gramophone Concert: Prelude to Lohengrin (Wagner); Eine kleine Nachtmusik (Mozart); Vineta Glocken (Lindsay-Theimer); Songs: (a) Air from Carmen (Bizet), (b) Aria from Madame Butterfly (Puccini); Riesengebirglers Heimatlied (Hampel); Mein Schlesierlied (Becher); Swabian Folk Music (Esterl); Bass Solos: (a) Bonn (Bungert), (b) Wohlauf noch getrunken (Schumann); Potpourri, Ffünf Uhr Tee bei Robert Stolz (Dostal); Way Down South (Myddleton); Indian Serenade (Moret); March, In alter Freundschaft (Blankenburg). In the intervals at 12.20 and 1.0, News. 1.40, Handwork for Boys. 2.0, Market Prices and Exchange. 2.15 (from Danzig), Song Recital by Gustel Heinrichsdorff (Mezzo-Soprano): Two Songs for Voice, (Cello and Pianoforte, Op. 7 (Scheinpflug): (a) Nachtgesang, (b) Traumklänge; Two Songs from Lieder der Anmut, Op. 24 (Georg Vollerthun): (a) Die Wünsche, (b) Heimiches Ständchen. 2.35 (from Danzig), Orchestral Concert, conducted by Ernst Stieberitz: Selection from La dame blanche (Boieldieu); March, Feste Fillau (Stieberitz); Hungarian Potpourri, In der Puszta (Oertel); Einzug der Komödianten (Kubat); Bauern-Suite (Ailbout-Putzenhadt); Irish Army March (Brase). 4.0, Programme for the One

DEC. 18th MONDAY continued

Hundred and Thirtieth Anniversary of the Birth of the East Prussian Poet, J. G. Herder. 4.25, Davidsbündlertänze, Op. 6 (Schumann), played by Haus Erich Riebensalm (Pianoforte). 5.0, Review of Books. 5.15, Market Prices and Ice Report. 5.25, (from Danzig), Talk on Danzig. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Munich. 7.0, News and Weather. 7.5 to 9.0, See Hamburg. 9.0, News. and Weather.

HILVERSUM

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW. up to 5.40 p.m., and 20 kW. from 5.40 p.m.—Programme of the General Broadcasting Society (A.V.R.O.). 10.40 a.m., Organ and 'Cello Recital by Frans Hasselaar and Adrilaan van Driem. Organ: Sonata No. 2 (Mendelssohn); 'Cello and Organ: (a) Sonata in G Minor (Senaillé), (b) Grave (Friedemann-Bach-Kreisler); Organ: 'Allegretto, Op. 92, No. 3 (Bossi); 'Cello and Organ: Andantino quasi allegretto from the Third Concerto (Saint-Saëns), (b) Præludium and Allegro (Pugnani-Kreisler); Organ: Improvisation (Hasselaar). 11.40, Time Signal. 11.41, Concert of Light Music by the Rentmeester Orchestra, with Gramophone Interludes. 1.55, Interval. 2.10, Contralto and Pianoforte Recital by Victorine v.d. Werlf and Dina Appeldoorn. Songs: (a) Quella fiamma che m'accende (Marcello), (b) Consolati e spera (Scarlatti); Pianoforte Solos: (a) Le carillon de Cythère (Couperin), (b) Les petits moulins à vent (Couperin); Contralto Solos: (a) Le premier miracle de Jésus (Paladilhe), (b) Nuit d'étoiles (Debussy); Pianoforte Solos: (a) Musette and Rondeau (Rameau), (b) L'hirondelle (Daquin); Contralto Solos: (a) Musette and Rondeau (Rameau), (b) L'hirondelle (Daquin); Contralto Solos: (a) Musette and Rondeau (Rameau), (b) Pleasure (Appledorn). 2.55, Gramophone Records. 3.40, Cigány Music, conducted by Bela Kiss, relayed from the Carlton Corner, Amsterdam. 4.0, Talk, with Gramophone Interludes. 6.40, Book Criticism: Over the River (John Galsworthy). 7.10, Pianoforte Recital by Gisola Binz: Les Préludes in D Flat, F Minor, and E (Chopin); Nocturne, Op. 62, No. 1, in E (Chopin); Sonetto del Petrarca, No. 4 (Liszt); Waltz Impromptu (Liszt). 7.40, Time and News. 7.45, Concert by the Wireless Orchestra, conducted by Albert van Raalte. Soloists: Jo Vincent (Soprano) and Sam Swaap (Violin). Part I, Mozart Programme: Overture, Don Giovanni; Soprano Solos: (a) Rose Aria, (b) Alleluia; Violin Concert on D; Symphony No. 40 in G Minor. 8.50, Gramophone Records. 11.40 (approx.), Close Down. HORBY.—See Stockholm.

HORBY.-See Stockholm.

HUIZEN

HUIZEN

160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m.
Transmitted from Kootwijk on 50 kW. from
3.40 p.m.—Programme of the Christian Radio
Society (N.C.R.V.) 11.10 a.m., Gramophone
Music. 11.40, Police Notes. 11.55, Gramophone
Music. 12.10 p.m., Organ Recital by
Jan Zwart: Choral Partita, Jesu meine
Freude (Walther); Extracts from the Organ
Concertos (Handel); Preludes (Bach); Extracts from Sonatas (Guilmant); Prelude
(Zwart); Extracts from Symphonies (Widor);
Choral Variations, Wer nur den lieben Gott
läszt walten (Böhm). 1.40, Broadcast for
Schools. 2.15, Gramophone Records, 2.25,
Programme for Women 2.55, Dress-making
Lesson. 3.25, Interval. 3.40, Bible Readling
with Songs and Organ Solos. 4.40, Concert
by the Hendriks Trio: Trio for Plano, Violin
and 'Cello, Op. 7 (Wolf-Ferrari); Andante
and Allegro from the 'Cello Sonata in A
minor (Boëlimann); Gramophone Records;
Trio in G minor, Op. 3 (Chausson). 6.10,
Answers to Correspondence. 6.40, Police
Notes, 6.55, Religious News. 7.10, Answers
to Correspondence. 7.40, Choral Concert, relayed from Bunnik. 8.40, Talk. 9.10, News.
9.20, Organ Recital by Blaauw: Overture,
Raymond (Thomas); In the Mystic Land of
Egypt (Ketelbey); Two Pieces (Tylos);
Minuet (Paderevsky); Selection from Faust
(Gounod); Selection from Lilac Time
(Schubert-Berté). 10.20, Gramophone Records, 11.10 (approx.), Close Down.

INNSBRUCK.—See Vienna.

IUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.-8.0 p.m.. Amusement Guide, Financial Notes. Exchange and News. 8.10, Sports Notes. 8.20, Radio

Concert. 9.0, News and Weather. 9.15, Act 1 of L'Enervée—Play (Feraudy and Loiseau). 10.30, International Programme.

KALUNDBORG.—See Copenhagen.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

LANGENBERG

635 ko/s, 473 metres; 60 kW.—12.25 p.m.,
News and Weather. 12.35, See Stuttgart.
1.30, Meat Market Prices. 2.0, Gramophone Music. 2.10, Talk on Adolf Bartels.
2.30, Exchange. 2.50, Political Announcements. 3.0, Concert by the Station Orchestra, conducted by Julius Kühn. Overture, The Violin Maker of Cremona (Hubay); Selection from Der Kuhreigen (Kienzl); Symphonic Sketches, Scenes from Bruges (Brüsselmans); Irish Dances (Grainger); A Rhenish Scherzo (Frischen). 4.0, Chamber Music. Sonata in D Minor for Violin and Pianoforte, Op. 45 (Grieg); Pianoforte Quartet in E Flat, Op. 87 (Dvorak). 5.0 to 5.35, See Stuttgart. 5.35, German Ballads. Readings from Goethe, Droste, Hülshoff, Fontane, Rückert, Uhland. Köpisch aud Mörike. 5.45, News. 6.0, Transmission for all German Stations. relayed from Munich. 7.0 to 9.20, See Frankfurt. 9.20, See Stuttgart. 9.30, News, Weather and Sports Notes. 9.45, Light Music on Gramophone Records. 10.0, Dance Music in Many Forms—Programme by the Station Orchestra, and Dance Band, the Fröhliche Fünf and Soloists. 11.30, Pianoforte Trio in B, Op. 8 (Brahms). on Gramophone Records. 12 Midnight, Close Down.

LAUSANNE.-See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—12.15 p.m., News. 12.25, Chamber Music on Gramophone Records. 1.0, News. 1.10, Economic Notes and Show Report. 1.15, Notes on Art. 1.35, Reading from the Works of Bogumil Goltz. 1.55, Song and Pianoforte Recital by Young Artists. 2.25, Reading (Haus Bertram). 2.45, Exchange. 3.0 to 5.10, See Breslau. 5.10, Talk: Racial Types. 5.30, Song and Zither Recital. 5.45, Exchange and News. 6.0, Transmission for all German Stations, relayed from Munich. 7.30, Cabaret Programme, with Dance Music. 9.20, News, Sports Notes and News. 10.0, Serenade from Munich. 11.0 (approx.), Close Down.

LINZ.-See Vienna.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW. Swiss Evening.—7.0 p.m., Symphony Music on Gramophone Records: Symponic Poem, Pastorale d'Eté (Honegger); Symphonic Movement, Rugby (Honegger). 7.20, Gramophone Concert. 7.40, Concert by the Station Orchestra, conducted by Pensis: Overture, Egmont (Beethoven); Invitation to the Waltz (Weber); Suite, King David (Honegger-Salabert); Pacific No. 231 (Honegger); Norwegian Dances (Grieg). 8.50, News in French. 9.0, Concert by the Station Orchestra, conducted by Pensis: Overture, La Dame Blanche (Boiëldieu); Berceuse No. 1 (Pensis); Aubade printanière (Lacombe); Suite, Il Trovatore (Amadei); Czardas from Coppélia (Delibes). 9.46, News in German. 9.55, Yodels on Gramophone Records. 10.16, Dance Music by the Radio Jazz Band, conducted by Ferry Jusa.

LYONS

LYONS
LA DOUA, 644 kc/s, 465.8 metres; 15 kW.—
6.15 p.m., Radio Journal. 6.30 (approx.),
Gramophone Records. 7.30, Radio Gazette
for Lyons and the South-East. 8.30, Concert by the Trigintuor Instrumental
Lyonnais, conducted by Strony; Soloist:
Mme. P. Chalandon (Songs): Concerto
grosso (Vivaldi); The First Movement from
the Military Symphony (Haydn); Song
(Caccini): The Second Movement from the
Military Symphony (Haydn); Cantata from
the Christmas Oratorio (Bach); Minuet and
Finale from the Military Symphony (Haydn);
Suite from La Source (Delibes); Toccata,
Bourrée and Gigne (Scarlatti-Casella); Overture, Fingal's Cave (Mendelssohn); Songs
(Fauré); Violins: Die Biene (Schubert);
Petite Sulte (Debussy). After the Concert,
News.

MADRID

MADKID

ARANJUEZ, EAQ, 10,000 kc/s, 30 metres;
20 kW.—10.30 p.m., Popular Music. 10.45,
Radio Chronicle. 11.6, Catalonian gramme. 12.0 Midnight till Close Down,
Programme in English by the I.B.C. 12.0
Midnight, Dance Music: You're an Old
Smoothie; Aloha Oe; My Moonlight Madonna; Egypt; Ding, Dong, Ding; Lets
make it up; Bananas; Blue Cloud. 12.30
a.m. (Tuesday), Military Band Music: The

Scottish Patrol (Williams); Overture, Zampa (Ilerold); War March of the Priests (Mendelssohn); Weymouth Chimes (Ilow-gill); Medley of British Songs; Valse triste (Sibelius); Marche militaire (Schubert). 1.0, I.B.C. Goodnight Melody and Close Down.

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange, Topical Talk and Dance Music. 8.15, Radio Journal. 8.30, (approx.), Close Down.

MALMO.—See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

MORAVSKA-OSIRAVA

1,137 kc/s, 263.8 metres; 11 kV.—5.30 p.m.,
German Transmission: Report from a
Private Radio Station. 6.0, See Prague.
6.55, Concert of Light Music. 7.20, 'Cello
Concerto in A Minor, Op. 129 (Schumann).
by Danyi and the Station Orchestra conducted by Plichta. 7.55, See Brno. 8.50
Part Relay of the Orchestral Concert from
Bratislava. 9.36, See Prague. 9.50
(approx.), Close Down.

MOTALA.—See Stockholm.

MUHLACKER.-See Stuttgart.

MUNICH

MUNICH

563 kc/s, 533 metres; 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 239 metres.—12.25 p.m., Gramophone Concert of Light Music. 1.0, See Leipzig. 1.10, Weather, Exchange and Programme arranged by the Post Office, with Gramophone Records. 1.50, Fairy Tales for Children. 2.10, Programme in Commemoration of Hermann von der Pfordten; Recital of Songs, and Talk. 2.30, Reading. 2.50, Weather and Market Prices. 3.0 to 5.10, See Breslau. 5.10, Review of Books. 5.25, Finale from Aida—Opera (Verdi) by the Cast of the Scala, Milan, on Gramophone Records. 5.45, Time Weather and Market Prices. 6.0, Transmission for all German Stations: Mist over the Lake—Radio Play (Richard Billinger) with Incidental Music by Karl Liszt. 7.0, See Leipzig. 7.10, Austria. . . . 7.30 to 9.40 (approx.), See Leipzig. 9.40, Weather, News, Exchange and Sports Notes. 10.0, Serenade by the Small Station Orchestra, conducted by Erich Kloss. 11.30 (approx.), Close Down.

NAPLES .- See Rome. NOTODDEN.—See Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Rjukan, 671 kc/s, 447.1 metres; and Jelöy, LCL, 6,990 kc/s, 42.32 metres.—4.0 p.m., Chamber Music by the Radio Ensemble, conducted by Gustavesn: Il retorno nella Francia (Mezzacapo); Minuet (Grieg); Two Pieces (Barnon); Guitar (Bizet); Madrigal (d'Ambrosio); Pizzicati (Gillet); Romantic Overture (Keler-Bela); Waltz, Myosotis (Waldteufel); Selection from The Merry Widow (Lehár). 5.0, German Lesson. 5.30, Talk and Songs. 6.0, Announcements, Weather and News. 6.30, Talk: Norwegian Stories. 7.0, Time Signal. 7.1, Chamber Music: Trio in A minor (Ravel); Three Nocturnes (Bloch). 7.40, Grieg and Sinding Song Recital by Johanues Berg-Hansen (Baritone). 8.10, Political Review. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Choral Concert. 9.45 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

PALERMO

556 kc/s, 539.5 metres; 3 kW.—7.0 p.m.,
Dopolavoro Notes, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. 7.20,
Gramophone Records. In the interval at 7.30, Time and Announcements, 7.45, Concert of Chamber Music: Nicastro Furnocrt of Chamber Music: The Concert of The Flute and Pianoforte (Büsser); The Song of the Flea, from The Damnation of Faust (Berlioz); Baritone Solo: Aria from A Masked Ball (Verdi); Flute Solos: (a) Minuet (Debussy), (b) Pastorale (Malexieux); Baritone Solos: (a) Aria from Falstaff (Verdi), (b) Carrettiera siciliana (De Luca); Pianoforte Solos: (a) Three Etudes (Chopin), (b) Second Sonata—Eroica (MacDowell). After the Concert, Gramophone Music. 10.0, Giornale Radio.

PARIS

PARIS

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals on 2,650 metres, at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—5.45 p.m., Le Journal Parlé. 7.15, Weather. 7.25, News. 7.30, Concert by the Symphony Orchestra, conducted by Flament. Soloist: Henriette Deliège (Songs); First Symphony (Beethoven); Songs (Schubert). 8.0, News. 8.15, Concert (contd.). Extracts from Caligula (Fauré); Songs (Schumann); Suite hergamasque (Debussy). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Gramophone Music. 7.15, Journal Parlé. 7.30, Hot Jazz on Gramophone Records. 8.0, Talk: Motor Cars. 8.30, Humorous Programme by Max Régnier and his Company. 9.20, Gramophone Concert. 10.30, News.

PARIS

PARIS

RADIO PARIS, Call CFR, 174 k/cs, 1,725 metres; 75 kW.—6.45 a.m., Gymnastics. 7.0, Interval. 7.30, Weather and Gymnastics. 7.45, Gramophone Music. 8.0, News. 8.30, Interval. 12 Noon, Gramophone Concert: Overture, Waitz and Finale from Die Fledermaus (Jos. Strauss); Zou. . . un peu d'afoil from La Revue Marseillaise (Sarvil); Song from Her Highness Commands (Stoiz); Orchestral Schection and You are my Heart's Delight from the Land of Smiles (Lehar); Two Songs from Das Blaue von Himmel; Songs from White Horse Inn (Benatzky); Two Songs from Nu comme un ver (Yvain). 1.0 p.m., Exchange and News. 1.5, Concert by Max Francy. In the intervals at 1.30 and 2.0, Exchange, 3.45, Exchange and Market Prices and Racing Results. 6.45, Film Review. 7.0, Book Review. 7.20, Granophone Concert: Athade printaniere (Lacombe); H bacio (Arditi); Song and Czardas (Berthet); Bonsoir, Madame la Lune (Marinier); La Vision de Salomé (Joyce); Les Fauvettes (Bousquet). 7.45, Commercial Prices, News and Gardening Talk. 8.0, Concert by the Radio Paris Quartet. Soloists: Alys Lautemann (Harp), Georges Jonatte (Songs), Jean Doyen (Pianoforte), and Rochut (Flute). Trio for Flute, 'Celio and Pianoforte (Weber); Harp Solos: (a) Concert Etude (Tournier), (b) Rapsodie (Vierne), (c) Largo (Ghandjany), (d) Prelude (Prokofley); Songs; Pianoforte Solo, Gaspard de la nuit (Ravel); Pieces for Flute and Harp (Megal); (a) Prelude, (b) Estompré; String Quartet (Martinu). In the intervals at 8.30, and 9.15, News.

PITTSBURGH

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—7.0 p.m., Musical Originalities, from New York. 7.30, KDKA Home Forum. 8.0 to 9.30, New York Relay. 8.0, Radio Guild. 9.0, Betty and Bob. 9.15, Rhythmic Serenade. 9.30, Business News and Markets. 9.45, Words and Music, from New York. 10.0, Uncle Tom and Betty. 10.15, KDKA Kiddies' Kinb. 10.30, The Singung Lady, from New York. 10.45, Orphan Annie, from New York. 10.45, Orphan Annie, from New York. 11.0, News-Reeler, Pat Ilaley. 11.15, Sports, Programme Preview. 11.30, Evensong. 11.45 to 12.45 a.m. (Tuesday), New York Relay. 11.45, Lowell Thomas. 12 Midnight, Amos 'n' Andy. 12.15, Baby Rose Marie. 12.30, Potash and Perlmutter. 12.45, Programme to be announced. 1.0, Side Show, from New York. 1.30, The Silver Toppers. 1.45 to 3.0, New York Relay. 1.45, Red Davis. 2.0, Sinclair Minstrels. 2.30, Melody Moments. 3.0, Programme to be announced.

PORSCRUND.—See Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—3.0 p.m.,
See Bratislava. 3.50, Programme for Children. 4.5, Taik. 4.15, Gramophone Records.
4.35, Elementary English Lesson. 4.50,
Gramophone Records. 5.5, Agricultural
Notes. 5.15, Talk for Workers. 5.25, News
in German. 5.30, German Transmission:
Talk. 6.0, Time and News.
6.10, Reading.
6.25, Fifteen Minutes in a Film Studio—Radio
Play (Midloeh). 6.55, Introductory Talk to
the following Transmission. 7.0, Samson
and Delilah—Opera in Three Acts (SaintSaëns), relayed from the State Opera flouse.
9.35, News. 9.50, German News and Market
Prices. 10.5 (approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW; and Geneva, 400 kc/s, 749.9 metres.—11.40 a.m. (from Lausanne). Gramophone Concert. 12. 10 p.m. (from Lausanne). Financial Notes. 12.10 p.m. (from Lausanne). Gramophone Concert (contd.). 1.0, Interval. 2.58, Time Signal trom Neuchâtel Observatory. 3.0, See Schweizerischer Landessender. 5.0 (from Lausanne). Talk on Metallurgy. 5.30 (from Lausanne). Talk on Metallurgy. 5.30 (from Lausanne). Hadian Lesson. 6.20 (from Lausanne). Talk 6.59 (from Lausanne). Weather Report. 7.0 (from Lausanne). Flute Recital by Gainard. Sonata (Kublau); Sonata (Tansman). 7.30 (from Lausanne), Mozart Concert by the Small Radio-Lausanne) Orchestra, conducted by Moser. Soloist: Hermine (fraf (Songs). 8.10 (from Lausanne), Concert by the Lyrette de Montreux, conducted by Otto Ileld, and the Cécilienne Quartet. conducted by Mosers. Mazurka (Fetras); Songs, Aria from The Girl in the Taxi (Gilbert); Waltz, Golden Youth (Gilbert); Songs. The Wedding of the Rose (Jessel): March, Frisch voran (Blankenburg). 9.0, Nows and Weather. 9.10 (from Lausanne), Rousers to Correspondence. 9.30 (approx.), Close Down. RJUKAN.—See Oslo.

DEC. 18th MONDAY

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; finan (Vigentino), 662 kc/s, 453.1 metres from 7.40 p.m.; and 2RO, 11,810 kc/s, 25.4 Call 1RO, 680 kc/s, 441 metres; outlier Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres from 7.40 p.m.; and 2RO, 11,810 kc/s, 25.4 metres.—12 Noon to 1.15 p.m., Gramophone Concert of Opera and Variety Music. In the intervals from 12.30 to 12.45, Giornale Itadio and Exchange and at 1.0, Time and Announcements. 3.30, Children's Radio Review. 3.55, Giornale Radio and Exchange. 4.15, Dopolayoro and Tourist Report. 4.30, Pianoforte Recital by Elly Ney, relayed from the Royal Philharmonie Academy. Popolavoro and Tourist Report. 4.30, Pianoforte Recital by Elly Ney, relayed from the Royal Philharmonic Academy. 5.55 (Naples), Shipping and Sports Notes. 6.0, News in Foreign Languages. 6.30, Gramophone Music. 6.50, Giornale Radio and Sports Notes. 7.0, Time, Announcements and Gramophone Music. 7.30, Government Announcements. 7.40, Concert of Light Orchestra Music. conducted by Illuminato Culotta. Talk in the interval. 8.55 (approx.), Chamber Music. Soloist: Giulio Rotoli (Pianoforte). Concerto grosso on Themes of Francesco Antonio Bomporti da Trento (Seventeenth Century); Concerto in D Minor for Pianoforte and Orchestra (Bach); Lento (Peragallo); Three Pieces for String Orchestra (Handel-Martneci): (a) Minuet, (b) Musette, (c) Gavotte; Three Miniatures for Children (Sanboliquido); (a) La danza di Ranocchietto verde, (b) Il sogno di Teddy Bear, (c) Fanfare per i soldatini di piombo. After the Concert: Dance Music. In the interval at 10.0, Giornale Radio. 10.30, (approx.), Close Down.

SALZBURG.-See Vienna.

SAN SEBASTIAN

SAN SEBASTIAN

EAJ8 662 kc/s, 453.1 metres; 0.6 kW.—1.0
to 2.0 a.m. (Tuesday), Programme in English
by the I.B.C. 1.0, Light Music: Kissing is
no Sin (Eysler); Song of the Vagabonds
(Friml); Cuban Love Song (Stothart); Song,
Down in the Valley (Harrington); Moment
musical (Schubert); The Cuekoo Waltz
(Jonasson); Waltz, Over the Waves (Rosas);
Adios Argentina (Matros). 1.30, Dance
Music: One Tiny Tear; P.C. 123; My Wishing Song; The School Song; Young and
Healthy; Waltzing in a Dream; I've told
every little Star; There's a new Day comin'.
2.0, I.B.C. Good-night Melody and Close
Down.

SCHENECTADY

SCHENECIADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.45 metres and by W2XAD on 19.56 metres.—
7.30 p.m., Revolving Stage, from New York.
8.0, Health Hunters, Sketch. 8.15, Soloist, from New York.
7.245 a.m. (Tuesday), Stock Reports. 1.0, News of the Week.
7.30, Home Economical Hour. 2.0 to 4.0, New York Relay. 2.0, A and P Gipsies.
7.30, Ship of Joy. 3.0, Contented Programme.
7.30, K7, Secret Service Spy Story. 4.0, Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

LANDESSENDER
BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: Basie, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—5.50 to 6.5 a.m. (Basie), Gymnastics. 11.0 (Basie), Granophone Concert. 11.29, Time Signal from Neuchâtel Observatory and News. 11.40, Concert (contd.). 12.25 p.m. (Basie), Time and News 12.35 (approx.), Interval. 2.30 (Basie), Gramophone Dance Music. 2.59, Time Signal from Neuchâtel Observatory. 3.0 (Basie), Music of Many Lands—Concert of Suites by the Radio Quartet. 4.0, (Thistmas Carols. 5.0 (Basie), Programme for Children. 5.30 (Zürich), Falk. 6.0, Time and Weather. 6.5 (Zürich), Falk. 6.0, Time and Weather. 6.5 (Zürich), English Lesson. 6.50, Gramophone Music. 7.0 (Zürich), Talk: 1s the Organisation of National Play Festivals possible in Switzerland? 8.0, News. 8.10 (Zürich), Concert. Soloist: Leonardo Aramesco (Tenor). 9.15 (approx.), Close Down. (approx.), Close Down.

SOTTENS.-See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relaved by
Böden, 242 kc/s, 1,239.5 metres; Göteborg,
32 kc/s, 322 metres; Hörby, 1,167 kc/s, 257
metres; Motala, 222.5 kc/s, 1,348 metres;
Ostersund, 402 kc/s, 746.2 metres; and Sundsvall,
554 kc/s, 542 metres.—4.5 p.m., Accordion Solos by Otto Strid, relayed from Karlstad,
1,382 kc/s, 217 metres.
4.25, Talk
relayed from Malmö, 1,301 kc/s, 230.6
metres.
4.45, Talk relayed from Uppsala,
662 kc/s, 453.1 metres.
4.55, Gramophone
Music. 5.45, Talk on Photography, relayed
from Uppsala.
6.15, Weather and News.
6.30, Talk on Hygiene.
6.30, Talk on Hygiene.
6.45, Military Band
Concert, conducted by Per Grundström:
Wedding March from The Wedding at Ulfasa
(Söderman); Selection from Pa Swansen
(Lindberg); Waltz, Die Hydropathen
(Gungl); First Movement from Symphony in

B Minor—the Unfinished (Schubert); Gipsy Dance from Les Huguenots (Meyerheer); Hungarian Rhapsody No. 1 in F (Liszt). 7.45, Medical Talk, relayed from Uppsala. 8.15, Pianoforte Recital by Anita Harrison: Pavane (Byrd); Piece (Purcell); Minnet (Purcell); Gigne (Arne); Poem (Cyril Scott); Two Pieces (York Bowen); Christmas (Balfour Gardiner). In the interval, Reading of New Swedish Lyrics. 8.45, Weather and News. 9.0, Organ and Song Recital, relayed from St. Jacob's Church; Waldemar Ahlen (Organ) and Set Svanholm (Songs): Organ Solo, Fantasia (Max Reger); Two Sacred Songs (Wolf); Two Sacred Songs, Op. 31 (Raphael); Organ Solo, Toccata and Fugue (Fortner). 10.0 (approx.), Close Down.

continued

STRASBOURG

STRASBOURG

869 ke/s, 345 metres; 11.5 kW.—10.30 a.m.,
Orchestral Concert, conducted by Maurice de
Villers. 12 Noon, Gramophone Records.
12.45 p.m., News, Time and Exchange. 1.5,
Light Music on Gramophone Records. 2.0,
Interval. 5.0, Orchestral Concert, conducted
by Roskam: March (Eilenberg); Waltz, Dieser
Kuss der ganzen Welt (Zichrer); Overture,
Jean de Paris (Boieldicu); Selection from
La Cocarde de Mini Pinson (Goublier)
Piedmontese Dances (Sinigaglia); Minuet
from the Sonata in E Minor (Grieg); Chant
sans Paroles (Tchaikowsky); Selection from
The Gipsy Baron (Johann Strauss). 6.0, sans Paroles (Tchaikowsky); Sclection from The Gipsy Baron (Johann Strauss). 6.0, Film Review. 6.15, Talk in German. 6.30, Weber Anniversary Concert, conducted by Maurice de Villers: Overture, Peter Schmoll; Invitation to the Waltz; Concertino for Clarinet and Orchestra; Sclection from Der Preischiltz; Overture, Oberon. 7.30, Time and News. 7.45, Gramophone Records. 8.0, Press Review in German, Lottery Results and News. 8.30, Concert of Chamber Music by the Cercle Artistique de l'Est, relayed from Nancy. In the interval, Talk. 10.30 (approx.), Press Review. sans Paroles (Tchaikowsky); Selection The Gipsy Baron (Johann Strauss).

STUTTGART

STUTTGART

MUHLAGKER, 832 kc/s, 360.5 metres; 1.5 kW. Relayed by Freiburg, 527 kc/s, 570 metres.—11.0 a.m., Gramophone Concert of Operetta Music: Overture. Light Cavalry (Suppé); Air from Der Kellermeister (Zeller); Selection from Eva (Lchár); Songs: (a) Song from Der lustige Krieg (Joh. Strauss), (b) Canzanetta from Gasparone (Millöcker); Selection from The Geisha (Jones); Song from Im Reiche des Indra (Lincke); Waltz from Der Fremdenführer (Ziehrer); Two Songs: (a) Song from Wiener Blut (Joh. Strauss), (b) Air from Die Fledermaus (Joh. Strauss); Selection from Der Obersteiger (Zeller); Melodies from Der Bettelstudent (Millöcker); Selection from Per Bettelstudent (Millöcker); Selection from Frasquita (Lchár): Song from The Cousin from Nowhere (Künneke); Song fom Der Landstreicher (Ziehrer); Glow Worn Idyll from Lysistrata (Lincke); Two Songs from Die Fledermaus (Joh. Strauss). 12.15 p.m., See Frankfurt. 12.25, Local News and Weather. 12.35, Concert by the Station Orchestra, conducted by Gustav Görlich: Overture, Nordische Sennfahrt (Gade); Suite, Heimatklänge (Frederiksen); Idyll (Svendsen); Lyric Suite (Grieg); Prayer and Temple Dance from Olav Trygvason (Grieg). 1.30, Recital of Karl Eichhorn Songs by Hans Hofele (Baritone); in der Lenznacht; Schweigen; Einem Gefallenen; Husarenflieder. 2.30, Talk; Heligoland. 3.0 to 5.0, Sec Langenberg. 5.0, French Lesson. 5.20, Talk: The Incas—Athualpa. 5.35, Time, Market Prices and Weather. 5.45, Talk: Reckoning. 6.0, Transmission for all German Stations, relayed from Munich. 7.0 to 9.20, See Frankfurt. 9.20, Topical Talk. 3.30, Local News, Weather, and Sports Notes. 9.45 to 12 Midnight, Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

779 kc/s, 385 Metres; 8 kW.-6.0 p.m., News. 6.15, Music by a Viennese Orchestra: Selection from The Count of Luxembourg (Lchár); Melody (Lehár); Wienerblut (Joh. Strauss); Strauss Potpourri (Suppé). 6.30, Chansonnettes. 6.45, Hawaiian Guitar Solos. 7.0, Opera Music: Duet from The Pearl Fishers (Bizet); Arias from (a) Rigoletto (Verdi) (b) Faust (Hayand). 715 News. 7.30, Cello Recital: Duet from The Pearl Fishers (Bizet); Arias from (a) Rigoletto (Verdi), (b) Faust (Gounod). 7.15, News. 7.30, 'Cello Recital: Andaluza (Granados); Mana (Falla); Caro mio ben (Popper); Adagio (Tartini). 7.45, Operetta Music: Waltz from The Merry Widow (Lehár); Aria from The Bayadere (Kálmán); Selection from Frasquita (Lehár). 8.0, Opera Music: Chorus from Carmen (Bizet); Aria from Thais (Massenet); Aria from Manon (Massenet); Berceuse from Manon (Massenet); Berceuse from Mignon (Thomas). 8.15, Military Music. 8.30, Music from Sound Films. 8.45, Accordion Solos. 9.0, Concert by the Station Orchestra, conducted by Espy: Overture, Martha (Flotow); Ballet Music from Isoline (Messager); Waltz from The Count of Luxembourg (Lehár); Selection from Lilac Time (Schubert-Berté); Serenade

(Filipucci); Old French Airs (Broustet). In the interval, Operetta Music and Light Music, 10.15, News. 10.30, Concert for Listeners in Morocco. 11.0, Request Music, 11.15, Dance Music. 12 Midnight, News. Weather and 10.15, Account Mororco, 11.0, Request Music. 12 Midnight, News. Weather and Music. 12 Midnight, News. (Tuesday), Chan-music. 12.5 a.m. (Tuesday), Chan-music. 12.30 Music. 12 Midnight, ... Announcements. 12.5 a. sonnettes. 12.15, Li (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—4.10 to 7.30 p.m., See Turin. 7.30, See Rome. 7.40 till Close Down, See Turin.

TRONDHEIM.—See Osio.

TURIN

TURIN
1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 598 kc/s, 501.6 metres.—4.10 p.m., Concert conducted by Tito Petralia. 4.55, Weather. 5.0 to 5.20, Agricultural Notes, Wheat Market Report, 6.0, Time and News in Foreign Languages. 6.30, Gramophone Records. 6.50, Announcements, Giornale Radio, and Weather. 7.0, Gramophone Records. 7.30, See Rome. 7.40, Violin and Pianoforte Retail by Arrigo Serato and Sandro Fuga. In the interval, Talk. 9.0, Gramophone Concert. 9.30, Dance Music. 10-0, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in Italian. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

VIENNA

VIENNA

S80 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,085 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.1 metres; Linz, 1,220 kc s, 245.9 metres; and Salzburg, 1,473 kc/s, 215.8 metres.—10.30 a.m., Concert by the Wiener Symphoniker, conducted by Schönherr: Overture, Giroffé-Girofla (Lecocq); Selection from The Geisha (Jones); Waltz, The Vision of Salomé (Joyce); Intermezzo from Naila (Delibes); Four Pieces (d'Ambrosio): (a) Andagtino, (b) Paysanne. (c) Ronde des lutins, (d) Tarantella; Suite, Mascarade (Sullivan); Overture, Britannicus (Scassola); March, Defilé des Nations (Fremaux). In the interval at 10.55, Weather. 12 Noon, Time and News. 12.10 p.m., Gramophone Concert: Romance in F (Beethoven); Le cygne (Saint-Saëns); Polka (Rachmaninov); Solveig's Song (Grieg); Prelude, Raindrops (Chopin); Andalusian Romance (Sarasate); Aria from The Tales of Hoffmann (Offenbach); Largo and Allegro (Marcello); Aria from L'Africaine (Meyerbeer). 1.0, Interval. 2.0, Time and Announcements. 2.15, Talk: The Milk Supply in Vienna and other Austrian Cities. 2.25, Misical Programme for Young People. 2.50, Gramophone Concert of Light Music. 3.30, Programme for Young People. 2.50, Gramophone Concert of Light Music. 3.30, Programme for Young People. 3.55, Reading: The Conductor (Paul Stefan). 4.20, Pianoforte Recttal by Susi Pogazhnik. 4.55, Art Notes. 5.15, Talk: Books of Reference in Connection with the Week's Talks. 5.20, Elementary English Lesson. 5.40, Topical Talk, 5.55, Tannhäuser—Opera (Wagner), relayed from the State Opera House. In the intervals, Time and Announcements. 9.45, Announcements. 9.50, Gramophone Concert, followed by Announcements.

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—10.57 a.m.,
Time and Fanfare from St. Mary's Church,
Cracow. 11.5, Russian Symphony Music (on
Gramophone Records). 11.30, Radio Journal.
11.35, Weather. 11.38, Gramophone Records
(contd.). 12 Noon to 2.25, Interval. 2.25,
Announcements. 2.30, Economic Notes.
2.40, Boy Scouts' Report. 2.45, Aviation Report and Anti-Gas Drill. 2.25,
Planoforte Recital by Mine. Rosenbaun:
Chaconne (Bach); Pastorale, Capriccio and
Gigue (Scarlatti); Melody (Chopin-Liszt);
Scherzo in E. Op. 54 (Chopin); Waltz
(Strauss-Grunfeld). 3.40, Elementary French
Lesson. 3.55, Violin Recital by Mine. Szyfinan.
4.50, Agricultural Correspondence. 5.0, Talk:
Sappho. 5.20, Talk for Soldiers. 5.45,
Grannophone Music. 6.0, Programme Announcements. 6.5, Miscellaneous Items. 6.25,
Christnias in Old Poland—Musical Programme, relayed from Lwow, 788 kc/s (381
metres). 6.40, Sports Notes. 6.47, Radio
Journal. 7.0, Concert by the Station Symphony Orchestra, conducted by Oziminsky:
Soloists: Lozinska (Soprano) and Luczaj
(Bass); Sclection from Mignon (Thomas);
Aria from Eugene Ouegin (Tchaikovsky); La
bénédiction des fôrets (Tchaikovsky); Bass
Song (Noskowsky); Polonaise (Noskowsky);
Evening Song (Moniuszko-Minheimer); The
Spinner (Moniuszko-Cielewicz); Four Soprano
Songs: Träumerei (Schumann); Rhapsody
No. 2 (Liszt). 8.0, Reading. 8.15, Scenes
from Bjornsou's Olaf Trygvason (Grieg), by
the Warsaw Symphony Orchestra. conducted
by Maszynsky and the Lutnia Mixed Voice
Choir: Soloists: Lozinska (Soprano), Paszkowska (Contralto) and Luczaj (Bass). 9.0,
Dance Music (elayed from the Oaza Dance
Hall. 10.0, Weather and Police Notes 10.5,
Dance Music (contd.).

ZURICH.-See Schweizerischer Landessender.

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Rclayed by Dublin, 1382 kc/s, 217 metres; and by Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.30 p.m., Time Signal, Weather Report. Stock Report and Gramophone Concert. 6.0, Programme for Children. 6.45, News. 7.0, Gaelic Reading. 7.15, Poetry Recital by Mrs. E. V. Fleming-Moran. 7.30, Time Signal. 7.31, Concert by the Station Orchestra. 8.0, Baritone Solos by T. W. Hall. 8.15, Pianoforte Recital by Annette Noble. 8.35, The Station Orchestra. 9.0, A Lyrical Interlude by Lyle Donaghy. 9.30 to 10.30, Programme by the LB.C. (Ireland), Ltd. 9.30, Orchestral Music. Signature Tune: Choo, Choo; Waltz, Amoureuse (Berger): Licheslied (Kreisler); March of the Russian Hussars; Play Gipsies, dance. Gipsies (Kalmán); Signature Tune: Choo, Choo; Maltz, Amoureuse (Berger): Licheslied (Kreisler); Tharch of the Russian Hussars; Play Gipsies, dance. Gipsies (Kalmán); Signature Tune: Choo, Choo; Maltz, Amoureuse (Berger): Licheslied (Kreisler); March of the Russian Hussars; Play Gipsies, dance Gipsies (Kalmán); Signature Tune: Choo, Ohoo; 9.45, Dance Music. Honeymoon Hotel; Dinah; Just a Year ago to-night; Shauphai Lil. 10.0, Concert of Dance Music arrauged by the International Broadcasting Company (Ireland), Ltd. I'm dancin' on a Rainbow; Bhe Roses; Beautiful Girl; Racing Commentary; Gotta go; Selection from Dinner at Eight; Hold your Man; This is Romance. 10.30, LB.C. Good-night Melody, followed by News and Weather. 10.40, Pipe and Fiddle Ducts by Leo Rowsome and M. O'Duinn. 11.0 (approx.), Close Down.

BARCELONA

EAJ1, 861 KC/s, 348.4 metres; 8 kW.—
6.0 p.m., Trio Concert. 7.0, Request Gramophone Music. 7.30, Exchange and Talk in Catalan. 8.0, Gramophone Music. 8.15, Football Results. 8.30, Educational Programme and News. 9.0, Chimes from the Cathedral, Weather, Messages to Seamen. Exchange and Market Prices. 9.5, Part Relay of an Opera from the Gran Teatro del Licco. 11.0, News.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—3.30 p.m., Pianoforte Recital by Argento Crescenzio. 3.55 (approx.) to 7.0, See Rome. 7.0, News in Albanian. 7.15 (approx.) till Close Down,

BASLE.—See Schweizerischer Landessender.

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—4.30 p.m., Dance Music. 5.55, Time Signal and Programme Announcements. 6.0, Concert by the Dusko Popaza Orchestra. Soloist: Nada Alekesandrovic (Songs). 7.0, Popular Dance Music by the Radio Orchestra. 7.30 to 8.30, Linbljana Zagreb and Belgrade Exchange Frogramme. 7.30, See Ljubljana. 7.50, See Zagreb. 8.10, Music by the Station Orchestra. 8.30, Popular Songs. 9.0, Time and News. 9.5 (approx.), Cigány Music. relayed from the Kasina Rectaurant. 10.0, Dance Music on Gramophone Records. 11.0 (approx.), Close Down).

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHSSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—
11.5 a.m., Gramophone Concert. 11.5 k Time
Signal. 12 Noon, Interval. 12.45 p.m., News.
1-0, Gramophone Concert (contd.). 2.0, Programme for Women. 2.30, Weather and Exchange. 2.45, Christmas Tales. 3.0, See
Munich. 3.30, Talk on the Twenty-fifth
Anniversay of the Regency of General
Gomez, President of Venezuela. 3.40, Concert
(contd.). 4.0, Handwork for Children—How
to build Model Aeroplanes. 4.20, Variety
Programme. 5.0, Poetry Reading and
Theatre Talk. 5,25, Political Press Review.
5.45, Weather and News. 6.0, Transmission
for all German Stations, relayed from Frankfurt. 7.0, Talk: Military Policy and
Christian Peace (Dr. Paetzold). 7.10, Recital of Ballads by Schumann, Loowe.
Brahms and Pluddemann, sung by Adolf
Harbich (Baritone). 8.10, See Breslau. 9.0,
Weather and News. 9.45, Weather. 10.0 to
11.0, See Stuttgart. 11.0 (approx.), Close
Down.

BERLIN

FUNKSTUNDE, 716 kc/s, 419 metres; 1.5 kW. Relayed by Zeesen, DJC, DJA, DJD, and DJB and DJE.—5.0 p.m., Violin Recital by Ludwig Pogner: Sonata in E (Händel); Suite in F, Op. 93 (Reger). 5.30, The Funkstunde informs its Listeners. . . . 5.35, Sports Talk: Wrestling. 5.45, Talk. 6.0, Transmission for all German Stations, relayed from Frankfurt. 7.0, Announcement. 7.5 to 9.0, See Hamburg. 9.0, Weather and News. 9.30, Close Down. See Hamburg. 11.0 (approx.), Close Down.

BERNE.-See Schweizerischer Landessender.

BEROMUNSTER. — See Schweizerischer Landessender.

BODEN.-See Stockholm.

BODO.-See Oslo.

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.-7.35 p.m., News and Exchange. 7.40, Talk for Women.

DECEMBER THE NINETEENTH

7.55, Lottery Results. 8.0. Talk. 8.15, News and Gramophone Music. 8.30, See Paris (Eiffel Tower). After the Programme, Amusement Guide and Time Signal.

BRATISLAVA

1.073 kc/s, 279.5 metres; 14 kW.—5.25 p.m., Gramophone Records. 5.40, Lesson in Tele-graphy. 5.55, Talk for Housewives. 6.0, See Prague. 10.0 (approx.), Close Down.

BREMEN.—Sec Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Rclayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—1.15 p.m., Weather. 1.20, Programme arranged by the Post Office, with Gramophone Records. 2.0, Market Prices and Exchange. 2.30, Programme for Children. 3.0 to 5.10, See Munich. 5.10, Agricultural Prices. 5.15 (approx.), Talk: Suburban Housing Schemes. 5.35, Programme to be announced. 5.45, Programme Announcements and Weather. 6.0, Transmission for all German Stations. relayed from Frankfurt. 7.0, See Berlin (Deutschlandsender). 7.10 to 8.10, See Leipzig. 8.10, Mascagni Concert for the Composer's Seventieth Birthday: The Silesian Philharmonic Orchestra, conducted by Topitz. Soloists: Anny Glogner (Soprano), and Ventur Singer (Tenor). Preduce and Duet from 1 Rantzau; Symphonic Intermezzo and Romance from Cavalieria rusticana; Intermezzo and Duet from L'amico Fritz; Ratcliff's Dream and Aria from William Ratcliff. 9.0, See Leipzig. 9.20, Time and News. 9.30 (approx.), see Leipzig. 11.0 (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—3.55 p.m., Programme for Children. 4.15, Gramophone Records. 4.35, See Prague. 4.50, Gramophone Records. 5.0, Music Talk. 5.15, Talk for Workers. 5.25, German Transmission: News, Medical Talk and Agricultural Notes. 6.0 to 10.0, See Prague. 10.0 (approx.), Close Down.

BRUSSELS (No. 1)

BRUSSELS (No. 1)

1.N.R., 588 ke/s, 509.2 metres; 15 kW.—12
Noon, Italian Opera Music on Gramophone Records. 12.20 p.m., Italian Song Recital by Romeo Sponehiado. 12.35, Gramophone Concert (contd.). 1.3, Le Journal Parlé. 1.10, Liszt Pianoforte Recital by Marie-Antomette Brewaeys: Au bord d'une source; Ifungarian Rhapsody No. 11; Feux follets. 1.25, Light Music on Gramophone Records. 5.0, Concert by the Radio Orclestra, conducted by Franz André: Dance and Madrigai (Absil); Nocturne (Dancau); Four Pieces (Deleroix): (a) Eclogue, (b) Sicilienne, (c) Rève, (d) Burlesque; Meditation (Maes), 5.30, Programme for Children. 6.5, Literary Review. 6.15, Gramophone Music: Sonata for Violin (Bach); Concerto grosso (Vivaldi), 6.30, Request Gramophone Music. 6.45, Concert of Sacred Music. 7.15, Review of the Weck. 7.30, Programme for Women and Art Notes. 8.0, Concert by the Radio Orchestra, conducted by Franz André: Selection from Dinner at Eight (Fields); Let's call it a Day (Brown); Saxophone Solo: La complainte (Liadov); Lover (Rodgers); Maremba Solo: Funny Notes (Nicholls): Don't be late in the Morning (Leclercq-Mendoza); A Cuckoo in the Nest (Sievier); Three Masked Dances (Wood); Ballet imaginaire (Coleridge-Taylor). 8.45, Talk on the Colonies. 9.0, Concert by the Station Symphony Orchestra, conducted by Kumps. Soloist: Joseph Voordecker (Cello); Overture, Hamlet (Gade); Cello and Orchestra: Poème (Florent Schmitt); Two Arabesques (Debussy); Spanish Christus Vinet (Liszt). 10.0, Le Journal Parlé.

BRUSSELS (No. 2)

N.1.R., 888 kc/s, 337.8 metres; 15 kW.—Programme in Flemish.—12 Noon, Gramophone (oncert. 1.0 p.m., Le Journal Paric. 1.10, Gramophone (oncert: Florentine March (Fueik); Two Melodies from Viktoria and her flussar (Abraham); Waltz, Acelamations (Waldteufel); Two Sougs from Venus in Seide (Stols); Selection from Wild Violets (Stolz); Duets from Acts I and III of Tosca (Puccini); Waltz, Les grenadiers (Waldteufel). 5.0, Concert by the Station Symphony Orchestra, conducted by Kumps: Overture, Les flugments (Meyerbeer); Rhapsody No. 12 (Liszt); Gramophone Records: (a) Room for the Factotum from The Barber of Seville (Rossini), (b) Aria from Hamlet (Thomas); Waltz, Dorfschwalben aus Oesterreich (Jos. Strauss); Selection

from Les millions d'Arlequin (Drigo); Ballet Music from Lakmé (Delibes). 5.45, Programme for Children. 6.30, Gramophone Music. 7.0, Gramophone Records of Josephine Baker. 7.15, Talk. 7.30, Programme for Housewives. 8.0, Concert by the Station Symphony Orchestra, conducted by Kumps. Soloists: Mme. Van den Rijdt (Songs) and Louis Belloy (Recitations); March (Schubert); Overture; Zampa (Hérold); Mimi's Aria from La Bohême (Puccini); Song from Mignon (Schubert); Prelude and Sicilienne from Cavalleria rusticana (Mascagni); Recitations (Van Colem); Selection from Hamlet (Thomas). After the Concert, Dramatic Programme. 9.10, Concert by the Radio Orchestra, conducted by Franz André. Soloist: Mme. van den Rijdt (Songs); Song (Eisler); Overture, Maritana (Wallace); Songs: (a) Waltz from Romeo and Juliet (Gounod), (b) Heidenröslein (Schubert); (c) Die Forelle (Schubert); Selection from The Thieving Magpie (Rossini); Humoroons Recitations; Waltz, Arc en ciel (Waldteufel). 10.0, Le Journal Parlé.

BUCHAREST

Concert of Variety Music by the Gica Ionesco Orchestra. In the interval at 5.0, Radio Journal. 6.0, Educational Talk. 6.2, Gramophone Records. 6.45, Talk. 7.0, Song Recital by Gaby Stefanesco-Augustin; Aria from Madame Butterfly (Puccini); Aria from Manon (Massenet); M'ama, non m'ama (Mascagni); Dute dor la badea'n san (Stefanesco); Ochi albastri dragalasi (Caudela). 7.20, Symphony Concert by the Station Orchestra, conducted by Perlea. In the interval at 8.0, Talk. 8.45, Radio Journal.

BUDAPEST

BUDAPEST

545 kg/s, 550.5 metres; 120 kW. Also relayed on 840 metres from 7.0 p.m. till Close Down.

—4.30 p.m., Orchestral Concert, conducted by Polgár. 5.30, French Lesson. 6.0, Gramophone Records. 6.30, Talk. 7.0, Pianoforte Recital; Sonata in B minor, Op. 47 (Glazunov); Pieces (Chopin): (a) Mazurka in C sharp minor, Op. 63, No. 4, (b) Mazurka in C sharp minor, Op. 63, No. 3. (c) Etude in G flat, (d) Waltz in A flat, (e) Polonaise in G flat, (d) Waltz in A flat, (e) Polonaise in F sharp minor. 7.40, News. 8.0, The Contemporaries of Franz Erkel—Concert by the Royal Hungarian Opera House Orchestra, conducted by Dohnányi. Soloists: Gisella Goda, Franz Szende and Zoltán Závodsky. Introductory Talk by Koloman Isoz. In the interval, Weather. 9.40, Concert by the Jancsi Rigo Cigány Band, relayed from the Restaurant Dénes.

CASSEL .- See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Rclayed by Kalundborg, 260 kc/s, 1,153.8 metres; and Skamlebaek, 0XY, 31.51 metres.—11.0 a.m., Time and Chimes from the Town Hall.

11.5, String Ensemble Concert relayed from the Ritz Restaurant. 1.0 p.m., Interval.

1.30, Reading, 2.0, Concert by the Teddy Petersen Band, relayed from the Wivex Restaurant.

4.0, Reading for Children, 4.30, Exchange and Fish Market Prices.

4.45, Gardening Talk. 5.15, Elementary German Lesson. 5.45, Weather and Announcements. 6.0, News. 6.15, Time Signal. 6.16, Talk: Missions to Child Workers. 6.30, Legal Talk. 7.0, Chimes from the Town Hall. 7.5, Planoforte Sonata in D minor, Op. 46, No. 2 (Kuhlau), played by Folmer Jensen. 7.15, The First Violim—Comedy in Four Acts (Jens Petersen-Gustav Wied).

8.50, Extracts from Alda—Opera (Verdi) on Gramophone Records. 9.10, News. 9.25, Concert by Alberto Bracouv's Mandoline Orchestra: Festival March (Bohlmann); Intermezzo capriccioso (Amadei); Campanella (Handel); Mandoline and Lute Duets: (a) Träumerei (Schumann), (b) Concert Caprice (Munier); Sicilienne (Jessel); Glowworm Idyll from Lysistrata (Lincke); The Honeymoon March (Rosey). 10.10, Dance Music relayed from the National Scala. In the interval at 11.0, Time and Chimes from the Town Hall. 11.30 (approx.), Close Down.

CORK .- Sec Athlone

CRACOW

958 kc/s, 312.8 metres; 1.5 kW.—6.0 p.m., Programme Announcements. 6.5, The Letter Box. 6.20, Miscellaneous Items. 6.25, See Warsaw. 6.40, Sports Notes. 6.47 till Close Down, See Warsaw. 10.30 (approx.), Close

DANZIG .- See Heilsberg.

DRESDEN.-See Leipzig.

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—10.20 a.m.
till 12 Noon, Programme in English by the
t.B.C. 10.30 a.m., Variety Programme;
Signature Tame. 11.0, Variety Programme;
Signature Tame. 11.0, Variety Programme;
Part 1—Dance Music. 12 Noon, Programme in
French. 3.30 to 6.00 p.m., Programme in
French. 3.30 to 6.00 p.m., Programme in
French. 3.30 to 6.00 p.m., Programme;
English by the 1.B.C. 3.30 Orchesteral Concert for Torquay and Exeter
Listeners; Signature Tune. The Night by
the Sea; Selection from The Chocolate
Soldier (O. Straus); Her First Dance (Heykens); Song, Maureen O'Dare (Reisvier);
Veleta Medley (Varney); Waltz, Tales from
the Vienna Woods (Joh. Strauss); Song,
This Lovely Rose (Mauriec); A Screnade
out of the Night (Spoliansky); The Jolly
Whistlers (Gennin). Part 11.—Dance Music:
A One Horse Town; Did my Heart beat;
Wild Goose Chase; Waltzing in a Dream;
Dear Stranger; Who's afraid of the Big
Bad Woolf; Making Conversation; Happy
and Contented. 4.30, The L.B.C. Nursery
Corner: Birthday Greetings. 5.0, Concert
for Plymouth and Devonport Listeners; Part
1—Organ Reeital: The Wooden Soldier and
the China Doll; Roses of Picardy (Haydn
Wood); Organ and Xylophone Duet: Down
South (Myddleton); Tiptoe through the
Tullips (Burke); Family Favourites (arr.
Ewing); Organ and Violin: Revause
(CHardelot); Ding, Dong, Ding (Evans);
The Match Parade (Wehle), 5.30, LB.C.
Time Signal, 5.32, Part II—Light Music:
Ninon (Moretti); A Night in May (Stranss);
Waltz from The Gipsy Princess (Kilman);
Norwegian Dance No. 2 (Griec); Signature
Tune, The Night by the Sea, 5.45, Dance
Music: Love in the Moonlight; I've got to
get up and go to work; Who's afraid of the
Big, Bad Wolf? Comflowers and Poppies,
6.0, Programme in French. 10.0 (approx.)
till Close Hown, Programme in English by
the L.B.C. 10.0, Dance Music: Signature Tune,
Bells of Normandy; The Monkey on a String;
Old-Fashioned Sweethearts; Sophisticated
Lady; Swingy Little Thingy; Thanks; Addos:
Goodbye; I bring a Song; Without that
Certain Thing; Signature Tune. 10.30,
Va FLENSBURG.—See Hamburg.

FLORENCE.-See Turin.

FRANKFURT

FRANKFURT

1,157 ke/s, 259.3 metres; 17 kW. Relayed by Cassel and Trier, 1,157 ke/s, 259.3 metres.—
12.15 p.m., Time Signal and News. 12.25, Miscellaneous News and Weather Report. 12.35, See Stuttgart. 1.40, Programme for Women. 2.30, Weather, Time and Exchange. 3.0, See Stuttgart. 5.0, Italian Lesson. 5.20, Dialogue: The Training of Apprentices—a National Duty. 5.35, Book Review. 5.50, Weather Report, News, Programme Alterations, and Time Signal. 6.0, Transmission from all German Stations: Seene Painting in Music—a Musical Kaleidoscope by the Station Orchestra, conducted by Hans Rosbaud. 7.0, See Berlin (Deutschlandsender). 7.10, Sec Langenberg. 7.30, Relay of the Ljubljana, Zagreh and Belgrade Exchange Programme. 9.0, Time and News. 9.20, See Stuttgart. 9.30, News and Weather Report.

.45, See Stuttgart. 11.0, Das Weihnachts-under (The Miracle of Christmas) (René Virtz). 11.45 (approx.), Close Down.

REDRIKSSTAD .- See Osto.

REIBURG .- See Stuttgart.

ENEVA.-See Radio-Suisse Romande.

ENOA.-See Turin.

LEIWITZ.-Sec Breslau.

10TEBORG.-See Stockholm. ARAZ.-See Vienna.

IAMAR .- See Oslo.

HAMBURG

HAMBURG

306 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Fiensburg and Hanover, 1,319 kc/s, 227.4 metres; and Kiel, 1,292 kc/s, 222.2 metres.—6.0 p.m., Fransmission for all German Stations, reayed from Frankfurt. 7.5, The German Scamann-Radio Sequence by Hans Leip with Music by the Statiom Orchestra, conducted by Gerhard Massz. 8.16, From the Banks of the Elbe—a Concert by the Small Station Orchestra, conducted by Gerhard Massz. 9.0, Time Signal, Weather and News, 3.30, Talk by Dr. Poetzold: The Armanents Policy and the Christmas Spirit of Peace. 3.40, Concert by the Hamburg Philharmonic Orchestra, conducted by Adolf Secker.

HANOVER.—See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—12.5 to 1.30 p.m., Gramophone Records. In the intervals at 12.20 and 1.0, News. 2.0, Agricultural Prices and Exchange. 2.20, Talk for Women. 2.30, Musical Improvisations for Children. 3.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Fanfarenklänge (Fucik); Overture, Le Postillon de Longiumeau (Adam); Melodies from La cena delle belie (Giordano); Wedding Music (Jensen); Waltz, Nordsee-lieder (John Stranss). 4.0, Talk: Glass Decorations for the Christmas Tree. 4.15, Concert (contd.); Melodies from Das Dorfohne Glocke (Künneke); Waltz, Die ersten Gedanken (Lanner); In the Mystic Land of Egypt (Ketelbey). 4.50, Talk: Travelling through Lithusnia. 5.15, Market Prices and Lee Report. 5.28, Hugo Wolf Song Recital by Georg Höllger (Baritone). 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Frankfurt. 7.0, See Berlin (Deutschlandsender). 7.10 (from Danzigs, Tietland—Opera (d'Albert), relayed from the Municipal Theatre. In the intervals at 7.25 and 8.15, News. 9.40, News, Weather and Sport Reports.

HILVERSUM

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW up to 5.40 p.m. and 20 kW from 5.40 p.m. Programme of the General Broacasting Society (A.V.R.O.).—10.10 a.m., Quartet Concert: Quartet No. 18 in D (Mozart); Quartet in A minor, Op. 41 (Schumann). In the interval at 10.40, Talk on Cookery. 11.40, Time Signal. 11.41, Concert by the Wireless Orchestra, conducted by Nico Treep. In the interval, Gramophone Records. 1.55 to 2.10 Concert by the Wireless Orchestra, conducted by Nico Treep: Novelettes, Op. 53 (Gade); The Bamboula (Colcridge-Taylor). 2.40, Pressmaking Lesson. 3.40, Pinnoforte Recital by Rie Batenburg: Prelude and Fugue (Bach-Busoni); Three Pieces (Debussy); (a) Dances, (h) Ondine, (c) General Lavine—eccentric; Etude (Saint-Saëns). 4.10, Concert by a Children's Choir. 4.40, Programme for Children's Choir. 4.40, Programme for Children's Choir. 4.40, Programme for Children. 5.10, Programme of the Liberal Protestant Radio Society (V.P.R.O.): Talk for Young People. 5.40, Organ and Violin Recital by Pierre Palla and Boris Lensky. 6.40, Talk: The Arts in Distress. 6.55, Gramophone Records. 7.41, News. 7.45, Variety Programme by Barnabas von Géezy and his Orchestra, The Harmony Kings, Irene de Noiret, List Löfller (Harp), Treiber von der Treib, and Josephine Baker. 10.10, Gramophone Records. 10.40, News 10.50, Dance Music. 11.40 (approx.), Close Down.

HORBY .- See Stockholm.

HUIZEN

HUIZEN

160 kc/s, 1,875 metres; kW until 3.40 p.m.
Transmitted from Kootwijk on 50 kW from
3.40 p.m. Programme of the Catholic Radio
Society (K.R.O.).—11.55 a.m., Concert by the
KRO Boys, conducted by Lustenhonwer. In
the interval, Gramophone Records, 1.40
p.m., Programme for Women. 2.40, Dressmaking and Millinery Lessons, 3.40, Programme by the Hebrew Radio Society
(H.I.R.O.). 4.50, Gramophone Records,
5.10, Pianotorte Recital by Käthe Hoftenreich: Boléro (Chopin); Clair de Inne (Debussy); Piece (Prokofiev); Hongarian Rhapsody (Liszt). In the interval at 5.25, Gramophone Records, and at 5.40, Talk on Christmas and New Year's Eve in Germany, 6.10,
Gramophone Records, 6.20, Annonnements
in Esperanto. 6.40, Police Notes, 6.55,
Talk. 7.15, Gramophone Records, 7.25,
Talk. 7.40, Concert by the KRO Boys, 8.10,
News, 8.15, De Vampier—a Radio Play in
One Act (Heyermens), 8.40, Violin Recital

DEC. 19th TUESDAY continued

by Isolde Menges. 8.55, Concert by the KRO Orchestra, conducted by Gerritsen. Soloist: Isolde Menges (Violin): Overture, Titus (Mozart); Violin Concerto in D. Op. 73 (Brahms); Nowegian Carnival (Svendsen); Ballet Music from Sylvia (Delibes); Le cygne (Saint-Saëns); Concert Walts (Glazmov). In the intervals, Talk and News. 10.40, Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK .- See Vienna.

KALUNDBORG.-See Copenhagen.

KIEL.-See Hamburg.

KLAGENFURT.-See Vienna.

KOSICE.-See Prague.

LANGENBERG

CAINGERIDERG

635 kc s, 473 metres; 60 kW.—12.25 p.m., News and Weather. 12.35, See Stuttgart. 2.0, Talk. 2.20, Granophone Music. 2.30, News. 2.50, Political Address. 3.0, See Stuttgart. 5.0, See Frankfurt. 5.35, A Walk through Münster (Hermann Tölle). 5.45, Announcements. 6.0, Transmission for all German Stations, relayed from Frankfurt. 7.0, See Berlin (Deutschlandsender). 7.10, German Dances by the Station Orehesta, conducted by Dr. Wilhelm Buschkötter: Gavotte (Gluck); Two Minuets (Haydu);

Frederica, (b) Song from Paganini (Lehár); Music to the Ballet, Andersen (Nedbal), 11.0 (approx.), Close Down,

LINZ .- Sec Vienna.

LJUBLJANA

LJUBLJANA
522 kc/s, 574.7 metres; 7 kW.—5.0 p.m., Programme for Children. 5.30, Gramophone Records. 6.0, French Lesson 6.30, Educational Programme. 7.30 to 8.30, Ljubljana, Zagreh and Belgrade Exchange Programme. 7.30, Slovene Music by a Vocal Quintet. 7.50, See Zagreb. 8.10, See Belgrade. 9.0, Weather and News. 9.30 till Close Down, Programme in English by the I.B.C. Light Music; Blaze Away; Selection from White Horse Inn; I Travel the Road; Wine, Woman and Song; You Are My Heart's Delight; Berceuse de Jocelyn; Roses from the South; On the Mail. 10.0 (approx.), Close Down.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,91 metres; 200 kW.—Belgian
Evening. 7.0 p.m., Piannforte Concerto
No. 2 in C minor, Op. 18 (Rachmaninov)
on Gramophone Records. 7.35, Song Recital by Toubeau; Aria from Sylvain
(Grétry); Oraison (Dubois); Mort
(Radoux); La Chanson de l'Aveugie (Rasse);
A ma Fiancée (Valdury). 8.10, Belgian
Concert by the Station Orchestra, conducted by Pensis: Tableaux grees (Marsick);

Otto Lington and his "boys" who are DANISH DANCE BAND. heard in regular broadcasts from the Ritz Hotel, Copenhagen. Not the least striking feature in the photo is the glass-topped grand piano.

Viennese Dances (Beethoven); Six German Dances (Mozart). 7.30 to 7.50, Relay of the Ljubljana, Zagreb and Belgrade Exchange Programme. 7.50, Gramophone Records. 8.10, Travelling through Emsland—a Microphone Tour. 9.0, See Frankfurt. 9.20, See Stuttgart. 9.30, Weather and News. 9.45 to 11.0, See Stuttgart. 11.0 to 11.45, See Frankfurt. 11.45 (approx.), Close Down.

LAUSANNE.-See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc.s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc,s, 319 metres.—12.15 p.m., News. 12.25, Gramophone Records of Dances; Slow Foxtrot, Hab' keine Angst vor Liebe (Grothe); Foxtrot, So ein Kuss kommt von allein (Grothe); Waltz from The Mcrry Widow (Lehar); Waltz from The Mcrry Widow (Lehar); Waltz from The Count of Lixenbourg (Lehar); Tango (Panizzi); Slow Waltz, Du bist die Märchenprinzessin aus 1001 Nacht (Nohr); Der Friedrichshafaer (Carlos); Der deutsche Achter (Carlos); Slow Foxtrot. Es gibt mur eine Liebe (Kinneke); Slow Waltz, Wenn es ein Glück gibt (Böhmelt); Rneinländer, Kannst du pfenen, Johanna? (Axelson); March, Halli und II dlo (Fryberg), 1.0, News. 1.10, Economic Notes and Show Report. 1.15, Talk: Books for Christmas Presents. 1.50, Programme for Dresden Youth. 2.35, Economic Notes. 3.0 to 5.10, See Munich. 5.10, Talk: Isolde Kurz, 5.45, Economic News. 6.0, Transmission for all German Stations, relayed from Frankfurt. 7.0, See Berlin (Deutschlandsender). 7.10, To-day's News. 7.20, Iphigenia—Play (Goethe). 8.10, See Breslau. 9.0, News. 9.20, Sports Notes and News. 9.30, Orchestral Concert. Soloist: Margot Scheler (Sopramo): Overture, Masaniello (Anber); Nachtmusik (Heuherger): Two Songs from Die Schöne Galathee (Suppe): Overture, Die beiden Schützen (Lortzing); Two Cigány Dances (Heidingsfeld): Song from Der Obersteiger (Zeller): Ballet Music from Hamlet (Thomas); Two Songs: (a) Song from

Sur la Campagne endormie (Dupuis); Jour de Récolte (Dupuis); Suite Pastorale (Vreuls), 8.50, News in French. 9.0, Concert by the Station Orchestra, conducted by Pensis: Suite, The Sleeping Beauty (Tchaikovsky); Pavane pour une Infante défunte (Ravel); Polonaise in A (Wieniavski); Norwegian Rhapsody (Svendsen); Marche Russe (Ganne), 9.50, News in German, 10.0, Concert by the Station Orchestra, conducted by Pensis: Waltz, Wiener Bürger (Ziebrer); Tolonggan (Frémaux); The Rosary (Nevin); Wedding Procession from Feramors (Rabinstein), 10.20, Dance Music on Gramophone Records.

MADRID

MADRID

ARANJUEZ, EAQ, 10,000 kc/s, 30 metres; 20 kW.—10,30 p.m., Popular Song Recital. 10,45, Radio Chromele. 11.0, Song Recital (contd.). 12 Midnight till Close Down, Programme in English by the I.B.C. 12 Midnight, Light Music. Flor de Cuba (Conyers); Heaven will protect an honest Girl (Parr-Davies); Headin' for a Weddin' (Adamson); Scot in Exile (Gallatly); The Old Spotted (Cow (Stanly); Milicia de Paz (Reisfeld); The Russian Princess (Kálmán); Beantiful Spring (Lincke). 12.30 a.m. (Wednesday), Accordion Music. March volante (Alexander); Swanee (Gershwin); Waltz, Mircila (Charlier); Beautiful Nice (Latorre); Selection from Viktoria and her Hussar (Abraham); Comedy Overture (Kéler (Héla); Polka, Petit Jean (Cuvelier); Selection from The Land of Smiles (Lehár). 1.0, 1.B.C. Good-night Melody and Close Down.

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange, Announcements and Dance Music. 7.15, Talk by Joaquin España Cantos: Talk on Hygiene, and Dance Music (contd.). 8.15, Radio Journal. 8.30 to 8.45, Interval. 8.45, English Lesson. 9.0, Chimes, Time and Radio Journal. 9.5, See Barcelona.

11.45, Radio Journal. 12.0 Midnight, Chames. 1.0 a.m. (Wednesday) till Close Down, Programme in English by the I.B.C. 1.0, Light Music: Cornflowers and Poppies (Ancliffe); El Albanco (Javaloyes); Blues I love to sing (Ellington); There's a House on the Hill (Meyer); Swanee (Gershwin); There's magic in the Air (Eyton); Hobo. you can't ride this Train (Armstrong); Bananas (Whitcup), 1.30, Popular Music: Hot Scotch (Whitlock); Selection from A Bedtime Story; Cuban Love Song (Stothart); A Penny for your Thoughts (Cuevas); Lady, play your Mandoline (Levant); Waltz, Sipetife (Gaston); Flower of Hawaii (Abraham); That's my Home (Roné). 2.0 a.m., I.B.C. Goodinght Melody and Close Down.

MALMO.-See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.--6.0 p.m. till Close Down, See Prague,

MOTALA.-See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

MUNICH

563 kc/s, 533 metres; 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 550 metres; and Nürnberg, 1,256 kc/s, 239 metres.—1.20 p.m., Vocal and Instrumental Concert; Erik Jörgensen (Baritone). Carl Bergner (Pianoforte), Käte Krug (Soprano); Three Baritone Solos (Grieg): (a) Letzter Frühling, (b) Ein Schwan, (c) Eros; Pianoforte Solos: Three Romances, Op. 28 (Schumann); Soprano Solos (Schumann): (a) Die Blume der Ergebung, (b) Viel Glück zur Reise, Schwalben! (c) Du nennst mich armes Mädehen, (d) Der Sandmann, (e) Herbstlied, (l) Ins Freie; Three Songs (Weingartner): (a) Wenn schlanke Lilien wandelten, (b) Ich denke oft ans blane Meer. (c) Unter Sternen, 1.50, Programme for Housewives. 2.30, A Soldier Discusses some War Books. 2.50, Weather and Agricultural Notes. 3.3, Ordestral Concert, conducted by Winter; Soloist: Berber (Violin): Overture, Cosi fan tutte (Mozart); The Clock Symphony (Haydn); Italian Serenade for Small Orchestra (Wolf); Violin Concerto in B Minor Op. 75 (Thomassin); Second and Third Movements Symphonie in C (Schubert); Mephisto Waltz (Lizzt). 4.30, Talk on Insects. 4.50, Adolf Vogel Song Programme, the Composer at the Plauoforte, 5.10, Children's Programme. 5.30, Grannophone Records, 5.45, Time and Weather Report. 6.0, Transmission for all German Stations, relayed from Frankfurt. 7.0, See Berlin (Deutschlandsender). 7.10 to 8.10, See Leipzig, 8.10, Programme relayed from Leipzig. 11.0 (approx.), Close Down.

NAPLES .- See Rome.

NOTODDEN-See Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Rjukan, 671 kc/s, 447.1 metres; Rjukan, 671 kc/s, 447.1 metres, and Jeldy, LCL, 6,990 kc/s, 447.1 metres, and Jeldy, LCL, 6,990 kc/s, 42.92 metres,—4.0 p.m., Concert by the Radio Ensemble, conducted by Johannessen, relayed from Bergen, 824 kc/s, 364 metres: Extracts from Eine Nacht in Venedig (Joh. Strauss); Four Indian Love Lyries (Woodforde-Finden); Humarian Melodies (Padouk); Minuet in G (Beethoven); Triume (Wagner); Dance of the Waves (Catalani); March of the Gladiators (Blankenburg). 5.0, Talk for Housewives. 5.30, Talk on Christmas, relayed from Trondheim, 605 kc/s, 495.8 metres. 5.45, Accordion Solos by Torleif Tollefsen. 6.0, Announcements, Weather and News. 6.30, English Lesson. 7.0, Time Signal. 7.1, Concert by the Station Orchestra, conducted by Kranmi, Overture, Elverhög (Kuhlan); Symphonic Poem. Korsholm (Järnefelt); St. John's Eve, Idyli for String Orchestra (Hoter); Peasant Wedding (Södermann); Suite (Hurum). 8.10, Talk; The Problem of Cooperation, relayed from Bergen. 8.40, Weather and News. 9.0, Topical Talk, 9.15, Recital of Old and New Songs. 9.45 (approx.), Close Down.

OSTERSUND.-See Stockholm.

PALERMO

556 kc/s, 539.5 metres; 3 kW.—7.0 p.m.,
Dopolavoro Notes, Tourish Report, Agricultural Notes and Giornale Radio. 7.20,
Gramophone Records. In the interval at
7.30, Time and Announcements. 7.45, Othello
—Opera in Four Acts (Verdi). In the intervals, Talk and Announcements. 10.0,
Giornale Radio.

PARIS

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m., (Preliminary and 6-dot Signals).—5.45 p.m., Le Jonrnal Parlé. In the interval at 7.30, Gramophone Music. 8.30, Dramatic Programme.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Gramophone Music. 7.5, A Short Film. 7.15, Journal Parlé. 7.30, Gramophone Concert. 8.0, Legal Talk. 8.5, Film Review. 8.35, Lottery Results relayed from the Trocadero. 10.30, News.

PARIS

PARIS

RADris PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—6.45 a.m., Gymnastics. 7.0, Interval. 7.30, Weather and Physical Culture, 7.45, Gramophone Music. 8.0, News. 8.30, Interval. 12 Noon, Gramophone Records for Children. 12.30, Gramophone Concert: Aria form Fortunio (Messager); Berceuse from Louise (Charpenticr); The Children's Symphony (Haydn); La boite à joujoux (Debussy); Lauterne magique (Godard); Le beau Luin (Dalerge); Le petit qui ne mange pas sa soupe (Dalerge); Les Mamans (Delmet); La Lettre du Jarninier (Tournier); La vieille channinée (Desmoulin-Donnnel); La Grand'mere et la petite fille (Jouasson-Max); Parlez-moi d'amour (Lenoir); Wedding Waltz (Lincke); Les vieilles Larmes (Millandy); Sous notre petit toit (Raiter); Carillon du soir (Rodronov); Les Lettres que l'on garde (Scotto); Ma Poupée chérie (Sévérae); Melody (Stolz). In the interval at 1.0, Exchange and News. Concerto No. 2 (Rachmaninov). 2.0, Exchange and News. 2.5, Announcements. 3.45, Exchange and Market Prices. 4.30, Elementary English Lesson. 4.50, Interval. 6.20, Weather, Agricultural Report, Exchange and Market Prices. 6.40, German Lesson. 7.0, Talk on Art. 7.20, Gramophone Records. 7.45, Review of the English Press, News and Commercial Prices. 8.0, Les Saltimbanques—Operetta (Ganne). In the interval at 8.30, News, Weather and Review, and at 9.15, News.

PITTSBURGH

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by WSK on 48.86 metres and 25.27 metres.—7.0 p.m., Four Aces. 7.15, Musical Originalities, from New York. 7.30, KDKA Home Forum. 8.0, Rochester Orchestra, from New York. 9.0, Betty and Bob, from New York. 9.15, Congress of Clubs. 9.30, News and Markets. 9.45, Brown Palace Orchestra, from New York. 10.15, KDKA Kiddies' Klub. 10.30, The Singing Lady, from New York. 10.45, Orphan Annie, from New York. 11.0, News, Pat Ilaley. 11.15, Sports, Programme Review. 11.30, Evensong. 11.45, Lowell Thomas, from New York. 12 Midnight, Amos 'n' Andy, from New York. 12 Midnight, Amos 'n' Andy, from New York. 12.30, What would you do? 12.45, Programme to be announced. 1.0 to 2.30, New York Itelay. 1.0, Crime Clues. 1.30, Adventures in Health. 1.45, Trade and Mark. 2.0, Musical Memories. 2.30, Programme to be announced. 3.0, Ortiz Tirado, from New York.

PORSGRUND.—See Oslo.

PRAGUE

PRAGUE
614 kc/s, 488.6 metres; 120 kW.—3.0 p.m.,
Concert by Jaroslav Cech and his Orchestra.
3.55, See Brno. 4.15, Economic Notes. 4.25,
Gramophone Records. 4.35, German Conversation Lesson. 4.50, Gramophone Records.
5.5, Exchange. 5.15, Talk for Workers. 5.25,
News in German. 5.30, German Transmission: Song Recital by Grinfeld. 6.0, Time
and News. 6.10, Concert by the Sokol Philharmonic Orchestra, conducted by Kos, the
Hradec Králové String Quartet, and the
Nepasice Choir, relayed from Hradec Králové. Festival Overture in C (Smetana);
Two Addresses; Symphonic Poem, Spring.
Op. 13 (Fibieh); Talk: Hradec Králové in the
Past and To-day; Czech Quartet (Malat);
Recitation; Male Voice Choir; Six Songs;
Talk with Recitations, Hradec Králové in the
Literature; Mixed Choir; Saered Picee
(Zich). After the Concert, On the Walls—
Historical Scene (Tersi). 9.0, Time and
News. 9.15, Gramophone Records. 10.0
(approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW., and
Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15
a.m. (from Lausanne), Gynmasties. 11.28,
Time Signal from Neuchâtel Observatory.
11.30, News and Weather. 11.40 (from Lausanne), Gramophone Concert. 12 Noon (from
Lausanne), Financial Notes. 12.10 p.m.
(from Lausanne), Gramophone Concert
(contd.). 1.0, Interval. 2.58, Time Signal
from Neuchâtel Observatory. 3.0 (from
Lausanne), Concert by the Small Radio Lausanne Orchestra, conducted by Moser. Part
I—Chamber Music. Au Village—Quintet for
Flute, Clarinet. Violin. Viola and Double
Bass (Slavenski); Cettic Trio for Violin,
Viola and 'Cello (Hennessy). Part II—Overture, Ruy Blas (Mendelssolm); Waltz from
Faust (Gounod); Intermezzo, Brisc de mer
(Leoncavallo); Verdi Opera Potpourri (Weninger). Part III—Folk Music. Part IV—
Dance Music. 5.0 (from Lausanne), Programme for Women. 5.30 (from Lausanne),
Talk on the Seout Movement. 5.55 (from
Lausanne), Talk on Elocution. with Illustrations.
6.59 (from Lausanne), Weather Report. 7.0

DEC. 19th TUESDAY continued

(from Lausanne), Sonata in D. Op. 58, for Pianoforte and 'Cello (Mendelssohn). 7.30 (from Lausanne), The Cricket on the Hearth—a Play in Three Acts (Ludovic de Francmesnil), after Charles Dickens. 9.15, News and Weather. 9.30 (approx.), Close Down.

RJUKAN .- See Osio.

ROME

ROME

Call 180, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres from 7.40 p.m.; and 280, 11,810 kc/s, 25.4 metres.—12 Noon to 1.15 p.m., Trio Concert from Turin. In the intervals from 12.30 to 12.45, Giornale Radio and Exchange and at 1.0, Time and Aunouncements. 3.30, Children's Radio Review. 3.55, Giornale Radio and Exchange. 4.10, Orehestral Concert. 4.55, Weather. 5.0, Wheat Market Report. 5.10 to 5.20, Dopolavoro and Tourist Report. 5.45 (Naples), Shipping and Sports Notes. 5.50, Lesson in Morse and Dopolavoro Report. 6.0, News in Foreign Languages. 6.30, Gramophone Music. 7.30, Government Announcements and Gramophone Music. 7.15, Light Music on Gramophone Music. 7.30, Government Announcements. 7.40, Concert by the Rome Quart-t. Soloist: Enza Motti-Messina (Soprano). Quartet in E (Paganini); Songs, Une Fête slave—Symphonic Sketch (Glazunov). After the Concert: La partenza per l'Asia (The Departure for Asia)—Play in One Act (Lucio d'Ambra). 9.0, Request Concert. 9.30, Programme of Light Music and Danee Music. 10.0, Giornale Radio.

SALZBURG.—See Vienna.

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAF on 19.56 metres.—12.45 a.m. (Wednesday), Stock Reports. 1.0 to 3.45, New York Relay. 1.0, Variety Programme. 1.30, Wayne King's Orchestra. 2.0, Ben Bernic's Orchestra. 2.30, Ed Wynn and the Fire Chief Orchestra. 3.0, Popular Programme. 3.30, Madame Sylvia of Hollywood. 3.45, Piano Pals and Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; Basle, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—5.50 to 6.5 a.m. (Basle), Gynnustics. 9.20 (Basle), Broadcast for Schools. 9.50, Interval. 11.0 (Zürich), Talk for Houscwives. 11.5 (Zürich), Orchestral Concert. 12.25 p.m. (Zürich), Time, Weather and Exchange. 12.35 (approx.), Interval. 2.30 (Zürich), Concert by the Small Station Orchestra, conducted by Max Scherbaum. 2.59, Time Signal from Neuchâtel Observatory. 3.0, See Radio Suisse Romande. 5.0 (Berne), Gramophone Concert. 6.0 (Berne), Time and News. 6.10 (Berne), Talk: What the beginner must know about fee Hockey. 6.20 (Berne), Programme to be announced. 8.0, News. 8.10 (Berne), A (Prismas Carol-Radio Play after Charles Dickens. 9.15 (Berne), Talk in English: Ice Hockey in Switzerland. 9.25 (approx.), Close Down.

SOTTENS.-See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Côteborg, 332 kc/s, 322 metres; Hörby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres; Ostersund, 402 kc/s, 746.2 metres, and Sundsvall, 554 kc/s, 542 metres.—4.5 p.m., Programme for Children. 4.45, Gramophone Musie. 5.45 (from Gôteborg). Talk on Architecture. 6.15, Weather and News. 6.30, Talk on Beonomics. 7.0, Choral Concert, conducted by Felix Körling, relayed from Halmstad, 1,391 kc/s, 216 metres. Soloist: Sten Carlsson (Horn). Piece (Handel): Agnus Dei (Gounod); O salutaris (Gounod); Pastorale for Horn and Pianoforte (Körling); Melody (Rubinstein): Piece (Schönning); Dance (Körling); Butterfly (Fromm); Viking's Song (Coleridge-Taylor): Waltz Song (Pestalozza). 7.45, Talk: Swedish Self-Government. 8.15, Violin and Pianoforte Sonata in Aminor, Op. 19 (Wilhelm Stenhammar). 8.45, Weather and News. 9.0, Variety Programme by Hilmer Borgeling (Songs), Johnny Schöning (Country Airs), Calle Johansson (Reading), and a Bassoon Quartet. 10.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—10.30 a.m., Orehestral Concert relayed from Toulouse (PTT), 1,176 kc/s, 255.1 metres. 12 Noon,

Orchestral Concert, conducted by Maurice de Villers. 12.45 p.m., News, Time and Exchange. 1.5, Orchestral Concert (contd.): Joyeuse Marche (Chabrier); Orchestral Suite from The Sleeping Beauty (Tchaikovsky); Norwegian Rhapsody (Lalo); Selection from The Fair Maid of Perth (Bizct). 2.0, Interval. 4.45, Talk: The Colonies—Syria. 5.0, Concert of Light Music, conducted by Roskam: King Carnival, March (Rosey); Waltz, Früllingsliebe (Joh. Strauss); Romantic Song (Démaret); Hungarian Comedy Overture (Kéler-Béla); Selection from La Bohème (Puccini); Aubade (Heykens); Intermezzo, Galanterie (Vaulet); Selection from La Habanera (Puccini); Aubade (Heykens); Anternezzo, Galanterie (Vaulet); Solection from La Habanera; Chants de Villers, Soloist: Marthe Manlet (Soprano): Selection from La Habanera; Chants de la Meret des Villages; Orchestral Suite, Un Dimanche Basque; Chants de la Mer et des Villages; Au jeu de la Pelote. 7.30, Time and News. 7.45, Gramophone Records. 8.0, Press Review in German, Lottery Results and News. 8.30, Gala Programme, relayed from Paris. 10.30 (approx.), Press Review.

STUTTGART

STUTTGART

MUHLACKER, 832 ke/s, 360.5 metres; 1.5 kW. Relayed by Freiburg, 527 ke/s, 570 metres.—12.25 p.m., News and Weather Report. 12.35 to 1.30, Gramophone Concert: Caruso: Two Arias from The Pearl-Fishers (Bizet); Intermezzo from Cavalleria Rusticana (Mascagni); Gigli: Drinking Song from Cavalleria Rusticana (Mascagni); Your Tiny Hand is Frozen, from La Bohème (Puccini); Alessandro Valente: Two Arias from Turandot (Puccini); Potpourri from La boutique fantasque (Rossini-Respighi); Aureliano Pertile: Aria from Luisa Miller (Verdi); Renato Zanello: Othello's Death, from Othello (Verdi); Overture, The Barber of Seville (Rossini); Caruso: Good-bye (Tosti). 2.0, Talk on Flowers. 2.30, Peter Cornelius Song Recital by Bruno Müller (Baritone). 3.0, Concert by the Station Orchestra. conducted by Otto Seyfert; Solo Violin, Helmut Schnahmacher: Feldpartita (Haydn); German Dances (Beethovn); Invitation to the Waltz (Weber-Berlioz); Waltz, In lauschiger Nacht (Ziehrer); Gramophone Records: Overture to a Revue (Lineke); Selections from The Bird Fancier (Zeller); Waltz, Wo die Zitonen blühen (Joh. Strauss); Gramophone Records: Selection from The Merry Widow (Lehár). 5.0, See Frankfurt. 5.35, Market Prices and Agrienltural Notes. 5.50, Time and Weather Report. 6.0, See Frankfurt. 7.0, See Berlin (Deutschlandsender). 7.10, See Langenberg. 7.30, Part Relay of the Ljublijana, Zagreb, and Belgrade Exchange Programme. Part I. See Ljublijana. 7.50 to 9.0, See Langenberg. 7.30, Part Relay of the Ljublijana, Zagreb, and Belgrade Exchange Programme. Part I. See Ljublijana. 7.50 to 9.0, See Langenberg. 9.45, Gramophone Records: 10.0, Winter Joys.—Variety Programme. 11.0, See Frankfurt. 11.45 (approx.), Close Down.

SUNDSVALL.-See Stockholm.

TOULOUSE

TOULOUSE

779 kc, s, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Light Music. 6.30, Music from Sound Films. 6.45, Talk: The French Colonies in Africa. 7.0, Music by an Argentine Band. 7.15, News. 7.30, Scenes alsaciennes (Massenet), by the Station Orchestra. 7.45, Opera Arias: Arias from Philémon et Baucis (Gounod), Les Huguenots (Meyerbeer). Il Trovatore (Verdi). 8.0, Light Music. 8.15, Chansonnettes. 8.30, Operetta Music: Aria from Le Comte Obligado (Moretti); Overturc, Les dragons de Villars (Maillart); Selection from Rose Marie (Friml). 8.45, Organ Recital. 9.0, At the Music Hall—A Radio Fantasy. 9.30, Music by a Viennese Orchestra: Narcissus (Nevin); Valse bleue (Margis); Selectrom from Maritana (Wallace). 9.45, Opera Arias: Arias from Lohengrin (Wagner), Faust (Gounod), and Hérodiade (Massenet). 10.0, Light Music. 10.15, News. 10.30, Concert for Listeners in Morocco. Part I: Songs. Part II: Opera Music. Overture, Mignon (Thomas); Selection from Cavalleria rusticana (Maseagni); Intermezzo from I Pagliacci (Leoncavallo), 11.0, Hawaiian Guitar Music. 11.15, Dance Music. 12 Midnight, News, Weather and Announcements, 12.5 a.m. (Wednesday), Opera Arias: Arias from Le châlet (Adam), Le roi d'Ys (Lalo). 12.15, Orchestral Music: From the Rhine to the Danube (Rhode); Overture, Raymond (Thomas). 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.-4.10 to 7.30 p.m., See Turin. 7.30, See Rome. 7.40, See Turin.

TRONDHEIM,-See Oslo.

TURIN

10RIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 598 kc/s, 501.6 metres.—4.10 p.m., Dance Music. 4.55, Weather. 5.0 to 5.20, Agricultural Notes, Wheat Market Report. Dopolavoro Announcements and Report of the Royal Geographical Society. 6.0, Time and News in Foreign Languages. 6.30, Gramophone Records. 6.50, Announcements. Giornale Radio, Weather and Gramophone Records. 7.30, See Rome. 7.40, Hans the Flute Player—Operetta in Three Acts (Ganne). In the intervals, Talk and Literary Notes. After the Programme, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in English. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurl, 662 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres, and Salzburg, 1,373 kc/s, 215.8 metres,—11.0 a.m., Concert by the Wiener Symphoniker, conducted by Max Schönherr: Overture. Hunyadi Laszlo (Erkel); Andante from the String Quartet No. 2 (Borodin); Suite from Les Millions d'Arlequin (Drigo); Waltz Pikanterien (Lehar); Potpourri, Hellmesbergeriana (Ischpold). 12 Noon, Time. Weather and Announcements. 12.10 to 1.0 p.m., Concert (contd.): Invitation to the Dance (Weber); Three Pieces (Nedbal): (a) Dunka, (b) Krakowiak, c) Mazurka; Selection from Die Puppenfee (Bayer); Waltz, Wiener Stimmen (Jos. Strauss); Overture. Der Hofnarr (Müller). 2.0 p.m., Time. Weather and News. 2.15, Concert by a Children's Choir. 2.40, Gymnastics. 2.55, Opera Music (on Gramophone Records): Extracts from Tristan and Isolda (Wagner), Il Trovatore (Verdi). Norma (Bellini), Rigoletto (Verdi). Faust (Gounod). and Boris Godunov (Mussorgsky). 3.35, Handwork Lesson. 4.10, Talk. 4.25, Violin Recital by Jaro Schmied. 5.5, Educational Talk for Young People. 5.30, Elementary French Lesson. 6.10, Wireless Notes. 6.20, Time, Weather and Announcements. 6.30, Advent Concert by the Gregorian Seminary (Thoir, conducted by Wilhelm Kosch, and the Vienna Boys' Choir, conducted by Erika Rokita: Recitations by Paul Hartmann and Address by Kurt Schuschnigg, the Minister of Education. 7.30, Relay of the Last Part of the Oxford University v. Vienna Ice-Hockey Match. 8.50, News and Weather. 9.5, Concert by the Wiener Symphoniker, conducted by Max Schönherr. Announcement after the Concert.

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—10.57
a.m., Time and Fanfare from St. Mary's
Church, Cracow. 11.5, Concert by the
Seredynsky Chamber Orchestra relayed from
Lwów, 788 kc/s, 381 metres: Overture, Orpheus in the Underworld (Offenbach);
Waltz. Wine, Woman and Song (Joh.
Strauss); Suite (Thicle); Love Song (Paderevsky); In the Shadows (Finek); March,
Per aspera ad astra (Urbach). 11.30, Radio
Journal. 11.35, Weather. 11.38, Concert relayed from Lwów (contd.). 12.0 Noon to
2.25, Interval. 2.25, Announcements. 2.30,
Economic Notes. 2.40, Songs on Gramophone Records. 3.25, Talk: The Savings
Bank. 3.40, Polish Lesson. 3.55, Polish
Chamber Music by a String Quartet No. 2 in
C (Maliszewsky). 4.50, Agricultural Report.
5.0, Talk: Poland To-day. 5.20, Music
Talk. 5.35, Song Recital by Mme. Maric
Ronska: Quella flamma (Marcello); La princesse cnehantée (Borodin); None but the
weary Heart (Tchaikovsky); Night (RimskyKorsakov); Two Songs (Poldowska); La
Rencontre (Sibelius). 6.0, Programme
Announcements. 6.5, Miscellaneous Items.
6.25, Topical Talk. 6.40, Sports Notes.
6.27, Radio Journal. 7.0, Der Kleine Konlg
—Operetta in Three Acts (Kalman). In
the interval at 8.0 (approx.), Reading. 9.30,
Dance Music relayed from the Gastronomila
Restaurant. In the interval at 10.0,
Weather and Police Notes.

ZAGREB

977 kc/s, 307 metres; 0.75 kW.—6.25 p.m.,
Book Review. 6.40, Announcements. 7.10,
Science Talk. 7.30 to 8.30, Ljubljana,
Zagreb and Belgrade Exchange Programme.
7.30, See Ljubljana. 7.50, Yugoslav Songs
by a Mixed Choir and Maja Cniljusae
(Soprano). 8.10, See Belgrade. 8.30,
Gramophone Records. 9.0, News, Weather
and Programme Announcements. 9.15,
Dance Music. 10.0 (approx.), Close Down.

ZURICH.-See Schweizerischer Landessender.

ALGIERS

ALGIERS

825.5 kc/s, 363.3 metres; 13 kW.—7.10 p.m., Shipping Notes. 7.15, Weather. 7.20, Songs from Sound Films. 7.40, Art Notes. 7.55, News. 8.0, Time. 8.2, Lottery Results. 8.10, Concert by the Station Orchestra. conducted by Defosse; Soloist: Le Meitour (Violin): Overture, Don Giovanni (Mozart); Violin Concerto (Mendelssohn). 8.50, News. 9.0, Concert (contd.): Songs with Orchestral accompaniment: (a) Aria from Rigoletto (Verdi). (b) Waltz from Les cent vierges (Lecocq); A Night on the Bare Mountain (Mussorgsky). 9.40, News. 9.45, Xylophone Solos. 9.55, News. 10.0, Dance Music, relayed from the Casino.

ATHLONE

ATHLONE

725 ko/s, 418 metres; 60 kW. Relayed by Dublin, 1,382 ko/s, 217 metres, and Cork, 1,337 ko/s, 224.4 metres.—1.30 to 2.30 p.m., Time Signal, Weather Report. Stock Report and Gramophone Concert. 6.0, Programme for Children. 6.45, News. 7.0, Gaelic Talk. 7.15, German Lesson. 7.30, Time Signal. 7.31, Military Band Concert. 8.30, Soprano Solos by Mme. K. McCaffery. 8.45, Talk: The Catholic Heritage in English Literature. 9.15, Gaelic Songs by A. O. Muimbneachain. 9.30 to 10.30, Programme by the LB.C. (Irehand). Ltd. 9.30, Dance Music: Oh, Johanna; If I had some one to love; If you'll say Yes, Chérie; I'm getting sentimental over you. 9.45, Dance Music: Signature Tune, There's a New Day Comin'; My imaginary Sweetheart; Just a Year ago tonight; Feeling gay; Gotta go; Signaturs Tune, There's a New Day comin'. 10.0, Concert arranged by the International Broadcasting Company (Ireland). Ltd.: Persian March (Friml); The Glow-Worm's Idyll (Siede); Hungarian Medley (arr. Legget); Selection from The Belle of New York (Kerker); Racing Commentary by the Irish Hospitals' Special Racing Commissioner; Sicilietta (von Blon); Connin' through the Rye; Waltz, The Blue Danube (Strauss). 10.30, 1.B.C. Goodnight Melody, followed by News and Weather. 10.40, Violin and Pianoforte Recital by J. Malcolm and A. Healy. 11.0 (approx.), Close Down.

BARCELONA

BARCELONA

EAJ1, 861 kc/s, 348.4 metres; 8 kW.—
6.0 p.m., Trio Concert, Rondo pastoral on a Theme of Beetloven (Tavan); Nachtlied (Schumann); Serenata (Douliez); Selection from The Barber of Seville (Rossini); Romance (Cui); Venetian Gondolas (Leemans); Selection from Parsifal (Wagner). 7.0, Request Gramophone Music. 7.30, Exchange and Gramophone Music (contd.). 8.0, Gramophone Music. 8.0, Educational Programme and News. 9.0, Chimes, Weather, Exchange and Market Prices. 9.15 (approx.), Concert of Sardanas. 9.45, Concert by the Radio Orchestra. 10.10, El Gordo de Navidad (the First Prize in the Christmas Lottery—Comedy in Two Acts (Nicto). In the interval at 11.0, News. 1.0 a.m. (Thursday) till Close Down, Programme in Buglish by the I.B.C. 1.0 Light Music. Beautiful Spring (Lincke); Only a Rose (Frimly); Hawaiian Hotel (Traditional); Scherzo from Sylvia (Le Thiere); Rosa del Rio (Alexander); Restless fingers (Cuvelier); Song, March of the Musketeers (Wodchouse); Her Name is Mary (Sievier). 1.30, Dance Music. Let's all be happy Together: A Woman should stick to her Man; My Kingdom for a Smile from You; I'm getting Sentimental over You; Headin' for a Weddin'; I raised my Hat; There's a Cabin in the Pines; I cover the Water Front. 2.0, L.B.C. Good-night Melody and Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—4.10 to 7.0 p.m., See Rome. 7.0 to 7.15, News in Albanian. 7.30 (approx.) till Close Down, See Rome.

BASLE .- See Schweizerischer Landessender.

BELGRADE

BELGRADE

87 kc/s, 430.4 metres; 2.8 kW.—4.30 p.m.,
Dance Music by the Milan Urosevic Orchestra. 5.55, Time Signal and Programme
Announcements. 6.0, Dance Music on
Gramophone Records. 7.5, Symphony Concert, relayed from Vienna. 9.0, Time Signal
and News, followed by Cigány Music, relayed from the Dva Jelena Restaurant.
9.45, Dance Music on Gramophone Records.
10.0 (approx.), Close Down.

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHSSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—
12.45 p.m., News. 1.0, Gramophone Concert.
1.50, Programme for Children. 2.10, Talk for the Housewife. 2.30, Weather and Exchange. 2.45, Reading of a Christmas Story (Peter Dörfler). 3.0, Sec Leipzig. 3.40, Radio Report: The Winter Relief Fund. 4.0, See Munich. 4.28, Topical Talk. 4.30, Recital of German Folk Song Duets with Lute Accompaniment. 5.0, Poems. 5.5, Address and Organ Solos. 5.30, German Folks and Organ Solos. 5.30, German Stations, relayed from Berlin (Funkstunde). 7.0, Today's Motto. 7.5, Concert by the Berlin Phillarmonic Orchestra, conducted by Peter

DECEMBER THE TWENTIETH

Raabe: Soloist, Adelheid Holz (Songs); Passacaglia and Fuge (v. Baussnern); der Apollopriesteria (R. Strauss); Orchestrat Suite (Stephan); Glockenlieder von Schill-ings); Fourth Symphony (Brahms). 9.0, News and Sports Notes. 9.30, Technical Wireless Talk. 9.45, Weather. 10.0, Con-cert from Breslau. 11.0 (approx.), Close Down.

BERLIN

BERLIN

FUNKSTUNDE, 832 kc/s, 360.5 metres; 1.5 kW. Relayed by Zeesen DJC, DJA, DJD, DJB, and DJE (See Short-Wave List).—5.30 p.m., The Funkstunde informs its Listeners... 5.35, Review of the Week, 6.0, Transmission for all German Stations, Fourth Symphony in E Flat (Bruckner) by the Station Orchestra, conducted by Eugen Jochum. 7.5, The Twelve Follies—a Morality Play. 8.5, The Four Seasons—Four Oncertos for Violin, Harpsichord, and Strings (Vivaldi); by Max Strub (Violin), Alexander Ecklebe (Harpsichord), and a Chamber Orchestra, conducted by Hans von Benda. 9.0, News and Sports Notes. 9.30, Dance Music, relayed from the Eden Hotel. 11.0 (approx.), Close Down.

BERNE,-See Schweizerischer Landessender.

BEROMUNSTER. — See Schweizerischer Landessender.

BODEN.-See Stockholm.

BODO.-See Oslo.

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—7.35 p.m., News and Market Prices. 7.40, Agricultural Report. 8.15, News. 8.30, Concert of Light Music with Songs. After the Programme, Amusement Guide and Time Signal.

BRATISLAVA

1,073 kc/s, 279.5 metres; 14 kW.—4.55 p.m., Hungarian Programme for Children— Christmas Tales, Poents, and Songs. 5.55, Talk for Honsewives. 6.0, See Prague. 6.25, Gramophone Records. 6.40, See Prague. 9.15 (approx.), Close Down.

BREMEN.-See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—1.15 p.m., Weather. 1.20, Programme arranged by the Post Office with Gramophone Records. 2.0, Market Prices and Exchange. 2.10 (from Gleiwitz), Franz Herwig Memorial Programme. 2.30, Talk for Parents. 3.0 to 5.10, See Leipzig. In the interval at 4.0, See Munich. 5.10, Market Prices. 5.15 (from Gleiwitz), Review of Periodicals. 5.30, Programme to be announced. 5.45, Programme Announcements, Weather and Meat Market Prices. 6.0, Transmission for all German Station, relayed from Berlin (Funkstunde). 7.0, See Leipzig. 7.10, Community Singing, relayed from the Südpark-Restaurant. 8.0 to 9.0, See Munich. 9.0, See Leipzig. 2.20, Time, Weather, Sports Notes and Local News. 9.35, Concert by the Station Orehestra, conducted by Rischka. Overture, Marinarella (Fucik); Polka-Mazurka, Maiglöckchen (Dittrich); Xylophone Solo; Austrian Peasant Dances (Pachernegg); Overture to a Revue (Lincke); Overture, Fra Diavolo (Auber); Selection from The Merry Wives of Windsor (Nicolai); Waltz from Faust (Gonnod); Pizzicato-Polka (Joh. Strauss); Trumpet Solo: Ich hab a mal a Rauscherl g'habt (Kapeller); Gondellieder-Walzer (Dellinger); Basson Solo: Der alte Brunnimbar (Fucik); Potpourri, Operetten-Revue (Fetras). 11.0 (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—5.25 p.m.. German Transmission: News, Talk for Women and Talk for Workers. 6.0, See Prague. 6.25. Saxophone Recital by Bystricky. 6.40, to 9.30, See Prague. 9.30 (approx.), Close

BRUSSELS (No. 1)

BRUSSELS (No. 1)
1.N.R., 589 kc/s, 509.2 metres; 15 kW.—12
Noon, Concert by the Radio Orchestra. conducted by Walpot: March (Grillaert); Waltz, Retour au foyer (Closset); Overture, La dame blauche (Boieldieu); Intermezzo, Lettre à Manon (Gillet); Songs from Paganini (Lehár). Vibraphoue Solo: Love Serenade (Löhr); Ballet Music from The Queen of Sheba (Gounod); A toi, Mouscron (Busschaert). 1.0 p.m., Le Journal Parlé. 5.0, Concert by the Small Station Orchestra, conducted by Lecmans: Sonata for Pianoforte, Violin, Violia and 'Cello (Loeillet): Concerto for Violin and String Quartet (Tartini-Chaumont); Quintet with Charinet (Mozart); Suite in Old Style for String Quintet (Gilson). 6.0, Talk for Housewives. 6.15, Gramophone Concert: Polonaise in A flat (Chopin-Prévost); Comme use pâle fleur

(Thomas). Saxophone Solo: Schön Rosmarin (Kreisler); Les deux cœurs (Fontenailles); Introduction and Cortège (Boulanger); La colondrina (Serradell). 6.40, Millionaire—Sketch (Gabel). 7.0, Poèrne (Chausson), on Gramophone Records. 7.15, Talk: The Struggle against Tuberculosis. 7.30, Medical Talk. 8.0, Kaatje—Opera (Buffin). In the intervals at 8.25 and 8.55, Gramophone Music. 10.0, Le Journal Parlé.

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.I.R., 888 kc/s, 337.8 metres; 15 kW. Programme in Flemish.—12 Noon, Concert by the Max Alexys Orchestra. 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Radio Orchestra, conducted by Walpot: Overture, Chal Romano (ketelbey); Belgian Military Waltz (Frémaux); Anbade printaniere (Lacombe); Viennese Operetta Revue (Robrecht); Ballet égyptien (Luigini). 5.0, Dance Music, relayed from the St. Sauveur Palais de Danses. 6.0, Concert of Chamber Music hy the Brussels Trio: Trio in C minor (Beethoven); Trio in B flat (Schubert); Introduction and Double Fugue (Moulaert). 7.15, Protestant Address. 7.30, Talk: Our Commercial Relations with Seandinavian Countries. 8.0, Concert by the Radio Orchestra, conducted by Walpot. Soloist: Muchaelbelloy (Songs): March, Holidays (Lauwcryns); Overture, Les moulins qui chamtent (Oost); Waltz, Je t'aime (Waldteufel); Selection from The Merry Peasant (Fall). Songs: The Student passes by (Ibañez). 8.45, Reading. 9.0, Orchestral Concert (continued): Overture. Banditenstreichen (Suppé); Waltz from Christ'i (Jarno); Song from The Land of Smiles (Lehár); Songs from Christ'i (Jarno); Ballet Music from Coppélia (Delibes); Waltz from Faust (Gounod); On with the Show (Nicholls). 10.0, Le Journal Parlé.

BUCHAREST

BUCHAREST

760 kc/s, 394.7 metres; 12 kW.—4.0 p.m.,
Concert by the Station Orchestra: Soloist:
Teodoru (Violin); Overture, The Magic
Flute (Mozart); Suite from Sigurd Jorsalfar
(Grieg); Wo die Zitronen blüh'n (Joh.
Strauss); Violin Nolo: Prelude to Le Déluge
(Saint-Saëns); Ballet Snite No. 1 (GluckMottl); Two Preludes (Nottara); Slav Rhapsody (Dvorak); Slav Dance No. 4 (Dvorak);
Rustie Divertissement (Dragoi). In the
interval at 5.0, Redio Journal. 6.0, Educational Talk. 6.20, Gramophone Records. 6.45,
Talk. 7.0, Trio for Pianoforte, Violin and
'Cello (Pizzetti). 7.30, Talk. 7.45, Song
Recital by Nina Aurelina; Sento nel core
(Searlatti); Dance (Durante): Aria from
Tosca (Puccini); Aria from Andrea (Chenier
(Giordano); Mal d'Amore (Buzzi-Peccia).
8.15, Pianoforte Recital by Nicolo Chili;
Gavotte (Gluck-Brahms): Three Picces
(Chopin): (a) Prelude, Op. 28, (h) Etnde,
Op. 10, No. 3, (c) Waltz, Op. 64, No. 2, Three
Pieces (Chilf): (a) The Shepherd, (b) Popular
Romanian Dance, (c) Etndes. 8.45,
Radio Journal. 9.0, Popular Romanian
Music by the Station Orchestra, conducted
by Dinico.

BUDAPEST

BUDAPEST

545 kc/s, 550.5 metres; 120 kW.—Also relayed on 840 metres from 7.0 p.m. till Close Down.
4.0 p.m., Preparations for Ski-ing. 4.36, Clarinet Recital by Paul. 5.0, Italian Lesson. 5.30, Concert by the Béla Rácz Cigány Band. 6.30, Reading. 7.0, Song Recital by Edith Diosy. 7.40, The Tiger. One Act Play (Brisebarre). 8.30, News. 8.50, Gramophone Records. 9.45, Orchestral Concert, conducted by Zsolt. Overture, Peter Schmoll (Weber); Serenade (Mozart); Dauce of the Sylpha (Berlioz); Suite, Georges Dandin (Richard Strauss).

CASSEL.-See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 250 kc/s, 1,153.8 metres; and Skamlebaek, OXY, 31.51 metres.—11.0 a.m., Time Signal and Chimes from the Town Hall. 11.15, Broadcast for Schools—Religious Address. 11.45, Concert by the Bendix String Ensemble, relayed from the Wivex Restaurant. 1.0, Interval. 2.0, Gramophone Concert of Light Music. 2.30, Concert by the Radio Orchestra, conducted by Launy Gröndahl: March, Folies bergères (Lincke); Overture, Gustave III (Auber); Tango (Gade); Selection from The Little Dutch Girl (Kalman); Lorraine March (Ganne); Overture, Isabella (Suppé); Two Old Danish Folk Melodies (arr. Strandqvist); Valse des brunes (Ganne); Selection from Gurre (Hatvorsen); Arabesque No. 2 in G (Debussy); Mazurka from Halka (Moninsko). In an interval at 3.15, Talk for Women. 4.30, Exchange and Fish Market Prices. 4.45, Talk: The 1658 Rebellion in Bornholm. 5.15, French Lesson. 5.45,

Weather. 5.54, Announcements. 6.0, News. 6.15, Time Signal. 6.30, Agricultural Talk. 7.0, Time Signal from the Town Hall. 7.14, Concert. 9.0, Nows. 9.15, Kurt Weill and Ernst Krenek Concert by the Radio Orchestra. conducted by Fritz Maller. Solotist: Otto Fesel (Violin); Suite from Dio Dreigroschenoper (Weill); Nocturne and Screnade from the Concerto for Violin and Wind Instruments (Weill); Suite from the Music to Der Triumph der Einfindsamkeit (Krenek). 10.0, Dance Music by the Erik Tuxen Band, relayed from the Palace Hotel. In an interval at 11.0, Time Signal and Chimes from the Town Hall. 11.30 (approx.), Close Down.

CORK .-- See Athlone.

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—6.0 p.m., Programme Announcements 6.5, Talk on Old Cracow. 6.20, Miscellaneous Items. 6.25, See Warsaw. 6.40, Sports Notes. 6.47 to 9.0. See Warsaw. 9.0, Light Music, relayed from the Pavillon Restaurant. 10.0, See Warsaw. 10.5, Light Music (contd.). 10.30 (approx.), Close Down.

DANZIG .- See Heilsberg.

DRESDEN .-- Sec Leipzig.

FECAMP

1328 ke/s, 225.3 metres; 10 kW.—11.0 a.m. till 12 Noon, Programme in English by the I.B.C. 11.0, Variety Programme. Part I: Request Programme. Part II: Dance Music. 12 Noon, Programme in English by the I.B.C. 3.30, Isle of Wight Coacert. Part I: Viennese Music. Signature Tune: The Night by the Sea; Morning. Noon and Night (Suppe); Artists' Life (Joh. Strauss); Vienna Maidens (Ziehrer): The Blue Panube (Joh. (Strauss); Song, Come out Vienna (Joh. Strauss); Vienna Maidens (Ziehrer): The Blue Panube (Joh. (Strauss); Song (Strauss); Live, Laugh and Love (Heymann): Tales of the Vienna Woods (Joh. Strauss). Part II: Dance Music. Oh Johanna; Nunca; Love locked out; In the Shade of the Old Apple Tree; Lover; The Day you came along; I was in the Moad; Everyone loves my Marguerite. 4.30, I.B.C. Nursery Corner. 5.0, Concert for Portsmouth and Southsea Listeners, Part I: Military Band Music. Down South (Myddleton); Berceuse (Lacôme): Piccolo Solo, Deep Blue Sea (Brewer); The Three Musketeers (Elliott); Sussex by the Sea (Ward); Cornet Solo, I hear you calling ne (Marshall); The Policeman's Holiday (Ewing); Here, there and Everywhere (Bosc): Time Signal. Part II: Orghestral (Concert. Schection from La Traviata (Verdi): Serenade (Toselli); Pianoforte Solo, Minuet in G (Paderewsky); Invitation to the Waltz (Weber); The Capricious Music Box (Fresco); Pianoforte Solo, Wasps (Holbrooke); Potpourri of Overtures (Legett); Signature Tune: The Night by the Sea. 6.0, Programme in French. 10.0 till Glose Down, Programme in English by the I.B.C. 10.9, Dance Music. Signature Tune: The Bells of Normandy; Isn't this a Night for Love; I've got to get up and go to work; Ranno de la noche; A One-Horse Town; My Moonlight Madonna: Making Conversation; Lightening; Old-Pashioned Kweethearts: Signature Tune. 10.30, Nigger Minstrels. Dixiciand; Down in the Cornfield; Baujo Solo, Darktown Dandies; Sketch, Dark Subjects; Banjo Solo, Riverside (Kiefe); Barcarolle, Night of Love (Offenbach); Time Signal. 1.30, Club (Oncert for Reading Listeners. Part

FLENSBURG.-See Hamburg.

FLORENCE.-See Turin.



FRANKFURT

PKAINKFUK I
1,157 kc/s, 259.3 metres; 17 kW. Relayed by
Cassel, and Trier, 1,157 kc s, 259.3 metres.
12.15 p.m., Time and News. 12.25, Local
Rews and Weather. 12.35. See Stuttgart.
1.30, Songs of the Winter Solstice. 2.30.
Weather Forecast. 2.40, Time and Market
Prices. 3.0 to 5.35. See Langenberg. 5.35,
A Discussion: How Dogs assist Mankind
5.50, News and Time. 6.0, Transmission for
all German Stations, relayed from Berlin
(Funkstunde). 7.0. Pigoletto—Opera (Verdi). from **Berlin** pera (Verdi), all German Stations, relayed from Berlin (Funkstunde). 7.0, Pigoletto—Opera (Verdi), relayed from the Opera House. 9.0, Time and News. 9 20, See Munich. 9.30, Local News and Weather. 10.0, Concert from Breslau. 11.0, See Stuttgart. 12 Midnight, Close Down.

FREDRIKSSTAD,-See Oslo.

FREIBURG .- See Stuttgart.

GENEVA.—Sec Radio-Suisse Romande.

GENOA .-- See Turin.

GLEIWITZ .- See Breslau.

GOTEBORG.—See Stockholm.

GRAZ,-See Vienna.

HAMBURG

PIANDUKU

Bremen, 1,112 ke/s, 269.8 metres; Flensburg and Hanover, 1,319 ke/s, 227.4 metres; and Kiel, 1,292 ke/s, 232.2 metres.—6.0 p.m.. Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.5, Rokoko in Ritzebüttel-Musical Play in Three Acts (Schelller). 8.40, Programme from Munich. 9.0, Time and News. 9.30, See Berlin (Funkstunde).

HANOVER.—See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671_kc/s, 447.1 metres.—10.30 a.m., Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Paragraph 3 (Suppé); Waltz, Deutsche Grusse (Jos. Strauss); Selection from La Fille de Madame Angot (Lecceq); Poetic Moods (Dvorak); Romantic Waltz and Ballad (Deobussy); Fantasia on Romanian Folk McIodies (Geiger); Selection from Lysistrata (Lineke). 12.5 p.m. Light Music on Gramophone Records. In the intervals at 12.30 and 10, News. 1.30, Programme arranged by the Post Office, with Gramophone Records. 2.0, Agrientural Prices and Exchange, 220, llints for the Housewife. 2.30, Programme for Children. 3.0, Concert by the Konigsberg Opera House Orchestra, conducted by Wolfgang Bruckner: PreInde, Morgenrot (Windt); Bilder aus Osten (Schumann); Rhapsody No. 3 (Dvorak); Waltz, Wiener Blut (Joh. Strausss); Selection from Alessandro Stradella (Flotow); Serenade (Renter); Bilder aus Osten (Schumann); The interval in 4.0, Sports Report. from Munich. 4.55, Talk. 5.15, Agricultural Prices and Ice Report, 5.25, Talk with Illustrations; The Art of Pianoforte Playing—the Works of Lisat of Pianoforte Playing

HILVERSUM

HILVERSUM

p.m., and 20 kW from 5.40 p.m.—11.40 a.m., till (lose Down, Programme of the Workers' Radio Society (V.A.R.A.). 11.40, (Oncert of Light Music. In the interval, Gramophone Records. 12.40 p.m., (Oncert. 1.40, Interval. 1.55, Dress-making Lesson. 2.40, Rrogramme for Children. 5.10, Concert by the V.A.R.A. Orchestra, conducted by de Groot. Strauss Potpourri (Pretsch); Overture, Ballo in Maschera (Auber); Selection from A Waltz Dream (O, Straus); Melody (Muzzilii); A Musical Snuff-Box (Nicolaievsky); Mock Morris Dance (Grainger); Shepherd's Hey (Grainger); Overture, Zampa (Hérold); Glow-Worm Idyll (Lincke); Selige Wiener Zeiten (Morena); Selection from Tannhanser (Wagner); Mein Lebenslauf ist Lieb und Lust (Strauss); Extracts from the Sound-Film, Emil and the Detectives (Gray); Selection from Paganini (Lchár). In the interval at 6.10, Talk on the League of Nations, at 7.0, Medical Talk, and at 7.40, So.S. Announcements. 7.55, Concert by a Choir, the Utrecht Municipal Orchestra and Soloists. Organ Concerto in F (Handel); Cantique, No. 190 (Bach); Le déluge, Op. 45 (Saint-Saëns). In the interval at 8.35, News, Variety Items and Gramophone Records. 9.55, Organ Recital by Jong, Selection from Mignon (Thomas); Wedding of the Drugonflies (Reaves); Schön Rosmarin (Kreisler); My Viddish Mammy (Polluck); Jolly old Ma, Jolly old Pa (Wallace). In the interval at 10.16, Recitation. 10.45, Gramophone Records. 11.40 (approx.), Close Down.

HORBY.-Sce Stockholm.

HUIZEN

160 kc/s, 1,875 metres; 7 kW until 3.40 p.m. Transmitted from Kootwijk on 50 kW.

DEC. 20th WEDNESDAY continued

from 3.40 p.m.—Programme of the Christian Radio Society (N.C.R.V.).—11.40 a.m., Police Notes. 11.55, Gramophone Music. 12.10 p.m., Concert. A. Hermes (Contralto), Beths (Violin), and Halsema (Pianoforte), Sonata (Senaillé); Five French Songs (arr. Weckerlin); (a) Avec les séraphins du ciel, (b) Amaryllis, (c) Me belle si ton âme, (d) Cantabile, (e) Rochers inaccessibles; Gramophone Records: Three Pieces (Cornelius); (a) Die Hirten, (b) Simeon, (e) Christkind; Sonatina (Dvorak); Scherzo (Tchaikovsky-Flesch); Albumblatt (Rachmaninov-Kreisler); Four Songs (Brahms); (a) Die Saphische Ode, (b) Ständchen, (c) Die Nachtigall, (d) Von ewiger Liebe. 1.40, Organ Recital by Visser. Introduction and Choral. Prelude in G (Bach); Four Songs without Words (Mendelssolm); Two Pieces (Grey); Andaute (Harwood); Andante and Allegro (Handel); Largo (Handel); Chant du matin (Guilmant); Minuet (Moszkowsky); Choral Improvisation. 2.40, Talk. 2.55. Concert by the Columbia Three. Im Zigeunerlager (Oscheit); Tesoro mio (Becucci); Festival Overture (Leutner); Potpourri. 3.25, Interval. 3.40, Concert (contd.). Donauwellen (Ivanovici); Selection from Rigoletto (Verdi); Hochzeitszng in Lilliput (Translateur); Overture, Si Jétais roi (Adam); Espoir perdu (Shoeck); Potpourri (Morena); Polospielc (Fetras); Alte Kameraden (Teike). 4.40, Programme for Children. 5.40, Agrieultural Talk. 6.10, Programme to be announced. 6.40, Police Notes. 6.55, Ecclesiastical Notes. 7.10, Gramophone Records. 7.55, Concert by the Arnhem Orchestra, conducted by Spaanderman. Soloist: Mme. Franke-Hendriks (Pianoforte). The Jupiter Symphony (Mozart); Pianoforte Concerto (Mendelssolm); A Night on the Bare Momttain (Mussorgsky); Finlandia (Sibelius); The Nutcracker Suite (Tchaikovsky). In an interval at 8.50, Talk. 9.55, News. 10.5, Gramophone Records. 11.10 (approx.), Close Down.

INNSBRUCK .- See Vienna,

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—8.0 p.m., Amusement Guide, Exchange and News. 8.10, Occanographic Report. 8.20, Radio Concert. 9.0, News and Weather. 9.15, Concert (contd.).

KALUNDBORG.-See Copenhagen.

KATOWICE

T34 kc/s, 408 metres; 16 kW.—6.0 p.m., Programme Announcements, 6.5, Miscellaneous Announcements, 6.10, Talk for Housewives, 6.25, See Warsaw, 6.40, Sports Talk, 6.47, See Warsaw, 7.0, Concert of Chamber Music relayed from Lwów, 788 kc/s (381 metres), 8.0, See Warsaw, 10.0, The Letter Box in French.

KAUNAS

KAUNAS

155 kc/s, 1,935 metres; 7 kW,—5.20 p.m.,
Vocal Duets, 5.40, Press Review. 6.0,
Time and News. 6.30, Concert: Overture,
Si j'étais Roi (Adam); The Wedding of
the Winds (Hall); Serenata a Toscanini
(Murzilli); In a Chinese Theatre (Dreyer).
7.0, Talk: The Psychology of the Lithuanian People. 7.40, Talk for the Housewife. 8.9, Pianoforte Recital. 8.30, Children
and their Imagination. 8.50, Concert: Overture, Preciosa (Weber); Dem Andenken
Beethovens (Urbach); Ballet Music from
La Juive (Halévy). 9.30 (approx.), Close
Down.

KIEL,-See Hamburg.

KLAGENFURT.-Sce Vienna.

KOSICE.-See Prague.

LAHTI

LAHII

167 kc/s, 1,796 metres; 40 kW. Relayed by Helsinki, 815 kc/s, 368.1 metres.—6.40 p.m., Concert by the Suomen Valkoinen Kaarti Music Society: March, Alte Kameraden (Teike); Overture, Patrie (Bizet). 7.0, Humorous Programme. 7.15, Concert (contd.); Overture, Benvenuto ("Cilini (Berlioz); Waltz, Roses from the South (Strauss); Dances (Mäkelä). 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

LANGENBERG
635 kc/s, 473 metres; 60 kW.—12.25 p.m.,
News. 12.35, Concert from Stuttgart. 1.30,
Sec Frankfurt. 2.30, Market Prices. 2.50,
Political Aunouncements. 3.0, Concert by
the Fröhliche Fünf, Heinz
(Tenor), Erdmuthe Fiebiger (Contralto),
Hans Haass (Pianoforte) and Else Pfaft.
4.0, Sec Munich. 4.20, Concert by the
Station Orehestra, conducted by Otto
Kuhn: March, Die Freundschaftsflagge
(Blon); Waltz, Vive la Danse (Waldtenfel); Waltz, Wiener Weisen (Joh. Strauss);
King Cotton March (Sousa); Waltz, Widmungshlatter (E. Strauss). 5.0, German
for Germans. 5.20, Talk on Race. 5.35,
Economic Notes. 5.45, Announcements. 6.0,
Transmission for all German Stations, re-

layed from Berlin (Funkstunde). 7.0 to 9.20, See Frankfurt. 9.20, See Munich. 9.40, News and Sports Report. 10.0, Concert from Breslau. 11.0, See Stuttgart. 12 Midnight, Close Down.

LAUSANNE.-Sec Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres,—11.0 a.m. Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber; Reigen seliger Geister from Orpheus (Gluck); Reigen seliger Geister from Undermote (Raff); Extract from the Suite, Hersilia (d'Ambrosio); Intermezzo, Waldegeister und Bergeister (Scharwenka); Procession of the Dwarfs (Grieg); Three Dances (Humperdiuck); Irrlichter und Kobolde (Hofman); Elfs' Dance from Wayland, the Smith (Fini Henriques); Two Dances from The Damnation of Faust (Berlioz). 12.15 p.m., News and Programme Announcements. 12.25, Gramophone Records. 1.0, News. 1.10, Talk: Scandinavian Legends. 1.30, Variety Programme for Young People. 2.15, Sonata No. 2 in D minor for Violin and Planoforte (Brahms), by Gustav Pritzsche and Helmut Schaefer. 2.45, Market Prices. 3.0, Concert by the Station Orchestra, conducted by Theodor Blumer. Soloist: Oskar Jolli (Baritone). Overture, The Taming of the Shrew (Goetz); Christmas Pastoral (Müller); Four Songs (Frodl); Selection from Preciosa (Weber): Three Christmas Carols (Cornelms); Alegro maestoso from Serenade No. 11 (Mozart.; Waltz from Waldmeiste (Job. Strauss) Landstricher (Ziehrer). 4.30, Talk: The Ol-l Germanic Law. 4.50, Johann Adolf Hasse Concert for the 150th Anniversary of his Death. The Dresden Women's Chamber Orchestra, conducted by Richard Fricke. Scloist: Herta Nooch-Lange (Soprano). Overture, Irene; Soprano Solo: O nel ven di qualche stella; Ballet Music from Pyramus and Thisbe. 5.10, Talk: German Architecture. 5.30, Topical Talk. 5.45, Market Prices. 6.0, Transmission for all Germani Stations, relayed from Berlin (Funkstunds). 7.0, Today's News. 7.10 to 9.0, See Munich. 9.0, News. 9.20, Sports Report and Announcements. 9.35, Dance Music, relayed from Berlin (Funkstunds).

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—5.0 p.m., Programme for Children. 5.30, Gramophone Records. 6.0, French Lesson. 6.30, Concert. 7.0, Orchestral Concert; Soloist: Rupel (Violin). 7.45, Concert. 8.30, Vocal Quar-tet. 9.0, Weather, News and Dance Music.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—7.0 p.m.,
Concert by the Station Orchestra, conducted
by Pensis; Overture, Ruy Blas (Mendelssohn); Suite, Coppélia (Delibes); The
Witches' Sabbath (Dowell); Tango, Jealousy
(Gade); Rhapsody in C (Dohamanyi); Andante cantabile (Tchaikovsky), 7.55, Talk in
German—Memorials and Wayside-Shrines in
Luxembourg, 8.0, Concert; Selection from
Frasquita (Lehār); Selection from The
Glipsy Baron (Joh. Strauss); Selection from
The Merry Widow (Lehār), 8.30, News in
French, 8.45, See Paris (Radio Paris). In
the interval at 9.30 (approx.), News in
German, 10.30, Dance Music on Gramophone
Records.

LWOW

788 kc's, 381 metres; 16 kW.—6.0 p.m., Programme Notes and Announcements. 6.25, See Warsaw. 10.5, Gramophone Records. 10.30 (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 15 kW.— 6.15 p.m., Radio Journal. 7.30, Gramophone Records. 7.40, Radio Gazette for Lyons and the South-East. 8.30, La Nuit blanche— Operetta in One Act (Offenbach). After the Operetta, News.

MADRID

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Concert of Popular Music. 10.45, Radio Chronicle. 11.0, Concert (contd.). 11.45, Light Music. 12 Midnight till Close Down, Programme arranged by the International Broadcasting Company (Ireland), Ltd.: Signature Tune, Come back to Erin; Two Tickets to Georgia (Young); Moonstruck (Coslow): Von're charming (Turk); Let's call it a day (Henderson); My Lucky Day (Davies); Down in the Valley (Harrington); Lovey (Goodhart); 13th December Stomp (van Beeck); Signature Tune, Come back to Erin. 12.30 a.m. (Thursday), Light Music arranged by the International Broadcasting Company: Selection from A Waltz Dream (O. Straus); Chanson (Friml); Richard of Taunton Deane (arr. Molloy); Waltz. An revoir (Cuvclier); Selection from Carmen (Bizet); Yodelling Love Song (Roy Norton); Anitra's Dance (Grieg);

After Love (Erwin). 1.0, I.B.C. Goodnight Melody and Close Down.

MADRID

MADKID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange, Topical Talk, Dance Music and Talk by Ramon Gomez de la Serna. 8.15, Radio Journal. 8.30 to 9.15, Interval. 9.15, English Lesson. 9.30, Chimes Time and Radio Journal. 9.45 (approx.). Concert by the Madrid Symphony Orchestra, conducted by Enrique Fernández Arbós. 11.45, Radio Journal. 12 Midnight, Chimes and Close Down.

MALMO.-Sec Stockholm.

MILAN .- See Turin.

MORAVSKA-OSTRAVA

MORAY SRA-OSTRAYA 1,157 ke/s, 263.8 metres; 11 kW.—3.0 p.m., Concert by the Station Orchestra, conducted by Musil: Suite from Sylvia (Délibés); Waltz in E. Op. 54 No. 8 (Dvórák); Potpourri of French Songs (Leopold); Sousedská (Pestay; Polka (Ridky). 4.35, See Prague. 5.5, Talk: Slovak Winter Sports. 5.15, Talk for Work-men. 5.25, Choral Concert of Ukrainian Music. 6.0, See Prague. 6.10, Talk. 6.25, Gramophone Records. 6.40, See Prague. 9.15 (approx.), Close Down.

MOSCOW

MOSCOW

(KOMINTERN), RW1, 202.5 kc/s, 1,481 metres; 500 kW.—3.0, pm., News. 3.30, Educational Talks. 4.30, Red Army Programme. 5.30, Musical Programme for Collective Farm Workers. 6.30, Talk: Dreams and Thoughts. 7.0, A Musical Tour of the World—Concert with Readings. 8.0, Talk in Czech: The Foreign Policy of the U.S.S.R. 8.55, Chimes from the Red Square. 9.5, Talk in English: The Foreign Policy of the U.S.S.R. 10.5, Talk in German: Sport in U.S.S.R.

MOTALA .- See Stockholm.

MUHLACKER, See Stuttgart,

MUNICH

MUNICH

716 kc/s, 419 metres; 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc s, 560 metres; and Mirrberg, 1,256 kc/s, 239 metres.—2.50 p.m., Weather and Agricultural Report. 3.0, 8ec Leipzig. 4.0, Talk by Klaus Sturmer: Snowed-up at a Height of 3.600 metres. 4.30 to 5.10, 8ec Leipzig. 5.10, Music Talk with Hlustrations. 5.30, Gramophone Records; Tango, 8o ein Kuss kommt von allein (Grothe); Mit dir, Erika (Holms); English Rag; Orient Express (Mohr). 5.45, Time. Weather and Agricultural Report. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, 8ec Leipzig. 7.10, Freak Shows-Variety Programme. 8.0, Monthly Report on World Politics. 8.20, Extracts from La Bohéme (Puccini) and Paganini (Lehár); The Small Station Orchestra, conducted by Erich Kloss. Soloists; Renate von Ascholf and Elisabeth Hallstein (Soprano). Gerd Niemar, and Karl Konig (Tenor). 9.0, Sec Leipzig. 9.20, Weather, News, Exchange and Sports Notes. 9.35, See Breslau. 11.30 (approx.), Close Down.

NAPLES.-Sec Rome.

NOTODDEN.—See Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 454.4 metres; Porsgrund, 662 kc/s, 42.92 metres; and Jelöy, LCL, 6,990 kc/s, 42.92 metres; and Jelöy, LCL, 6,990 kc/s, 42.92 metres.—4,0 p.m., Gramophone Concert. 5.0, French Lesson. 5.30, Programme for Boys. 6.0, Announcements, Weather and News. 6.30, Tatkon Historical Novels. 7.0 Time Signal. 7.1, Concert by the Station Orchestra, conducted by Kramm. Soloist: Ernst Glaser (Violin). Overture, Benvenuto Cellini (Berlioz): Violin Concerto in D (Beethoven); Rossiniana (Rossini-Respighi); Schetzo from Symphony No. 4 (Tchaikovsky). 8.30, Agricultural Notes, Weather and News. 9.0, Topical Talk. 9.15, Reading. 9.45, Dance Music on Granophone Records. 11.0 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

556 kc/s, 539.5 metres: 3 kW.—7.0 p.m.,
Dopolavoro Notes, Tourist Report, Agricultural Notes and Giornale Radio, 7.20,
Granophone Records, In the interval at
7.30, Time and Announcements, 7.45, La
reginetta delle rose—Operetta in Three Acts
(Leoneavallo). In the intervals, Talk and
Announcements, 10.0, Giornale Radio.

PARIS

PARIS

EIFFEL TOWER, Call FLE. 207.5 kc/s, 1,445.7 metres); 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—5.45 p.m., Le Journal Parlé. 7.15, Weather. 7.25, Talk on Politics. 7.45, Programme for Children. 8.15, Saint-Saint-Saints Concert by Symphony Orchestra conducted by Flament. Soloists: Marchesin ('Cello) and Cantrelle (Violin). 'Cello Concerto; Violin Solo: Rondo capriccioso; Suite algérienne. 9.0 (approx.), Close Down.

PARIS

PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Gramophone Concert: Les Préludes (Chopin); Prelude to Le Déluge (Saint-Saëns); Träumerei (Schumann); Le Cynge (Saint-Saëns). 7.15, Journal Parlé, 7.30, (Saint-Sachs); Traumerel (Schlimann); Le Cynge (Saint-Sachs), 7.15, Journal Parlé, 7.30, Gramophone Concert. 7.50, Talk on Chess. 8.0, Topical Events. 8.15, Interval. 8.30, L'ami Fritz—Play in Three Acts (Erkmann-Chatrian). 10.30, Orchestral Concert, re-layed from the Champs-Elysées Restaurant.

PARIS

PARIS

RADIO-PARIS, Call GFR, 174 kc/s, 1,725 metres; 75 kW.—6.45 a.m., Gymnastics. 7.0, Interval. 7.30, Weather and Gymnastics. 7.45, Gramophone Music. 8.0, News. 8.30, Interval. 12 Noon, Educational Talk: Reading Great Works. 12.15 p.m., Gramophone Records: Overture, Morning, Noon and Night (Suppé); Quadrille from Orpheus in the Underworld (Offenbach). 12.30, Organ Recital by Desserre, relayed from the Gaumont Palace: In the Park in Parce in the Spring (Rainger); Aimer (Goundd); Mistinguet Songs (Salahert); Two many Tears (Warren). 1.0, Exchange, News and Weather, 1.5, Flowers, Gramophone Concert: Blumengeflüster (von Blon); Moss Rose (Bosc); The Language of Flowers (Lincke); Piece (Deny); Le mariage des Roses (Franck); Unter einem Fliederbaum (Schubert); My Garden of Roses (Haydn Wood); Chrysanthemums (Goubler); Selection from Les Roses d'Ispahan (Fauré); Les fieurs que nous aimons (Crémieux); La rose noire (Aubry); Die Lotosblume (Schumann); Roses of Pieardy (Haydn Wood); Les fieurs ne mentent jamais (Hermitte). In the interval at 1.30, Exchange. 2.0, Exchange. 3.0, Exchange and Market Prices. 3.45, Interval. 6.20, Weather, Agrienltural Talk, Exchange and Market Prices. 6.45, Gramophone Music: Mephisto-Walzer (Liszt); Liebestraum (Liszt); Overture, Fingal's Cave (Mendelssohn). 7.45, Commercial Prices and News. 8.0, Elocution Lesson. 8.30, News, Weather and Fashion Review. 8.45, Concert by the Colonne Concert Society, conducted by Paul Paray; Soloists, Boulay (Viola) and Cahuzae (Clarinet): Symphony No. 2 (Schumann); Les Préludes (Liszt); Viola Concerto Bozae); First Suite from Cydalise et le Chèvre-pied (Pierné). In the interval at 9.15, News.

PITTSBURGH

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W&K on 48.86 metres and 25.27 metres.—7.0 p.m., Musical Originalities, from New York. 7.30, KDKA Home Forum. 8.0, Words and Music, from New York. 8.15, Happy Days in Dixie, from New York. 8.45, Human Values. 9.0, Betty and Bob. from New York. 9.15, Utility Hall. 9.30, Frances Ingram. 9.45, News and Markets. 10.0, Railroad Adventures, from New York. 10.15, KDKA Kiddies' Klub. 10.30, The Singing Lady, from New York. 10.45, Little Orphan Annie, from New York. 10.35, Little Orphan Annie, from New York. 10.45, Little Orphan Annie, from New York. 10.45, Little Orphan Annie, from New York. 10.45, Little Orphan Annie, from New York 10.45, Little Orphan Annie, from New York Relay. 11.45, Lowell Thomas. 12 Midnight, Amos 'u' Andy. 12.15, Gems of Melody. 12.30, Potash and Perlmutter. 12.45, Programme to be announced. 1.0 to Melody. 12.30 of Melody. 12.30, Potasn and Fernance. 1.0 to 3.30, New York Relay. 1.0, Crime Ches. 1.30, Dangerous Paradise. 1.45, Red Davis. 2.0, Warden Lawes. 2.30, John MacCormack and Orchestra. 3.0, Pedro Via's

PORSCRUND.—See Oslo.

POZNAN

897 kc/s, 334.4 metres; 1.0 kW.—6.0 p.m., Programme Announcements. 6.5, Miscellaneous Items. 6.25, See Warsaw. 6.40, Sports Notes. 6.47 till Close Down, See Warsaw.

PRAGUE

PRAGUE
614 kc's, 488.6 metres; 120 kW.—3.0 p.m.,
See Moravska-Ostrava. 4.35, Gramophone
Records. 4.45, Reading. 4.55, Gramophone
Records. 5.5, Agricultural Notes. 5.15, Talk
for Workers. 5.25, News in German. 5.30,
German Transmission: Talk for Women, and
Programme for Workers. 6.0, Time and
News. 6.10, Advanced French Lesson. 6.25,
Recital of Slovak National Songs by Jaromir
Soukup. 6.40, Talk: Our Changing World.
7.0, Introductory Talk to the following Relay. 7.5, Suk Concert by the Czech Philliar
monic Orchestra and Choirs for the Composer's Sixtieth Birthday. Soloist: Jan Konstantin (Baritone). Krecovice Mass for
Mixed Choir and Orchestra. Epiloque, Op. 37,
for Full Orchestra. Choirs. Soprano. Baritone and Bass Solos. 9.0, Time and News.
9.15. News in French. 9.30 (approx.), Close
Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15 a.m. (from Lausanne). Gymnastics.

DEC. 20th WEDNESDAY continued

(contd.). 1.0, Interval. 2.58, Time Signal from Neuchâtel Observatory. 3.0, See Schweizerischer Landessender. 5.0 (from Geneva). Programme for Children. 6.0 (from Geneva). Radio Chroniele. 6.59, Weather Report. 7.0 (from Geneva). Concert by the Mandolinata genevoise, conducted by Panosetti. 7.20 (from Geneva). Review of the Weck. 7.30 (from Geneva). Review of the Weck. 7.30 (from Geneva). Theatre Talk. 8.0, Concert by the Radio-Suisse Romande Orchestra, conducted by Echenard; Soloist: Appla (Violin): Symphony No. 5 (Schubert); Romance in F for Violin and Orchestra (Beethoven); Norwegian Rhapsody (Lalo); Extract from the Suite tessinoise, Le cimetière (Doret); Concert pour le mois de Marie (Dupérier); Spanish Dance (Falia). 9.0, News and cert pour le mois de Marie (Dupérier); Spanish Danne (Falla). 9.0, News and Weather. 9.10 (from Geneva), Answers to Correspondents. 9.30 (approx.), Close

REYKJAVIK

256 kc/s, 1,200 metros; 21 kW.—8.0 p.m., Musical Programme. 8.10, Weather. 8.20, Musical Programme and Announcements. 8.35, Programme to be announced. 9.0, Chimes and News. 9.30, Reading. 10.0, Violin Solos by Einar Sigfusson, followed by The Unfinished Symphony (Schubert), on Gramophone Records.

RJUKAN .-- See Oslo.

ROME

ROME

Gali 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres from 7.40 p.m.; and 2RO, 11,810 kc/s, 25.4 metres.—12 Noon to 1.15 p.m., Concert of Light Music. in the intervals from 12.30 to 12.45, Giornale Radio and Exchange, and at 1.0, Time and Announcements. 4.10, Orchestral Concert: Overture, Tutti in Maschera (Pedrotti); Waltz, Contemplation (di Ferdinando); Illusion d'amour (Genvois); Bolero, Festa a Siviglia (Scassola); Selection from Madame Sans-Gène (Giordano); Tango, Pupa di neve (Culotta); Dance of the Merry Mascots (Ketelbey); Foxtrot (Pascro). 4.55, Weather. 5.0, Wheat Market Report. 5.10, Dopolavoro and Tourist Report. 5.20 to 5.30, Report of the International Institute of Agriculture (in Italian and English). 5.55 (Naples), Shipping and Sports Notes. 6.0, News in Foreign Languages. 6.30, Gramophone Music. 6.50, Giornale Radio and Sports Notes. 7.0, Time. Announcements. Gramophone Music and Medical Talk. 7.30, Government Announcements. 7.40, The Secret Marriage.—Opera (Cimarosa). In the intervals, Talk and Theatre Notes. Giornale Radio after the Opera. the Opera.

SALZBURG.-See Vienna.

SCHENECTADY

SCHENECIADY
WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and W2XAD on 19.56 metres.—7.30 p.m., Two Seats in the Balcony, from New York. 8.0, Golden Treasury, from New York. 12.45 a.m. (Thursday), Stock Reports. 1.0, George Olsen's Orchestra, from New York. 1.30, Variety Programme. 2.0 to 3.30, New York Relay. 2.0, Ipana Troubadours. 2.30, Leckeisman's Orchestra. 3.0, Popular Programme. 3.30, National Radio Forum, from New York, followed by Programme Résumé.

SCHWEIZERISCHER

LANDESSENDER

LANDESSENDER
BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; Basle, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres,—5.50 to 6.5. a.m. (Basle), Gymnastics. 11.0 (Basle), Gramophone Concert. 11.29, Time Signal from Neuchatel Observatory. 11.40 (Berne), Concert (contd.). 12.25 p.m. (Berne), Time and News. 12.35 (approx.), Interval. 2.30 (Berne), Programme for Women. 2.59, Time Signal from Neuchatel Observatory. 3.0 (Berne), Concert by the Station Orchestra. 3.40, Christmas Music on Gramophone Records. 4.0, Christmas Carols by the Berne Choral Society, conducted by Hugo Keller. 4.30, Concert by the Schiffmann String Quartet and Willy (Grsberger (Pianoforte). 5.0 (Berne), Christmas Programme in Dialect. 5.30 (Zürich), Talk: Advent and Christmas in Folk Tales and Folk Lore. 6.0 (Zürich), Time and News. 6.20 (Zürich), English Lesson. 6.50 (Zürich), Christeelchen—a Christmas Play. 7.50, News. 8.0 (Zürich), Concert of Contemporary French and Belgian Music. 9.25 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres;

Ostersund, 402 kc/s, 746.2 metres; and Sundsvall, 554 kc/s, 542 metres,—4.5 p.m., Reading. 4.35, Gramophone Music. 5.30, Theatre Notes. 6.0, Song Recital by Leopoul Fridman, relayed from Malmö, 1,301 kc/s, 230.6 metres. 6.15, Weather and News. 6.30, Literary Review. 7.0, Sympliony Concert, conducted by Adolf Wiklund; Soloist: Emil Telmänyi (Violin): Symphony No. 2 in F, Op. 6 (Atterberg); Violin Concerto in D, Op. 77 (Brahms). 8.30 (Göteborg), Reading. 8.45, Weather and News. 9.0, Dance Music, relayed from the Beru Hall. 10.0 (approx.), Close Down.

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—10.30 a.m., Orchestral Concert, relayed from Lyons (La Doua), 644 kc/s (465.8 metres). 12 Noon, Granophone Records.

Time and Exchange. 1.5, Granophone Records.

2.0, Interval. 4.45, Talk on the Electricity. 5.0, Variety Concert, conducted by Roskam: Two-step, Pontenero (Heymann); English Waltz, Mademoiselle (Max and Nesbitt); Mattinata (Leoncavallo); Foxtrot, Gold River (Allouche); Foxtrot, April (Allouche); Selection from Der Frauenfresser (Eysler); Tango, El Destino (Gardel); How deep is the Ocean? (Irving-Berlin); Waltz Potpourri (Robrecht); Foxtrot Song, Look what I've got (Rainger); March, Ah les Gosses (Sylviano). 6.0, Trio Concert, relayed from Lille, 1,128.5 kc/s (265.8 metres). 7.0, Insurance Societies' Report, 7.15, Talk in German: Luxury and Fashion. 7.30, Time and News. 7.45, Programme for Children, relayed from Paris (Elifet Tower). 8.15, Press Review in German, Lottery Results, and News. 8.30, Concert by the Municipal Orchestra, conducted by Ansermet: Soloist: Ciampi (Pianoforte); Symplony No. 2 (Schumann); Symphonie niontagnarde for Pianoforte and Orchestra (d'Indy); Three Dances from The Three-cornered Hat (Falla). In the interval, News. 10.30, Orchestral Concert, relayed from the Grand Kleber Tavern: March, The Liberty Bell (Sousa); Waltz (Meisel); Overture, The Italian Girl in Algiers (Rossini); Egyptian Serenade, Amina (Lineke); Selection from Frederica (Lehar); Waltz, España , The Italian Giri in august (Assautian Screnade, Amina (Lineke); Selectron Frederica (Lehar); Waltz, España Idtenfel): Potpourri, Wir kurbeln an Egyptian (Waldteufel); Potpourri, Wir kurbe (Dostal); Coliseum March (Kalman).

STUTTGART

STUTTGART

MUHLACKER, 563 kc/s, 533 metres; 1.5 kW. Relayed by Freiburg, 527 kc/s, 570 metres.—12.25 p.m., Local News and Weather. 12.35, Concert by the Station Orchestra. conducted by Gistav Görlich: Hungarian Connedy Overture (Keler-Bela); Waltz, Winterlandschaft (Lincke); In the Harbour of Port Said (Lantenschlager); Suite. Im Zeichen des Rokoko (Ailbout); March, Jugend herans (Telke). 1.30, Sec Frankfurt. 2.30, Reading (Ehrhardt). 3.0, Sec Langenberg. 5.35, Time. Agricultural Report, and Weather. 5.45, Talk: Rothenburg, A Thousand Years Ago. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 9.0, See Frankfurt. 9.20, See Munich. 9.40, Local News, Weather, and Sports Report. 10.0, Concert relayed from Breslau. 11.0, Serenade. 12 Midnight, Close Down.

SUNDSVALL .- See Stockholm.

TOULOUSE

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Orchestral Music: Selection from The Merry Wives of Windsor (Nicolai); Overture, Fra Diavolo (Aubert): Norwegian Rhapsody (Lalo). 6.30, Music from Sound Films. 6.50, Quartet Concert. In the Interval, Talk. 7.15, News. 7.30, Suite, Iberia (Albéniz). 7.45, Songs. 8.0, Military Music. 8.15, Opera Arias; Arias from Sigurd (Reyer). Faust (Gounod). Lohengrin (Wagner). and The Tales of Hoffmann (Offenbach). 8.30, Orchestral Music. 8.45, Music by an Argentine Band. 9.0, Concert Version of Don Quixote—Opera (Massenet). 9.40, Music from Sound Films. 10.0, Chansonettes. 10.15, News. 10.30, Concert for Listeners in Morocco: Part I—Accordion Solos: Part II—Opera Arias: Arias from Si J'étais roi (Adann), Madame Butterfly (Puccini). Tosca (Puecini) and La Bohême (Puccini). 11.0, Request Music. 11.15, Dance Music. 12 Midnight, News. Weather and Announcements. 12.5 a.m. (Thursday), Music from Sound Films. 12.15, Opera Music: Selection from II Trovatore (Verdi); Overture, Der Freischütz (Weber). 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—4.10 to 7.30 p.m., See Turin. 7.30, See Rome. 7.40 till Close Down, See Turin.

TRONDHEIM.-See Oslo.

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 953 kc/s, 312.8 metres; and Florence, 598 kc/s, 501.6 metres.—4.10 p.m., Song Recital. 4.55; Wenther. 5.0 to 5.20, Agricultural Notes, Wheat Market Report, Dopolavoro Announcements and Tourist Report. 6.0, Time and 501.6 metres.—4.10 p.m., Song Recital. 4.39, Westher. 5.0 to 5.20, Agricultural Notes, Wheat Market Report, Dopolavoro Announcements and Tourist Report. 6.0, Time and News in Foreign Languages. 6.30, Gramophone Records. 6.50, Announcements, Giornale Radio and Weather. 7.0, Medical Talk. 7.30, See Rome. 7.40, A Comedy in Three Acts. 9.0 (approx.), Gramophone Concert. 9.30, Dance Music. 10.0, Giornale Radio.

VATICAN CITY

15,120 kc.'s, 19.84 metres (Morning), and 5,969 kc/s, 50.26 metres (Evening); 10 kV.—10.0 to 10.15 a.m., Religious Information in Spanish. 7.0 to 7.15 p.m., Religious Informain Italian.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 233 metres; Klagenfurt, 662 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 215.8 metres.—11.0 a.m., Concert by the Wiener Symphoniker, conducted by Max Schönherr. Overture (Lehár); Waltz, Die Kaiserin will tanzen (Granichstaedten); Two Songs and Waltz Intermezzo from The Merry Widow (Lehár); Selection from Der Obersteiger (Zeller); Waltz, In Marinekreisen (Jakschl); Grosser Sturn-Galopp (Kéler-Béla). 12 Noon, Time, Weather and Programme Announcements. 12.10 p.m., Graniophone Concert: Flower Song from Carmen (Bizet); 'Cello Solo, Song Without Words (Mendelssohn); Song, Der Lindenbaum (Schuhert); Aria from Il Seraglio (Mozart); Song, The Maid of Cadiz (Delibes); Aria from The Puritans (Bellini); Monologne from Rigoletto (Verdi); Song, Die Lotosblune (Schuhert); Melody, Op. 42, for Violin (Tchaikovsky); Aria from Armida (Gluck); Pianoforte Solo, Navarra (Albeniz). 2.0, Time, Weather and Exchange. 2.15, Talk on Christmas Trees. 2.30, Talk on the Dutch Painters. 2.55, Graniophone Concert of Christmas Carols. 3.35, Programme to be announced. 4.0, Talk: Children's Games. 4.20, Contemporary Austrian Composers—Johann Müller-Hermann Concert. 5.10, Talk: Some Medicinal Plants. 3.35, Talk for Industry and Trade. 6.0, Winter Time—Concert by the Wiener Symphoniker, conducted by Max Schöhlerr. 6.55, Time, Weather and Programme Announcements. 7.5, Second Symphony Concert of the Gesellschaft der Musikfreunde, relayed from the Musikvereinssaul. The Wiener Symphoniker, conducted by Oswald Kabasta. Soloist: Adolf Busch (Violin). 9.20, News. 9.35, Talk on the International Experanto Conference of 1334. 9.45, Concert Relay. Announcements after the Programme.

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—10.57 a.m.,
Time Signal and Fanfare from St. Mary's
Church, Craeow. 11.5, Opera Music (on
Gramophone Records). 11.30, Radio Journal.
11.35, Weather. 11.38, Gramophone Concert
(contd.). 12 Noon, Interval. 2.26 p.m.,
Announcements and Economic Notes. 2.40,
Violin Recital by Mme. Rotsztat: Sonata in
G (Mardini); La Précieuse (Couperin);
Rondo (Mozart): Spanish Serenade (Chaminade): Recitative and Seherzo Caprice
(Kreisler). 3.10, Programme for Children.
3.40, Answers to Technical Correspondence.
3.55, Programme by the Gyganerja Theatre
Jazz Band, with Songs. 4.50, Agricultural
Report. 5.0, Talk, relayed from Poznan,
897 kc/s, 334.4 metres. 5.20, Dance Music
relayed from the Gastronomia Restaurant.
6.0, Programme Announcements. 6.5, Miscellaneous Items. 6.25, Talk: Literature of
1933. 6.40, Sports Notes. 6.47, Radio Journal. 7.0, Concert of Chamber Music relayed from Lwów, 788 kc/s, 381 metres:
Trio in D. Op. 70, No. 1 (Beethoven): The
Dumky Trio, Op. 90 (Dvorák). 8.0, Reading. 8.15, Song Recital by Brégy (Tenor):
Invitation au Voyage (Dupare): Two Songs
(Puderevski): Marechiare (Tosti): Gitana
Mia (Media-Villa): Aria from The Bartered Bride
(Snetana): Aria from The Search (Solo):
Machine Machine Music (Solo): Aria from
Manon Lescaut (Pucelni): 9.0, Dance Music
relayed from the Zieminanska Café. 10.0, Music (contd.).

WILNO

530 kc/s, 566 metres; 16 kW.—6.15 p.m., Topical Talk. 6.25, See Warsaw. 6.45, Sports Notes. 6.47 till Close Down, See Warsaw.

ZAGREB

977 kc/s, 307 metres; 0.75 kW.—6.5 p.m., Announcements. 6.35, Talk. 6.50, Talk. 7.5, See Vienna. 9.0, Press Review, Weather and Programme Announcements. 9.15, Dance Music. 10.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender,

Wireless World

DECEMBER THE TWENTY-FIRST

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,332 kc/s, 217 metres; and by Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.30 p.m., Time. Weather, Stock Report and Granophone Music. 6.0, Programme for Children. 6.45, News. 7.0, Freuch Lesson. 7.15, Recitations. 7.30, Time Signal. 7.31, Selection from Maritana (Wallace), by the Station Orchestra. 7.50, Baritone Solos by John Lynskey. 8.0, Balfe Music by the Station Orchestra. 8.15, Balfe Song Recital by John Lynskey. 8.25, Recital of Wallace Songs by Doris Hill (Contralto). 8.35, Variety Programme by Fay Sargent and Company. 9.15, Tenor Solos by Kirwan. 9.30 to 10.30, Programme by the I.B.C. (Ireland), Ltd. 9.30, Military Band Music: Entry of the Gladiators (Fucik); Whistling Rufus (Kcrry); By the Blue llawaiian Waters (Ketelbey); The Phantom Brigade (Myddleton); The Wedding of the Rose (Jessel); The Whistler and his Dog (Pryor); Bells across the Meadows (Ketelbey); Bravest of the Brave (Dunn). 10.0, Concert of Dance Music: It's Only a Paper Moon; Louisville Lady; The Man from Harlem; Racing Commentary; My Imaginary Sweetheart; Carolina Lullaby; It isn't Fair; The Way I feel To-night. 10.30, I.B.C. Goodnight Meledy, followed by News and Weather. 10.40, Musical Programme. 11.0 (approx.), Close Down.

BARCELONA

BARCELONA

EAJ1, 861 kc/s, 348.4 metres; 8 kW.—
6.0 p.m., Trio Concert. In the interval;
Talk. 7.0, Request Gramophone Music. 7.30,
Exchange and Gramophone Music (contd.).
8.0, Gramophone Music. 8.30, Educational
Programme and News. 9.0, Chimes from
the Cathedral, Weather, Exchange and
Market Prices. 9.5, Humorous Review of
the Weck in Versc. 9.15, Music by the
Station Orchestra, followed by Part Relay
of an Opera from the Gran Teatro del Liceo.
11.0, News.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—3.30 p.m., Programme for Women. 3.50 (approx.) to 7.0, See Rome. 7.0 to 7.15, News in Abanian. 7.30 (approx.) till Close Down, Albanian. See **Rome.**

BASLE.—See Schweizerischer Landessender.

BELGRADE

BELGRADE
697 kc/s, 430.4 metres; 2.8 kW.—4.0 p.m.,
Talk. 5.25, Time Signal and Programme
Announcements. 5.30, French Lesson. 6.10,
Talk. 6.30, Pianoforte Recital by Ivanka
Petrovie: Romance (Brahms); Rhapsody
(Brahms); Nocturne in C Minor (Chopin);
Two Ettudes (Chopin); Prelude (Prokofiev);
Mclody (Ravcl). 7.0, Concert of Romanian
Music by the Radio Orchestra and Soloists.
8.10, Orchestral Concert. 8.40, A Radio Play.
9.0, Time Signal and News, followed by
Relay from Foreign Stations.
10.0 (approx.), Close Down.

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHS.
SENDER), 183.5 kc/s, 1,635 metres; 60 kW.—
12.45 p.m., News. 1.0, Gramophone Concert:
Movement from The Hebrides Symphony (Mendelssolin); Till Eulenspiegel's Merry Pranks (R. Strauss); Waltz and Air from Der Rosenkavalier (R. Strauss); Overture, Doinna Diana (Reculizek); German Danee (Beethoven). 1.45, Hints for Photographers. 2.10, Programme for Children. 2.30, Weather and Exchange. 2.45, Book Review. 3.0, See Langenberg. 4.0, Topical Talk, 4.0, Gramophone Concert with Fred Krilger. 5.0, Poems. 5.5, Talk: The New National Food Seltenne. 5.20, Programme for Young People. 5.50, Weather and Announcements. 6.0, Transmission for all German Stations: Angels, Saints, Shepherds and Kings—the Christmas Story in Folk Songs (arr. Berten). The Station Choir and Orchestra, conducted by Hans Goerner. Soloists: Erna Berger (Soprano), Walther Ludwig (Tenor), and Fred Drissen (Baritone). 7.0, To-day's Motto. 7.5, Topical Talk. 7.15, Was man aus Liebe tut—Comedy (Else Krafft-Straumm). 8.0, See Berlin (Funkstunde). 9.0, News and Sports Notes. 9.25, Review of World Polities (on Gramophone Records). 9.45, Weather. 10.0, See Stuttgart. 11.0 (approx.), Close Down.

BERLIN

BERLIN

FUNKSTUNDE, 832 kc/s, 360.5 metres; 1.5
kW. Relayed by Zeesen, DJC, DJA, DJD,
DJB, and DJE (See Short-Wave List).—1.35
p.m., Chamber Music on Gramophone Records: Quartet in F for Oboe. Violin, Viola
and 'Cello (Mozart): German Dunces (Schubert). 2.0, Berlin Exchange and Agricultural Prices. 2.20, Soprano Song Recital by
Irmgard Preiss: An die Musik (Schubert);
An Sylvia (Schubert): Songs (R. Strauss):
(a) Winterweihe, (b) Ich trage meine
Minne, (c) Zueignung. 2.35, Musical Programme for Young People. 3.0 to 5.0, See
Heißberg. 5.0, Review of Books for Young
People. 5.30, The Funkstunde informs its
Listeners. . . 5.35, Topical Talk. 6.0,
Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.5
to 12 Midnight, Variety Programme and
Dance Evening. The Small Station Orches-

tra. conducted by Willy Steiner; Anton Goronzy's Band; the Station Choir, conducted by Heinzkarl Weigel; and Soloists. In the interval, Buying Christmas Presents in Runxendorf—Programme with Ludwig Lommel; and at 9.0 (approx.), News and Sports Notes. 12 Midnight, Close Down.

BERNE.-See Schweizerischer Landessender.

BEROMUNSTER. - See Schweizerischer

BODEN.—Sec Stockholm.

BODO .-- See Oslo.

BORDEAUX-LAFAYETTE

BOKDEAUX-LAFATE ITE

886 kc/s, 304 metres; 13 kW.—7.35 p.m.,
News and Exchange. 7.40, Report of the
International Labour Bureau. 7.55, Lottery
Results. 8.0, Talk on Wine. 8.15, News.
8.30, Gramophoπe Music. 9.0, Programme
relayed from the Academy, Bordeaux. After
the Programme, Amusement Guide and Time
Signal.

BRATISLAVA

BRATISLAVA

1,073 kc/s, 279.5 metres; 14 kW.—4.50 p.m.,
Flute Recital by Bohus Beza: Flute Sonata
(Jirak); Arioso (Quantz); Presto (Quantz),
5.20, Talk in Esperanto: Scouts in 'Czechoslovakia. 5.30, Song Recital by Roman
Hühner. 5.56, Talk for Housewives. 6.0, See
Prague. 6.15, Talk: Electricity in the
Modern Home. 6.30, Violin Recital by
Rudolf Ibl: Violin Sonata (Kubelik); Luilaby (Schimpel). 7.0, Talk: Slovak and
Polish Poets, relayed from: Kosice, 1,022
kc/s, 293 metres. 7.15, See MoravskáOstrava. 8.0, See Prague. 10.0 (approx.),
Close Down. Close Down.

BREMEN .-- See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—11.0 a.m., Concert by the Station Orchestra, conducted by Ernst Topitz: Overture, The Italian Girl in Algiers (Rossini); Selection from Il Trovatore (Verdi); Suite, Aus dem Morgenlande (Heuberger); Egyptian March (Strauss); Intermezzo, Akelei (Ganglberger); An der schönen grünen Narenta (Konnzak); Illumaresque on Es kommt ein Vogel geftogen (Scherz). 12.15 p.m., See Leipzig. 1.15, Weather. 1.20, Programme arranged by the Post Office, with Gramophoue Records. 2.0, Market Prices and Exchange. 2.10, Talk: Silesians and their Faith. 2.30, Recital of Christnias Carols for Children. 3.0, Concert by the Silesian Philharmonic Orchestra, conducted by Kaufmann: Overture, William Tell (Rossini); Prelude and Waltz from Eugene Onegin (Tchaikovsky); Selection from The Mastersingers (Wagner); Extract from Sigurd Jorsalfar (Grieg); Waltz Sphärenklänge (Joh. Strauss); Overture. Prince Methinselah (Joh. Strauss). In the interval at 3.50, A Radio Report. 4.30, Talk: Christmas Customs. 4.50, See Leipzig. 5.10, Agricultural Prices. 5.15, Isolde Kurz Memorial Programme. 5.40, Review of Christmas Books. 5.50, Programme Announcements and Weather. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0, See Leipzig. 7.10, See Munich. 7.30, Programme for Workers. 8.20, See Munich. 9.20, Time, Weather, Sports Notes, and Local News. 9.50 till Close Down, See Leipzig. 12 Midnight, Close Down.

BRNO

BRNO

878 kc/s, 342 metres; 35 kW.—3.0 p.m., Concert by the Station Orchestra, conducted by Janota. 3.50, See Moravska-Ostrava. 4.15, Programme for Children. 4.25, Song Recital by Zdenka Pokorna. 4.35, See Prague. 4.50, Gramophone Records. 5.0, Theatre and Film Review. 5.15, See Prague. 5.25, German Transmission: News and Talk. 6.0, See Prague. 6.15, Reading. 6.30, Concert by the Radio Schrammel Quartet. 7.0, Talk: Slovak and Polish Ports. relayed from Kosice, 1,022 kc/s, 293 metres. 7.15, See Moravska-Ostrava. 8.0 to 10.0, See Prague. 18.0 (approx.), Close Down. 10.0 (approx.), Close Down.

BRUSSELS (No. 1)

BRUSSELS (No. 1)
1.N.R., 589 kc/s, 509.2 metres; 15 kW.—12
Noon, Gramophone Concert of Light Music.
1.0 p.m., Le Journal Parlé. 1.10, Concert by
the Small Station Orchestra, conducted by
Leemans. Overture, Le nouveau Seigneur du
village (Boieldieu); Aubade fleurie (Ganne);
Li-o-ting (Staub); Ballet Music from Le roi
de Lahore (Massenet); Waltz from A Waltz
Drcam (O. Straus); 'Cello Solo: Spanish
Dance; Vito (Popper); Fantasia on Mannequins (Szule). 5.8, Concert by the Radio
Orchestra, conducted by Walpot. Overture,
Solidarité (Weyts); Waltz, Le retour au foyer
(Closset); Selection from Les cloches de
Corneville (Planquette); Intermezzo from

Cocorico (Ganne); March, Wiener Vögel (Schlegel). 5.30, Programme for Children. 6.0, Cookery Talk, 6.15, Gramophone Concert. Part I—Operetta Music: March, The Entry of the Gladiators (Fucik); Selection from Miss Decima (Audran); Air from Les Cloches de Corneville (Planquette); Selection from The Dollar Princess (Fall); Air from La mascotte (Audran); Selection from Eva (Lehàr). Part II—Jazz Music: Foxtrot, I lift up my Finger and I say tweet, tweet (Sarony); Sax-o-phun (Wiedoeft); She's a very Good Friend of a Friend of Mine (O'Flynn); Foxtrot, Gloria (Hager); Foxtrot, Fourteen Rollicking Sailors (Sarony); Oddles of the Noodles (Dorsey). Part III—Humorous Programme by Bach and Laverne. 7.15, Programme for Workers. 7.30, Sponts Notes. 8.0, Concert by the Radio Orchestra, conducted by Walpot. Suite wallonne (Wangermée); Valse triste (Sibelius); The Foothallers' March (Bury); Two Sympionic Rhapsodies (Coates); Waltz, Strandwellen (Luling); Overture, La belle Hélène (Offenbach); Selection from Les mousquetaires au Couvent (Varney); Fantasia for Trumpet, Souvenir d'Augleterre (Duhem); Potpourri (Morena). 10.0, Le Journal Parlé.

Trumpet, Souvenir d'Angleterre (Duhem); Potpourri (Morena). 10.0, Le Journal Parlé.

BRUSSELS (No. 2)

N.1.R., 888 kc/s, 337.8 metres; 15 kW.—Programme in Flemish.—12 Noon, Concert by the Small Station Orchestra, conducted by Leenans. Soloist: Mme. Karnas-Kielbaey (Songs). Overture, Tutti in Maschera (Pedrotti); Dance of the Hours, from La Gioconda (Ponchielli); La pendola armoniosa (Pick-Mangiagalli); Consuelo (Cullota); Four Songs: (a) Mijn Moederspraak (Benoit), (b) Madonna kindje (Van Rennes), (e) Air from La Princesse d'Aubelge (Blockx), (d) Recitative and Arioso (Handel); Flor d'Andalusia (Malvezzi); Selection from La Dame verde (Perrarese); Pablo (Rossi). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Concert: Overture, Figaro (Mozart); Coronation Seene from Boris Godunov (Mussorgsky); Chorus from Fidelio (Beethoven); Ballet Music from Rosamunde (Schubert); Spinning Chorus from The Flying Dutchman (Wagner); Hunting Chorus from Misic from Lohengrin (Wagner); Judex, from Mors et Vita (Gounod); Chorus from Garmen (Bizet); Suite No. 3 (Albéniz); Soldiers' Chorus from Fireschitz (Weber); Wedding Procession Misic from Lohengrin (Wagner); Judex, from Mors et Vita (Gounod); Chorus from Carmen (Bizet); Suite No. 3 (Albéniz); Soldiers' Chorus from Fraist (Gounod); Chorus from Carmen (Bizet); Suite No. 3 (Albéniz); Soldiers' Chorus from Fraist (Gounod); Chorus from Peer Gynt. 5.45, Programme for Children. 6.30, Concert by the Small Station Orchestra, conducted by Leenans. Soloist: Wigy (Violin); Overture. Il sogno di Sciplone (Mozart); Consolation No. 3 (Listt); Pettic Suite (Verhoeven); Berceuse for Violin (D'Hooghe); Beghine in Chiesa (Ricci Signorini); The English Patrol (Asch). 7.10, Announcements. 7.15, Film and Book Review. 7.30, Talk for Women. 8.0, Concert by the Station Symphonic Poem, Danse des follets (Benoit); Fête à Bagdad, from Schéhérazade (Rimsky-Korsakov). 8.45, Talk. 9.0, Concert (Canbrier); Two Songs; Tarantella, La Danza (Rossini-Hutschenruyter); Waltz from Der Rosenkavalier (R. Strauss); The Ride

BUCHAREST

760 kc/s, 394.7 metres; 12 kW.—4.0 p.m., Concert of Variety Music by the Dinico Orchestra. In the interval at 5.0, Radio Journal. 6.0, Educational Talk. 6.20, Talk. 6.40, An Opera (to be announced), on Gramophone Records. In the interval, Reading. After the Opera, Radio Journal.

BUDAPEST

BUDAPEST

545 kc/s, 550.5 metres; 120 kW. Also relayed on 840 metres from 7.10 p.m. till Close Down.—4.0 p.m., Agricultural Talk.
4.30, Orchestral Concert coducted by Raiter.
5.30, English Lesson. 6.0, Song Recital by Paul Györy. 6.40, Talk for Workers. 7.10, Gramophone Records. 8.0, Dialogue. 8.35, Concert by the Lajos Veres Cigány Band, relayed from the Café Ostend: Soloist, Paul Kalmár (Songs). 9.0, Weather. 10.0, Talk in German: The Hungarian Song, followed by Light Music by the Guttenberg Jazz Band, relayed from the Café Ostende.

CASSEL,-See Frankfurt.

COPENHAGEN

COPENHAGEN

Kalundborg, 260 kc/s, 1,153.8 metres; and on Skamleback OXY on 31.51 metres; and on Skamleback OXY on 31.51 metres.—11.0 a.m., Time and Chimes from the Town Hall. 11.5 (approx.), to 1.0 p.m., Concert by the Gyldmark String Ensemble, relayed from the Bellevue Strandhotel. 1.45, Concert by Carl Rydahl's Instrumental Ensemble: Russian March (Ganne); Overture (Gade); Waltz, Les fleurs (Waldtenfel); Andante cantabile from the String Quartet in D (Tchaikovsky); Minuet (Marino); Aubade and Berceuse (Rosenberg); Waltz, Nordlys (Lumbye); Overture, The Circus Princess (Kálmán); Romance (Würtz); Waltz (Monando); Prelude (Danning); Tango (Gyldmark); Overture, A Waltz Dream (O. Straus). In the interval at 3.35 (approx.), Reading, 3.45, Programme for Girls. 4.30, Exchange and Fish Market Prices, 4.45, Talk: Flowers and Flowering Plants for Christmas. 5.15, English Lesson. 5.45, Weather. 6.0, News, 6.15, Time Signal. 6.16, Talk: Democracy or Dictatorship—the Corporate State. 6.45, Danish Lesson. 7.0, Concert of Modern Operetta Music by the Radio Orchestra, conducted by Reesen: March from Nenova (Hirsch); Overture, Sunny (Kern); Viennese Music from The Dueless of Chicago (Kálmán); Russian Dance from Tatiana (Kálmán), T.50, Den lukkede Dőr (The Closed Door)—Radio Play (Leopold). 8.35, Variations for Pianoforte (Four Hands)) on a Theme of Schumann, Op. 23 (Brahms) 8.55, News. 9.10, Gramophone Music. 9.20, Concert of Spanish Music by the Radio Orchestra, conducted by Reesen: Three Fantastic Dances (Turina); Extracts from the Suite, Iberia (Albéniz). 10.5 (approx.), Close Down.

CCRK .- See Athlone.

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—5.0 p.m., Programme Announcements. 6.5, The Letter Box. 6.20, Miscellaneous Items. 6.25 till Close Down, See Warsaw. In an interval at 6.40, Sports Notes. 10.30 (approx.), Close

DANZIG .- See Heilsberg. DRESDEN .- See Leipzig.

FECAMP ·

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—10.30 to 11.30 a.m., Programme in English by the I.B.C. 10.30, Happy Hour. Part I, Military Band Music. Part II, Dance Music. 11.30 to 3.30, Programme in French. 3.20 to 6.0, Programme in English by the I.B.C. 3.30, Concert for Worthing and Littehampton Listeners. Part I, Hawaiian Guitar Band: Signature Tune, The Night by the Sea; My Waikiki Mermaid (Traditional); O Donna Clara (Petersbursky); Song: Fortunes Galore (Reeves); Somewhere in Hawaii (Nelson); My Heart is where the Mohawk flows (Roblinson); Leave the Pretty Girls alone (Robinson); Honolulu Bay (Earl); La Rosita (Dupont). Part II, Dance Music: The Last Round Up; Cornflowers and Poppies; I'll slow you off; Old Fashioned Sweethearts; Stevedore Stomp; Caminito del Taller; Making Conversation; Dear Stranger. 4.30, I.B.C. Nursery Corner; Birthday Greetings. 5.0, Concert for Brighton and Hove Listeners. Part I. Light Music: A Birthday Serenade (Lincke); Smillin' through (Peun); Song: Puttin' it on (Boswell); My Heart stood still (Rodgers); In Tulip time beside the Water Mill (Ailbout); Song: Lena (Norton); Czardas (Monti); Destiny Waltz (Baynes). 5.30, I.B.C. Time Signal. 5.31, Concert. Part II. Tango Band: La Paloma (Yradier); Marion (Hollander); Old Vienna Moon (Lebert); Ranno de la Noche (Piccioni). 5.45, Dance Music: After you; Ah! but is it Love?; The Three Trecs; Sweet Dreams, Pretty Lady. 6.0, Programme in English by the I.B.C. 10.0, Dance Music: Signature Tunc. Bells of Normandy; Pettin' in the Park; The Cage in the Window; The Man on the Pfying Trapez; It's the Talk of the Town; Little Miss Muffet; Cecilia Mia; I was in the Mood. 10.30, Organ Recital: A Life on the Ocean (Binding); The Kiss Waltz (Dubin); Song: The Desert Song (Romberg); Sylvan Seenes (Fletcher); Song: In Love (Friml); Toreador Song from Carmen (Bizet); Nota (Arndt): Bouncing Ball (Wark). 11.0, Novelty Orchestra: That Lindy Hop (Kazaf); Baby's Birthday Party (Ronell); Planoforte Solo: Hot Sectio Playing (Blaamw); Pianoforte Solo: Jack of Clu



got everything (Donaldson); Roll up the Carpet (Klarges); La Cumparsita (Rodriguez); Without that Certain Thing; Rockin' in Rhythm (Ellington); My Moonlight Madonna (Flich); Moths around the Candle Flame (Randal); A One Horse Town (Leon); Swingy Little Thingy (Green); The Gold Diggers Song (Dubin); Come out Vienna (Herbert); Avalon (Rose); Let's call it a Day (Brown). 1.0, I.B.C. Time Signal. 1.1, Request Programme: Overture, Poet and Peasant (Suppé); San's Medals (Hogan and Constanduros); Aloha Oe (Liliuckalani); Indian Love Call (Friml); Yodelling Sam; The Old Spinning Wheel (Hill); I've found the Right Girl (Lupino). 1.30, Violin Recital: Cavatina (Raff); Selection from Rosamund (Schubert); Song: A Bachelor Gay (Tate); Le Cygne (Saint-Saens); Tambourin Chinois (Kreisler); Bright Eyes (Reeves); Hungarian Dance No. 5 (Brahms); Moment Melody and Close Down.

Hungarian Dance No. 5
Musical (Schubert). 2.0,
Melody and Close Down. FLENSBURG.—Sec Hamburg. FLORENCE.-See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel, 1,220 kc/s, 245.9 metres; and Trier, 1,157 kc/s, 259.3 metres. 12.15 p.m., Time and News. 12.25, Local News and Weather. 12.35, See Stuttgart. 1.30, Programme for Young People. 2.30, Song Recital. 3.0 to 5.0, See Langenberg. 5.0, See Stuttgart. 5.35, Talk: Rhenish Literature. 5.50, News and Time. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0, Topical Talk. 7.10 to 9.0, See Stuttgart. 9.30, Local News. 9.20, See Stuttgart. 9.30, Local News and Weather. 9.45 till Close Down, See Stuttgart. 12 Midnight, Close Down.

FREDRIKSSTAD .- Sec Oslo.

FREIBURG.—See Stuttgart.

GENEVA.—Sec Radio-Suisse Romande.

GENOA.-See Turin.

GLEIWITZ .- See Breslau.

GOTEBORG.—See Stockholm.

GRAZ.-Sec Vienna.

HAMAR.—See Oslo.

HAMBURG

TAMBUKU

Bremen, 1,112 kc/s, 269.8 metres; Flensburg
and Hanover, 1,319 kc/s, 227.4 metres; and
Kiel, 1,292 kc/s, 232.2 metres.—5.0 p.m.,
Gramophone Records and Wireless Review.
5.25, Talk: German Heroes of the Sea. 5.45,
Frankfurt Exchange. 5.50, Weather. 6.0,
Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.5
till Close Down, See Berlin (Funkstunde). In
the interval at 9.0, Time and News.

HANOVER,-See Hamburg

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—10.30 a.m., Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Luisa Miller (Verdi); Russian Rhapsody (Borschel); Selection from Eugene Onegin (Tchaikovsky); Thermen-Walzer (Joh. Strauss); Suite, Esmerelda (Drigo); Selection from Der Feldprediger (Millocker). 12.5 to 1.30 p.m., Gramophone Concert. In the intervals at 12.20 and 1.0, News. 2.0, Agricultural Prices and Exchange. 2.20, Books for Young People. 2.45, Book Review. 3.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Prelude and Waltz from the music to As You Like It (Zilcher); Lyrie Suite (d'Albert-Becce); Selection from Ernan (Verdi); Overture, Prince Methuschin (Joh. Strauss); Waltz, Perlen der Liebe (Jos. Strauss); Selection from Frederica (Lehâr). 4.0, Tuttifantchen—A Christmas Musical Play (Paul Hindemith). 5.0, Talk: The Magic of the Sahara. 5.15, Agricultural Prices and Ice Report. 5.25, Agricultural Prices and Stations, relayed from Berlin (Deutschlandsender). 7.0, News. 7.5 till Close Down, See Berlin (Funkstunde). In the interval at 9.0, News and Sports Report. 11.0 (approx.). Close Down.

HILVERSUM

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW. up to 5.40 p.m.; and 20 kW. from 5.40 p.m.—Programe of the General Broadcasting Society (A.V.R.O.). 11.41 a.m., t'oncert by the Wireless Orchestra, conducted by Nico Trep, with Items by the Odoardi Ensemble: Overture: Czar and Carpenter (Lortzing); Three Russian Dances (Bullerian); The Skaters' Waltz (Waldteufel); Selection from Aida (Verdi); The Odoardi Ensemble: (a) Arabian March (Aletter). (b) Marechiare (Tosti), (c) Song without Words (Tchaikovsky), (d) Melody (Tchaikovsky); Melody (Michaelis); Down South (Myddleton); Selection from The Land of Smiles (Lehár); The Dancer of Seville (Grunow); The Odoardi Ensemble: (a) Serenade (Léhar), (b) Song without Words (Mendelssohn), (c) Melody (d'Hardelot), (d) Wiegenlied (Grieg), (e) Elfentanz (Grieg); Medley of Viennese Songs, Servus Wien (Dostal); March, Vimy

DEC. 21st THURSDAY continued

Ridge (Bidgood). 1.55 p.m., Talk for Women. Children's Books. 2.55 to 2.40, Interval. 2.40, Dressmaking Lesson. 3.25, Gramophone Music. 3.40, Programme for Hospitals. 4.10, Gramophone Music. 4.40, Programme for Children. 5.10, Concert by the Wireless Orchestra, conducted by Nico Treep: Overture, Il Guarany (Gomez); Selection from Fedora (Giordano); Lagunenwalzer (Joh. Strauss); Melody (Lincke); Einzug der Roscnkönigin (Rhode); Slav Rhapsody No. 2 (Freidemann); Dance of the Merry Mascots (Ketelbey); A Comedy Overture (Keler Bela). 6.10, Sports Talk. 6.40, Concert (contd.): March (Weile); Selection from Wild Violets (Stolz); Waltz (Berger); Tango (Filipucci); Two-Step (Luccesi). 7.10, English Lesson. 7.40, Time and News. 7.45, Gramophone Music. 7.55, Coucert by the Concertgebouw Orchestra, relayed from the Concertgebouw (Solois); Symphony No. 7 in A, Op. 92 (Beethoven). In the interval, Gramophone Music. 10.10, Gramophone Concert. 10.40, News. 10.50, Dance Music, relayed from the Pschorr Dance Hall, Rotterdam. 11.40 (approx.), Close Down.

HORBY .- See Stockholm.

HUIZEN

HUIZEN

160 kc/s, 1,875 metres; 7 kW, until 3.4w p.m. Transmitted from Kootwijk on 50 kW. from 3.40 p.m.—11.55 to 1.40, Programme of the Catholic Radio Society (KRO). 11.55 a.m., Orchetsral Concert. Gramophone Records in the interval. 1.40 p.m., till Close Down, Programme of the Christion Radio Society (N.C.R.V.). 1.40, Handwork Lesson. 2.40, Gramophone Records. 3.10, Interval. 3.40, Bible Reading, with Baritone and Organ Solos. 4.40, Handwork Lesson for Young People. 5.10, Concert by a Harp Quartet: Harfners Abendsang (Kienzal); Serenade (Kienzal); Sonatina in D (Schubert); Venetian Barcarolie, Op. 62 (Mendelssohn); Concertino (Berhout); Gramophone Records: An seuil du temple (Tournier); Lolitu (Tournier); Al a française (Culpet): Elegy (Poenitz); Piece (Bossi); Cherry Ripe (Seott): Ich ging mit Lust durch einen grünen Wald (Mahler); Serenade (Lange-Müller). 6.40, Police Notes. 6.55, Talk 7.10, Press Review 7.40, Gramophone Records. 8.40, Talk for Parents. 9.10, Choral Concert. conducted by van der Horst, relayed from Utrecht. In the intervals, Gramophone Records. 10.10, News. 10.20, Gramophone Records. 11.10 (approx.), Close Down.

INNSBRUCK.—See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metros; 0.8 kW.—8.0 p.m.. Amusement Guide and Financial Notes. 8.10, Talk on Science. 8.20, Radio Cnocert. 9.0, News and Weather. 9.15, Literary and Musical Programme.

KALUNDBORG .- See Copenhagen.

KIEL.-See Hamburg.

KLAGENFURT .- See Vienna.

KOSICE .- Sec Prague.

LANGENBERG

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12.25 p.m.,
News. 12.35, See Stuttgart. 2.0, Light
Music. Italian Polka (Pörschmann);
Mazurka-Caprice (Fries); Unter Hamburger
Flagge (Pörschmann). 2.15, Talk: House
Building. 2.30, Market Prices. 2.50, Political
Announcements. 3.0, Concert. Part I.
Children in Music by Famous Composers.
The Station Orchestra, conducted by Otto
Kühn. Soloists: Erdmuthe Fiebiger (Contralto) and Eghert Grape (Pianoforte).
Commentary by Else Pfaff. Part II.
Christmas Carols by Klare Hansen (Soprano). Liselotte Mann (Contralto) the
Station Choir and a Children's Choir. Part
III. Programme by the Station Orchestra.
conducted by Otto Kühn. Overture, Cagliostro in Wien (Joh. Strauss): Suite from
Les Millions d'Arlequin (Drigo); Melody
(Chavarri), Italian Serenade (Czibulka):
Wiener Spezialitäten (Hruby). 5.0, See
Stuttgart. 5.35, Isolde Kurz Programme.
5.45, Annoencements. 6.0, Transmission for
all German Stations, relayed from Berlin
(Doutschlandsender). 7.0, See Frankfurt.
7.10 to 9.0, See Stuttgart. 9.0, News. 9.45
to 12 Midnight, See Stuttgart. 12 Midnight,
Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LAUSANNE,-See Radio-Suisse Romande,

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—12.15 p.m., News and Programme Announcements. 12.25, Gramophone Records. 1.10, Market Prices and Show Report. 1.15 to 1.20, Film Report. 1.45, Chamber Music: Walter Kretschmar (Songs, Guitar and

Lute), Ruth Meister (Violin) and Ernst Hoenisch (Viola); Kleine Hausmuşik in A Minor for Violiu and Lute (Schleusog); Two Songs (Schlensog): (a) Vom singenden Tod; (b) Gipsy Soug; Two Songs (Gofferje): (a) Der hat vergehen das ewige Leben, (h) Kein Feuer, keine Kohle; Chamber Sonata in D for Guitar, Violin and Viola (Kretschmar). 2.15, Review of Children's Books. 2.45, Market Prices. 3.0, See Breslau. In the interval at 3.50, Radio Report from the Erzgebirge. 4.50, Recital of old German Christmas Carols. 5.20, In the Book Shop—a Radio Report in connection with the Book Fair. 5.45, Market Prices. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0, To-day's News. 7.10, See Munich. 7.30, See Breslau. 8.20, Sec Munich. 9.20, News. 9.40, Sports Report and Announcements. 9.50, Concert by the Leipzig Symphony Orchestra, conducted by Hillmar Weber: Rondino in E Flat (Beethoven); Serenade in D, Op. 20 (Marteau). 10.20, Light Music by the Emde Orchestra, 12 Midnight, Close Down. LINZ.—See Vienna. LINZ.-See Vienna.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW. German Evening.—7.0 p.m., Pianoforte Concerto in A minor, Op. 54 (Schumann) on Gramophone Records, by Alfred Cortot and the London Symphony Orchestra, conducted by Sir Landon Ronald. 7.35, Song Recital by Hermann Schey: Aria from The Seasons (Haydn); Five Songs (Schubert): (a) Wohin, (b) Danksagung an den Bach, (c) Tränenregen, (d) Eifersucht und Stolz, Te) Ungeduld; Three Songs (Riehard Strauss): (a) Die Nacht, (b) Traum durch die Dämmerung, (e) Zueignung. 8.5, Scene from 'a Play by Georg Brückner. 8.15, German Concert by the Station Orchestra, conducted by Pensis. Soloist: André Cassedanne (Violin): Overture, Coriolanus (Beethoven); Violin Concerto in A minor (Bach); Selection from Der Rosenkavalier (R. Strauss). 8.50, News in French. 9.0, (Oncert by the Station Orchestra, conducted by Pensis: Overture. Die Fledermaus (Joh, Strauss); By the Blue Hawaiian Waters (Ketelbey); Suite No. 2 from L'Arlésienne (Bizet): Ballata degli Amanti (Micheli); Florentine March (Fucik). 9.45, News in German. 10.0, Quartet No. 1 (Cassedaune). The Composer: Violin. 10.25, Dance Music by the Radio Jazz Band, conducted by Ferry Jusa.

MADRID

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Programme relayed from Madrid (EAJ7). 12 Midnight till Close Down, Programme in English by the I.B.C. 12 Midnight, Hawaiian Music: Hawaiian Sweetheart of Mine (Heagney); Song of the Islands (King); Hawaiian Sunset (Vandersloot); Hawaiian Waltz Medley (Traditional); On a Little Street in Honolnlu (Sherman); Sweet Hawaiian Dreams (Coleman); Aloha Oe (Lilionkalani); Kilima Waltz (Traditional). 12.30 a.m. (Friday), Instrumental Music: Lopeziana (Lon Alter): Carnival of Venice (arr. (Gaston); Love's Old Sweet Song (Molloy); Marine March (Herzer); Czardas (Monti); Dream Taogles (Schumann); La Precieuse (Couperin); Faust Waltz (Gonnod). 1.0, I.B.C. Goodnight Melody and Close Down.

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange and Programme for Children. 8.15, Radio Journal. 8.30 to 9.15, Interval. 9.15, English Lesson. 9.30, Chimes, Time and Radio Journal. 9.45 (approx.), Violin and Song Recital by Gregorio Cruz and Maria Valverde (Mezzo-Soprano), in Connection with the Music Competition. 11.45, Radio Journal. 12 Midnight, Chimes. 1.0 a.m. (Friday) till Close Down, Programme in English by the I.B.C. 1.0, Dance Music. Two Buck Tim from Timbucktoo; Stay out of my Breams: At the Old Pig and Whistle; Pcter, Peter; Avalon; Let's all be happy together; Reflections in the Water; Nobody's Sweetheart; One Tiny Tear; I'm getting Sentimental over yon; A Woman should stick to her Man; I called to say Goodnight; Wild Goose Chase: Learn to Croon; Stay on the Right Side of the Road; You're Charming. 2.0, I.B.C. Good-night Melody and Close Down.

MALMO.-See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

MORAVSKA-USIKAVA

1,137 kc/s, 263.8 metres; 11 kW.—3.50 p.m.,
Programme for Children. 4.15, See Prague.
4.50, Gramophone Records. 5.0, Talk. 5.15,
See Prague. 5.30, German Transmission:
Talk, Christmas Customs, followed by Talk.
Reform of the Civil Law. 6.0, See Prague.
6.15, Reading. 6.30, See Brino. 7.0, Talk:
Slovak and Polish Ports, relayed from
Koslce, 1,022 kc/s, 283 metres. 7.15, Con-

cert by the Station Orchestra, conducted by Plichta: Selection from The Land of Smiles (Lehár); Serenade (Micheli); Piece (Náp-ravnik); Waltz (Sehestik); March (Suchy). 8.0, Sce Prague, 10.0 (approx.), Close

MOTALA,-See Stockholm.

MUHLACKER.-See Stuttgart.

MUNICH

MUNICH
716 kc/s, 419 metres; 1.5 kW. Relayed by Augsburg and Kaiserslautern, 526 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 523 metres.—2.50 p.m., Weather and Agricultural Report. 3.0, See Breslau. 4.50, See Leipzig. 5.10, Agricultural Talk. 5.25, Gramophone Records: Potpourri, Das Liebe alte Lied; Mazurka, La Czarine (Ganne); Behüt' dich Gott, es wär's os schön gewesen, from Der Trompeter von Säckingen (Nessler). 5.45, Time, Weather and Agricultural Report. 5.0, Transmission for all German Stations, reiayed from Berlin (Deutschlandsender). 7.0, See Leipzig. 7.10, Austria. 7.30, See Breslau. 8.20, A Faust Symphony for Orchestra, Tenor and Male Choir (Liszt). The Station Orchestra, conducted by Hans Winter. the Station Male Voice Choir and Marius Andersen (Tenor). 9.20, See Leipzig. 9.40, Weather, Agricultural Report, Exachange and Sports Notes. 9.50, See Leipzig. 11.30 (approx.), Close Down.

NAPLES.—See Rome.

NOTODDEN.-See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodoen, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Rjukan, 671 kc/s, 447.1 metres; and Jelöy, LCL, 6,990 kc/s, 42.92 metres.—40. p.m., Variety Concert, relayed from the Britannia Hotel, Trondheim. 5.0, Talk on the Poet, Peder Solvold. 5.30, Divine Service, relayed from Trondheim, 605 kc/s, 493.8 metres. 6.0, Announcements, Weather and News, 6.30, Song and 'Cello Recital by Mimi Thorsen (Mezzo-Soprano) and Leif Rustad ('Cello). O vend ditt öie (Bergström); Stille sne (Torjussen); Overture (Backer-Gröndahl); Neapolitan Song (Rabey); Cherry Ripe (Scott); Minuet (Valendin); Les berceaux (Pauré); Ave Maria (Pranck); Aria from Werther (Massenet). 7.0, Time Signal. 7.1, Agricultural Programme. 7.20, Recitation. 8.10, Recital of Kristen Gundelach Poetry. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Musical Programme. relayed from Stavanger, 1,247 kc/s, 240.6 metres. 10.0 (approx.), Close Down.

OSTERSUND .- See Stockholm.

PALERMO

556 kc/s, 539.5 metres; 3 kW.—7.0 p.m., Dopolavoro Notes, Agricultural Report and Giornale Radio. 7.20, Gramophone Records. In the interval at 7.30, Time and Announcements. 7.45, Symphony Concert, conducted by La Rosa Parodi. In the interval, Talk. After the Concert. Gramophone Records. 10.0, Giornale Radio.

PARIS

EIFFEL TOWER. Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—5.45 p.m., Le Journal Parlé. 7.15, Weather. 7.25, News. 7.30, Gramophone Concert. Part 1—Mozart Music: Selection from The Magic Flute; Eine kleine Nachtmusik; Organ Sonata; Turkish March. Part 11—Light Music. In the interval at 8.0, Political Talk, 9.0 (approx.), Close Down.

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Motoring Notes. 7.5, Talk, 7.8, Agricultural Notes. 7.15, Journal Parlé. 7.30, La Fontaine's Fables—Songs by René-Paul Groffe. 8.0, Talk. 8.5, Insurance Societies' Report. 8.15, Interval. 8.30, Gramophone Concert. 9.20, Interval. 9.40, Gramophone Records of Milton and Josephine Baker. 10.10, Gramophone Music. 10.30, News.

PARIS

PARIS

RADIO-PARIS, Call CFR, 174 kc/s, 1,725
metres; 75 kW.—6.45 a.m., Gymnastics. 7.0,
Interval. 7.30, Weather and Gymnastics. 7.0,
Interval. 12 Noon, Protestant Address. 12.30
p.m., Gramophone Concert: A la Godille
(Van Hoorebecke); Two-Step, Santander
(Van Hoorebecke); Nons dire adieu
(Moretti); Ne sois pas jalouse (Oberfeld);
La Legende du petit navire (Missa); Le
chant de nos clochers (Codini); Ma p'tite
Girl (Van Marcy); Veux-tu réver (Van
Marcy); Haarlem Blues (Wiener); Wienet
Luft (Douect); Toccata Dance (Wiener);
Je veux (Hollaender); Maringe d'amour
(Verdun); Mon seul Paris (Labor); Two
Songs; Duets: (a) Doudou (Delamoy), (b)
That's you, Baby, (c) Un peu d'amour
(Silésu), (d) Joujou; Edith Lorand and her

Orchestra: (a) Siviglia Bella (Guecco), (b) Donauwellen (Ivanovici), (e) Jealousy (Gade), (d) Manola (Liberad). In the intervals at 1.0 and 1.30, Exchange and News. 2.0, Relay of the Addresses from the Academie Française. 3.45, Exchangé and Market Prices. 3.50, Interval. 6.20, Weather, Agricultural Talk, Exchange, Market Prices and Racing Results. 6.45, Legal Talk. 7.0, Talk; New Year Gifts. 7.20, Gramophone Music. 7.45, Review of the German Press, Commercial, Prices and News. 8.0, Act 11 of La Juive—Opera (Halévy), followed by Act III of Robert le Diable (Meyerbeer). In the intervals at 8.30 and 9.15, News.

PITTSBURGH

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.

—7.0 p.m., Musical Originalities. from New York. 7.30, KDKA Home Forum. 7.45, Pioneers, KDKA to New York. 8.0, State Federation of Pennsylvania Women. 8.15, Rochester Orchestra, from New York. 9.0, Betty and Bob, from New York. 9.15, Programme to be announced. 9.30, Business News and Markets. 9.45, Billy Leech. 10.0, Uncle Tom and Betty. 10.15, KDKA Kiddies' Klub. 10.30, The Singing Lady, from New York. 10.45, Little Orphan Annie, from New York. 10.45, Little Orphan Annie, from New York. 11.0, News, Pat Haley. 11.15, Sports, Programme Preview. 11.30, Evensong. 11.45, Lowell Thomas, from New York. 12 Midnight, Amos 'n' Andy, from New York. 12.16 a.m. (Friday), Lojs Miller, Organist. 12.30, Programme to be announced. 12.45 to 3.30, New York Relay. 12.45, Engineering Adventures in Health. 1.45, The Revellers. 2.0, Death Valley Days. 2.30, Lady Esther Serenade. 3.0, Hands across the Border.

PORSGRUND.—See Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—3.0 p.m., See
Brno. 3.50, See Moravska-Ostrava. 4.15,
Talk on Econonics. 4.25, Gramophone Records. 4.35, Elementary French Lesson,
4.50, Gramophone Records. 5.5, Agricultural
Talk. 5.15, Talk for Workers. 5.25, News
in German. 5.30, German Transmission:
Agricultural Talk. 6.0, Time and News.
6.10, An Appeal on Behalf of the Czechoslovak Red Cross Society. 6.15, Concert by
the Pupils of the Klar Institution for the
Blind, with Introductory Talk. Idyll, Twilight (Fibich); Paraphase on a National
Song (Aht-Nepomucky); Piece for Mixed
Choir, with Pianoforte Duet Accompaniment
(Novak); Violin Solo: Minuet (PugnaniKreisler); March (Kuchar). 7.0, Talk:
Slovak and Polish Ports, relayed from
Kosice, 1,022 kc/s, 293 metres. 7.15, See
Moravska-Ostrava. 8.0, Time. 8.1, Russian
Czech Programme: Four Tableaux, followed
by Concert by the Station Orchestra, conducted by Parik, and the Ondricek Quartet.
Soloist: Mestek (Songs). 9.0, Time and
News. 9.15, Introductory Talk in Czech,
German and French to the following Transmission. 9.25, Smetana Coneert by the
Station Orchestra, conducted by Jeremias:
Symphonic Poem, Richard III; Symphonic
Poem, Ilakon Jarl. 10.0 (approx.), Close
Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW., and
Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15
a.m. (from Lausanne), Gymnastics. 11.28,
Time Signal from Neuchâtel Observatory.
11.30, News and Weather. 11.40 (from
Geneva), Variety Items. 12 Noon (from
Lausanne), Financial Notes. 12.10 p.m.
(from Lausanne), Gramophone Concert. 1.0,
Interval. 2.58, Time Signal from Neuchâtel
Observatory. 3.0 (from Geneva), Trio in D
minor, 0p. 63 (Schumann). 3.30, Concert by
the Radio Suisse Romande Orchestra, conducted by Echenard: Symphony (J. C. Bach);
Dano: Suite (Purcell); Ballet Music from
Rosamund (Schubert); Viennese Potpourri
(Komzak); Selection from Der Teufelsreiter
(Kálmán). 4.30, Concert of (Thamber Music,
relayed from the Conservatoire: Three
Pieces for Four Trombones (Beethoven); Il
Trillo del Diavolo, for Violin (Tartini); Solo
de concert No. 2 (Vidal). 5.0 (from Lausanne), Lesson in Cabinet-making. 5.30
(from Lausanne), Talk: Baldness. 5.55
(from Lausanne), Tourist Report. 6.5 (from
Lausanne), Talk: 6.59 (from Lausanne),
Talk. 6.59 (from Lausanne),
Weather Report. 7.0 (from Lausanne),
Choral Concert. 9.0, News and Weather.
9.10 (from Lausanne), Dance Music. 10.0
(approx.), Close Down.

REYKIAVIK

250 kc/s, 1,200 metres; 21 kW.—8.0 p.m., Musical Programme. 8.10, Weather. 8.20, Musical Programme and Announcements. 8.35, Programme to be announced. 9.0, Chimes and News. 9.30, Reading. 10.0, Trio Music, Arias on Gramophone Records, and Dance Music. 11.30 (approx.), Close Down.

Wireless World

DEC. 21st THURSDAY continued

ROME

ROME

Call 1RO, 680 ko/s, 441 metres; 50 kW.—Relaved by Naples, 941 kc/s, 319 metres; Mitan (Vigentino), 662 ko/s, 453.1 metres from 7.40 p.m.; and 2RD, 11,810 kc/s, 25.4 metres.—12.10 to 1.15 p.m., Concert from Turin. In the intervals from 12.30 to 12.45, Giornale Radio and Exchange, and at 1.0, Time and Announcements. 3.30, Rogramme for Children. 3.50, Giornale Radio and Exchange. 4.0, Vocal and Instrumental Concert. Three Moyements from the Symphony in E Minor for two Violins and Pianeforte (Vivaldi); Baritone Solos: (a) Aria from Don Carlos (Verdi), (b) Aria from Andrea Chenier (Giordano), (c) Cavatina from The Barber of Seville (Rossini); Songs: (a) Heart to Heart (Straus), (b), I Belong to You (Green), (c) It's always raining (Harold Arlen), (d) Why (Valerio). 4.55, Weather. 5.0, Wheat Market Report. 5.20, Talk: The Climate of Rome. 5.55 (Naples), Shipping and Sports Notes. 6.0, News in Foreign Languages. 6.30, Gramophone Music. 6.50, Giornale Radio and Sports Notes. 7.0, Time, Announcements and Gramophone Music. 7.30, Government Announcements. 7.40, Casa mia, Casa mia—Operetta in Three Acts (Pietri). In the intervals: Talk on Literature and Art. Giornale Radio after the Programme.

SALZBURG.—See Vienna.

SCHENECTADY

(WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres; and by W2XAF on 19.56 metres.—

12.45 a.m. (Friday), Stock Reports. 1.0 to 4.0, New York Relay. 1.0, Variety Programme. 2.0, Captain Henry's Show Boat. 3.0, Paul Whiteman's Orchestra. 4.0, Programme Resumé.

SCHWEIZERISCHER

LANDESSENDER

LANDESSENDER
BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; Basie, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—5.50 to 6.5 a.m. (Basie), Gymnastics. 11.0 (Zürich), Light. Orchestral Music. 12.25 p.m. (Zürich), Light. Orchestral Music. 12.30 (Zürich), Concert by the Small Station Orchestra, conducted by Max Scherbaum. 2.59, Time Signal from Neuchâtel Observatory. 3.0, See Radio-Suisse Romande. 5.0 (Basie), Time Signal from Neuchâtel Observatory. 3.0, See Radio-Suisse Romande. Customs. 5.30 (Basie), Talk: Gaudenz von Salis-Seewis, the Swiss Author. 6.0 (Basie), Time. Weather and Traffic Report. 6.5 (Basie), Violin Sonata. 7.5 (Basie), Talk: The Evolution of Wireless. 7.35, Concert of Marches hy the Station Orchestra. 8.0, Weather and News. 8.10 (Basie), Organ Recital of Christmas Music, relayed from St. Leonhard's Church. 9.15 (approx.), Close Down.

SOTTENS.—Sec Radio-Suisse Romande.

SOTTENS.-Sec Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 932 kc/s, 322 metres; Horby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres; Ostersund, 402 kc/s, 746.2 metres, and Sundsvall, 554 kc/s, 542 metres.—4.5 p.m., Studio Service, relayed from Jönköping, 1,490 kc/s, 201.3 metres. 4.30, Programme for Children. 4.45, Literary and Musical Programme, relayed from Gävle, 1,470 kc/s, 204 metres: Nils Englund (Reading); Artur Werner (Violin), Gunnar Nordgren ('Cello) and Jacob Ekström (Pianoforte); Vid tontänen (Ottoson); Nils Englund reads from his own Works; Serenade (Moszkovsky); Minuet in E (Mozart). 5.15, Talk: Christmas in Stockholm. 5.45, Musical Programme. 6.15, Weather and News. 6.30, A Visit with the Microphone. 6.45, Orchestral Concert, conducted by Nils Gervillius. Soloist: Ingrid Wiksjö (Songs). Selection from Alda (Verdi); Suite for Strings (Wilhelmi); Song from Arnljot (Petersen-Berger): Orchestral Suite (Berg); Wotan's Farewell and Fire Magic from The Valkyrie (Wagner). 8.15, Talk. 8.45, Weather and News. 9.0, Gramophone Music. 10.0 (approx.), Close Down.

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—10.30 a.m.,
Orchestral Concert, relayed from Lille, 1,128
kc/s, 265.8 metres. 12 Noon, Granophone
Records. 12.45 p.m., News, Time and Exchange 1.5, Gramophone Records. 2.0,
Programme for Children. 3.9, Orchestral
Concert, conducted by Maurice de Villers.
Entry March of the Gladiators (Fueik);
La lettre de Manon (Gillet); Loin du Bal
(Gillet); Selection from Les Noces de Jeannette (Massé); Overture, The Italian Girl
in Algiers (Rossini); Ballet Music from
Romeo and Juliet (Gounod); Marche

Parisienne (Ganne). 4.15, Programme for Children, relayed from Bordeaux-Lafayette, 986 kc/s, 304 metres. 6.0, Talk in German: Austrian Literature. 6.15, Programme for Women. 6.30, Henri Büsser Concert, conducted by Maurice de Villers. Soloist: Incs Maujean. Suite Funambulesque; Song, La Colombe Orchestral Suite, Les trois Sultanes; Songs: (a) Rosées, (b) Les Nymphcs; Suite bréve. 7.30, Time and News. 7.45, Gramophone Records. 8.0, Press Review in Gesman, Lottery Results and News. 8.30, Christmas Concert by the Colmar Madrigal Society. Soloist: Simon-Metz (Mezzo-Soprano). 9.30, Press Review. 9.40, L'amoureux Réveillon—Operetta in One Act (Marcel Harmand).

STUTTGART

STUTTGART

MUHLACKER, 563 kc/s, 533 metres; 1.5 kW. Relayed by Freiburg, 527 kc/s, 570 metres.—12.25 p.m., Local News and Weather. 12.35, Waltzes, Marches and Polkas on Gramophone Records: Luna-Walzer (Lincke); Gold and Silver (Lehár); Brucker-Lager-Marsch (Kral); Gammel-Jäger-Marsch (Kral); Gammel-Jäger-Marsch (Kral); Gammel-Jäger-Marsch (Kral); Gammel-Jäger-Marsch (Honzak); Marien-Walzer (Lanner); Entry of the Gladiators; Old Comrades (Teike); Feuerfest (Jos. Strauss); The Wedding of the Winds (Hall); Schatzwalzer (Joh. Strauss); Im Zigeunerlager (Oscheit); Bedouin March; Kätchen-Polka (Braune); Nachtschwarmer (Ziehrer); Radetzky March (Joh. Strauss). 1.30, Programme for the Hitler Jugenid. 2.30, Song Reoital by Elisabeth Jentsch (Baritone): Serenata (Toselli); Waltz, Parla (Arditi); Goodbye (Tosti); Two Songs from Schon ist die Welt (Lehár): (a) Ich bin verliebt, (b) Frei und jung dabei; Canzonetta from Liches-express (Niederberger); Marching Song from Fra Diavolo (Auber); Air from The Waltz Queen (Grothe-Melichar). 3.0, See Langenberg. 5.0, Spanish Conversation. 5.20, Technical Talk. 5.35, Time, Agricultural Report and Weather. 5.45, Talk: The Tourist Industry Traffic Report. 6.0, Transmission for all German Stations relayed from Berlin (Deutschlandsander). 7.0, Sec Frankfurt. 7.10, Ileimgfunden (Safe Home)—A Christmas Comedy (Anzengruber). 8.20, Recital of Folk Songs. 8.40, Orchestral Concert conducted by Ferdinand Drost: Overture, Die Fledermaus (Joh. Strauss); Waltz, Sphärenklänge (Jos. Strauss). 9.0, See Frankfurt. 9.20, What everyone should know. 9.30, Local News, Weather and Sports Report. 9.45, Gramophone Records. 10.0, Concert by the Station Orchestral concert conducted by Gustav Görlich: Die Schlittenfahrt (Leopold Mozart); Pieces (Bayer): (a) Des Balles Anfang, (b) Waltz from Die Puppenfee, (c) Christkindle-Polka; Polka-Mazurka; Kommt ein Vogerl geflogen (Leben): Arm in Arm (Silwedel); Quadrille from Die Fledermaus (Joh. Strauss); Schneeflocken-Malzer (Bayer); Kehraus; Schlittenheim-Inder (Leopold

SUNDSVALL .- See Stockholm,

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Music by a Viennese Orchestra: Wiener Bonbons (Joh. Strauss); Delta (Bransen); Moledu metres; 8 kW.—6.0 p.m., News. 6.15, Music by a Viennese Orchestra: Wiener Bonhons (Joh. Strauss); Delta (Bransen); Melody (Padilla); Rève de fleurs (Translateur). 6.30, Programme for Children. 7.0, Military Music. 7.15, News. 7.30, Duets. 7.45, Accordion Music. 8.0, Orchestral Music. Berceuse from The Fire Bird (Stravinsky); Puppenmarsch (Ziehrer): Selection from The Queen of Spades (Tchaikovsky). 8.15, Opera Music. Arias from (a) Hérodiade (Massenet), (b) La Favorita (Donizetti); Trio from Faust (Gounod). 8.30, Balalaika Music and Russian Songs. 9.0, Lenoir Song Recital. Je veux lire en ton âme; Le sais-je; Tu devrais m'aimer autrement; Pars; La valse du passé; Tu n'es qu'un souvenir: Déjà: Dis-moi je t'aime. 9.30, Music by a Viennese Orchestra; España (Waldteufel); Künstlerlehen (Joh. Strauss); Russian Potpourri; Waltz Suite (Ancliffe). 9.45, Concert of Operetta and Opera Music. Arias from (a) Ciboulette (Hahn), (b) La Mascotte (Audran), (c) Rip Van Winkle (Planquette); Prelude to Lohengrin (Wagner); Overture. Figaro (Mozart); Ballet Music from The Damnation of Faust (Berlioz). 10.15, News. 10.30, Concert for Listeners in Morocco. Part I. Music from Sound Films. Part II. Orchestral Music. Selection from The Bird Fancier (Zeller); Selection from The Bird Fancier (Zeller); Selection from The Fair at Sorochinsk (Mussorgsky). 11.0, Songs. 11.15, Dance Music. 12.5 a.m. (Friday), Opera Music. Duet from Manon (Massenet): Arias from (a) Mignon (Thomas), (b) Tosea (Puccini). 12.15, Light Orchestral Music. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—4.10 to 7.30 p.m., See Turin. 7.30, See Rome. 7.40 till Close Down, See Turin.

TRONDHEIM.—See Osio.

TURIN

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 598 k/cs, 501.6 metres.—4.10 p.m., Chamber Music: Humoresque (Dvorák); Jeux d'eau (Ravel); Larghetto (Weber); Largo (Vivaldi); Duet for Pianoforte and Violin (Schubert); Capriceio No. 24 (Paganini); Salut d'amour (Elgar). 4.55, Weather. 5.0 to 5.20, Agricultural Notes. Wheat Market Report, Dopolavoro Announcements and Tourist Report. 6.30, Gramophone Records. 6.50, Announcements, Giornale Radio, Weather and Gramophone Records. 7.30, See Rome. 7.40, L'elisir d'amore—Opera in Three Acts (Donizetti). In the intervals, Talk, Announcements and Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in French. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 215.8 metres.—11.0 a.m., Concert by the Wiener Symphoniker, conducted by Max Schönherr. Edelweiss-Ouvertüre (Komzak); Waltz, In den Alpen (Kaulich); Old Styrian Dances (Pachernegg); Ländliches Hochzeitsfest (Czibulka); Styrian Humoresques (Spary); Waltz and March from The Merry Peasant (Fall). 1.0 p.m., Time and News. 1.10, Concert (condd.). Overture, Das Tal der Liebe (O. Straus); Waltz, Donausagen (Fucik); Selection from Der Fremdenführer (Ziehrer); Waltz from Schön ist die Welt (Lehär); Selection from White Horse Inn (Benatzky); Gallop, Bahn frei (Ed. Strauss). 2.0, Time and News. 2.15, Talk on Photography: The Technique of Enlarging. 2.30, Talk: The German Theatre Three Hundred Years Ago. 2.55, Granophone Records for Children. 3.40, Programme for Children. 4.20, Gramophone Records for Foodstuffs. 4.0, Programme for Children. 4.20, Gramophone Records of the Dajos Béla Orchestra. 4.25, Pianoforte Recital by Tilly Wiederkehr. 5.5, Talk: Trade and Industry. 5.30, Talk on Juvenile Rescue Work. 5.55, Theatre Notes. 6.5, German Folk Songs. 6.50, Time and News. 7.0, Reading (Alfred Walheim). 7.30, Radio Sequence of a Capital City. 8.30, Topical Talk. 8.45, Announcements.

WARSAW

WARSAW

212.5 kg/s, 1,411 metres; 120 kW.—10.57 a.m.,
Time Signal and Fanfare from the Tower of St. Mary's Church, Cracow. 11.5. Bralms Concert on Gramophone Records. 11.30, Radio Journal. 11.35, Concert for Schools by the Warsaw Philharmonic Orchestra, conducted by Oziminsky; Soloist, Dvorakowski (Violin): Introductory Talk; Overture, Il Seraglio (Mozart): Minuet and Divertimento (Mozart): Souvenir (Noskowsky); Violin Solos: (a) Melody (Paderevsky), (b) Farewell to Cracow (Wronsky); Ballet M u s i c (Guzewsky); Coulaviennes (Nowowiesky) 1.0 p.m., Weather 1.3, Interval, 2.25, Announcements. 2.30, Economic Notes. 2.40, Dance Music by the Szule Jazz Band. 3.40, Review of Women's Magazines. 3.55, Song and Planoforte Receital by Mme. Nadi and Mme. Martimewicz: Variations serieuses (Mendels. sohn); Songs: (a) Amarilli (Caccini), (b) Liebestraum (Brahms), (c) Melody (Lipski); Barcarolle (Palmgren); Prelude (Prokoffev); Songs (a) Martha's Aria from The Tsar's Bride (Rimsky-Korsakov), (c) Melody (Rachmaninov); Prelude (Wertheim); Three Studies (Seriabin). 4.50, Agricultural Notes. 5.0, Talk on Modern Poland. 5.20, Dramatic Programme, relayed from Cracow, 959 ke/s, 312.8 metres. 6.9, Programme Announcements. 6.5, Miscellaneous Itens. 6.25, Topical Talk. 6.40, Sports Notes. 6.47, Radio Journal. 7.0, Concert by the Station Symphony Orchestra, conducted by Oziminsky; Soloist Proplawski (Tenor): Overture, Le Carnaval de Venise (Thomas); Chasse fantastique (Guiraud); La Dendola armoniosa (Pi ZURICH.—See Schweizerischer Landessender.

RJUKAN.-See Oslo.

ATHLONE

ATHLONE

| kc/s, 413 metres; 60 kW. Relayed by blin, 1,382 kc/s, 217 metres; and Cork, 37 kc/s, 224.4 metres.—1.30 to 2.30 p.m., ne. Weather, Stock and Gramophone isic. 6.0, Programme for Children. 6.45, ws. 7.0, Talk on Gardening. 7.15, erary and Dramatie Talk. 7.30, Time (nal. 7.31, Concert by the Station Orchesit. 7.45, Soprano Solos by Nora Finn. 9.30 10.30, Programme by the LB.C. (Ireland), d. 9.30, Orchestral Concert: Signature ne, Young and Healthy; O Sizilietta (von m); The Coon among the Chickens (es); Song, Come out Vienna (Stranss); ditty Lady (Peter); Fantasia, The Thistle lyddleton); Xylophone Solo, Marionetta aston); Moonbeam (Peter); Persian arch (Friml); Signature Tune, Young and ealthy. 10.0, Concert of Dance Music; hen Autumn comes around; When the ext Magnolias hloom again; Bless your art; Racing Commentary; Longing; anne on you; Sweetheart of Sweet Sixen; There's a New Moon over my culder. 10.30, LB.C. Goodnight Melody, tlowed by News and Weather. 10.40, Piclo Solos by Mollie Flynn. 10.50, Tradional Fiddle Solos by Cavanagh. 11.0 (apox.), Close Down.

BARCELONA

BARCELONA

AJ1, 861 kc/s, 348.4 metres; 8 kW.—6.0
m., Trio Concert: Selection from Don
ovanni (Mozart); Melody (Mascheroni);
intasia (Scotto); Intermezzo (Demaret);
dection from Werther (Massenet); Spanish
renade (Glazunov); Polonaise in D minor
chubert). 7.0, Request Gramophone Music.
30, Exchange and Gramophone Music
ontd.). 8.0, Gramophone Music. 9.30, Edutional Programme and News. 9.0, Chimes
om the Cathedral, Weather. Messages to
amen, Exchange and Market Prices. 9.10,
neert by the Radio Orchestra. 9.30, Proramme by the Demon Jazz Band.
intel Concert, relayed from the Café
ienés. In the interval at 11.0, News.

BARI

112 kc/s, 259.8 metres; 20 kW.-30 p.m. approx.) to 7.0, See Rome. 7.9 to 7.15, ews in Albanian. 7.30 till (lose Down, ce Rome.

ASLE.—See Schweizerischer Landessender.

BELGRADE

37 kc/s, 430.4 metres; 2.8 kW.—4.0 p.m., ramophone Records. 5.15, Lecture, relayed rom the University. 5.55, Time Signal and rogramme Amnomeements. 6.0, Gramohone Records. 6.20, Talk. 7.0, Programme clayed from Zagreb, 977 kc s, 307 metres. 0, Time Signal and News, tollowed by Orhestral Concert. 10.0 (approx.), Close toper.

BERLIN

BERLIN

(EUTSCHLANDSENDER REICHSSENDER
83.5 kc/s, 1,635 metres; 60 kW.; 1.0
.m., Gramophone Concert. 1.45, Proramme for Voung People. 2.0, Proramme for Girls. 2.30, Weather and Exhange. 2.45, Kadding: The Fir Tree (Hans
ndersen). 3.0, See Munich. 3.50, Gramohone Music. 4.0, Talk: The German Christias. 4.25, Gramophone toncert of Light
1 usic. 5.0, Poems. 5.5 capprox.). The
brigin of Our Christmas Songs Musical
1 tadio Sequence after Short Stories by Kurt
1 trold Findeisen. 5.30, Legal Talk. 5.50,
Veather and News. 6.0, Transmission for
1 German Stations, relayed from Heilsberg.
0, To-day's Motto. 7.2 capprox.). Bergristall—Radio Play (Max Mohr), after a
short Story of Adalbert Stifter, with Inidental Music by Watter Gronostay. 8.15,
ance Music and Light Music by Robert
1 and his Band. 9.0, News. 9.25, Radio
1 chort from a Women's Physical Culture
1 cass (on Gramophone Records). 9.45,
Weather. 10.0, Concert, relayed from Bresau. 11.0 (approx.), Close Down.

BERLIN

DERLIN

FUNKSTUNDE, 832 kc/s, 360.5 metres; 1.5

W. Relayed by Zeesen, DJC, DJA. DJD,

DJB, and DJE.—3.0 p.m., See Heilsberg.

1.0, See Hamburg. 5.0, Discussion on Handwork.

5.30, The Funkstunde informs its Listeners.

5.35, Winter Training for the University Gymnasium.

6.0, Transmission for all German Stations, relayed from Heilsberg.

7.5 to 9.0, See Heilsberg.

11.0 (approx.), Close Down.

BERNE—See Schweizerischer Landessender.

RERNE.-See Schweizerischer Landessender. BEROMUNSTER. — See Landessender.

BODEN.-See Stockholm.

BODO.-See Oslo.

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—7.35 p.m., News. 7.40, Grantophone Music. 7.55, Lottery Results. 8.0, Spanish Lesson. 8.15, News. 8.30, Symphony Concert. After the Programme, Amusement Guide and Time Signal.



DECEMBER THE TWENTY-SECOND

BRATISLAVA

BRATISLAVA

1,973 kc's, 279,5 metres; 14 kW.—5.20 p.m., tranophone Records, 5.40, Lesson in Telegraphy, 5.55, Talk for Housewives, 6.0, See Prague, 6.10, Talk: The Stringgle for Czechoslovak Independence, 6.25, See Prague, 6.40, See Brno, 7.25, See Prague, 7.40, Sonata in A for Violin and Planoforte—the Krentzer (Beethoven), 8.10, Talks on Rome, 8.25, Concert by the Station Band conducted by Nafl, March (Hora); Polka (Hora); Sonsedská (Seidl); Polka (Pilat); Waltz (Tatborsky); Polka (Hajek); March (Labsky), 9.0, See Prague, 9.30 (approx.), Close Down.

BREMEN.-See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by
Gleiwitz, 1,185 kc, s, 253.1 metres.—12.25 to
1.15 p.m., See Leipzig. 1.15, Weather. 1.20,
Programme arranged by the Post Office,
with Gramophone Records. 2.0, Market
Prices and Exchange. 2.20, Theatre Talk.
2.30, Programme for Young People. 3.0 to
5.10, See Munich. 5.10, Market Prices. 5.15
(approx.), Talk: Winter Evenings in
Labour Service Camps. 5.30, Programme
to be announced. 5.50, Programme Announcements. 5.0, Transmission for all German Stations, relayed from Heilsberg. 7.0,
See Leipzig. 7.10, Concert of Old Silesian

Chorats by a Russian Church Choir, 9.0 to 9.30, See Prague. 9.30 (approx.), Close

BRUSSELS (No. 1)

BRUSSELS (No. 1)

1.N.R., 589 kc/s, 509.2 metres; 15 kW.—

12 Noon, Concert of Spanish Music by the Small Station Orchestra, conducted by Lecmans, Oriental March (Granados); Spanish Dances Nos. 5 and 6 (Granados); Nocturne and Festival (Infante); Violin Solo: Andalouse (Sarasate); Three Pieces (Albéniz);
(a) Asturias, (b) Orientale, (c) Sevilla; Three Airs (Turina); Spanish Dance from La vida breve (Falla). 1.0 p.m., Le Journal Parlé. 1.10, Winter—Grannophone Concert, Winter from The Seasons (Glazmov); Air from Een Winternachtsdroom (De Bocck); Des pas sur la neige (Debussy); Les grondements de la rafale; Waltz, Winterstürme (Fucik); La neige (Witkowsky); The Skaters' Waltz (Waldteufel); Troika; Nous n'irons plus au bois (Penau); Chrysanthèmes (Gondblier); La charité (Fouré); Selection from The Snow Maiden (Rimsky-Korsakov); Près e la cheminée; The Wedding of the Winds (Hall). 2.0, Broadcast for Schools, 5.0, Concert by the Station Symphony Orchestra conducted by Kumps, Symphony No. 8 (Beethoven); Melopées et Rythmes (Bernier); Die Dorfnusikanten (Mozart); Dances (Brahms), 6.0, Talk; The Evchange, 6.15, Request Gramophone Music, 6.40,

RADIO BELGRADE, seen in the picture, is not one of the best known in this country, but a forthcoming power increase may bring it into promin-ence. The aerial is erected on the roof of the Academy of Science, Belgrade.

Christmas Songs by the Breslau Cathedral Choir, conducted by Blaschke: Psalm 12, Hilf. Herr, die Helligen laben abgenommen (Stoltzer); Three Motels (Nucius); (a) Missus est angelus, (b) Ave Maria, (c) Dixit antem Maria; () admirable commercium (Stoltzer); Freut Euch, Ihr Auserwählten (Nucius). 8.0, Christmas in the Silesian Mountains—Radio Sequence (Ernst Geyer), with Incidental Music by Rischka, 9.0, See Leipzig. 9.20, Time and News. 9.35, Concert of Christmas Music by the Silesian Philharmonic Orchestra, conducted by Matzke with Soloists; Overture to The Messiah (Handel); Soprano Solo: Ach Herr lass Deine lichen Engelein (Tunder); Concerto grosso for Two Vicinis, Ucilo, Strings and Harpsichord (Corelli); Two Christmas Songs; (a) Ich steh' an deiner Krippen hier, (b) O Jesulein süss, o Jesulein mild (Bach-Matzke); The Surprise Symphony in G (Haydn). 11.0 (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—5.15 p.m., Talk for Workers. 5.25, German Transmission: News and Lortzing Programme; Extracts from Czar and Carpenter and Der Waffenschnied. 6.0, See Prague. 6.40, Christmas, a Musical Play in Two Acts by the Station Orchestra and Choir, conducted by Bakala. 7.25, See Prague. 7.40 Concert by the Chamber Orchestra of Unemployed Musicians. 8.10, Recitations. 8.30,

Recitations by MIle, Broeckman, 6.55, Tello Recital by Rops Achille, Après un rêve (Fauré); Two Preludes (Chopin); Adagio from the Pathetic Sonata (Beethoven), 7.15, Talk, 7.30, Legal Talk and Literary Review, 8.0, Programme for Exservicemen, 9.0, Concert by the Station Symphony Orchestra, conducted by Kumps, Soloists; Lion (Flute) and Daisy Gilbert (Disense); Flute: La flute de Pan (Monquet); Clarinet and Orchestra; Canzonetta (Pierné); Interlute by Daisy Gilbert; Suite Pittoresque (Massenet); Ballad Music from Sylvia (Delibes), 10.0, Le Journal Parlé, 10.10, La Brabançonne.

BRUSSELS (No. 2)

BRUSSELS (No. 2)
N.I.R., 888 kc/s, 337.8 metres; 15 kW.—Programme in Flemish. 12 Noon, Gramophone Concert. 1.0 p.m., Le Journal Parlé. 1.13, Concert by the Small Station Orchestra, conducted by Leemans: Overture, Les Saltimbanques (Ganne); Complainte russe (de Taeve): Potpourri of English Melodies, The Rose (Myddleton); Caprice in Foxtrot Rhythm (Wigy); Aubadefrom Chérubin (Massenet); Forlane from Mignon (Thomas); Selection from Cocorico (Ganne); One-Step (Misrakl). 2.0, Broadcast for Schools. 5.0, Lecture Recital on Psyche (Cesar Franck) and Till Eulenspiegel (R. Strauss). 6.0, Gramophone Music. 7.15, Talk: The End of the World according to Legends. 7.30, Wireless Notes. 8.0, Concert

by the Trio de la Cour de Belgique: Trio iu C minor (Brahms); Serenade (Tansman). 8.45, The Serooge's Christmas—Play after Dickens (arr. Schmidt). 9.45, Gramophone Records of Light Music. 10.0, Le Journal Parlé.

BUCHAREST

BUCHAREST

760 kc/s, 394.7 metres; 12 kW.—4.0 p.m., Concert by the Station Orchestra. Soloist: Teodoru (Violin). Overture, Ruy Blas (Mendelssohn); Will-o'-the-Wisps Dance and Dance of the Sylphs from The Danmation of Faust (Berlioz); Valse triste (Sibelius); Lyric Suite (Grieg); The Skater's Waltz (Waldteufel); Prelinde to Hansel and Gretel (Humperdinck); Slav Dances Nos. 5 and 6 (Dvorāk); Violin Solo: Réverie (Vieux-temps); Romanian Rhapsody No. 1 (Enesco). In the interval at 5.0, Radio Journal. 6.0, Educational Talk. 6.20, Gramophone Records, 6.45, Talk. 7.0, Symphony Concert by the Philharmonic Orchestra, conducted by Perlea. In the interval at 7.50, Reading. 8.45, Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; '20 kW. Also relayed on 340 metres from 6.30 till Close Down,—4.0 p.m., Talk. 4.30, Song Recital by Honka Lévay. 5.10, Shorthand Lesson. 5.40, Trio Concert, relayed from the Ritz Hotel. 6.10, Review of Foreign Politics. 6.30, Relay from the Royal Hungarian Opera House, followed by Concert by Toll's Ciginy Band, relayed from the Pâtria Restaurant. Cigány Ba Restaurant.

CASSEL .- See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres; and Skamleback, 0.87, on 31.51 metres.—11.0

2.m., Time and Chimes from the Town Hall.

11.5 (approx.) to 1.0 p.m., Concert by the Radio Orchestra, conducted by Enil Recsen. Soloist: Agda Lhoir (Pianoforte). Overture, The Corsair (Berlioz); Chant sans paroles (Tchaikovsky); Selection from Cavalleria rusticana (Mascagni); Navarraise from Le cid (Massenet); Polovtsian Dances from Prince Igor (Borodin); Pianoforte Solos (Neruda); (a) Theme with Variations, (b) Piece, 0p. 71, No. 1, (c) Polka; French Military March (arr. Rresen); Spanish Dance No. 5 (Granados); Suite from the Ballet. Kassyg (Pelibes); Overture, Madame Butterfly (Puccini); Moorish Rhapsody from the Algerian Snite (Saint-Saëns), 3.40, Programme for Children, 4.30, Exchange and Fish Market Prices. 4.45, Talk: A Worker's Thoughts on some Present-day Problems, 5.15, German Lesson, 5.45, Weather, 5.54, Announcements, 6.0, News, 6.15, Time Signal, 6.30, Lecture Recital, 7.0, Time Signal, 6.30, Lecture Residal, 7.0, Time Signal, 6.30, Lecture Residal, 7.0, Time Signal, 6.30, Lecture Residal, 7.0, Time Signal, 8.12, Exhanss); Annen-Polka (Joh, Strauss); Waltz, Sphärenklange (Jos, Strauss); Polka-Mazurka, Die Schwätzerin (dos, Strauss); Waltz, Sphärenklange (Jos, Strauss); Polka-Mazurka, Die Schwätzerin (dos, Strauss); Waltz, Die Jubilanten (E. Strauss); Polka-Schneesternehen (E. Strauss); Polka-Schneesternehen (E. Strauss); Polya-Pictures of Everyday Life—a Visit to & Freighting Centre, 8.30, Canatata written for the University Festival for the Wedding of Crown Princes Frederick and Crown Princes Louise (J. P. E. Hartmann), by the Arion Male Voice Choir, and Tenor and Baritone Soloists, 9.9, News, 9.15, Mozner Concert by a Wind Instrument Ensemble and Johanne Karstens (Songs). Divertimento in B flat No. 11 for Two Oboes, Two Horns and Two Basso

CORK.-See Athlone.

CRACOW

959 kc, s, 312.8 metres; 1.5 kW.—6.0 p.m., Programme Amouncements. 6.5, Miscellaneous Items, 6.15, Ski-ing Notes, 6.25 till Close Down, See Warsaw. In an in-terval at 6.40, Sports Notes, 10.30 (approx.). Close Down.

DANZIG .- See Heilsberg. DRESDEN .- See Leipzig.

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—11.0 a.m. to 12 Noon, Programme in Euglish by the I.B.C. 11.0, Happy Hour; Part I: Orchestral Concert. 11.30, Part II: Dauce Music. 12 Noon, Programme in French. 3.30 p.m. to 6.0, Programme in English by the I.B.C. 3.30, Bournemouth and Weymouth Concert: Accordion and Band Music: Signature Tune, Night by the Sea; La Javanette

DEC. 22nd FRIDAY

(Bozi); Mona Lisa (Carter); Medley of Scottish Airs; C'est un petit Nid (Eblinger); Selection from Congress Dances (Heymann); Lullaby of the Leaves; Return of Johnnie; Whistling Waltz (Reeves); Part II: Dance Music: Love locked out; Who's afraid of the Big Bad Wolf? Aloha Oe; Forever; What a perfect Combination; Nunca; I've got to pass your House; Sundown in a little Green Hollow. 4.30, The I.B.C. Nursery Corner; Birthday Greetings. 5.0, Southampton and Winchester Concert; Part I: Orchestral Concert: Selection from The Merry Widow (Lehâr); Love sent a little Gift of Roses (Openshaw); Waltz, Très jolle (Waldteufel); The Warblers' Screnade (Perry); Phantom Brigade (Myddleton); To the Spring (Grieg); Selection from A Thousand and One Nights (Joh. Strauss). 5.30, I.B.C. Time Signal. Part II, Military Band Concert: Post Horn Gallop (Koenig); Marche Lorraine (Ganne); Selection from The Country Girl (Monekton); Squirrel Dance (Smith); In a Monastery Garden (Ketelbey); Teddy Bears' Picnic (Bratton); Medley of British Songs (Krier); Signature Tune. 6.0, Programme in French. 10.0 till Close Down, Programme in French. 10.0 till Close Down, Programme in English by the I.B.C. 10.0 (approx.), Dance Music: Signature Tune, Bells or Normandy; Tick Tock (Vienna); He was a handsome young Soldier; Blue Moments; Sladows on the Swanee; I live for Love; Mood Indigo (Ellington); Thanks; Isn't in heavenly? Signature Tune. 10.30, Old Time Favourites: I do like to be beside the Seaside; The Wink of the Glad Old Eye; Impersonations of Famous Music Hall Stars; Yip-I-addy-I-Ay; Daisy Bell; Lily of Laguna; Good Old Song Potpourri. 11.0, Talke Time; Signature Tune, Sittin' in the Dark: You're getting to be a Hablt with me; My Wild Oat; A Girl like Nina; Pretty One; Selection from Give me a Ring; So Green; Why has a Cow got Four Legs' Signature Tune, Sittin' in the Dark: 11.30, I.B.C. Time Signal. 11.31, Club Concert for Windsor and Eton Listeners; Part I, Gramophone Records: Missouri Waltz (Shannon); Alice Delysia Melodies; The Language of th

FLORENCE.-See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel, 1,220 kc/s, 245.9 metres, and Trier, 1,157 kc/s, 259.3 metres, -12.15 p.m., Time and News. 12.25, News and Wcather. 12.35, See Stuttgart. 1.30, News. 1.40, Programme for Women. 2.30, Weather. 2.40, Time and Economic Notes. 3.0, Concert by the Staticn Orchestra, conducted by Hans Rosbaud and Walter Casper. Soloists: Friedrich Noack (Bass), Helga Thorn and Oskar Besemfelder (Songs to the Lute). Overture and Tarantella from the Italian Suite (Raff); Old Christmas Songs to the Lute; Seventeenth Century Music: (a) Variations for Pianoforte and Orchestra on Ah, que dirais-jc. Maman (Vogler), (b) Solo Cantata for Bass and Orchestra; Der Raritätermann (Endler); Old Christmas Songs to the Lute; Old Dance Music. 5.0, to 5.35, See Langenberg. 5.35, Talk on Books for Boys. 5.50, Weather and News. 6.0, Transmission for all German Stations, relayed from Hellaberg. 7.0, Topical Talk. 7.10 to 9.0, See Langenberg. 9.c, Time and News. 9.20, See Stuttgart. 9.30, News. 9.45, Variety Programme. 10.0, Serenade by the Station Orchestra, conducted by Hans Rosbaud. 11.J, Talk: The Significance and Destiny of German Art. 11.45 (approx.), Close Down.

FREDRIKSSTAD.—See Oslo. FREIBURG.—See Stuttgart. GENEVA .- See Radio-Suisse Romande. GENOA.—See Turin. GLEIWITZ .- See Breslau. GOTEBORG.—See Stockholm. GRAZ.-See Vienna. HAMAR.—See Oslo.

HAMBURG

806 kc/s, 372 metres; 1.5 kW.—Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg and Hanover, 1,319 kc/s, 227.4 metres; and kiel, 1,292 kc/s, 232.2 metres.—4.0 p.m., lielilge Nacht—Christmas Play (Joseph

Maria Lutz), with Music by the Small Station Orchestra, conducted by Gartz, and the Station Choir, conducted by Gregor. 5.0, Talk for Animal and Child Lovers. 5.20, Christmas Songs (on Gramophone Records). 5.45, Frankfurt Exchange and Hamburg Market Prices. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Heilsberg. 7.5 till Close Down, See Heilsberg. In the interval at 9.0, Time and News.

HANOVER .-- See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 50 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—12.5 p.m., Gramophone Concert of Light Music. In the intervals at 12.20 and 1.0, News. 1.30, Programme arranged by the Post Office, with Gramophone Records. 2.0, Agricultural Prices and Exchange. 2.15, Programme for Children. 2.40, Programme for Women. 3.0, Concert by the Small Station Orchestra, conducted by Engen Wilcken: Selection from L'amico Fritz (Mascagni); Ballet Suite from Coppélia (Delibes); Overture, Die Landstreicher (Ziehrer); Selection from Don Cesar (Dellinger); Waltz, Moonlight on the Alster (Fetras); Two Melodies (Heykens), (a) Ihr erster Tanz, (b) Spanish Serenade; Suite, in Norway's Fords (Juel-Fredriksen); In an interval at 4.0, Book Review. 4.30, Concert of Christinas Music by the Königsher of the Country Woman. 5.50, Weather. 6.0, Transmission for all German Stations: Beethoven Concert by the Königsberg Opera House Orchestra, conducted by Brückner: Soloist, Joachim Ansorge (Planoforte); Coriolanus Overture; Pianoforte Concert in E Flat, Op. 73, 7.0, News. 7.3, (Concert of Sacred Music by the Königsberg Opera House Orchestra, conducted by Wolfgang Brückner. 8.0, Der Lampenschirm (The Lampshade)—Play in Three Acts (Curt Goetz), 9.0, News. 9.30 (from Danzig), Concert by the Danzig Theatre Orchestra, conducted by Kallipke: Overture, Rosamunde (Schubert); Waltz from The Bird Fancier (Zeller); Entr'acte from Mignon (Thomas); Narcissus (Nevin); Suite from Coppélia (Delibes); Overture, Flgaro (Mozart). 11.0 (approx.), Close Down.

HILVERSUM

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW. up to 5.40 p.m. and 20 kW. from 5.40 p.m.—11.40 a.m. to 3.40 p.m., Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.).
11.40, Time. 11.41, Light Orchestral Music with Gramophone Records in the interval.
1.40, Distribution of Christmas Gifts by the Salvation Army. 2.40, Talk: Christmas Decorations. 3.10, Gramophone Music. 3.40 to 7.40, Programme of the Workers' Radio Society (V.A.R.A.). 3.40, Gramophone Music. 4.30, Programme for Children. 5.10, Concert by the V.A.R.A. Orchestra. conducted by de Groot 5.45, Organ Recital by Steyn. 6.10, Gramophone Music. 6.15, Concert (contd.). 6.40, Talk. 7.0, Concert (contd.). 7.40 to 10.40, Programme of the Liberal Protestant Radio Society (V.P.R.O.).
7.40, Religious Talk. 8.10, Song and Pianoforte Recital by Mile. Gerritsen (Soprano), Bogtman (Baritone) and Schouman (Pianoforte). 8.40, Talk. 9.10, Concert (contd.). 9.40, Religious News. 9.55, Recitations. 10.25, Gramophone Music. 10.40, V.A.R.A. Programme. Gramophone Concert. 11.40 (approx.), Close Down.

HORBY .- See Stockholm.

HUIZEN

HUIZEN

160 ke/s, 1,875 metres; 7 kW. until 3.40 p.m. Transmitted from Kootwijk on 50 kW. from 3.40 p.m. Programme of the Christian Radio Society (N.C.R.V.).—11.55 a.m., Gramophone Records. 12.10 p.m., drgan Recital by Klock: Pastorale from The Messiah (Händel); Pastorale, Op. 56 (Merkel); Meditation (Reimenschneider); Preghiera (Riemenschneider); Vieux Noël (Massenet); Christmas Songs (arr. List); Prière (Saint-Saéns); Pastorale (Klock); Two Offertories (Chauvet); Noël (Laipunov); Christmas Singers (Laipunov). 1.10, Concert by van der Koist Ensemble: Overture, Flotte Bursche (Suppé); Improvisation (Brase); Serenade (Tarenghi); Gramophone Records; Selection from Alda (Verdi); Potpourri, Die Welt im Lied (Intrador). 2.10, Reading. 2.40, Concert (contd.): Overture, Le domino noir (Auber); Blütenzauber (Lindsay-Theimer); Selfenblasen (Urbach); Selection from Madame Favart (Offenbach); Potpourri of Marches (Morena). 3.25, Interval. 3.40, Gramophone Records. 4.40, Recital by W. Brederode (Violin and Viola), H. Schouwman (Pianoforte), Mlle. Reitveld (Violin), Mme.

H. Meyer-V.d. Woude ('Cello): Sonata in G Minor (Rosenmüller); Sonata da camera in E (Corelli); Concerto in D (Mozart); Gramophone Records; Légende (Arnold Bax); Divertissement (Voormolen); My robin is to the greenwood gone (Greinger); Quatuor in E Minor, Op. 16 (Scott). 5.10, Agricultural Notes. 6.40, Police News. 6.55, Religious Information. 7.20, Literary Talk. 7.40, Gramophone Records. 7.50, The Christmas Oratorio (Bach) by the Sursum Corda Mixed Choir, the Utrecht Municipal Orchestra, and Soloists. In the interval, News. 9.10, Gramophone Records. 10.10 (approx.), Close Down.

continued

INNSBRUCK .- See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—8.0 p.m., Amusement Guide, Financial Notes and News. 8.15, Esperanto Lesson. 8.30, Radio Concert. 9.0, News and Weather. 10.30, Dance Music.

KALUNDBORG.—See Copenhagen. KIEL.-See Hamburg. KLAGENFURT.—See Vienna. KOSICE.-See Prague.

LANGENBERG

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12.25 p.m., News. 12.35, See Stuttgart. 2.0, Report on the Relief Work at Osnabrück. 2.15, Chamber Music by Jakob Braun (Violin), Albert Steinmann ('Cello) and Willi Jansen (Harmonium: Violin and Harmonium: Prayer (Kistler); Improvisation (Kistler). 2.30, Economic Notes. 2.50, Political Announcements. 3.0, See Frankfurt. 5.0, English ('onversation Lesson. 5.20, Talk on Genealogy. 5.35, Talk: The Intellectual Outlook of the University Student of Yesterday and To-day. 5.45, Announcements. 6.0, Transmission for all German Stations, relayed from Heilsberg. 7.0, See Frankfurt. 7.10, Concert by the Station Orchestra, conducted by Kuhn, and the Station Chamber Choir, conducted by Breuer: Polonaise (Liadov); March and Chorus from Carmen (Bizet); Melody (Bizet); Chorus from The Merry Wives of Windsor (Nicolai); Love Song (Clutsam); Ballet Music (Eberhart); Chorus from Das Nachtlager in Granada (Kreutzer); Cossacks' Dance (Dargominsky). 7.55, Winter Relief—Radio Picture (Wilhelm Rinke). 8.20, Germans in South America—Radio Sequence (Willi Pferdekamp). 9.0, See Frankfurt. 9.20, The Coming Week's Events in West Germany. 9.30, News. 9.45 till Close Down, See Frankfurt. 11.45 (approx.), Close Down.

LAUSANNE,—See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 ko.'s, 319 metres.—12.15 p.m., News. 12.25, Variety Music on Gramophone Records. 1.0, News. 1.10, Art Notes. 2.0, Programme for Young People. 2.25, Talk for Women. 2.45, Market Prices. 3.0 to 5.10, See Munich. 5.10, Talk: Culture and Race. 5.30, Nature Talk: Sparrows, 5.45, Economic Notes. 6.0, Transmission for all German Stations, relayed from Heiisberg. 7.0, News. 7.10, See Breslau. 8.0 to 9.0, See Munich. 9.3, News. 9.20, Sports Notes and News. 9.35, See Breslau. 11.0 (approx.), Close Down.

LINZ .- See Vienna.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—Dutch
Evening. 7.0 p.m., Symphony No. 5, in E
Minor, Op. 95, from The New World
(Dvorak) on Gramophone Records, by the
Royal Albert Hall Orchestra, conducted by
Sir Landon Ronald. 7.45, Song Recital by
Cora Schmidt-Eppstein Heimliche Aufforderung (R. Strauss); (Edille (R. Strauss);
Prayer from Tosca (Puccini); Arla from
Figaro (Mozart); Arla from Samson and Delilah (Saint-Saëns). 8.15, Gramophone Music
Extracts from Der Bettelstudent (Millöcker);
Selection from The Maid from the Black
Forest (Jessel). 8.50, News in French. 9.0,
Pianoforte Recital by Felicia Blumenthal
9.30, Gramophone Records. Ballet from Prince
Igor (Borodin); Ballet Music from Coppëlia
(Delibes). 9.50, News in German. 10.0, Potpourri, Melodious Memories (arr. Finck). on
Gramophone Records. 10.15, Dance Music
on Gramophone Records.

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Concert of Popular Music. 10.45, Radio Chronicle. 11.0, Concert (contd). 11.45, Light Music. 12 Midnight till Close Down, Programme in English by

the I.B.E. 12.0 Midnight, Dance Music Margie (Davies): Let's try again (Newman) Oh, Peter (Wiedceft); Waltzing in a Dreat (Crosby); Under a Blanket of Blue (Symes) Blue Prelude (Bishop); Love is the Thin (Washington); Two Tickets to Georgi (Young). 12.30 a.m. (Saturday), Ligh Music: Black Eyes (Traditional); The Sieg of Monte Carlo (Heymann); Remember m Forgotten Man (Dubin); My Mother's Garde (Hanley); Xylophonia (Green); The Deep blue Sea (Mark Brewer); Selection from Congress Dances (Heymann). 1.0, I.B.C. Good night Melody and Close Down.

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—7. p.m., Chimes, Exchange, Announcements Programme for Women and Dance Music 8.15, Radio Journal. 8.30 to 9.30, Interval 9.30, Chimes, Time and Radio Journal. 9.4 (approx.), A Musical Comedy. 11.45, Radio Journal and Programme Announcements fo Listeners Abroad. 12 Midnight, Chimes and Close Down.

MALMO.-See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

MORAYSRA-OSIRAYA

1,137 ko/s, 263.8 metres; 11 kW.-3.0 p.m.,
Concert by the Station Orchestra. conducted
by Plichta: Spanish Dances (Moszkowski);
Emperor Waltz (Joh. Strauss); Fantasia
on Bulgarian Folk Motives (Weninger);
Polka (Kubin); Serenade (Kostal); Russian
Dance (Leopold); March (Ignotus). 3.55,
See Prague. 5.5, Tourist Report. 5.15, See
Prague. 6.40, See Brno. 7.25, See Prague.
8.30, See Brno. 9.0, See Prague. 9.30 (approx.), Close Down.

MOTALA .- See Stockholm. MUHLACKER.—See Stuttgart.

MUNICH

MUNICH

716 kc/s, 419 metres; 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 239 metres.—3.0 p.m., Orchestral Concert, conducted by Erich Kloss: Overture, Yelva (Reissiger); Des Knaben Wunderhorn (Sibelius); Selection from The Barber of Seville (Rossini); Waltz, Wiener Blut (Joh. Strauss); Selection from Das Nachtlager von Granada (Kreutzer); Amoretta (Bullerian); Spanish March, Hispana (Dreyer); Petite Suite (Coleridge-Taylor). In an interval at 4.0, Stories of Ski-ing Adventures. 4.30, s'Wolfauslassen—Christmas Customs of Eastern Bavaria (Ludwig Waldweber). 4.50, Violin Sonata in A Minor (Schumann) by Marie von Stubenrauch-Krauss. 5.10, Talk: Christmas Eve in the Country. 5.30, Gramophone Records of Galli-Curci: Cantata (Scarlatti); Aria from La Sonnambula (Bellini); Song of the Russian Nightingale (Alabiev); La Paloma (Yradier). 5.45, Time and Announcements. 6.0, Transmission for all German Stations, relayed from Hellsberg. 7.0, See Leipzig. 7.10, See Breslau. 8.0, Yuletide—Radio Play (Veit Rosskopf). 9.35, Baritone Song Recital by Hans Hermann Nissen: Five Songs (Schubert): (a) Gute Nacht, (b) Der Lindenbaum, (c) Der Wanderer, (d) Ständchen, (e) Sei mir gegrüsst; Four Songs (Brahms): (a) Feldeinsamkeit, (b) Auf dem Kirchhof, (c) Verrat, (d) Von ewiger Liebe. 9.0, See Leipzig, 9.20, News. 9.35, See Breslau. 11.0 (approx.), Close Down.

NAPLES.—See Rome.

NAPLES .- See Rome,

NOTODDEN .- See Oslo.

OSLO

277 ko/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Rjukan, 671 kc/s, 447.1 metres; and Jelöy, LCL, 6.990 kc/s, 442.92 metres.—4.0 p.m., Gramophone Concert. 5.0, Recitation. 5.30, Popular Concert, relayed from Trondheim, 605 kc/s, 495.8 metres. 6.0, Announcements, Weather and News. 6.30, Talk. 7.0, Time Signal. 7.1, Concert by the Philharmonic Choir and Orchestra, conducted by Kielland, and the Philharmonic Choir. Soloists: Mary Barrat Due (Pianoforte), Per Wang (Flute), Lahnstein (Oboe) and Calrsen (Clarinet); Andante triste (Nils Tveit); Cornet Trio (Sparre Olsen); Introduction and Fugue for Pianoforte and Orchestra (Evje); Ballad for Choir and Orchestra (Groven). 8.30, Agricultural Notes, Weather and News. 9.0, Topical Talk, 9.15, Old Dance Music, relayed from Aalesund, 671 kc/s, 447.1 metres. 9.45 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

PALERMO

FALLERMO

Solventres, 3 kW.-7.0 p.m.,
Dopolavoro Notes, Tourist Talk, Agricultural
Notes, Report of the Royal Geographical
Society and Giornale Radio. 7.20, Gramophone Records. In the interval at 7.30,
Time and Announcements. 7.45, At the
Telephone—Comedy in Two Acts (De Lorde
and Foley). 9.0 (approx.), E' arrivato il
ministro—Comedy in One Act (Serretta). In
the intervals, Gramophone Records. 10.0,
Giornale Radio.

PARIS

PARIS

IFFEL TOWER, Call FLE, 207.5 kc/s, 446.7 metres; 13 kW. Time Signals (on 550 metres) at 9.26 a.m. and 10.26 p.m. 'reliminary and 6-dot Signals).—5.45 p.m., 2 Journal Parlé. 7.15, Weather. 7.25, ews. 7.30, Le Concert invisible by Roseonde Gérard and Tiarko Richepin. 8.0, olitical Talk. 8.15, Concert by the Symhony Orchestra, conducted by Flament, etite Suite Espagnole (Vidal); Violin Solo. election from The Dubarry (Millöcker-lackeben); 'Cello Solo. Aveu (Flament); reams on the Ocean (Gungl). 9.30, (aprox.), Close Down. rox.), Close Down.

PARIS

OSTE PARISIEN, 914 kc/s, 328.2 metres;) kW.—7.0 p.m., Giamophone Missic. 7.5, ponsored Talk. 7.15, Journal Parlé. 7.30, oncert of Chamber Music. 8.0, Talk on fusic. 8.5, Review of the Week by Max tegnier. 8.15, Interval. 8.35, Concert by he Station Symphony Orchestra, conducted y Théodore Mathieu. 10.30, News.

PARIS

PARIS

ADIO PARIS, Call CFR, 174 kc/s, 1,725

Hetres; 75 kW.—6.45 a.m., Gymnastics. 7.0,

nterval. 7.30, Wcather and Gymnastics.

45, Gramophone Music. 8.0, News. 8.30,

nterval. 12 Noon, Hebrew Programme.

Jusic with Commentary. 12.30 p.m., Eastern

lusic by Western Composers—Gramophone

oncert: Overturc, La Princesse Jaune

Saint-Saëns); Aria from Lakmé (Delibes);

ria and Chorus from Aida (Verdi); Aria

rom The Pearl Fishers (Bizet); Tambourin

liniois (Kreisler); Two Arias from Madame

lutterfly (Puccini); In a Persian Market

Kctelbey); Arias from Marouf (Rahaud);

apanesc Lantern Dance (Yoshitomo); Arias

nd March from Turandot (Puccini); Two

fixtracts from Mother Goose (Ravel); In a

hinese Temple Garden (Kctelbey); In the

ntervals at 1.0 and 1.30, Exchange. 2.0,

fxchange, News and Weather. 2.5, An
ouncements. 2.10, Interval, 3.45, Exchange

and Market Prices. 3.50, Interval, 6.20,

Weather, Agricultural Talk, Exchange and

starket Prices. 6.45, Review. 7.0, Talk: The

ost War Novel. 7.20, Gramophone Concert.

50, Commercial Prices and News. 8.0,

sterary Talk: Contemporary Novels. 8.30,

vews, Weather and Gastronomic Talk. 8.45,

a Véritable Histoire de Mignon—Play

Chancercl and Denis), after Goethe. with

schumann Music, arranged by Louis Aubert.

In the interval at 9.15, News.

PITTSBURGH

PITTSBURGH

KDKA, 980 ko/s, 306 metres: 50 kW. Reayed by W8XK on 48.86 metres and 25.27 metres.—7.0 p.m., Musical Originalities, from New York, 7.30, KDKA Home Forum, 8.0, U.S. Marine Band, from New York, 9.15, Utility Hall. 9.30, News and Markets. 9.45, Orchestral Music, from New York, 10.0, Uncle Fom and Betty, 10.15, KDKA Kiddies' Klab. 10.30, The Singing Lady, from New York, 10.45, Orphan Annie, from New York, 11.0, News-Reeler, Pat Haley, 11.16, Sports, Programme Preview, 11.30, Evensong, 11.45, Lowell Thomas, from New York, 12.15 a.m. (Saturday), The Silver Toppers, 12.30, Otash and Perlmutter, from New York, 12.15 a.m. (Saturday), The Silver Toppers, 12.30, Otash and Perlmutter, from New York, 12.15 a.m. (Saturday), The Silver Toppers, 12.30, Otash and Perlmutter, from New York, 12.15 a.m. (Saturday), The Silver Toppers, 12.30, Otash and Perlmutter, from New York, 12.15 a.m. (Saturday), The Silver Toppers, 12.30, Otash and Perlmutter, from New York, 12.15 a.m. (Saturday), The Silver Toppers, 12.30, Vew York Relay, 1.0, Popular Programme, 1.30, Dangerous Paradise, 1.45, Red Davis, 2.0, Let's Listen to Harris, 2.30, Variety Programme, 3.0, The Iron Master, PORSGRUND.—See Oslo. PORSGRUND.—See Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—3.0 p.m., See Moravská-Ostrava. 3.55, Wireless Talk. 4.6, Concert by the Ondricek Quartet. String Quartet III (Kvapil); Pianoforte Quintet in E Flat. Op. 44 (Schunann). 6.5. Agricultural News and Market Prices. 6.15, Talk. 5.25, News in German. 6.30, German Transmission: Talk on Modern Musical Education. 6.0, Time Signal, News and Weather Report. 6.10, English Conversation Lesson. 6.25, Economic Talk on Czechoslovakia. 6.40, See Brno. 7.26, Talk: First Aid in Winter. 7.40, Dance Schools of old Prague Revue (Walther). In the interval, 8.0, Time Signal. 8.30, Pianoforte Recital by Gselhofer; Funerailles (Liszt); Three Pieces (Debussy): (a) Preludc, (b) Sarabande, (c) Toccata. Andante, Op. 12, No. 1 (Suk); Love Song (Suk). 9.0, Tine Signal, News and Sports Notes. 9.15. Russian News. 9.30 (approx.), Close Down. prox.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE
SOTTENS, 743 kc/s, 403 metres; 25 kW.; and
Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15
a.m. (from Lausanne), Gynnastics. 11.28,
Time Signal from Neuchatel Observatory.
11.30, News and Weather. 11.40 (from Lausanne)
Orchestra, conducted by Moser. 12 Noon
(from Lausanne), Financial Notes. 12.10
p.m. (from Lausanne), Concert (contd.).
10, Interval. 2.58, Time Signal from Neuchâtel Observatory. 3.0, See Schweizerischer
Landessender. 5.0 (from Geneva), Programme for Women. 5.30 (from Geneva), Esperanto Lesson. 5.40, (from Geneva), English Lesson. 6.5 (from Geneva), Talk on
Bridge. 6.20 (from Geneva), Talk for ChessPlayers. 6.35 (from Geneva), Illustrated

DEC. 22nd FRIDAY

continued

Talk: Newly Released Gramophone Records. 6.59 (from Geneva), Weather Report. 7.0 (from Geneva), Les Fétes galantes (Debussy), by Hugues Cuénod (Tenor) and Maroussia Orloif (Pianoforte). 7.20 (from Geneva), Talk on Optimism. 7.35, Popular Concert by the Radio-Suisse Romande Orchestra, conducted by Ansermet, relayed from the Victoria Hall. Soloist: Alfred Peter (Baritone). Part I: Overture, Agrippine (Handel); Air de ballet from Hippolyte et Aricie (Rameau); Baritone Solo: Hymne au solcil. from Les Indes galantes (Rameau); Symphonie concertante (Haydn). Part II: Prelude to Le Déluge (Saint-Saëns). Baritone Solo: Légende de la Sauge, from Le Jongleur de Notre Danc (Massenet); Overture and Entr'acte from Carmen (Bizet). In the interval, News and Weather. 9.30 (approx.), Report from the Automobile Club. 9.40 (approx.), Close Down.

REYK JAVIK

250 kc/s, 1,200 metres; 21 kW.—8.0 p.m., Musical Programme. 8.10, Weather. 8.20, Musical Programme and Announcements. 8.35, Reading. 9.0, Chimes and News. 9.30, By the Fireside.

RJUKAN.-See Oslo.

ROME

ROME
Call 1RO, 680 kc, s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres from 7.40 p.m.; and 2RO, 11,810, kc/s, 25.4 metres.—12 Noon to 1.15 p.m., Orchestral Concert. In the intervals from 2.30 to 12.45, Giornale Radio and Exchange, and at 1.0, Time and Announcements. 3.0 (approx.). 'Cello Recital by Arturo Bonucci, relayed from the Accademia di S. Cecilia, 5.0, Wheat Market Prices, 5.10. Dopolayoro Announcements and Tourist Report. 5.20 to 5.30, Agricultural Report in Spanish, German and Prench. 5.55 (Naples), Shipping and Sports Notes, 6.0, News in Foreign Languages, 6.30, Gramophone Music. 6.50, Giornale Radio. 7.0, Time, Announcements and Gramophone Music. 7.30, Government Notes. 7.40, The Secret Marriage—Opera in Three Acts (Cimarosa). In the intervals: Talk and Reading of Poems. After the Opera, Giornale Radio.

SALZBURG.—See Vienna.

SALZBURG.—See Vienna.

SCHENECTADY

SCHENECTADY

WGY, 790 ke/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48
metres, and by W2XAD on 19.56 metres.—
7.30 p.m., Friday Steeplechase, from New
York. 8.15, Georgia Wildcats. 12.45 a.m.
(Saturday), Stock Reports. 1.0, Variety
Programme. 1.30, WGY Farm Programme.
2.0 to 4.0, New York Relay. 2.0, Musical
Programme. 2.30, Popular Programme: Victor Young's Orchestra. 3.0, First Nighter,
Sketch. 3.30, Oldtime Friday Night Sociable.
4.0, Programme Résumé.

SCHWEIZERISCHER

LANDESSENDER

LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: Basle, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—5.50 to 6.5 a.m. (Basle), Gymnastics. 9.20 (Berne), Broadcast for Schools. 9.50 to 11.0, Interval. 11.0 (Basle), Gramophone Concert. 11.29, Time Signal from Neuchâtel Observatory, and News. 11.40 (Basle), Concert by the Kremo. 07chestra, conducted by Siegfried Kremo. 12.25 p.m. (Basle), Time. Weather and Exchange. 12.30 to 2.30, Interval. 2.30 (Zurich), Talk for Women. 2.59, Time Signal from Neuchâtel Observatory. 3.0, (Zürich), Concert by the Station Orchestra. 4.0, Caramophone Music. 4.10, Concert by the Small Station Orchestra, conducted by Max Scherbaum. 5.0 (Zürich), Gramophone Concert. 5.30 (Berne), Talk: Paracelsus, the Swiss Magician. 6.0 (Berne), Time, Weather, Market Prices. Tourist Talk and Winter Sports Report. 6.30 (Berne), Folk Music. 6.50 (Berne), 's Hagmattjümpferli—Play in Three Acts (Ernst Balzil), relayed from the National Theatre. 8.25 (Berne), Songs to the Lute and Violin. 8.45, Concert by the Station Orchestra. 9.15 (Berne), Talk in Dutch: Our Swiss Friend speaks... 9.25 (approx), Close Down.

SOTTENS.—See Radio-Suisse Romande

STOCKHOLM

STOCKHOLM

689kc/s, 436 metres; 55 kW. Relayed by
Boden, 242 kc/s, 1,239.5 metres; Göteborg,
932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257
metres; Molala, 222.5 kc/s, 1,348 metres;
Ostersund, 402 kc/s, 746.2 metres; and
Sundsvall, 554 kc/s, 542 metres.—4.5 p.m.
(from Ostersund). Variety Programme. 4.45,
The Practical Corner. 5.0, Gramophone
Music. 5.55, Reading, relayed from Malmö,
1,301 kc/s. 230.5 metres. 6.15, Weather and
News. 6.30, Finnish Song Recital by Dora
Lindgren, relayed from Falun, 968 kc/s, 309.9
metres. 6.50, A Christmas Play (Ivar Thor
Thunberg). 7.20 (from Göteborg), Concert

Version of Castor et Pollux—Opera (Rameau). Introductory Talk by Dr. Birger Anrep-Nordin. 8.15, Talk: The Illicit Drink Traffic. 8.45, Weather and News. 9.0, Swed-ish Folk Melodies, Songs and Dances. 10.0 (approx.), Close Down.

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—10.30 a.m., Orchestral Concert, relayed from Bordeaux-Lafayette, 986 kc/s, 304 metres, 12 Noon, Gramophone Records. 12.45 p.m., News, Time and Exchange. 1.5, Gramophone Records. 2.0, Interval. 4.45, Talk: The English Detective Novel. 5.0, Orchestral Concert, conducted by Rosskam: Prelude to Loreley (Bruch); Selection from Madame Butterfly (Puccini-Bergh); Les Feuilles qui tombent (Delmas); Waltz. Was Blumen träumen (Translateur); Sérénade à l'Amour (Fauchey); Selection from Eva (Lehár); March, Vindobona (Komzak). 6.0, Concert of Light Music relayed from Litle, 1,128.5 kc/s, 265.8 metres. 7.0, Topical Talk in German. 7.15, Recitations. 7.30, Time and News. 7.45, Gramophone Records. 8.0, Press Review in German, Lottery Results and News. 8.30, Concert by the Station Orchestra, conducted by Maurice de Villers. Soloist: Georges Petit (Baritone). Ballet Music from Hippolyte et Aricie (Rameau); Baritone Solo, Charon's Aria (Lully); Overture, Il Seraglio (Mozart); Baritone Solo, Aria from The Fair Maid of Perth (Bizet); Selection from Don César de Bazan (Massenet). La Légende de la Sauge, from Le Jongleur de Notre Dame (Massenet). 9.30 (approx.), Press Review. 9.40 (approx.), Bonsoir Voisin—Comic Opera in One Act (Poise).

STUTTGART

STUTTGART

MUHLACKER, 563 kc/s, 533 metres; 1.5 kW. Relayed by Freiburg, 527 kc/s, 570 metres.—12.35 p.m., Gramophone Concert: Egmont Overture (Beethoven); Entr'acte and Ballet Music from Rosamunde (Schubert); Coriolanus Overture (Beethoven); Two Extracts from the Peer Gynt Suite (Grieg); Solveig's Song (Grieg); Overture, Preciosa (Weber); Intermezzo and Farandola from L'Arlésienne (Bizet). 1.30, Lansquenet, A Christinas Story. 2.30, Baritone Recital of German Songs and Ballads by Max von Wistinghausen. 3.0, See Frankfurt. 5.0 to 5.35, See Langenberg. 5.35, Time and News. 5.45, Legal Talk. 6.0, Transmission for all German Stations, relayed from Heilsburg. 7.0, See Frankfurt. 7.10 to 9.0, See Langenberg. 9.0, Talk: Things you should know..... 9.30, Local News. 9.45 till Close Down, See Frankfurt. 11.45 (approx.), Close Down.

SUNDSYALL .- See Stockholm.

TOULOUSE

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Orchestral Music. 6.30, Tourist Talk. 6.40, Songs. 6.45, Operetta Music: Aria from Frederica (Lehár); Selection from the Gipsy Princess (Kalmán); Selection from Rip Van Winkle (Planquette). 7.0, Medical Talk. 7.15, News. 7.30, Spanish Caprice (Rimsky-Korsakov), by the Station Orchestra. 7.45, Accordion Music. 8.0, Music by a Viennese Orchestra: Wedding Waltz (Lincke); Dreams on the Ocean (Gungl); Lotus Flower (Ohlsen). 8.15, Opera Music. Arias from Tanuhäuser (Wagner); Prince 1gor (Borodin). Faust (Gounod). and The Tales of Hoffmann (Offenbach). 8.30, Light Music. 8.45, Orchestral Music. 9.0, Concert Version of Cibonlette—Operetta (Hahn). 9.20, Radio Report from a Circus. 9.45, Military Music: España (Blanco); Under the Star-Spangled Banner (Sousa); The Musketeers (Rissenfield). 10.0, Opera Music: Waltz from Mirella (Gounod); Aria from Lakmé (Delihes); Aria from Carmen (Bizet). 10.15, News. 10.30, Concert for Listeners in Morocco; Part I: Orchestral Music; Part II: Music from Sound Films. 11.0, Music by an Argentine Band. 11.15, Dance Music. 12 Midnight, News, Weather and Announcements. 12.6 a.m. (Saturday), Songs. 12.15, Orchestral Music: Bourréc fantasque (Chabrier); Heinzelmännchens Wachtparade (Noack); Schubert Potpourri (Berté). 12.30 (approx.), Close Down.

TRIESTE

TRIESTE

1.211 kc/s, 247.7 metres; 10 kW.—4.10 p.m., Pianoforte and Soprano Song Recital by Lilian Caraian and Letizia Lutta. Pianoforte Solos: (a) Andante with Variations (Schubert), (b) Three Ecossaises (Chopin); Soprano Solos: (a) Ritorno (Levi). (b) Primavera (Fuga), (c) Pioggia (Respighi); Pianoforte Solos: (a) Two Pieces (Grieg), (b) Umoresca (Viozzi), (c) Etincelles (Moszkowsky); Soprano Solos: (a) Song (Graver), (b) Song of Bethlehem (Graver), (c) Heimliche Aufforderung (R. Strauss). 4.55 to 7.30, See Turin. 7.30, See Rome. 7.40 till Close Down, See Turin.

TRONDHEIM.-See Oslo.

TURIN

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 959 kc/s, 312.8 netres; and Florence, 598 kc/s, 501.6 metres.—4.10 p.m., Chamber Music. 4.55, Weather. 5.0 to 5.20, Agricultural Notes, Wheat Market Report. Dopolavoro Annonnecments and Report of the Royal Geographical Society. 6.0, Time and News in Foreign Languages. 6.30, Gramophone Records. 6.50, Announcements, Giornale Radio and Weather. 7.0, Gramophone Records. 7.30, See Rome. 7.40, Symphony Concert, conducted by Daniele Amfitheatrof; Prelude to a Requiem Mass (Amfitheatrof); Violin Concerto in D, Op. 35 (Tchaikovsky); The Dying Soldier (Pedrotti); Melody (Vogel); Siegfried's Rhine Journey, from The Dusk of the Gods (Wagner); Ruralia Ungarica (Dohnányi); Overture, Euryanthe (Weber). In the interval, Talk. 9.0, Dance Muric. 10.0, Giornale Radio.

VALENCIA

VALENCIA

1,121 kc/s, 267.6 metres; 1.5 kW.—1.0 to 2.0
a.m. (Saturday), Programme in English by
the I.B.C. 1.0, Light Music: Smile, darn
you, smile (Rich); The Rosary (Nevin);
Serenade from Les Millions d'Arlequin
(Drigo); Dreams on the Ocean (Gungl); Star
Songs; Black eyed Susan Brown (Hoffmann);
Spanish Sweetheart (Hargreaves); That's my
Home (Rene). 1.30, Concert of Gramophone
Records: Forty-second Street (Dubin); Chant
sans Paroles (Tchaikovsky); Julien (Donata); Song, The Gentle Maiden (arr. Somerville); Fashionette (King); Hot Scotch
(Whitlock); Drifting down to Slalimar
(Moll); Oh, come all ye Faithful. 2.0, I.B.C.
Goodnight Melody and Close Down.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in German. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 215.8 metres.—10.30 a.m., Concert by the Wiener Symphoniker, conducted by Max Schonherr. 12 Noon, Time and News. 12.10 to 1.0 p.m., Gramophone Concert. Improvisation (Tournemire): Adagio and Allegro from the Cello Sonata in A (Boccherini); Leonore's Aria from Fidelio (Beethoven); Rondo and Screnade from Faust (Gounod); Lensky's Aria from Eugene Onegin (Tchaikovsky); Aria from Iphigenia in Aulis (Gluck); Hungarian Rhapsody No. 2 (Liszt). 2.0, Time. Weather and Exchange. 2.15, Talk: Christmas Customs. 2.35, Programme for Children. 3.0, Sound Film Music (on Gramophone Records). 3.30, Talk for Women. 3.55, Talk: The Christmas Crib. 4.20, Concert. 4.55, Tourist and Traffic Report. 5.10, Talk: Winter Sports. 5.25, Sports Report. 5.35, Talk: Man and Religion. 6.0, Topical Talk. 6.15, Time, Weather and Programme Announcements. 6.30, Reading: The First Christmas tree in Vienna. 7.0, Puccini Concert. The Volksoper Orchestra, conducted by Oswald Kabasta. Soloists: Vera Schwarz (Soprano) and Josef Schmidt (Tenor). Commentary by Ernst Decsey. 8.30, News. 8.45, Gramophone Concert. After the Programme, Announcements.

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—10.57 a.m.,
Time Signal and Fanfare from the Tower
of St. Mary's Church, Cracow. 11.5, Gramophone Music. 11.30, Radio Journal. 11.35,
Weather Report. 11.38, Music for Children
(on Gramophone Records). 12 Noon, Interval. 2.25 p.m., Announcmeents. 2.30,
Economic Notes. 2.40, Concert by the
Adamska-Grossman Orchestra: Waltz (Lanner); Ideale (Tosti); Maggiolata (Armandola); Philigrane (Lindsay); Autunn (Leoncavallo); Rusticanella (Cortopassi); Hindu
Song (Zatnecnik); Couiavienne (Lada). 3.40,
Book Review. 3.55, Recitations. 4.10, Violin
Sonatas played by Mme. Kmita (Violin) and
Lefeld (Pianoforte); Sonata in G (Mozart);
Sonata in A minor, Op. 13 (Paderevski). 4.50,
Agricultural Talk. 5.0, Talk for Teachers.
5.20, Concert by the Jazz Trio. 6.0 Programme Announcements. 6.5, Miscellaneous
Items. 6.20, Ilints for the Holidays. 6.25,
Topical Talk. 6.40, Sports Notes. 6.47,
Radio Journal. 7.0, Talk on Music. 7.15,
Concert of French Music by the Philharmonic
Orchestra. conducted by Grzegorz Fielberg.
Soloists: Inez Jouglet (Songs) and Florent
Schmitt); Symphonic concertante (Schmitt),
with the Composer at the Pianoforte; Songs:
(a) Cavatina from The Pearl Fishers (Bizet),
(b) L'heure espagnole (Ravel), (c) Green
(Debussy), (d) Spleen (Debussy); Les
Escales (Ibert). In the interval at 8.0,
Literary Talk. 9.40, Cigány Music from the
Maison Foukier. In the interval at 8.0,
Weather and Police Notes.

ZURICH .- See Schweizerischer Landessender.

ALGIERS

DECEMBER THE TWENTY-THIRD

ALGIERS

825.5 kg/s, 363.3 metres; 13 kW.—7.10 p.m.,
Shipping Notes. 7.15, Weather. 7.20,
Sketches. 7.40, Sports Talk. 7.55, News.
8.0, Time. 8.2, Lottery Results. 8.10, Concert by the Station Orchestra: Overture
Mozart (Hahn); Invitation à la danse
(Fétras); Selection from Sigurd (Reyer).
3.35, News. 8.40, Gramophone Music. 8.50,
Concert (contd.): Träume (Wagner);
Selection from Isoline (Messager); Nocturne
No. 1 (Pierné); Two Little Dances (Finck).
9.25, News. 9.30, Accordion Music. 9.55,
News.

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres; and Cork, 1,337 kc, s, 224.4 metres.—1.30 to 2.30 p.m., Time, Weather, Stock and Gramophone Music. 6.0, Gramophone Concert. 6.45, News. 7.0, Recital, Do you remember, by Dora Sherican. 7.15, Gaelic Talk. 7.30, Time. 7.31, Pianoforte Recital by Claud Biggs. 7.55, The Station Orchestra. 8.15, Contraito Solos by Juan Burke. 8.30, A Christmas Play, presented by Mai Neville and Company. 9.0, Soprano Solos by Anna Hefteman. 9.15, Tenor Solos by P. O'Toole. 9.30 to 10.30, Programme by the I.B.C. (Ireland), Ltd. 9.30, Hawaiian Band Music: Shuffle off to Buffalo (Dublin); In the Park in Paree (Robin); Song, I like Mountain Music; Honolulu Bay (Traditional); Isle of Paradise; Song, Atlanta Bound; Hula, Hula (Traditional); My Moonlight Madouna (Fibich). 10.0, Concert of Dance Music: It's the Talk of the Town; You ought to see Sally on Sunday; Yvonne; Racing Commentary; Shadows on the Swanee; We all go riding on a Rainbow; Symphony of the Breeze; Morning, Noon and Night. 10.30, I.B.C. Good-night Melody, followed by News and Weather. 10.40, Traditional Music. 11.0 (approx.), Close Down.

BARCELONA

BARCELONA

EAJ1, 861 kc/s, 348.4 metres; 8 kW.—7.0 p.m., Request Gramophone Records. 7.30, Exchange and Gramophone Rusic (contd.). 8.0, Gramophone Music. 8.15, Anti-War Talk, Gramophone Music and News. 9.0, Chimes from the Cathedral, Weather, Exchange and Market Prices. 9.5, Educational Programme. 8.35, Concert by the Radio Orchestra: Two-Step (Traveria and Marta); Selection from El padrino de El nene (Caballero and Hermoso) Waltz Serenade, Palma de Mallorca (Yoshitomo); Russian Festival (Frigola); Persian Scenes (Rust); Overture, La Princesse jaune (Saint-Saëns). 10.30, Catalan Radio Gazette. 11.0, News and Dance Music relayed from the Casa Llibre. 1.0 a.m. (Sunday) till Close Down, Programme in English by the I.B.C. 1.0, Instrumental Music: Tarantella, A Day in Naples (Byng) Waltz, The Blue Danube (Joh. Strauss); The Squirrel Dance (Elliot); Hold me (Little); A Bed Time Story; Gavotte from Mignon (Thomas); Flower of Hawaii (Abraham); March, The Washington Post (Sousa). 1.30, Orchestral Music: Spring Song (Meudelssoinn); Polonaise in A flat (Chopin); Rose Dreams (Shannon); Minuet (Boccherini); Hungarian Dance No. 6 (Brahms); Grand March from Aida (Verdi); The First Noël (Traditional). 2.0, I.B.C. Goodnight Melody and Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—3.30 p.m., Programme approx.), to 7.0, See Rome, 7.0 to 7.15, News in Albanian. 7.30 till Close Down, See Rome.

BASLE .- See Schweizerischer Landessender.

BELGRADE

BELGRADE
697 kc/s, 430.4 metres; 2.8 kW.—3.0 p.m.,
Gramophone Records. 4.0, Yugoslav Songs
by Melanie Bugarinovic. 5.55, Time Signal
and News. 6.0, Talk. 6.30, Gramophone
Records. 7.0, Pianoforte and Violin Recital
by Lours Matacic and Vladimin Statin. 7.30,
Recital of Opera Arias by Mile. Milletic.
8.0, Orchestral Concert. 8.30, Popular Songs.
9.0, Time Signal and News, followed by
Gramophone Records. 9.45, Dance Music,
relayed from the Auto Club. 10.15 (approx.), Close Down.

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHSSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—1.0 p.m., Opera Music on Gramophone Records, 2.0, Programme for Children, 2.30, Weather and Exchange, 2.45, Economic Notes, 3.0, See Leipzig, 4.0, Programme to be announced, 4.20, Topical Talk, 4.30, Gramophone Music, 5.0, Poems, 5.5 (approx.). Discussion between the Author, Hanns Johst, and a Young Man, 5.20, Christmas Songs all over the World, 5.45, Chimes from Bremen Cathedral, 5.50, Weather and News, 6.0, Transmission for all German Stations, relayed from Munich, 7.0, To-day's Motto, 7.2 (approx.), Christmas Shopping—Humorous Radio Sequence, 8.0, Concert from Leipzig, 9.0, News, 9.25, Ski-ing Lesson on Gramophone Records, 9.45, Weather, 10.0, Concert relayed from Munich, 11.30 (approx.), Close Down.

BERLIN

FUNKSTUNDE, 832 kc/s, 360.5 metres; 1.5 kW. Relayed by Zessen, DJG, DJA, DJD, DJB, and DJE.—3.0 p.m., See Helisberg.

4.0, Stories of Ski-ing Adventures (on Gramophone Records). 4.20, Fireside Amusements, with the Whole Family at the Miccrophone. 4.40, Seventeenth Century Christmas Music. Milly Lohmann (Organ and Harpsichord), and Emil Seler (Viola d'amore); Organ Choral from Yom Himmel hoch, da komm ich her (Pachelbel); Christmas Sonata in A Minor, for Viola d'amore and Harpsichord (Biber); Choral Fantasia, Wie schön leucht' uns der Morgenstern (Buxtehude). 5.0, A Merry Christmas—Radio Sequence of Topical Reports of the Berlin Christmas Festivities. 6.0, Transmission for all German Stations. relayed from Munich. 7.5, See Hamburg. 9.0, News. 9.30 till Close Down, See Hamburg. 12 Midnight, Close Down.

BERNE.—See Schweizerischer Landessender. Schweizerischer BEROMUNSTER. -- See Landessender.

BODEN.-See Stockholm.

BODO.-See Oslo.

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.-7.55 p.m., Sports Notes. 8.0, News, Market Prices and Lottery Results. 8.5, English Lesson. 8.20, News. 8.30, Christmas Programme, relayed from Rennes, 1,105 kc/s, 271.5 metres. After the Programme, Amusement Guide and Time Signal.

BRATISLAVA

BRAIISLAVA

1,073 kc/s, 279.5 metres; 14 kW.—4.15 p.m.,
A Christmas Dream—A Puppet Play (V.
Baldesari-Plumlovská). 5.15, Talk for Housewives. 5.30, Gramophone Records. 5.45,
Topical Talk. 5.55, Talk for Housewives. 6.0, See Prague. 6.25, See Brno. 7.0, The
Land of Smiles—Operetta in Three Acts
(Lehár). 9.0, See Prague. 9.15, See Moravska-Ostrava. 10.30 (approx.), Close Down. BREMEN.—See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—12.25 to 1.10 p.m. (approx.), See Leipzig. 1.15, Weather. 1.20, Programme arranged by the Post Office with Gramophone Records. 2.0, Market Prices and Exchange. 2.10, Reading (Hermann von Müller). 2.30, Film Review. 2.45, Programme Announcements for the Coming Week. 3.0, See Leipzig. 3.50, Radio Report from the Erzgebirge. 4.50, Recital of Christmas Songs by Theodor Martin (Baritone), Weihnachtsschnee (Grieg); In der Krippe (Trunk); Die Hirten (Cornelius); Der Stern von Bethlehem (Humperdinck); Christmas Song (Berger). 5.10 to 5.50, Programme to be announced. 5.50, Programme Announcements and Weather. 6.0, Transmission for all German Stations, relayed from Munich. 7.0 to 9.20, See Leipzig. 9.20, Time and News. 9.35, See Munich. 12 Midnight, Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—6.25 p.m., German Transmission: News and Reading. 6.0, See Prague. 6.25, Marches and Folk Dances. 7.0, See Bratislava. 9.0, See Prague. 9.15 to 10.30, See Moravska-Ostrava. 10.30 (approx.), Close Down.

BRUSSELS (No. 1)

BRUSSELS (No. 1)

1.N.R.; 689 kc/s, 509.2 metres; 15 kW.—12.0 Noon, Concert by the Radio Orchestra, conducted by Franz Andre, with Songs by the Cæcilia Trio. Les Cadets de Picardle (Allier); Fantasia, Marrakesch (Percy); Intermezzo, The Musical Snuff Box (Nicolaiewsky); Flute Solo: Minuet from Orpheus and Eurydice (Gluck); Norwegian Rhapsody (Lalo); Two Songs: (a) Les trois princesses (Wekerlin), (b) Dans un pré (Charpentier); Die Spieluhr des Pompadours (Noack); Hungarian Rhapsody No. 2 (Liszt); La valse de Bruxelles (Grilliaert); Spanish Dance (Lacome); Totor et tintin (Vetsy and Faulx); Italian Ballet (de Bozi). 1.0 p.m., Le Journal Parlé. 1.10, Concert (contd.): Défilé tartare (Delmas); Fête de printemp) au vieux Japon (Delmas-Popy); Serenade (Caludi); Waltz from Faust (Gounod); Die Wachtparade kommt (Eilenberg); Melody (Mondt); Three Songs; Foxtrot (Benson); Melody (Gerrebos); Waltz (Heymann); Foxtrot (Wraskov). 4.45, Talk on Touring. 5.0, Programme by Robert de Kers and his Cabaret Kings, relayed from the Century Hotel, Antwerp. 6.0, Talk: Apprenticeship. 6.15, Gramophone Music. 6.30, Violifi Solos: Sonata in F Minor (Locatelli-Ysaye); Fantasia (Ysaye). 7.0, Gramophone Records. 7.30, Wireless Note: and Science Talk. 8.0, Concert by the Radio Orchestra, conducted Franz Andre; Danse humoresque (Palmgren); Violin Solo: Serenade, Souvenir (Drdla); Trumpet Solo from Cydalise et le chèvre-pied (Pierné); Hindu Song (Elmsky-Korsakov). 8.15, Miguel—Comedy in One Act (Henri Meilhac). 8.45, Concert (contd.):

Italian Song (de Micheii); Rumba, Cubanti (Sentis); Rumba, The Peanut Vendor (Chwat). 9.0, Sketches by Bach and Laverne (on Gramophone Records). 9.15, Extracts from Pomme d'api—Operetta (Offenbach). 10.0, Le Journal Parlé. 10.10, Programme by Robert de Kers and his Cabaret King, relayed from the Century Hotel, Antwerp.

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.1.R.; 888 kc/s, 337.8 metres; 15 kW. Programme in Flemish.—12.0 Noon, Concert by the Small Station Orchestra, conducted by Leemans: Introduction, Groningen (Jef van Hoof); March (Clerice); Serenade (Braga); Guitar (Bizet): Potpourri, Estudiantina (Manfred) 12.25 p.m., Request Gramophone Music. 12.40, Colicert (contd.): Overture, Zampa (Héroid); Melody (Ganglberger); The March of the Geese (Holmes). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Concert. 1.30, Mendelssohn Music (on Gramophone Records): Wedding March; Two Songs without Words; Spring Song; Die Spinnerin. 1.45, Gramophone Concert (contd.). 5.0 p.m., Concert by the Station Symphony Orchestra, conducted by Arthur Meulemans: Overture, The Mastersingers (Wagncr); Danses villageoises (Grétry); Espaila (Chabrier); Ballet Music from Coppélia (Delibes). 5.45, Pallieter Programme. 6.30, Concert by the Small Station Orchestra, conducted by Leemans: Overtures to La Vestale (Spontini)), Norma (Bellini), The Secret Marriage (Cimarosa), Don Pasquale (Donizetti), and Semiramis (Rossini). In the interval: Gramophone Music. 7.15, Variety Items. 7.30, Film Review. 8.0, Christmas Concert by the Station Symphony Orchestra and Soloists, conducted by Arthur Meulemans. Gramophone Record: Mijne Moedertaal (Brandts-Buys); Overture, The Consecration of the House (Beethoven); Pastoral Music (Bach); Three Old Flemish Carols; Andante religioso (Thome); Three Flemish Carols; Andante Relical; Talk and Announcements. 8.45, Concert (contd.): Ave Maria (Schubert); Kerstmis (Blockx); Sancta Maria (Fauré). 9.25, Flemish Song Recital, Talk and Announcements. 9.45, Concert (contd.): Ave Maria (Henselt); Meditation (Gounod); De Vlaamsche Leeuw (Miry). 10.0, Le Journal Parlé. 10.10, Dance Music by Robert de Kers and his Cabaret K

BUCHAREST

760 kc/s, 394.7 metres; 12 kW.—4.0 p.m., Light Music, relayed from the Bonbonière Lafayette. In the interval at 5.0, Radio Journal. 6.0, Educational Talk. 6.20, Gramo-phone Records. 6.45, Talk. 7.0, Choral Con-cert, conducted by Oancea.

BUDAPEST

BUDAPES 1

846 kc/s, 560.5 metres; 120 kW. Also relayed on 840 metres from 7.30 p.m. (approx.) till Close Down.—4.0 p.m., Talk on Christmas Customs. 4.30, Talk on Canaries. 5.0, Orchestral Concert, conducted by Stefan Bertha. 6.0, The Letter Box. 6.20, Concert by the Palim Pertis Cigány Band. 7.15, News. 7.30, Three One-Act Plays. 9.30, Weather. 9.35, Gramophone Concert. Symphony No. 2 in F (Brahms); Aria from The Barber of Seville (Rossini); Ronde de Nuit (Glinka); Cavatina from Faust (Gounod); Villanella (Dell'Acqua); Aria from The Puritans (Bellini).

CASSEL.-See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres; and Skamlebaek, 0XY, on 31.61 metres.—11.0 a.m., Time and Chimes from the Town Hall. 11.5 (approx.) to 1.0 p.m., Colocert by the Bendix String Ensemble, relayed from the Wivex Restaurant. 1.30, Gramophone Music. 2.0, Concert by the Mogens Hansens Instrumental Ensemble: March, Regimentskinder (Fucik); Waltz from The Gipsy Princess (Kálmán); Intermezzo (Ohlsen); Overture, A Masked Ball (Verdi); Piece in the form of a Habanera (Ravel); Serenade (Arensky); Adagio religioso (Sinigaglia); Overture, Thais (Massenet); Dance from Les templiers (Litolff); Dumka, Waltz and Cracowiak from Polenblut (Nedbal). In the interval at 2.30 (approx.), Four Danish Songs with Planoforte Accompaniment, sung by Paula Anderson. 4.0, Programme for Children. 4.30, Exchange and Fish Market Prices. 4.45, Talk on Christmas in Old Denmark. 5.15, Talk: From the May Tree to the Christmas Tree. 5.45, Weather. 5.54, Announcements. 6.1, News. 6.15, Time. 6.30, Readings. 7.0, Time Signal. 7.5, Concert of Danish Opera Music by the Radio Orchestra, conducted by Gröndahl: Overture, The Raven (Hartmann); Selection from Klug and Marshal (Helse); Selection from Masquerade (Nielsen). 7.40,

Danish Poets on their Travels—Reading and Song Recital. 8.20, Concert of Danish Folk Music by the Radio Orchestra, conducted by Gröndahl. 8.50, News. 9.5, Danish Duets, sung by Anna Hagen and Edith Schmidt. 9.25, Hans Christian Lumbye Concert by the Radio Orchestra, conducted by Gröndahl: Fantasia, Drönmerbilleder; Concert Polka for Two Violins; Waltz. Amelie; Final Gallop from the Ballet, Fjernt fra Danmark. 10.0, Dance Music, refayed from the Ritz Restaurant. In the interval at 11.0, Time and Chimes from the Town Hall. 11.15 (approx.), Close Down.

CORK .- See Athlone.

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—7.30 p.m., See Warsaw. 9.30, Concert of Christmas Carols by Niewiadomski, relayed from Lwów, 788 kc/s, 381 metres. 10.0, See Warsaw. 10.5, Gramophone Records. 11.0, Fanfare, relayed from St. Mary's Church.

DANZIG .- See Heilsberg.

DRESDEN .- See Leipzig.

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—11.0 a.m. to 12 Noon, Programme in English by the I.B.C. 11.0, Happy Hour. Part I: Light Music. 11.30, Part II: Dance Music. 12 Noon, Programme in French. 3.30 to 6.0 p.m., Programme in French. 3.30 to 6.0 p.m., Programme in English by the I.B.C. 3.30, Concert for Tunbridge Wells and Isle of Thanet Listeners. Part I: Request Half Hour. Signature Tune: The Night by the Sea; Jolly Fellows (Vollstedt); There's a Cabin in the Pines (Hill); Waltzing in a Dream (Crosby); Selection from The Desert Song (Romberg); A Sole Mio (Di Capua); I travel the Road; You are my Heart's Delight (Lehár). Part II: Dance Music. Did my Heart Beat; It's the Talk of the Town; Thanks; Adios, Good-bye; If I had Someone to Love; Stevedore Stomp; Mandemoiselle; Swingy Little Thingy. 4.30, I.B.C. Nursery Corner. Birthday Greetings. 5.0, Pianoforte Recital with Orchestral Interludes. Orchestra: Spanish Gipsy Dance (Marquia); Polonaise in A (Chopin); The First Waltz (Durand); Spanish Dance, No. 5 (Granados); The Rustle of Spring (Sinding); Liebestraum (Liszt); Roumanian (Ilolbrooke); Orchestra: Souvenir de Capri (Becce). 5.30, I.B.C. Time Signal. 5.31, Balalaika Music. Air de Ballet (Amlraieff); In a Pine Forest; Waltz Impromptu (Andraiev); Mazurka (Wieniavsky); Signature Tune: The Night by the Sea. 5.45, Dance Music. Night and Day; The Cage in the Window; Elvira; When Antumn comes around. 6.0, Programme in English by the I.B.C. 11.0, Variety Concert. Minstrel Memories. Selection from The Maid of the Mountains (Fraser Simson); Gooseberry Tart (Matthews); Waltz Medley (arr. Simpkins); Rugby Parade; The Railroad Boomer (Reeves); Waltz, The Blue Danube (Joh. Strauss). 11.30, Concert arranged by the International Broadcasting Company (Ireland), Ltd. Signature Tune, Come back to Erin; Wine, Women and Song (Joh. Strauss); Overture, Mignon (Thomas); Song. My Old Irish Mother (O'Donnell); The Wedding of the Rose (Jessel); Gipsy Moon (Borganov); Poor me, Poor you; Sleigh Bells (Lindemann); Signature Tune, Come Back to Er

FLENSBURG.—See Hamburg.

FLORENCE.-See Turin.

FRANKFURT

TRAINAPURI

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Gassel and Trier, 1,157 kc/s, 259.3 metres.—
12.15 p.m.. Time and News. 12.25, News and Weather. 12.35 to 2.30, See Stuttgart. 2.30, Weather, Time and Economic Notes. 3.0, See Langenberg. 5.0, Talk: The Problems of the Saar. 5.20, Review of the Week. 5.35, A Flying Visit. 5.50, Weather, Exchange and Time. 6.0, Transmission for all German Stations, relayed from Munich. 7.0, Topical Talk. 7.10, Die heilige Nacht—Christmas. Radio Play (Richard Billinger). with Music by Hans Rosbaud. 8.0, Winter Sports—Musical Variety Programme: The Station Orchestra, conducted by Hans Rosbaud. 9.0, Time and News. 9.20. See Stuttgart. 9.30,

ws and Weather. 9.45 till Close Down, Scengenberg. 1.0 a.m. (Sunday), Close Down.

IEDRIKSSTAD.-See Oslo.

LEIBURG .- See Stuttgart.

:NEVA .- See Radio-Suisse Romande.

ENOA .- Sce Turin.

EIWITZ.—See Breslau.

)TEBORG.—See Stockholm.

RAZ.-See Vienna.

AMAR.-See Oslo.

HAMBURG

HAMBURG

6 kc/s, 372 metres; 1.5 kW. Relayed by remen, 1,112 kc/s, 269.8 metres; Flensburg and Hanover, 1,319 kc/s, 227.4 metres, and et, 1,292 kc/s, 232.2 metres.—10.0 a.m., 1,374 concert on Gramophone Records; mphony No. 13 in G major; Andante from e Surprise Symphony. 10.30, Concert of ght Music, relayed from Hellsberg. In e intervals at 11.5 p.m., Notes for Houseves, and 11.10, Time Signal, Weather Rert, and Shipping Notes. 11.20, Concert om Heilsberg (contd.). 12 Noon, Exange Quotations. 12.10, Weather Report of Sports Notes. 12.20, Concert relayed om Berlin (Deutschlandsender). 1.15, 138. 1.35, Concert of Waltzes on Gramonone Records: Waltz from Symphony, Op. (Tchaikovsky); Parla-Waltzer (Arditi); altz in A major, Op. 42 ((Chopin); Roses om the South (Joh. Strauss); waltz Irahms); Fascination (Jos. Strauss); ina-Waltzer (Lincke). 2.0, Exchange notations. 2.40, Shipping Notes and Airaffic Report. 2.50, Ice Report. 3.0, Contrible of the Control Heilsberg. 4.0 to 5.0, Seerlin (Funkstunde). 5.0, Egon Hillinberg reads from his own Works. 25, Naval Programme. 5.40 (from 10.) Transmission for all German Stanotations. 2.40, Sinphing Notes and arraffic Report. 2.50, Ice Report. 3.0, Conrt relayed from Heilsberg. 4.0 to 5.0, Seerlin (Funkstunde). 5.0, Egon Hillmherg reads from his own Works. 25, Naval Programme. 5.40 (from lei), Religious Address. 5.50, Weather. 0, Transmission for all Gernan Staons, relayed from Munich. 7.5, Alle Iann an Bord (All Hands on Deck)—Musial Programme by the Hamburg Philamonic Orchestra, conducted by Eibenchütz, the Small Station Orehestra, contected by Adolf Secker and Gerhard Maasz, be Station Mixed Quartet and Soloists. 9.0, ime and News. 9.30, Dance Music by the mall Station Orchestra, conducted by Gerard Maasz. 11.0, Dance Music by the Georg lettelmann Band, relayed from the Hausiegler. 12 Midnight, Close Down.

IANOVER.-Sec Hamburg.

HEILSBERG

HEILSBERG

,085 kc/s, 276.5 metres; 60 kW. Relayed by Janzig, 671 kc/s, 447.1 metres.—12.5 p.m., framophone Concert of Christmas Music. In he intervals at 12.20 and 1.0, News. 1.30, Programme arranged by the Post Office, with framophone Records. 2.0, Agricultural Prices. 2.15 (from Danzig), Talk. 2.35, fandwork Programme—(Pristmas Decorations. 3.0, Concert by the Small Station Or-hestra. conducted by Wilcken: Overture, fanered (Rossini); Nachtfalter (Joh. Strauss); Jota Aragonesa (Albéniz); Ballet Verture (Kremser); Am Christabend (Zinner). 4.0, Programme to be announced. 1.20, Orchestral Concert (contd.). Selection from Iolanthe (Tchaikovsky); Valse ente (Lange); Fantasia on Danish Vational Melodies (Lanzky); Waltz. Jiebeslieder (Joh. Strauss). 5.0, Traffic Report. 5.5, Programme Announcements or the Coming Week. 5.15, Agri-ultural Prices and Ice Report. 5.25, East Prussian Press Review. 5.50, Weather. 1.0, Transmission for all German Stations, relayed from Munich. 7.5, See Hamburg. 1.0, (Approx.), Close Down.

HILVERSUM

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW. up to 5.40

2.m. and 20 kW. from 5.40 p.m.—Programme
of the Workers' Radio Society (V.A.R.A.).

11.40 a.m. Concert by the Small V.A.R.A.

2. Drchestra, conducted by de Groot. NeuWien (Strauss); Komu Zigany (Kalmán);
Rivista (Roncallo); Carovana (Cartopassi);
3. Song from The Bird Fancier (Zeller); Waltz
3. from Rose Marie (Friml); Polospiele
(Fetras); Gramophone Records; Estudian
1. time (Turina); Algerian Nights (Gregh);
Moonlight on the Alster (Fetras); Tanz

2. der Kobolde (Kopp); Gramophone Records;
Minuet (Beethoven); The Language of the
Flowers (Cowen); Melody (Gungl); Coquet
1. tcrie (Gregh); Timbres et clochettes
(Gregh). 1.40 to 1.55, Interval. 1.55, Gramo
1. phone Music. 2.40, Concert by the V.A.R.A.

Children's Choir, conducted by Mile.

1. Hulscher. 3.10, Gramophone Music. 3.54,

1. Talk. 4.10, Concert of Popular Music, con
4. ducted by Van de Horst. Soloist: de Booy
(Songs). 5.10, Organ Recital by Steyn.

Poem (Drdla); Russian Song (Lalo); Melody
(Ketelbey); Mattinata (Billi); Selection

1. from Eine Frau von Format (Krauss). 5.40,

1. Choral Concert. conducted by Tiggers. 6.20,

1. Literary Talk. 6.40, Concert by the V.A.R.A.

1. Orchestra, conducted by de Groot. Los

1. Banderillos (Volpatti); Overture, Die

1. Felsenmühle (Reissiger); The Skaters

1. Waltz (Waldteufel); Rossiniana (Respighi);

1. Minuet (Valentine); Selection from Tosca

(Puccini). 7.25, Programme by The Singing

1. Sinners. 7.40, S.O.S. Messages, News and

DEC. 23rd SATURDAY continued

Announcements. 7.55, Concert (contd.). Overture, Morning. Noon and Night (Suppé); Mexico (de Groot); Potpourri (arr. de Groot). 8.40, The Singing Singers. 8.55, Concert (contd.). Die Schönbrunner (Lanner); In a Chinese Temple Garden (Ketchey); In Hongkong Street (Humphries); Brautzug der Marionetten (Rathke); Mattinata (Leoncavallo); The Clock is playing (Blaanw); So schön wie es einnal war (Dauber) 9.30, Talk. 9.40, Dat doet de deur dicht—Revue (Meyer Hamel and Rido), relayed from the Cirque Carré, Amsterdam. 11.10, Gramophone Music. 11.40 (approx.), Close Down.

HORBY .- See Stockholm.

HUIZEN

HUIZEN

160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m.
Transmitted from Kootwijk on 50 kW. from
3.40 p.m.—11.55 a.m., Concert by the K.R.O.
Sextet. 1.40 p.m., Programme for Children.
3.40, Interval 3.55, Grannophone Music, 4.10,
Handwriting Lesson. 4.40, Gramophone
Music. 4.55, Sports Talk. 5.10, Concert by
the K.R.O. Boys, conducted by Lustenhouwer: Immer Mut (Kilssel); In Grinzing
(Sicezynski): Irgendwo (Heymann); Reses of
Picardy (Wood-Chapelier); Waltz from
Kleiner Mann was nun? (Böhmelt); Aubade
printanière (Laconube); Du besitzt mein Herz
(Strecker); My little Geisha (Barney);
Melody (Schebek); Sei gegrüsst (v. Mory);
Schrammeln, spielt mir nun ein' Tanz (Nützlader). 6.0, Press Review. 6.25, Concert
(contd.): Dort wo die Wälder grün' (Brodzsky); Sing a little Ditty in the Morning
(Burrows); I live for Love, from Ball at the
Savoy (Abraham). 6.40, Police Notes. 6.55,
Talk. 7.15, Concert by the K.R.O. Orchestra.
conducted by van 't Woud. 7.40, Variety
Programme. 8.10, News. 8.40, Russian
Cigány Concert, conducted by Jura Jurin
Wolkonsky: Kosaken (arr. Jurin); Gypsy
Potpourri (Ivanov); Twelve Robbers; Evening Bells; Two Russian Melodies, 8.55, Recitations. 9.10, Orchestral Concert: (cortd.): Ataman Tschurkin; Neue
Blumen (Tschernjavsky); Hab' Mitbeld
(Bakaleinikov); Czardas (Kenppner); Soldiers'
Songs. 9.45, Grannophone Music. 9.50, Orchestral
Concert (contd.): Slav Dance (Chabrier);
Hymn to the Sun (Rimsky-Korsakov);
Melody (Eilenberg); Petersburger Schlittenfahrt (Eilenberg); 9.30, Russian Concert
(contd.): Talor (arr, Jurin); The Bells are
Chiming; The Two Grenadiers (Schumann);
Paljavka; Moscow (Semjenov). 10.40, Gramophone Music. 1.140 (approx.), Close Down.

INNSBRUCK.—Sec Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—8.0 p.m., Amusement Guide, Financial Notes and News. 8.15, Film Notes. 8.30, Radio Con-cert. 9.0, News and Weather. 9.15, Radio

KALUNDBORG .- See Copenhagen.

KATOWICE

734 kc/s, 408 metres; 16 kW.—9.25 p.m., Programme announcements. 9.30, Concert of Christmas Carols, relayed from Lwów, 788 kc/s (381 metres). 10.0, See Warsaw. 10.5, Gramophone Music.

KAUNAS

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—5.50 p.m., Choral Concert. 6.20, Dramatic Programme. 7.5, Orchestral Concert: Bells across the Meadows (Ketelhey); Ave Maria (Schubert); Adagietto (Bizet); Monastery Bells (Derksen). 7.30, Reading. 7.50, Song Recital. 8.10, Recitation. 8.30, Talk in Esperanto: Christmas Eve in Lithuania. 8.50, Orchestral Concert: Bilder (Reinecke); L'Angelus (Debussy); Praeludium (Mouton); Violin Solo, Larghetto (Händel); Fantasia (Bach). 9.30 (approx.), Close Down.

KIEL.—See Hamburg.

KLAGENFURT .- See Vienna.

KOSICE .- See Prague.

Holisinki, 815 kc/s, 368.1 metres: 40 kW. Relayed by Helsinki, 815 kc/s, 368.1 metres.—5.40 p.m., Concert by the Radio Orehestra, conducted by Linko. 6.30, A Play (Axel Valentiner). 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

635 ko/s, 473 metres; 60 kW.—12.25 p.m., News. 12.35 to 2.30, See Stuttgart. 2.30 Economic Notes. 2.45, Anecdotes in Dialect. 3.0, Concert. Part 1: Gramophone Music;

Part II: Chamber Music by Rudi Rhein (Violin), Robert Grote ('Cello) and Hans Haass (Pianoforte): Melody for Violin and Pianoforte (Gluck); Intermezzo (Granados); 'Cello and Pianoforte: Polonaise (Zaremba), 4.0, Programme to be announced. 4.20, Concert by Liselotte Mann (Contralto), Heinz Hoersch (Tenor), Willy Schneider (Bass) and Willy Jansen (Bandonion), and Members of the Station Orchestra. 5.0 to 5.35, See Frankfurt. 5.35, Fiddle Solos, 5.45, Announcements. 6.0, Transmission for all German Stations, relayed from Munich. 7.0 to 9.20, See Frankfurt. 9.20, See Stuttgart. 9.30, News. 9.45, Gramophone Music. 10.0, Concert by the Station Orchestra, conducted by Kühn: Prelude to Christelfiein (Pfitzner); Symphonic Picture. Märchen (Enna); Nocurne for Strings (Dvorak); Turandot Suite, Op. 41 (Busoni); Ilans im Glick (Bendel). 11.0, La Traviata—Opera in Three Acts (Verdi), by the Cast of the Scala Milan on Gramophone Records, 1.0 a.m. (Sunday), Close Down.

LAUSANNE,-See Radio-Suisse Romande

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—12.15 p.m., News. 12.25, Request Gramophone Music. 1.0, News. 1.10, Market Prices and Show Report. 1.15, Book Criticism: Segen der Erde (Ernst Mctelmann). 1.30, Programme for Children. 2.15, Review of the Week. 2.30, Agricultural Notes. 2.45, Economic Notes. 3.0, Gernan and Seandinavian Folk Dances by the Emdé Orchestra: Rhineland Folk Dances; Mein Mann ist gefabren ins Hen; Dreigespann; Leier-Tanz; Hand Quadrille; Saxon Dance; Wendisch-Lausitzer Quadrille; Hans, bleib da! BuntesKarree; Wedding Dance; Triestampf; Schön goden Dag; Vingakerstanz; Short Sehottische; Auf den Ecken; Danish Folk Dance. 3.50, Radio Report from the Erzgebirge. 4.10, Concert of Light Music by the Emdé Orchestra: Overture, The Princess in the Golden Slippers; Waltz Intermezzo; Ein Wunsch (Hartung); Christmas Potpourri (Thiele). 4.30, Talk by Dr. Heinrich Schwarz. 4.50, Musical Programme, relayed from Breslau. 5.10, A Modern Dictionary. 5.25, Talk: Christmas Eve. 6.0, Transmission for all German Stations, relayed from Munich. 7.0, Today's News. 7.10, Concert by the Leipzig Symphony Orchestra, conducted by Weisbach. 9.0, News. 9.20, Sports Notes and News. 9.30, Serenade relayed from Munich. 12 Midnight, Close Down.

LINZ.-See Vienna.

LJUBLJANA
522 kc/s, 574.7 metres; 7 kW.—6.0 p.m.,
Philosophy Lesson. 6.30, Review of Foreign
Affairs. 7.0, Concert of Light Music. 7.30,
Song Recital. 8.0, Musical Programme.
8.30, Weather and News. 9.50, Waltz Pro-

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—French Programme, 7.0 p.m., String Quartet in G Minor, Op. 10 (Debussy), on Gramophone Records, 7.35, Song Recital by Marie-Thérèse Grosfils De Cuyper, followed by Gramophone Records, 8.5, Talk: The Monuments of Alsace. 8.10, French Concert by the Station Orchestra, conducted by Henri Pensis. Au Pays Basque (Fernand); Suite pour mes petits Amis (Pierné). In the interval at 8.30, Economics and Social Review. 8.50, News in French, 9.0, Radio Luxembourg Musical Medley by the Station Orchestra, conducted by Henri Pensis, Soloists and Choirs. 9.55, News in German. 10.5, Gramophone Concert. Osean Straus Potpourri (Dostal); Potpourri (Dostal); Potpourri (Dostal); Potpourri (Dostal); Potpourri (Selection from Sunny (Kern); Selection from The King of Jazz; Selection from Princess Charming (Sirmay, Bennett and Wallace); Selection from New Moon (Romberg). 10.45, Dance Music by the Radio Jazz Band, conducted by Ferry Jusa.

LWOW

788 kc/s, 381 metres; 16 kW.—7.30 p.m., See Warsaw. 9.25, Programme Announcements. 9.30, Christmas Carols. 10.0, See Warsaw. 11.0 (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 15 kW.— 7.30 p.m., Radio Gazette for Lyons and the South-East. 8.30, Operetta Programme and News relayed from Paris (Ecole Supérieure), 671 kc/s, (447.1 metres).

MADRID

MADKID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres;
20 kW.—6.0 to 8.0 p.m., Programme for
Listeners in the Canary Islands, Guinea and
Europe. 6.0, Concert of Popular Musie.
7.15, Talk. 7.30, Light Music. 8.0 to 10.30,
Interval. 10.30, Light Music (20.45, Radio
Chronicle. 11.0, Light Music (contd.). 11.45,
Popular Music. 12 Midmight till Close Down
Programme in English by the I.B.C. 12
Midnight, Dance Music: Isn't it Heavenly;
My Glpsy Rhapsody; From me to you;

Reflections in the Water; I've told Every Little Star; Climbing up the Golden Stairs; Down in the Valley; My Lucky Day. 12.30 a.m., Selection of Waltzes; Sweet Dreams, Pretty Lady (Downey); Ding. Dong. Ding (Hargreaves); Hold your Man (Freed); In the Valley of the Moon (Tobias); Waltz, Si petite (Gaston); My Moonlight Madonna (Fibid-i); Waltzing alone with you (Gerald). 1.0, I.B.C. Good-night Melody and Close Down.

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—7.0
p.m., Chimes, Exchange, Topical Talk, Talk,
Dance Music, Talk on Mental Hygiene and
Dance Music (contd.). 8.15, Radio Journal.
8.30, Interval. 9.15, English Lesson. 9.30,
Chimes, Time and Radio Journal. 9.45 (approx.),
Two One-Act Christmas Plays:
(a) Una Nochebuena (Eduardo Zamaeois),
(b) Los maitines de Nochebuena (Jose Santonia). In the interval, Guitar Recital by
Trinidad Garcia Aguado. 11.45, Radio Journal. 12 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MALMO.—See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—3.0 p.m.,
Concert by the Station Orchestra, conducted
by Plichta: Overture to The Opera Ball
(lleuberger); Winter Song (Demaret);
Waltz Fantasia (Tichy); Polka, Christmas
Humoresque (Rose); Potpourri (Geiger);
Furiant (Malát); Polka, Marian (Balling).
3.50, See Prague. 4.50, Talk: Christmas
Week in South Moravia. 5.5, News. 5.15,
See Prague. 5.25, Hugo Wolf Song Recitat
by Marta Zapletolivá. 6.0, See Prague. 6.25,
See Brno. 7.0, See Bratislava. 9.0, See
Prague. 9.15, Variety Programine by Paul,
Vera Borska, and the Station Orchestra,
conducted by Plichta. 10.30 (approx.), Close
Down.

MOSCOW

MOSCOW

KOMINTERN RWI, 202.5 kc/s, 1,481 metres;
500 kW.—3.0 p.m., News. 3.30, Talk:
Bolshevik Strategy and Tactics 1905-1907.
4.30, Red Army Programme. 5.30, MezzoSoprano Song Recital for Collective Farm
Workers. 6.30, Talk. 7.0, Reading. 8.0,
Talk in German: The Foundations of the
Soviet Union. 8.55, Chimes from Red Square.
9.5, Talk in French: Urbanism in Soviet
Russia. 10.5, Talk in Spanish: The Work
of the Bolsheviks under the Czarist Régimé.

MOTALA.—See Stockholm.

MUHLACKER .- See Stuttgart.

MUNICH

MUNICH
716 kc/s, 419 metres; 1.5 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 239 metres.—3.0 p.m., See Leipzig. 3.50, Radio Report from the Erzgebirge. 4.10 to 4.50, See Leipzig. 4.50, See Breslau. 5.10, Two Tales for Children: Christmas in the Great War. 5.45, Wireless Notes. 6.0, Transmission for all German Stations: Hansel and Gretel—Opera (Humperdinck), by the Choir Boys of Regensburg Cathedral. 7.0 to 9.20, See Leipzig. 9.20, News. 9.35, Serenade by the Small Station Orchestra, conducted by Erich Kloss. 12 Midnight, Close Down.

NAPLES .- See Rome.

NOTODDEN.—See Oslo.

OSLO

OSLO
277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Rjukan, 671 kc/s, 447.1 metres; and Jelöy, LCL, 6,990 kc/s, 42.92 metres.—3.30 p.m., Light Music on Gramophone Records. 4.15, Programme for Children. 5.15, Hardnager Fiddle and Song Recital of National Music, 5.45, Talk on Economics. 6.0, Announcements, Weather and News. 6.30, Talk. 7.0, Time Signal, 7.1, Song Recital by Erling Krogh (Tenor). 7.30, Readings. 8.0, Concert of Popular Music by the Station Orchestra. conducted by Kramm, and a Vocal Quintet. Soloist: Booken Lasson (Songs.). 8.40, Weather and News. 9.0, Topical Talk. 9.15, Concert (contd.). After the Concert, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

PALEKMO

556 kc/s, 539.5 metres; 3 kW.—7.0 p.m.,
Dopolavoro Notes, Tourist Talk, Agricultural Report and Giornale Radio. 7.20,
Grannophone Records. In the interval at
7.25, Sports Notes, Time and Announcements.
7.45, L'Ideale—Operetta in Three Acts
(Tosti). In the interval, Book Review. 10.0,
Giornale Radio.

PARIS

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,550 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—5.45 p.m., Le Journal Parle. 7.15, Weather. 7.25, News. 7.30, Les brebis de Panurge—Play (Meilhac and Halévy). and Le quatorzième Convive—Play (Valabregue). 8.30, Christ-

Wireless World

mas Concert relayed from Rennes, 1,105 kc/s, 271.5 metres.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Gramophone Musie. 7.15, Journal Parlé. 7.30, Gramophone Music. 7.50, Taik: The Event of the Weck. 8.0, Theatre Notes. 8.10, Interval. 8.30, Sponsored Programme. 9.20, Jazz Music and Dance Music, conducted by Lucien Morawec. 11.15, News.

PARIS

PARIS

RADIO-PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—6.45 a.m., Gynnastics. 7.0, Interval. 7.30, Weather and Gynnastics. 7.45, Gramophone Music. 8.0, News. 9.30, Concert by the Conservatoire Concert Society, relayed from the Old Conservatoire. 11.30, Interval. 12 Noon, Gramophone Concert: Anda (Messier); Melody; Rizos de Oro (Mateo); La Sulamita (Caruso); Ma' Minonchette (Hervé); The Three Flowers (Pattorini); Elenor (Olivier); Un regard, un frisson (Daris); Belle Madame Biguine (Mateo); Je suis le passeur du printemps (Goublier); L'Oasis (Peguri); Waltz (Borel-Clerc); Accordeona (Gardoni-Puig); Tes heaux doigts roses (Cazals-Leardy-Verly); Phanton Blues (Handler-Riliet-Mills); Lolita (Egen-Grothe); Pourquoi nous dire adieu (Bos); Selection from The Vagabond King (Frimi); Melody; Angele (Sarvil); Olbsession (Charpentier); Waltz, Etincelles (Waldteufel); Un peu d'amour (Silesu); Chindia (Mialovici); Rio Rita (Tierney); Le chant de L'escadrille (Pares-Van Parys); Je n'aime qu'un Soir (Yatove); Melody; Iudescrete; Ramona; Melody; In a little Confectioners; You know; The Whistler and his Dog; Nogent sur Marne (Paradis). In the intervals at 1.0 a.m. and 1.30, Exchange and News. 2.0, Exchange and News. 3.0, Programme for Children. 3.45, Exchange and Market Prices. and Racing Results. 6.45, Gramophone Music: Overture, La Princesse jaune (Saint-Saëns); L'Hermite (arr. Casadesus); La berccuse Célimène (Casadesus); Humoresque (Dvorák). 7.0, Science Talk. 7.20, Granophone Records: Divertissement on Russian Songs (Rabaud); Melody in Y (Rubinstein): Hungarian Melody (Liszt); L'absence (Berlioz); Selection from Der Rosenkavalier (R. Strauss), 7.45, News. 8.0, Song Evening arranged by Georges Chepfer, with Denise Cam, Paul Weil, Vincent Hyspa and Georges Wil. In the intervals at 8.30 and 9.15, News.

PITTSBURGH

KDKA; 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—7.0 to 10.0 p.m., New York Relay. 7.0, Musical Originalities. 7.30, Concert Echoes. 8.0, Words and Music. 8.30, Wealth of Harmony. 9.0, Dance Masters. 9.30, Concert Favourites. 10.0, Casino Orchestra. 10.30, A Recreo. Bill and Alex. 10.45, Orphan Annie, from New York. 11.0, News, Pat Haley. 11.15, Sports, Programme Preview. 11.30, Evensong. 11.45, Captain Al Williams, from New York. 12.00 Midnight, Ernie Holst's Orchestra. 12.30 to 3.0 a.m. (Sunday). New York Relay. 12.30, Trio Romantique. 12.45, Engineering Adventures. 1.0, Economics in New Deal. 1.30, Sous les Ponts de Paris. 2.0, Jamboree. 3.0, Behind the Law.

PORSGRUND .-- Sec Oslo.

POZNAN

897 kc/s, 334.4 metres; 1.9 kW.—7.30 p.m., See Warsaw. 9.25, Programme Announce-ments. 9.30, Concert of Christmas Carols by Niewiadomski, sung by Mnie. Nahlik with Orchestral Accompaniment, relayed from Lwow, 788 ko/s, 381 metres. 10.0, See Warsaw. 10.5, See Warsaw.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—3.0 p.m., See Moravská-Ostrava.

Talk for Young People.

Talk. 4.25, Gramophone Records. 5.5, Agricultural Talk.

Czech lesson for Germans. 4.50, Gramophone Records. 5.5, Agricultural Talk. 5.15, Talk.

5.25, News in German. 5.30, German Transmission: Christmas Talk.

6.0, Time Signal, News, and Weather Report.

6.10, Talk.

6.5, See Bratislava. 9.0, Time Signal, News, and Weather Report.

6.10, Talk.

6.20, Time Signal, News, and Sports Notes. 9.15, See Moravska-Ostrava.

10.30 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15 a.m. (from Lausanne). Gymnastics. 11.28, Time Signal from Neuchâtel Ohservatory, 11.30, News and Weather. 11.40, Military Songs. 12 Noon (from Lausanne), Financial Notes. 12.5 p.m. (from Lausanne), Gramophone Concert. 12.45 (from Lausanne), Announcements and Auswers to Correspondence. 1.0, Interval. 2.58, Time Signal from Neuchâtel Observatory. 3.0 (from Lausanne), Orchestral Concert. 3.45, Concert relayed from Lugano. 5.0 (from Geneva),

DEC. 23rd SATURDAY continued

Programme for Children, 5.20 (from Geneva), Talk for Young People: Rhythm and Music. 5.40 (from Geneva), Talk on Films. 6.5 (from Geneva), Radio Chronicle. 6.35 (from Geneva), Organ Recital of Christmas Music by William Montillet, relayed from St. Joseph's Church: Two Movements from the Pastoral Suite (Bach); Suite, Noël (Mooser); Carillon pour un Noël bizantin (Chenaux). 7.0 (from Geneva), Variety Items. 7.15 (from Geneva), Choral Conect. 7.35 (from Geneva), Talk: Italian Switzerland. 8.0 (from Geneva), Variety Concert by the Melody Dance Orchestra, conducted by Pasche. 9.0, News and Weather. 9.10 (from Geneva), bance Music on Gramophone Records. 10.30 (approx.), Close Down.

REYK JAVIK

250 kc/s, 1,200 metres; 21 kW.—7.45 p.m., Programme for Children. 8.10, Weather. 8.35, Programme to be announced. 9.0, Chimes and News. 9.30, Reading. 10.0, Trio Music followed by Choral Music on Gramophone Records.

RJUKAN .- See Oslo.

ROME

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Re layed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres from 7.40 p.m., and 2RO, 11,810 kc/s, 25.4 metres.—
12 Noon to 1.15 p.m., Orchestral Concert: Foxtrot, Quando (Maugeri); Overture, The Force of Destiny (Verdi); Waltz Intermezzo, Occhi azzurri (Giudice); Idyll from the Suite campestre (Gioacchino); Selection from II carillon magico (Pick-Mangiagalli); Burlesque (Culotta); Jota (Innocenti); Foxtrot, Echi del Volga (Roveroni-Filippini). In the intervals from 12.30 to 12.45, Giornale Radio, and at 1.0, Time and Announcements 3.30, Children's Radio Review. 3.55, Giornale Radio, Exchange and Report of the Royal Geographical Society. 4.0, Orchestral Concert, conducted by Defauw, relayed from the S. Pietro a Maiella Conservatoire. 4.55, Weather. 5.0, Wheat Market Prices. 5.10, Dopolavoro Announcements and Tourist Report. 5.45 (Naples), Shipping and Sports Notes. 5.50, Lesson in Morsc. 6.0, News in Foreign Languages. 6.30, Gramophone Music. 6.50, Giornale Radio and Sports Notes. 7.0, Time, Announcements and Tourist Report. 5.47 (Naples), Shipping and Sports Notes. 7.0, Time, Announcement and Gramophone Music. 7.30, Government Announcements. 7.40, Sponsored Concert. 8.10, La promozione del giudice—Comedy in One Act (Bernardini). 9.45, Concert by an Orchestra and Soloists: Tito Rosati ('Cello) and Emilio Livi (Tenor). "Cello Solos: (a) KO Nidrei (Bruch), (b) Czardas (Fisher); Tenor Solos; Nocturne. Silvano (Mascagni); The Ride of the Valkyries from The Valkyrie (Wagner); Overture, The Thieving Magpie (Rosain); Piece for Orchestra. 10.0, Giornale Radio.

SALZBURG.-See Vienna.

SCHENECTADY

(WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAB on 19.56 metres.—12.45 a.m. (Sunday), Stock Reports. 1.0, Variety Programme. 1.30, Antobal's Cubans, from New York. 1.45, Variety Programme. 2.0 to 4.0, New York Relay. 2.0, Baron Münchhausen; Orchestra; Soloists. 2.30, Leo Reisman's Orchestra; Yacht Club Boys. 3.0, Saturday Night Dancing Party. 4.0, Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; Basle, 1,229 kc's, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—5.50 to 6.5 a.m. (Basle), Gymnastics. 11.0 (Berne), Gramophone Concert. 11.29, Time Signal from Neuchātel Observatory and News. 11.40 (Berne), Light Music on Gramophone Records. 12.25 p.m., Time, Weather and Exchange. 12.30 (Berne), Talk: The Week in the Federal Assembly. 12.45 (Berne), Request Gramophone Music. 1.0 (Berne), Christmas Shopping—a Microphone Report from the Streets. 2.0, Interval. 2.59, Time Signal from Neuchātel Observatory. 3.0 (Berne), Concert by a Village Orchestra. 3.30 (Berne), Extracts from Newspapers of Thirty Years Ago. 3.45, Concert relayed from Lugano. 5.0 (Basle), Christmas Programme for Children. 6.0, Chimes from Zürich Churches. 6.15 (Basle), Time, Weather and Market Prices. 6.20 (Basle), Gramophone Music. 7.0 (Basle), Henrich Stilling reads from his own Works. 7.30 (Basle), Concert by the Basle Orchestral Society. Conductor: Rudolf Moser. 8.6, Weather and News. 8.10, Concert (contd.).

9.15 (Basis), Dance Music. 10.0 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

BY MC/S, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 932 kc/s, 322 metres; Hőrby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres; Ostersund, 402 kc/s, 746.2 metres; and Sundsvall, 554 kc/s, 542 metres.—3.0 p.m., Concert of Light Music by the Elite Orchestra. 4.5, Programme for Children. 4.30 (from Sundsvall), Variety Programme. 5.15, Old Dance Music. 6.15, Weather and News. 6.30, Discussion on Hot Jazz, with Musical Illustrations. 6.50, Travel Talk, 7.20, Gramoplone Music. 8.20, Reading (Albert Engström). 8.45, Weather and News. 9.0, Dance Music. 10.0 (approx.), Close Down.

STRASBOURG

STRASBOURG

869 kc/s. 345 metres; 11.5 kW.—10.30 a.m., Orchestral Concert, relayed from Marseilles, 950 kc/s, 315 metres. 12 Noon, Variety Concert, conducted by Roskann. Overture, Die Fledermaus (Johann Strauss); Minuet for Strings (Boccherini); Waltz from Victoria and her Hussar (Abraham); Selection from Aida (Vcrdi); Saxophone and Pianoforte: Ilungarian Dance (Ring-Hager); The Clock and the Dresden Figures (Ketelbey). 12.45 p.m., News. 1.0, Variety Concert (contd.), March (Grothe): Song, Learn to Croon (Johnson); Violin Solo, Serenade (Toselli); Waltz, Pomona (Waldteufel); Tango (Stransky); Selection from The Last Waltz (Osear Straus); Twenty Million People (Johnson); Anbade Printanière (Lacombe); Crazy Stomp (Allouche); Two-Step. Madrid (Speyer). 2.0, Legal Talk in German. 2.15, Dance Music on Gramophone Records. 3.0, Talk on Music. 3.15, Interval. 4.0, Gramophone Records. 5.0, Symphony Concert by the Pasdeloup Concert Society, rehyed-from Paris. 7.0, French Lesson. 7.15, Gardening Talk. 7.30, Time and News. 7.45, Gramophone Records. 8.0, Press Review in German Lottery Results and News. 8.30, Concert by the Société des Annis du pays Messin, relayed from Metz. Old Christnas Carols. French Christmas Carols. Children's Carols. Three French Carols: Conte de Noël (Déroulède); Noël des enfants qui n'ont plus de maison (Debussy); Noël héroique (Dourdrain). 10.30, Dance Music, relayed from the Savoy. 12 Midnight, Close Down.

STUTTGART

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 1.5 kW. Relayed by Freiburg, 527 kc/s, 570 metres.—12.35 p.m., Gramophone Concert: Kleinbahnfahrt (Rathke); Auf hohen bergen; Ländler, A lustiger Klarinetten; I hab' a Hütterl drin im Rochgebirg; Kreuz Polka; Zugar Ländler; Mei Leibjodler; Oberbayrischer Schuhplatter; Auf zum Tanz; Grüss di Gott mein liab Schwagerin; Gebirgsweisen; O du mein Edelweiss (Röhricht); Die Fischerhüttn (Kronegger); Haushamer Trompeten Ländler; Allgäner Doppeljodler; Immerfesch; Holzhacker-Buabn-Marsch. 1.30, Das rote Röckchen (Little Red Riding Hood)—Christmas Fairy Story in Nine Pictures (Lilli Martini). 2.15, Morse Lesson. 2.30, Choral Concert: Die Lore (Sücher); Ach du klar blauer Himmel (Silcher); Warnung (Bezler); Tanzlied (Faden); Hans und Liesel (Löffler); Was isch der Schwob (Süssmuth). 3.0, See Langenberg. 4.0, Programme to be announced. 4.20, See Langenberg. 5.0, See Frankfurt. 5.35, Talk: The Antiquarian Aspect of Gravel Pits. 5.50. Time and Weather. 6.0, Transmission for all German Stations, relayed from Munich. 7.0, See Frankfurt. 9.20, Talk: Things you should know. 9.30, News. 9.45 till Close Down, See Langenberg. 1.0 a.m. (SUNDSVALL.—See Stockholm.

SUNDSVALL .- See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—6.0 p.m., News.; 6.15, Operetta Music. Selection from Le Grand Mogol (Audran); Selection from Le Cloches de Corneville (Planquette); Selection from Miss Decima (Audran). 6.30, Opera Arias. Arias from Carmen (Bizet); The Barber of Seville (Rossini); and Marouf (Rabaud). 6.45, Music by a Viennese Orchestra. 7.0, Music from Sound Films. 7.15, News. 7.30, Planoforte Recital. 7.45, Spanish Songs. 8.0, Light Music. 8.15, Operetta Arias, Arias from Les mousquetaiges au couvent (Varney), La Mascotte (Audran), and Deux sous de fleurs (Benatzky). 8.30, Military Music. 8.45, Songs. 9.0, Orchestral Concert. 9.30, Werther—Opera in Four Acts (Massenet). In the interval at 10.15, News. 11.45, Request Music. 12 Midnight, News, Weather and Announcements. 12.5 a.m. (Sunday), Dance Music. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—4.10 to 7 p.m., See Turin. 7.30, See Rome. 2.40 t Close Down, See Turin.

TRONDHEIM.-See Oslo.

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed 1
Milan, 903 kc/s, 332.2 metres; Genca, 9
kc/s, 312.8 metres; and Florence, 598 kc/
501.6 metres.—4.10 p.m., Chamber Music of Gramophone Records: Moto perpetuo (Ott
kar); Rigandon (Monsigny); Song of tl
Flea (Mussorgsky); Dance (Horowitz)
Screnade (Drdla); Souvenir (Drdla); Ar
(Bach); Scherzo (Goens); Il trille diavolo (Tartini). 4.55, Announcements. 5
to 5.20, Agricultural Notes, Wheat Mark
Report, Dopolavoro Announcements at
Tourist Report. 6.0, Time and News in Fo
eign Languages. 6.30, Talk. 6.40, Gramophor
Records. 6.50, Announcements, Giorna'
Radio and Wcather. 7.0, Gramophor
Records. 7.30, See Rome. 7.49, Lelis
d'amore—Opera in Three Acts (Donizetti
In the intervals, Talk: Events and Probiem
Book Review and Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and 5,91 kc/s, 50.26 metres (Evening); 10 kW.—10 to 10.15 a.m., Religious Information in Varous Languages. 7.0 to 7.15 p.m., Religion Information in Italian.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed b
Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,02
kc, 5, 283 metres; Klagenfurt, 652 kc/s, 453.
metres; Linz, 1,220 kc/s, 245.9 metres; an
Salzburg, 1,373 kc/s, 215.8 metres.—8.20 a.m
Market Prices. 8.30, Weather Forecast. 3.53
Tides Report. 10.30, Concert of Folk Masi
on Gramophone Records. Zither Quartet
Christmas Bells (Fux); Song: Mei' Glüch; ia
Hütterl; Quartet: Echo-Jodler; Yodel
ling Solo: Mei' Liebjodler; Song: Hei' Glüch;
da Kirchturm (Buchberger); Abendlämtei
m Hochgebirge (Schroffensteiner). 10.55
Weather. 11.0, Orchestral Concert, con
ducted by Oscar Tascha. 12 Noon
Time, Wcather and Announcements
12.10 p.m., Concert (contd.). 1.0, In
terval. 2.0, Time, Weather and Marke
Prices and Snow Report. 2.10, French Lesson
2.35, Reading (Friedrich Schnack). 3.0, Pro
gramme of Christmas Fairy Tales b
Marianne Kaiser and a Children's Choir. 4.0
Talk: Christmas in Bethlehen. 4.25, Grano
phone Concert. 5.30, Topical Talk. 6.0, Con
cert by the Wiener Symphoniker, conducter
by Max Schönherr. In the interval at 6.35
Tine, Weather, Sports Notes and Programma
Announcements. 7.5, To-day's Motto. 7.10
Die Heinkehr (The Home-coming)—Tragedy
(Eugen Andergassen). 7.45, Christnach
Cantata (Josef Haas) by the Wiener Sym
phoniker, conducted by Ferdinand Habel, tac
Dreizehnlinden Choral Society, and Soloists
9.15, News, Weather and Announcements
9.30, Programme to be announced.

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—10.57 a.m.;
Time Signal and Fanfare from the Tower of
St. Mary's Church, Cracow. 11.5, Sacred
Music (on Gramophone Records). 11.30,
Radio Journal. 11.35, Weather. 11.38,
Gramophone Records (contd.). 1.0, Interval.
2.30, Burkath in a Pianoforte Recital of his
own Works; Transcription of Polish Christmas Carols, Op. 12; Two Sketches in F
Minor and G Flat. 2.55, Aviation Report and
Anti-Gas Drill. 3.0, Programme for Invalids,
relayed from Lwów, 788 kc/s, 381 metres.
3.40, Organ Recital, relayed from the Church
of St. Elizabeth, Lwów: Symphony (Grey);
Sacred Songs (Grey); Choral on Themes of
Sacred Songs (Grey); Choral on Themes of
Sacred Songs (Wozny); Benedicione (SaintSaëns); Hosanna (Wozny). 4.15, Interval.
7.30, Christmas Programme for Children. 8.0,
Concert by the Gregorian (hoir. 8.30, Reading. 8.45, Chopin Pianoforte Recital by
Sztompka: Barcarolle in F Sharp, Op. 60,
Nocturne in E Minor, Op. 72; Three
Mazurkas: (a) in A Minor, (b) in A Flat,
Op 41, and (c) in C Minor, Op. 56; Scherzo
in C Sharp Minor, Op. 39. 9.25, Programme
Announcements. 9.30, Concert of Christmas
Carols by Niewiadomski, sung by Mme.
Nahlik, with Orchestral Accompaniment, relayed from Lwów. 10.0, Aviation Weather
Report and Police Notes. 10.5, Gramophone
Music.

WILNO

530 kc/s, 566 metres; 16 kW.—7.30 p.m., See Warsaw. 9.25, Programme Announce-ments. 9.30 till Close Down, See Warsaw.

ZAGREB

977 kc/s, 307 metres; 0.75 kW.—6.10 p.m., Talk. 6.25, Sports Talk. 6.45, Announce-ments. 7.15, Pianoforte Recital by Bozidar Kunc. 7.45, Orchestral Concert. 8.45, Dance Music. 9.0, News, Weather and Pro-grammc Announcements. 9.15, Dance Music. 10.0 (approx.), Close Down.

ZURICH.-See Schweizerischer Landessender



RINCIPAL BROADCASTING STATIONS OF EUROPE

Arranged in Order of Wavelength

res.	kc/s.	kW.	Station.	Tuning Positions.	Metres.	kc/s.	kW.	Station.	Tuning Positions.
5	155	7	Kaunas (Kovno) (Lithuania)		363.6	825	13	Algiers (Algeria)	
5	160	8.5	Huizen (Holland) (Kootivyk, 50KW., after		360.6	832	1.5	on low power) (Germany) (temporarity	• • • • • • • • • • • • • • • • • • •
6	167	50	Lahti (Finland)		355.9	843	50	London Regional (Brookmans Park)	
5	174	75	Radio Paris, CFR Berlin (Deutschlandsender) (Germany).			852	7		· · · · · · · · · · · · ·
5	183.5	60	(SIV. Stn. DJA on 31.38 m., DJB on 19.73 m., DJC on 49.83 m., DJD on 25.51 m.,		349.6 348.8	858 860	7.6 10	- · · · · · · · · · · · · · · · · · · ·	
	1				345.2	869	11.5	Strasbourg, PTT (France)	
4.4	193	30	Daventry National		341.7	878	35		• • • • • • • • •
6	194	7	Ankara (Angora) (Turkey)		337.8	888 896	15 5	Brussels II Velthem (Belgium). (In Flemish) Cadiz (Spain)	
6	202.5 207.5	500 13	Eiffel Tower, FL, Paris		334.4	897	1.9	Poznan (Poland)	
.2	212.5	120	Warsaw I (Poland)		332.2	903	50	Milan (Italy). (Relays Turin)	
30	217.5	100	Novosibirsk, RV76 I (Russia)		328.2 325	$\frac{914}{923}$	60 60	The same of the sa	
18	$\begin{array}{c c} 222.5 \\ 250 \end{array}$	30 5	Stamboul (Turkey)		321.9	932	10	Göteborg (Sweden). (Relays Stockholm)	
)0	250	21	Reykjavik (Iceland)		318.8	941	0.25		· · · · · · · · · · · · · · · · · · ·
90	252	200	Luxembourg Tashkent, RVII (Russia)		318.8 315.8	941 950	1.5 1.6	Naples, INA (Italy). (Relays Rome) Marseilles, PTT (France)	
70 54	256 265	25 30	Kalundborg (Denmark). (Relaus Copenhagen)		312.8	959	1.7	Cracow (Poland)	
32	265	15	Monte Ceneri (Switzerland)		312.8	959	10	Genoa, IGE (Italy). (Relays Turin)	
71	268.5	40	Moscow, Popoff RV58 (Russia)		309.9	968 977	50 0.7	West Regional (Washford Cross) Radio Vitus (Paris). (SW. Stn. on 43.75 m.)	
33 71	277 280	60 35			307	977	0.75	Zagreb (Yugoslavia)	
35	290	36	Kiev, RV9 (Russia)		304	986	13	Bordeaux Lafayette, PTT (France)	
00	300	100	Moscow RV49 (Russia). (SW. Stn. on 50 m.) Kharkov, RV4 (Russia)		301.5 298.8	995 1004	50 11	North National (Manchester)	
38 57	320 350	20 100			296.1	1013	20	Hilversum (Holland). (7 kW. before 4.40 p.m.)	
40	357	3	Budapest (Hungary)					(V.A.R.A., A.V.R.O. and $V.P.R.O.$ programmes.)	
00	375	50 1.3			293.5	1022	0.7	Limoges, PTT (France)	· · · · · · · · · · · · · · · · · · ·
50 20	400 416.6	20			293.5	1022 1031	2.6 13.2	Kosice (Czechoslovakia)	
89	436	1.5	Oulu (Ulcaborg) (Finland)		291 288.3	1031	50	Scottish National (Falkirk)	
74.7	522	0.7	Hamar (Norway) (Relays Oslo)		288.3	1040	1	Bournemouth. (Relay Station)	
74.7 70	$\frac{522}{527}$	7 0.25	Freiburg (Relays Muhlacker)		286	1049	0.8 0.7	Montpellier (France)	· · · · · · · · · •
68.1	528	2	Grenoble (France)		284.8 283.6	1053 1058	0.5	German Relays (Berlin, Magdeburg, Stettin)	
65	531	16	Wilno (Poland). (Relay Station) Kaiserslauten and Augsburg (Relay Munich)		283.6	1058	0.5	Innsbruck (Austria). (Relays Vienna)	\
60 50	536 545	1.5 120			282.2	1063	2	Lisbon CT 1AA (Portugal). (Short-wave Station on 31.25 m.)	
42	554	10	Sundsvall (Sweden). (Relays Stockholm)			1067	0.75	Copenhagen (Denmark)	
39.6 33	556 563	3 1.5			219.0		13.5		· · · · · · · •
525	571	15	Riga (Latvia)		270.0	1085 1096	60 7		
517.2	580	100	Vienna (Bisamberg) (Austria) Brussels No. 1, Velthem (Belgium). (In French		9715		1.3	Rennes, PTT (France)	
i09 i01.6	589 598	15 20		/	209.0		20 0.75		
195.8	605	1.2	Tröndelag (Norway)				6.25	Nyireghaza (Hungary). (Relays Budapest)	
188.6	$\begin{array}{c} 614 \\ 625 \end{array}$	120 50	Prague (Czechoslovakia)		265.8	1128.5	1.3	Lille, PTT (France)	
180 172.4	635	60	Langenberg (Germany)	1	263.8	$\frac{1137}{1147}$	11.2 50		
165.8	644	15	Lyons la Doua, PTT (France) Beromünster (Schweizerischer Landessender)		050.2	1157	17	Frankfurt-aM. (Germany)	
159.4	653	60	(Switzerland).		405.0	1157	2.3	Trier and Cassel. (Relay Frankfurt)	
453.2	662		San Sebastian, EAJ8 (0.6 kW.); Klagen-		257.1 255.1	$\frac{1167}{1176}$	10 0.7		
453.2	662	0.25	furt (0.5 kW.) (Austria) (relays Vienna). Agen (France)		253.1	1185	5		
453.2	662	4	Milan (Vigentino) (Italy). (Relays Rome) Madona (Latvia). (Relays Riga)		252 249	$\frac{1193}{1205}$	1 0.8	Barcelona, EAJ15 (Assoc. Nat.) (Spain) Juan-les-Pins, Nice (France)	
451.8 447.1	664 671	20 0.5	Danzig (Relays Heilsberg)		247.7	1211	10	Trieste (Italy). (Relays Turin)	
447.1	671	7	Paris, Ecole Supérieure, PTT		245.9	1220		Berne (0.5kW.) (Switzerland) (relays Beromün-	
441.2 435.4	680 689	50 55	Rome, IRO. (SW. Station, 2RO on 25.4 m.) Stockholm, SASA (Sweden)				}	ster); Eskilstuna (0.2kW.), Säffle (0.4 kW.) (Sweden) (relays Stockholm); Linz (0.5 kW.) (Austria) (relays Vienna); Turku (Abo) (0.5 kW.) (Finland) (relays Helsinki). Basle (Switzerland). (Relays Beromunster).	
435.4 429.7	698	2.5	Belgrade (Yugoslavia)		11	1000	0.5	(Abo) (0.5 kW.) (Finland) (relays Helsinki).	
424.3	707	2	Madrid, EAJ7 (Union Radio)		244.1		0.5	Basic (Switzerland). (Relays Beromunster) Belfast (N. Ireland)	
424.3 419	$\begin{array}{c} 707 \\ 716 \end{array}$	100	Moscow, Inini Stalina (Russia) Berlin, Funkstunde (Germany)		240.6	1247	0.5	Stavanger (Norway)	
416.4	720.5	5	Rabat (Morocco)		1 200.0		2	Nürnberg (Germany). (Relays Munich) Nimes (France)	
413	725	60	Athlone (Irish Free State)			1260 1265	3	Bordeaux, Sud-Ouest (France)	
408.7 403.8	734 743	16 25	Sottens (Radio Suisse Romande) (Switzerland)		235.5	1274	0.5	Kristiansand (Norway)	
398.9	752	25	Midland Regional (Daventry)				1.65 0.25	Lodz (Poland). (Relay Station) Kiel (Germany). (Relays Hamburg)	
394.2 389.6	761 770	12 120	Bucharest (Roumania) Leipzig (Germany)		230.6		- 0.20	Swedish Relay Stations	1
385.1	779	8	Toulouse (Radiophonie du Midi) (France)		227.4		l	Flensburg, Bremen and Hanover. (Relay Hamburg)	
385.1	779	10	Stalino, RV26 (Russia)		11	1328	10	Fécamp, Radio-Normandie (France)	
381 376.4	788 797	16 50	Scottish Regional (Falkirk)		224.4	1337	1	Cork (Irish Free State) (Relays Athlone)	e
372.2	806	1.5	Hamburg (Germany)				1.5	Béziers (France)	
368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.); Galicia EAJ4 (0.2 kW.) (Spain); Bolzano		218.5		0.2	Salzburg (Austria). (Relays Vienna)	
		}	Galicia EAJ4 (0.2 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (relays Lahti); Kharkov, RV20 (10kW.)	n	217	1382	1.2	Dublin (Relays Athlone) Königsberg (East Prussia). (Relays Heilsberg)	
000 4	01"	0.7		Ί		1382 1400	0.5 1	Aberdeen	
368.1 366.7	815 818	0.7	Radio, LL, Paris		211.3	1420	1	Newcastle	
364.1	824	1	Bergen (Norway)		209.8	1430	1.25	Magyarovar, Miskolc and Pecs (Hungary)	
	1			1	H	J	1	i	•



SHORT-WAVE STATIONS OF THE WORLD

(N.B.—Times of Transmission given in parentheses are approximate only and represent G.M.T.)

4									
Metres.	kc/s.	Call Sign.	Station.	Tuning Positions.	Metres.	kc/s.	Call Sign.	Station.	Tuning Positions.
62.56 58.31	4,795 5.145	VE9BY OK1MPT	London, Ont. (Canada). (Sun. 06.00) Prague (Czechoslovakia). (Tues. and Fri. 19.30)		31.54 31.48 31.38	9,510 9,530	GSB W2XAF	Empire Broadcasting Schenectady, N.Y. (U.S.A.). (Relays WGY)	
50.26 50.0	5,970 6,000	HVJ RW59	Vatican State, Rome. (Daily 19.00) Moscow. (Relays Komitern Stn.)		31.35	9,560 9,570	DJA W1XAZ	Zeesen (Germany). (Daily 22.00) East Springfield, Mass. (U.S.A.). (Relays WBZ)	
50.0 49.83	6,000 6,020	EAR25 DJC	Barcelona, Radio Club (Spain). (Sat. 20.00) Zeesen (Germany)		31.3	9,580	HBL	Radio Nations, Prangins (Switzerland). (Sat. 22.00-22.45)	
49.67 49.64 49.58 49.5	6,040 6,040 6,050 6,060	W1XAL W4XB GSA W3XAU	Boston, Mass. (U.S.A.)		31.29 31.28 31.28 31.25	9,585 9,590 9,590 9,598	GSC W3XAU VK2ME CT1AA	Empire Broadcasting Philadelphia, Pa. (U.S.A.). (Relays WCAU) Sydney (Australia). (Sundays) Lisbon (Portugal). (Tues. and Fri. 22.00-	
49.5	6,060	VQ7LO	WCAU) Nairobi (Kenya Colony). (Daily 16.30)		31.0	9,675	T14NRII	100.00) Heredia (Costa Rica). (Daily 22.00 and	
49.5 49.43 49.40	6,069 6,069 6,075	W8XAL VE9CS OXY	Mason, Ohio (U.S.A.). (Relays WLW) Vancouver, B.C. (Canada) Skamlobaek (Denmark). (Relays Copen-		30.0 28.98	10,000 10,350	EAQ LSX	02.00) Aranjuez (Spain). (Daily 22.30, Sat. 18.00) Buenos Aires (Argentina). (Daily 20.30)	
49.34 49.22	6,080 6,095	W9XAA VE9GW	hagen) Chicago, Ill. (U.S.A.). (Relays WCLF) Bowmanville, Ont. (Canada). (Daily 20.00)		26.83 25.63	11,180	CT3AQ FYA	Funchal (Madeira). (Tues. and Thurs. 10.30-12.30) Pontoise (France). (Colonial Stn. E-W.	
49.2	6,098	ZTJ	Johannesburg (S. Africa). (Weekdays 09.00) 14.00 [Sat. 14.30] and 17.00, Sun. 13.00		25.6	11,720	VE9JR	daily 20.30) Winnipeg (Canada). (Daily 14.30)	
49.18 49.18 49.1 49.02	6,100 6,100 6,110 6,120	W3XAL W9XF VUC W2XE	Downers Grove, Ill. (U.S.A.)		25.57 25.53 25.5 25.45 25.45	11,730 11,750 11,760 11,790 11,810	PHI GSD DJD W1XAL 2RO	Eindhoven (Holland) Empire Broadcasting Zeesen (Germany)	
48.86 47.97	6,140 6,250	W8XK HJ3ABF	East Pittsburg, Pa. (U.S.A.). (Relays KDKA 21.19-06.00) Bogota (Colombia). (Daily 15.00)		25.36 25.36 25.28	11,830 11,830 11,865	W2XE W9XAA GSE	Wayne, N.J. (U.S.A.). (Relays WABC)	
48.05 48.0 47.0	6,243 6,250 6,382	HKD CN8MC HCLDR	Barranquilla (Colombia). (Weekdays 23.45) Casablanca (Morocco). (Relays Rabat)		25.27	11,870	WSXK	East Pittsburg, Pa. (U.S.A.). (Relays KDK.4 21.19-03.00)	••••••
46.69 45.38 45.0	6,425 6,610 6,667	W3XL RW72 FM8KR	Bound Brook, N.J. (U.S.A.). (Relays WJZ)		25.25 25.0 23.38 19.84	11,880 12,000 12,830 15.120	FYA RNE CNR HVJ	Moscow. (Relays R.V.1) Rabat (Morocco). (Sun. 12.30)	
45.0	6,667	TGW	22.00) Guatemala City (Central America). (Daily		19.81 19.73	15,140 15,200	GSF DJB	Empire Broadcasting	
43.75 43.0 41.7	6,860 6,970 7,195	EAR110 VS1AB	Singapore (Malay States). (Sun. and		19.72 19.68 19.64	15 210 15,244 15,270	W8XK FYA W2XE	RDK A 15.00-21.18) Pontoise (France). (Colonial Stn. E-W) Wayne, N.J. (U.S.A.). (Relays W ARC).	
40.3	7,443	нвQ	Wed. 15.30) Radio Nations, Prangins (Switzerland)		19.57	15,330	W2XAD	South Schenectady, N.Y. (U.S.A.). (Daily 20.00)	**************
88.47	7,797	нвр	(Sun. 22.00-22.45) Radio Nations, Prangins (Switzerland). (Sat. 22.30-23.15)		16.89 16.88 16.87	17,760 17,770	DJE PHI	Zeesen (Germany) Eindhoven (Holland)	••••••••
37.33 37.04 33.50 31.53	8,936 8,110 8,955 9,500	CNR HCJB TGX PRBA	Rabat (Morocco). (Sun. 21.00) Quito (Ecuador) Guatemala City (S. America) Rio de Janeiro (Brazil). (Daily 21.30)		16.87 16.87 16.86	17,780 17,780 17,780 17,790 21,470	W3XAL W9XAA W9XF GSG	Chicago. Ill. (U.S.A.). (Relays WCFL) Downers Grove, Ill. (U.S.A.) Empire Broadcasting	
81.55	9,510	VK3ME	Melbourne (Australia). (Wed. and Sat. 10.00)		13.97 13.92 12.30	21.540	GSH W8XK VE9GW		······

PRINCIPAL BROADCASTING STATIONS OF THE WORLD

(OUTSIDE EUROPE.)

• •	•		(OUTSIDE EUROPE.)							
Wavelength in Metres.	Frequency in Kilocycles.	Power in kW.	Station.	Dial Settings.	Wavelength in Metres.	Frequency in Kilocycles.	Power in kW.	Station.	Dial Settings	
468.8 450.5 447.8	610 660 670	50 50 5	U.S.A. KFI, Los Angeles, Calif. (E. C. Anthony Inc.) WEAF, New York (N.B. Co., Inc.) WMAQ Chiegga III (N.B. Co. Inc.)	1	411 395 375	730 760 800	5 5 5	5CL, Adelaide, S. Australia 4QG, Brisbane, Queensland		
428.6	700	50	WMAQ. Chicago, Ill. (N.B. Co., Inc.) WLW, Cincinnati, Ohio (Crosley Radio Corp.). (Short Wave Station, W8XAL, 49.5 m.)		240	1230	5	CPX, La Paz (Costoz y hnos)		
422.5 416.7 405.4		50 25 5	WOR, Newark, N.J. (Bamberger B/c Service) WGN, Chicago, Ill. (Tribune Co.) WSB. Atlanta. Ga. (Atlanta Journal Co.)		291 411	1030 730	10 5	CFCN, Calgary, Alta. (W. W. Grant and H. G. Love) CKAC, Montreal, Quebec (La Presse Pub-		
394.7	760	-30	WJZ, New York (N.B. Co., Inc.). (Short-ware Stations, W3XAL, 49.18 m., and	,	357	840	5	lishing Co.) CKGW, Toronto, Ont. (Gooderham and		
379.7	790	50	W3XL, 46.69 m.) WGY, Schenectady, N.Y. (General Electric Co.). (Short-wave Stations, W2XAD,		556	540	5	Worts, Ltd.) CKLW, Windsor, Ont. (Essex Broadcasting		
379.7 367.4	790 810	7.5 5	19.57 m., and W2X AF, 31.48 m.)		328	910	5	Corp.) CKY, Winnipeg, Man. (Manitoba Telephone System) CHINA.		
361.4 348.8	830 860	1 50	B/cg., Inc.) KOA, Denver, Colo. (N.B. Co., Inc.) WABC, New York (Atlantic B/cg. Corp.).		440 254	681 1180	75 15	XGOA, Nanking DOMINICAN REPUBLIC. HIJK, S. Domingo (Dir. Gen. de P. and T.)		
344.8	870	50	(Short-wave Station, W2XE, 49.02 m.) WENR, Chicago, III. (N.B. Co. Inc.)	ļ	358	810	12	FRENCH INDO CHINA F3ICD, Saigon (Cie Franco-Indochinois)		
309.3	970	1.5	WCFL, Chicago, Ill. (Federation of Labour)		365	845	12	HONG KONG. ZBW, Victoria Peak (Govt.)		
306.1	980	50	(Short-wave Station, W9XAA, 16.87 m., and 49.34 m.) KDKA, Pittsburgh, Pa. (Westinghouse Co.). (Short-wave Station, W8XK, 13.92 m., 19.72 m., 25.27 m. and 48.86 m.)		448 390 380 370	670 770 790	10 10 10	JAPAN. JFAK, Taihoku		
303.0 300.0	990 1000	15 5			361 353 345	810 830 850 870	10 10 10 10	JOCK, Nagoya JOIK, Sapporo JOFK, Hiroshima JOAK, Tokio (Shorl-wave Station, 25 and		
294.1 285.7 280.4	1020 1050 1070	10 5 50	KYW-KFKX, Chicago, Ill. (Westinghouse)		277	1085	10	JOBK, Osaka		
275.2 256.4	1090 1170	50 10	KMOX, St. Louis, Mo. (Voice of St. Louis)		400	750	5	XEAN, Ciudad Juarez (Cia. Radiodifusion Nacional)		
243.9	1230	1	Co.). (Short-ware Station, W3X AU, 49.5 m.) KYA, San Francisco, Calif. (Pacific B/c. Co.)		330	910	5	XEW, Mexico (Cadena Radiodifusion Mexico)		
204.1	1470	5	KGA, Spokane, Wash. (North-West B/cg. System).		319	940	5	XFO-XEFO, Mexico (Partido Nac. Revolucinario)		
330	910	5.5	ARGENTINE. LR2, Florida. Buenos Aires (A. Schroeder)		311 408	965 7 3 5	10 500	XEAW, Reynosa (Cia. Internat. Difus. de Reynosa 8/A.)		
291 423	1030 710	5 5	L.S.1, Nunez, Buenos Aires (G. Echaverria) L.S.1, Nunez, Buenos Aires (Municipality of B.A.)		400	133	500	XER, Villa Acuna (Cia. Radiodifusion de V. Acuna. S/A.) NEW ZEALAND.		
252 270	1190 1110	5.5 5	LS2, Florida, Buenos Aires (T. Prieto)		416.7	720	5	2YA, Wellington		
535.7	560	7.5	AUSTRALIA. 2CO, Corowa, N.S.W		465 371	645 808.6	12.5 15	ZTJ, Jobannesburg (Short-wave Station, 49.4 m.) ZTC, Capetown		
492 472 451	610 635 665	5 7.5 5	3AR, Melbourne, Victoria 5CK, Crystal Brook, S. Australia		462	650	5	URUGUAY. CX6, Montevideo (Min. of Public Instruction)		
435	690	5			312	960	5	VENEZUELA. VV1BC, Caracas (S/A Almacen)	1	

NEWS of the WEEK

Current Events in Brief Review

The Eternal Topic

THE Bavarian broadcasting A stations are now issuing weather bulletins five times a day. now issuing

English Talks from Warsaw

MR. THAD ORDON, whose talks in English from the Warsaw Station have proved so popular, will give another address from the Warsaw studio on Monday next, December 18th, at 9 p.m. (G.M.T.). He will give further replies to his numerous correspondents in Great Britain.

Anti-Propaganda Move

AN International Convention to prohibit the broadcasting of radio propaganda has been dis-cussed at the Paris Institute of In-Co-operation, where tellectual jurists have met representatives of the Norwegian and Czechoslovakian broadcasting authorities.

It is proposed to ask Governments to undertake the discontinuance of all broadcast appeals to the inhabitants of other countries likely to affect the peace or security of Europe.

New P.O. Research "Lab."

THE Engineer-in-Chief's department of the Post Office, which is responsible for the maintenance of all telegraph and telephone communications, as well as the Rugby wireless station, at present occupies seven different buildings within a stone's throw of St. Martin's-le-Grand. The Postmaster-General is about to promote a Bill in Parliament for a new building immediately behind the Central Telegraph Office, which will house the whole department of the Engineer-in-Chief, as well as Administrative Offices. The build-ing will contain the Engineering Workshops and Research Labora-

U.S. Criticism of B.B.C.

AN attack on the British broad-A casting system has been launched by the newest member of the American Federal Radio Com-

mission, Mr. James H. Handley.
"The British system," he de clares, "is unworkable in this he declares, "is unworkable in this country because of its restrictions on free discourse, particularly political. Moreover, the American people would not stand for a set tax like the one of two dollars fifty

per year levied in Great Britain.
"While the British system escapes commercialism, it has the weakness of monopolistic 'czarism' which gives the people what those in charge think they ought to have

rather than what they want."
Mr. Handley concludes: "Moreover, to set up a Government-operated radio system in this country might cost the Federal Treasury anywhere from 50 to 100 million dollars to install."

It is difficult not to believe that the last consideration largely governs the attitude of Mr. James H. Handley.

Radio for Unemployed

 $L_{\rm unemployed}^{\rm ECTURES~on~wireless~for~the}$ are being given on Monday after-noons at 3 o'clock at the Norton Street Centre.

Three New 100 kW. Stations on Wednesday

THREE high-power German stations will come into action on Wednesday next, December 20th. The new Berlin 100 kW, station will begin regular transmissions on 360.5 metres, Munich on 100 kW, on the existing Witzleben wave, and Mühlacker on 100 kW, on Munich's present wavelength of 533 metres.

The King's Greeting

A appeal for co-operation by wireless set owners to enable as many of the public as possible to hear the King's broadcast on Christmas Day has been made by Sir Arthur Stanley, Chairman of the Wireless League. Sir Arthur writes: "The message of His Majesty to his people is of supreme interest and importance and should be heard by every person through-out the whole Empire. Everyone does not possess a wireless set, but it would be a graceful gesture, as well as a patriotic action, if those who do would enable their less fortunate neighbours to hear the King's own voice on the afternoon of Christmas Day."

Running Commentary on Snail Race

RADIO LL, Paris, does not go beyond the confines of its own studios for lively sporting commentaries. On November 26th an announcer broadcast the closing stages of a race in the miniature "Escargodrome" which had been crected in the studio. Twenty-four hours before the start listeners had been invited to send in their preferences. Each racer was a thoroughbred Bourgogne carrying a number. Numbers 7 and 10 arrived at the winning post (a salad) neck to neck, or, rather, horn to horn. They had crossed the studio in 68 mins. Holders of the winning tickets divided 800 francs in prizes.

The Radio Hat

A^N annual fête has just been held in Paris for the benefit of Mademoiselles who have not hit the matrimonial target by the age of twenty-five. It is the custom on this occasion for the participants to don the Coiffe St. Catherine, a distinctive headpiece, the design of which is left to the ingenuity of its wearer. One of the most successful hats was in the shape of a radio transmitting station with centre building, high aerial masts, and golden wire connections. Our Paris correspondent states that the transmissions, though waveless, were picked up by a number of receptive bachelors.

Interference Made Illegal

FRANCE has taken the lead.
The Journal Official publishes the anti-interference decree which makes it illegal as from April 1st, 1934, to operate electrical appara-tus capable of interfering with wireless reception. The decree wireless reception. The decree consists of eleven clauses. No one, from manufacturers, retailers, and users, can escape responsibility. The manufacturers and purveyors of electrical apparatus must equip it with the necessary devices for preventing radiation, while purchasers must see that the law has been complied with.

Provision, however, is made for softening the application of the law in cases where the disturbance not very grave or where the to the complete suppression of the trouble. It is, therefore, considered that certain domestic ap-

Germany's "Daventry"

WITHIN the next two or three weeks Germany will supplement the present short-wave transmissions to America with a regular schedule of programmes to South America, Japan, and South Africa. This will be possible by means of the new plant at Zeesen. There are now ten masts, each 70 metres high. Like the B.B.C. short-wave station at Daventry, Zeesen makes use of omni-directional waves in addition to those transmitted from the beam aerials. The American transmissions are made on 19.5, 25.5, and 49.8 metres. There are two beam aerials for South Africa, one for the 49.8-metre wavelength, the other for use both with the 25.5-metre and the 31.38-metre wavelength.

Japan and the Far East are also catered for by two beam aerials. One is used exclusively for these



IN TEGEL FOREST, near Berlin, the new 100-kW. station has been built to replace the 1.5-kW. transmitter at Witzleben. The station will begin regular transmissions on Wednesday next (December 20th) on 360.5 metres, the present wavelength of Mühlacker.

pliances, such as irons, vacuum cleaners, etc., will probably remain outside the operation of the law, and it is likely that the decree will not require the attachment of ap-paratus, the cost of which would be out of preportion to the importance and value of the installation.

The law will be enforced by the Post Office officials, assisted by the police. The penalties for a first offence range from 16 to 50 francs.

Another Power Increase

THE Deutschlandsender is to be raised in power to 150 kW. during 1934.

"The Whole Town's Talking "

THE Lewcos Staff Dramatic A Society recently made their second public appearance in "The Whole Town's Talking." The performance proved an even greater success than that of "The Scort of Kings" given last year. The play was under the able direction of Mr. Frank Lockett, who must accept our tribute of praise on behalf of his very able cast.

Eastern transmissions on 19.7 metres; the other, working on a 31.38-metre wavelength, can transmit either to the Far East or to South America by means of con-verting the aerial into a reflector and vice versa as at Daventry. The last of the beam aerials is permanently directed to South America for use on a wavelength of 16.89 metres. There are two short-wave transmitters. station is connected to the studios of the Deutschlandsender a few miles away.

Candidates for Free Reception

SINCE the introduction of the radio tax, the French Government has been deluged with requests for special elemency in regard to certain sections of the com-munity. The latest is an appeal from the Communist group asking that licence fees may be waived in the case of people suffering from the Case of people saftering from consumption, the aged and infirm, and all those incapable of earning their living. It is stated that the authorities are afraid that the last category would admit of a dangerously wide interpretation.



Fox Superheterodyne

FEATURES. Type.—Table model superheterodyne receiver for A.C. mains. Moving-coil loud speaker. Provision for pick-up and external L.S. Circuit.—Band-pass input to frequency changer valve—I.F. band-pass filter—anode bend second detector—output valve. Full-wave rectifier. Controls.—(1) Tuning with illuminated dial calibrated in stations and wavelengths. (2) Volume control and on-off switch. (3) Waverange switch. (4) Tone control. Price.—13 guineas. Makers.—Fox Industrial Ltd., 15-17, King Street, London, S.W.1.

TYPE 401A

could be tuned in clear of Daventry, but could not be entirely freed from the background of Radio-Paris.

Quality and Reproduction

Second-channel whistles are fairly widely distributed over both waveranges, but with the exception of those due to the local transmitters and one on long waves due to the second harmonic of the oscillator, they are not of sufficient strength to interfere with any worth-while stations.

The makers are to be congratulated on the loud speaker reproduction, which has an unusually spacious quality, particularly in the bass. Individual instruments in the orchestra stand out clearly, and the general effect is not unlike that associated with dual unit loud speakers. The tone control gives

Good Range with Excellent Quality on the Local Station

HE design of this receiver shows several departures from conventional practice, and a highly creditable performance has been attained in relation to the comparative simplicity of the circuit design. There are only four valves, including the rectifier, and the three active stages incorporate pentode valves in each case.

The first stage performs the function of frequency changer and is coupled to the second detector through a band-pass I.F. transformer, there being no amplification at the intermediate frequency other than that provided by the efficiency of the I.F. coils.

Resistance coupling is used between the second detector and the power pentode output valve, and as the loud speaker field is used for smoothing, the number of components incorporated in the chassis itself is reduced to a minimum. On the underside of the chassis there are the various decoupling resistances and condensers and the waverange switch, while on the top there is the mains transformer, smoothing condensers, H.F. and I.F. coils, and the main tuning condenser.

Range and Selectivity

A capacity-coupled band-pass filter is used in the input circuit, and it has been arranged that the aerial may be connected directly to the secondary circuit in circumstances where an increase of signal strength is desirable at the expense of selectivity. The oscillator coupling coils are included in the cathode circuit of the frequency changer valve.

Volume is controlled in the second detector stage by varying the auxiliary grid potential. This valve functions as an

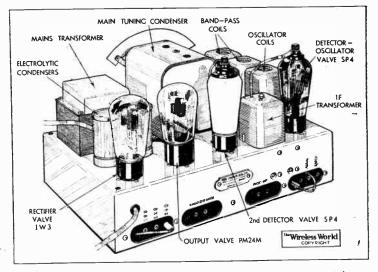
anode bend detector and is arranged to limit automatically the input to the last stage, so that unpleasant noises due to overloading on loud signals are avoided.

A tone control, consisting of a condenser and variable resistance, is associated with the output stage and provision is made for the addition of an extension loud speaker.

On test we found the set unusually free from background noise picked up on the mains. This is accounted for by the use of an electrostatic screen on the mains transformer, a feature which we should like to see more widely adopted.

The range of the set leaves nothing to be desired and appeared to be little different from that of the average four-stage receiver with I.F. amplification. Selectivity, on the other hand, was not quite up to the standard of the conventional four-valve circuit, but is, nevertheless, ade-

quate for most people's needs. As an indication of the degree of selectivity which may be expected, we found it possible to receive Brussels No. II clear of London Regional on a full-sized outdoor aerial in Central London, but a slight background of North National was audible when accurately tuned to Langenberg. On long waves Zeesen



General view of the chassis. The mains voltage adjustment is accessibly placed at the back of the set.

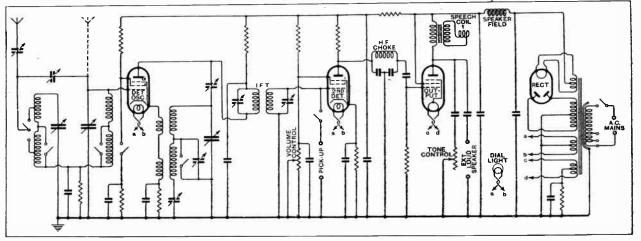
just the right range of variation, and even with the maximum high note cut-off, there is no suggestion of wooliness in the general response. The cabinet is well finished and is imposing in appearance, as it should be in a set giving so high a standard of volume and quality.

The overall dimensions are 20in. x

18½in.×11in., and the back is left open, so that cabinet resonance is entirely absent.

Incidentally, the upper half of the front panel of the cabinet is reinforced by a thick baffle board, and the Rola loud speaker is held rigidly in position by three bolts and clamps.

There is an ample reserve of magnification for gramophone reproduction, and the radio volume control is also effective when playing records.



Pentode types of valve are used in both H.F. and L.F. stages of the circuit.

Letters to the Editor:-

Stations that Lose Power

Sound-on-Film Records: Background Mystery: Long-wave National

The Editor does not hold himself responsible for the opinions of his correspondents

Do Transmitting Stations Get Tired?

IN the October 27th issue of The Wireless World "D. Exer" refers to the mystery of stations that lose power; within a few weeks or months of their opening signals fade slowly away until they can no longer be heard or heard only with difficulty.

This is a phenomenon with which I have been familiar for twenty years. It affects all types of radio stations-spark, C.W., telegraph, or broadcasting on any wavelength. The initial range of the station when first opened slowly decreases after a few months, and is never regained at any subsequent date unless major changes are made in equipment.

In the July 14th, 1926, issue of The Wireless World, under the heading, "Do Traimitting Stations Suffer from Fatigue?" 'Do Transdescribed my observations in detail. I quote from that letter:-

"There are only two possible variables in a transmitting station which cannot be closely checked up. One is the surface condition of the aerial wire, and the other is the earth connection and the condition of

the surrounding soil. . . .

"As regards the earth connection, ordinary soil is not accustomed to having umpteen kilowatts of current pumped steadily into it. After a few weeks of such treatment what sort of electrolytic actions take place, and in what way does that soil become decomposed or altered in character in the immediate vicinity of the earth plates? Has anybody ever investi-

gated that point?

I don't think the surface condition of the aerial makes any material difference, but I am still curious about the earth connection -the only part of a transmitter which has not, to my knowledge, been closely investigated. It is perhaps significant that, during the course of many years of close association with ship transmitters as a sea-going operator, I have never yet known a ship transmitter whose range fell off after the first few weeks or months of operation.
Provided that no major changes are made in the installation, and provided also that the installation is efficiently maintained, its range remains constant year after year. It is very difficult, of course, for an observer ashore to check the range of a constantly moving ship; that can only be done accurately by the ship's operators.

The important point is that a ship's earth connection is constantly being renewed.

Several other correspondents agreed with my observations in 1926, but still, nearly eight years later, the mystery apparently remains unsolved. May I commend this problem to the serious attention of adequately equipped research organisations?

New York.

A. DINSDALE.

Alternatives to the Disc Record

I WAS extremely glad to read Mr. King's letter on the question of alternatives to disc records, and astonished at the answer given by the Gramophone Co., Ltd

The five reasons advanced for not producing sound-on-film records seem to be on

the grounds of expense as to the first three reasons, the fourth merely baulks the whole question, and the fifth is hardly relevant.

As regards the first three reasons offered, I should be astonished to hear that the cost of the material used forms such a large percentage of the total price of the record as to make any appreciable difference in the cost of the finished article. The question of the difficulty of printing copies of the sound-on-film record is also a question of expense and will surely not be greatly in excess of the present method (which is not at all simple and which is far more susceptible to mechanical inaccuracies) once a plant is established.

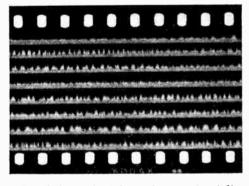
As regards the cost of the acoustic reproducer, this, surely, is of secondary importance when there must be a great number of people who would be prepared to pay 25 gus, for a really satisfactory instrument that would be incapable of wearing out good records.

Once a market is established, the cost of these instruments would undoubtedly fall as in the case of present day models.

B. MOWBRAY. London, E.C.2.

I WAS interested to read the various letters under the above heading, which have appeared in The Wireless World, and thought it might interest your readers to know that I constructed a sound-on-film recording and reproducing machine about two years ago, which gave very satisfactory

Unfortunately, I have not been able to commercialise the idea.



It will be noticed from the sample of film illustrated that there are eight separate The standard speed for sound tracks. sound-on-film recording and reproduction is eleven minutes per thousand feet of film. Consequently, the eight sound tracks will give us an eighty-eight minutes programme per thousand feet of film.

The advantages of this will be apparent in many directions—complete speeches or lectures can be recorded, as also a complete opera or concert.

It will of course be obvious that in operation the first sound track is traversed for 1,000 feet, when the mechanism is reversed, and the second sound track is traversed, and so on.

Shoreham-by-Sea.

H. GREEN.

DESPITE Mr. J. L. Carden's assertions in your issue of November 24th, regarding the photo-electric record, the indisputable facts, as far as we are concerned, are:

(1) Film records of the normal celluloid type would cost the customer at least twice the price of disc records, and probably four times as much.

(2) The cost of a "paper" film record mechanically printed would be more in material and process costs than a disc of similar playing time. Most of the cost of a record of any character lies in the record-

ing, payments to artists, royalties, etc.
(3) No one has yet demonstrated "paper" films mechanically printed in continuous lengths. Short pieces stuck together every two to three feet have been made, but are utterly impracticable.

Your correspondents may rest assured that this company has always been alive to every opportunity of progress, for, besides providing a consumer with the latest developments of science, new inventions If a different often create more business. base for recording was introduced this would naturally mean that a very large market for

new type reproducers would be opened. An excellent example to illustrate this point was the introduction of electrical recording in 1925, when automatically thousands of matrices of standard recordings became worthless, but new business resulted in the sales of electrically made records. RICHARD ARBIB,

The Gramophone Co., Ltd. Haves.

Control

IN order to avoid the very real and serious trouble of control-room manipulation of musical broadcasts, would it not be possible for the B.B.C. to make use of some form of automatic control?

It is stated in the B.B.C. Year Book that in broadcasting, variations in amplitude of the order of 1,000 to 1 have to be reduced for the purpose of modulation to about 35 to 1. What would be the objection to the employment of a proportionate reducer, making use, perhaps, of variable-mu amplifying valves biased back by potentials derived from rectified L.F. currents from the same or a separate amplifier, somewhat on the lines of an inefficient A.V.C. circuit?

D. H. PEGRUM. Hford.

Background Mystery

AM gratified to find in my Wireless World of December 1st that you have taken up this matter of mutual interference between twin transmitters.

I was much interested in the articles and letters on "Diode Rectification," which appeared in your esteemed journal during February-March, 1932, and I tried out one of the circuits for local station work. The diode was coupled to the aerial without H.F. magnification. The results were very satisfactory, and provided ample volume to work a moving-coil speaker. The high selectivity was a special and surprising feature, the signal disappearing in about five degrees

Wireless

each side of resonance, but only to reappear as background when the other transmitter was tuned to resonance.

Both Scottish Regional and National had a very pronounced background of the other's programme.

I was assured by the B.B.C. that the trouble was due to cross-modulation. I had to abandon the circuit and resort to anodebend rectification, when the trouble practically disappeared.

I am far from satisfied that, at a distance of twenty-five miles, the aerial signals were sufficient to cause cross-modulation on the diode. I tried several types of valves, and all picked up the undesirable background.

A. McPHAIL. Motherwell.

YOU will, of course, remember some time ago the B.B.C. attempted to synchronise the North Regional and Newcastle transmitters on 479.2 metres, but abandoned the experiment after a few weeks' trial. During this trial period it was possible in the North to hear the National programme in the background when tuned to the Regional transmitter, the signal being quite strong enough to follow clearly during intervals in the Regional programme.

At the time not many Northern listeners heard the interference, but, as far as I can remember now, the trouble disappeared after about two weeks. One of your contemporary journals published an explanation of the cause of the interference from information given to them by the B.B.C.

The trouble, it said, was traced to induction between the lines carrying the National programme and the tuning-fork "oven" used by the Regional transmitter (tuningfork drive being used by both North Regional and Newcastle at that period) in the control room at Moorside Edge.

Since the London and West National transmitters are now synchronised by this method, I should say that this is, without doubt, the real explanation of the interfer-H. SCATCHERD. ence in question.

Sheffield.

Long-wave National and Interference

IN your "Editorial Comment" columns and Letters to the Editor" page of your issue of December 1st, mention is made of the proposal to replace the local National transmitters by the long-wave National from Droitwich, mainly with reference to interference from various causes on longwave reception. It is fairly well known that trolley-bus interference has been alleviated by fitting choke coil suppressors to the buses, which operate only on the local medium-wave stations' wavelengths. With the closing down of the "local Nationals," this will mean that all listeners on trolleybus routes-and we are told that there is shortly to be a change-over from tramways to trolley-buses for a further ninety miles in the London area-will be confined to "onestation" reception. There is a long, interesting article on this interference in the 1933 Year Book of the B.B.C., which holds out hopes of a further improvement by modification of the trolley-bus equipment. In this district no change has been apparent during this year, and no mention is made of the matter in the 1934 edition.

With the proposed change-over of the National wavelength and extension of the trolley-bus system, surely the B.B.C. should enlighten listeners on the present and proposed new trolley-bus routes as to what E. WINDSOR. they may expect.

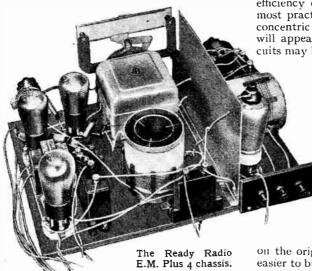
Twickenham.

INTERESTING REVIVAL

Kit of Parts for a Modernised Everyman Four

T is perhaps unbecoming for us to com-plain that the Wireless World Everyman Four receiver, described as long ago as 1926, is "an unconscionable time a-dying." Three or four years after its appearance, and shortly after a specimen had been accorded an honoured place in the Science Museum, we urged that it was high time for the famous old set to fade into decent obscurity. All to no purpose; the best receiver of its day in the whole world seems to be not of an age, but for all time.'

And now the veteran has supplied inspira-



tion for a modernised version, in the form of a kit of parts designed by Ready Radio, Ltd., of Eastnor House, Blackheath, London, S.E.3, and called the E.M. Plus 4. It is not only an Everyman Four in name; most of the basic features, which older readers will remember, have been retained. The circuit is still an H.F.-det.-2 L.F. arrangement, with two tuned circuits employing high-efficiency Litz coils, and with resistance and transformer coupling on the L.F. side. The modern features include a variable-mu H.F. valve in place of a neutralised triode; a grid detector (better capable of dealing with deeply modulated transmissions), and the natural concomitant of reaction. Ganged tuning and provision for long-wave reception are other additions.

As we expected, the specimen receiver submitted for test by Ready Radio was found to be definitely more selective and sensitive than the general run of comparable sets. The "goodness" of the coils has not been impaired by "potting." They are unshielded, but complete stability has been achieved by careful positioning of H.F. components, helped by a minimum of metallic screening. Accurate ganging of two highefficiency circuits has been attained in the most practicable way by fitting an external concentric trimmer; this is a feature that will appeal to the amateur user, as the circuits may be aligned with extreme precision;

indeed, there is enough general flexibility to allow the exercise of a certain amount of skill.

Anode consumption is to some extent dependent on the position of the volume control potentiometer, and when receiving a strong signal is unlikely to exceed 11 or 12 milliamps. Quality of reproduction is satisfying, and the set is worthy of a good loud speaker.

Constructionally, the E.M. Plus 4 is planned very much

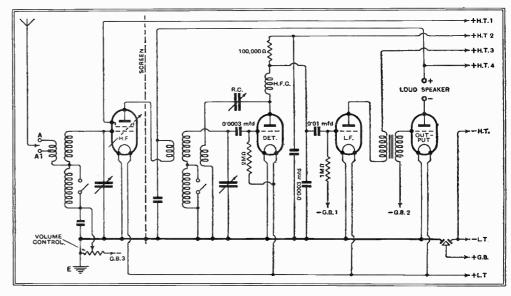
on the original lines, but is probably rather easier to build. We understand that an A.C. version is shortly to appear, and also that the redesigned dual-range "Everyman" coils are available separately.

We feel sure that the E.M. Plus 4 will be welcomed by those who are still using the Everyman Four (and it seems probable that thousands are doing so). Ready Radio are to be congratulated on producing a satisfactory, up-to-date version which embodies so many of the attractions of the original set.

At £4 17s. 6d., less valves and speaker,

the kit of parts represents very good value.

A well-designed "Consolette" cabinet of good proportions has been produced for the receiver; complete with a P.M. moving-coil loud speaker it costs 12 in oak, or 12 10s. in walnut.



Many of the original "Everyman" features are retained in the modernised version.

Readers' Problems

THESE columns are reserved for the publication

Reader's requiring an individual reply to their

of matter of general interest arising out of problems submitted by our readers.

Eliminator Voltage

IT may be taken as an axiom that the voltage delivered by any H.T. battery eliminator or power supply unit is largely dependent on load; in other words, the voltage will rise to a maximum when no current is taken from the apparatus, and will fall progressively with increasing consumption of anode current.

This is a truism that is well known to the majority of readers, but apparently there are still a number who do not see why an eliminator marked "150 volts" should not be regarded in the same way as an H.T. battery.

lechnical questions by post are referred to "The Wireless World" Information Bureau, of which brief particulars, with the fee charged, are to be found at the foot of this page.

RECT.

OCOUNT OC

Fig. 1. The simplest type of H.T. supply unit and an equivalent circuit to illustrate inter-dependence of voltage and load.

Although a complete explanation of the inter-dependence of voltage and load is rather beyond the scope of this section, we shall not go far wrong if we regard it merely as a matter of resistances, ignoring the complications introduced by rectifier action and alternating current, etc.

Fig. 1 (a) represents the simplest possible type of eliminator for use on A.C. supplies with a half-wave rectifier; this rectifier and the associated smoothing choke and power transformer secondary all have appreciable resistance. For the purpose of illustration, diagram (b) can be taken as representing the equivalent circuit, with a battery as a source of voltage, although the values are quite arbitrary.

Still referring to diagram (b), we will imagine that a perfect voltmeter, giving accurate readings under all conditions, is connected across the output terminals A, B, with the artificial load resistance (shown in dotted lines) removed. This voltmeter will still read the full voltage of the battery, even if resistance R be as high as 1 megohm, so long as no current is taken. Now impose an artificial load by connecting a 1-megohm resistance R1 to the output terminals, and the meter reading will at once drop from 100 to 50 volts. The lost 50 volts have been absorbed in the series resistance R; this represents, in exaggerated form, what happens in an eliminator.

Taking Heed for the Morrow

FOR high quality reproduction of signals from a near-by station, there is nothing wrong with a simple detector-L.F. circuit; always provided that the incoming signals are strong enough, such an arrangement is perfectly satisfactory for its purpose. But a reader who asks us to criticise his circuit diagram of a proposed short-distance set on these lines should, we think, be warned that

changes are imminent which will seriously restrict the usefulness of the set.

In the near future, transmission of the "National" programme will be carried out solely by the new Droitwich station, which,

though it will be of high power, cannot, we think, be expected to provide a sufficiently strong signal to operate satisfactorily the detector valve, unaided as it is by H.F. amplification, of the set that it is proposed to build. Our correspondent lives too far away. At a pinch, it might be possible to obtain sufficient input by pressing reaction, but too much reliance on this aid to sensitivity is to be depre-

cated. This is why we strongly advise the fitting of an H.F. stage, which is better than redesigning the set to work with a small detector input.

Series and Series-Parallel

EXCEPT in D.C. mains receivers, valve filaments are almost variably connected in parallel across the source of L.T. supply. But there are occasions when the series connection is much more economical; a case in point is brought up by a reader who proposes to build a three-valve H.F.-det.-L.F. set which is to take its L.T. current from a large 6-volt accumulator, the same battery supplying H.T. to the anode circuits through a rotary converter. We are asked to suggest a suitable arrangement of the filaments, it being insisted that the circuit shall be as as possible; our querist does not wish to run the risk of having any valves burnt out should one of the filaments fail. In addition, it is stipulated that a pentode valve with a 2-volt 0.2-amp, filament is to be used in the output position.

The Wireless World INFORMATION BUREAU

THE service is intended primarily for readers meeting with difficulties in the construction, adjustment, operation, or maintenance of wireless receivers described in *The Wireless World*, or those of commercial design which from time to time are reviewed in the pages of *The Wireless World*. Every endeavour will be made to deal with queries on all wireless matters, provided that they are of such a nature that they can be dealt with satisfactorily in a letter.

Communications should be addressed to The Wireless World Information Bureau, Dorset House, Stamford Street, London, S.E.r., and must be accompanied by a remittance of 5s. to cover the cost of the service. The enquirer's name and address should be written in block letters at the top of all communications.

We doubt if a better arrangement can be devised than that shown diagrammatically in Fig. 2 (a), in which the filament characteristics of the valves are indicated. A screen grid valve rated at 2 volts 0.2 amp. is readily obtainable, and so may be connected in series with the chain without special precautions, while the detector valve, taking half the current, must be shunted with a bypass resistance as shown. By connecting the output valve at the negative end of the chain, and joining H.T. negative to L.T. negative, it may be ensured that the anode current of the pentode valve (which will be relatively heavy) does not pass through the filaments of any of the other valves,

In stipulating that the arrangement shall be "safe," we imagine that our correspondent has in mind the dangers of a circuit such as that of Fig. 2 (b). As 2-volt H.F. valves consuming only 0.1 amp, are now available, it would be a practicable scheme to connect the H.F. amplifier and detector in parallel with each other and in series with the output valve and a limiting resistance R in the manner shown. But the disadvantage of this

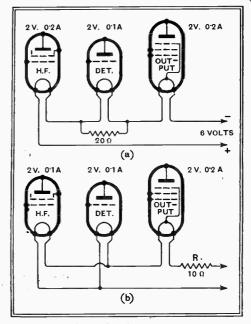


Fig. 2.—Series and series-parallel connection of valve filaments.

scheme is that, if the filament of either of the parallel-connected valves were to fail, or even if the valve were withdrawn from its socket, an excessive current would pass through the filament of the other o.I-amp. valve.

Present Practice Criticised

A DMITTEDLY, it seems rather wasteful that, in a conventional six-valve A.C. superheterodyne, four of the valves should be consuming L.T. and H.T. current but doing no useful work whatever during the time that the set is being used for the reproduction of gramophone records through a pick-up. Present-day practice in this matter is criticised somewhat caustically by a correspondent, who enquires whether there is any basic objection to switching off the unwanted valves while gramophone reproduction is in progress.

Although it would not be impossible to devise a satisfactory arrangement for avoid-

ing wastage of current, we are not at all sure that modern practice is wrong. For instance, a switch designed to interrupt the heater circuit of four indirectly heated valves would have to carry 4 amps, and it is most important that it should have a negligible contact resistance. Even if the switching difficulty were satisfactorily overcome, there would be a general rise in A.C. voltage across the secondaries of the power transformer.

There is also the question of eliminator voltage; if the heaters of four valves were switched off, they would no longer consume anode current, and so a more or less serious rise in H.T. voltage would take place, with consequent risk of damage to smoothing and by-pass condensers, etc. Admittedly, this possibility could be overcome by devising the radio-gramophone switching system in such a way that an artificial H.T. load was applied in the "gramophone" position, but further complications would thus be introduced.

All this applies to mains sets; in dealing with battery receivers, a good case can be made out for switching off the unwanted valves.

Class "B" on the Mains

ALTHOUGH it has been stated that Class "B" amplification is not the best system to employ when mains are available, it should perhaps be made clear that these strictures do not apply to cases where the household supply is derived from a large accumulator battery. In these circumstances, smoothing should be quite unnecessary, and so the source of current for the output anode circuits should be no more subject to fluctuations under varying loads than if it were derived from an ordinary H.T. battery.

Household lighting supplies of about 100 volts may be supplemented by a small H.T. battery.

An Inconclusive Test

IN describing some tests that he has carried out, a reader states that his valves have been substituted for those in another set (known to be in good working order) and have proved to be perfectly satisfactory. From this test he concludes that the valves are in perfect condition.

This is not an entirely conclusive test. In some receivers there is a greater difference of working potential between the heaters and cathodes of the valves than in others. If insulation between these electrodes were deficient, it might conceivably fail in one case and yet remain perfectly satisfactory in the other.

We draw our correspondent's attention to this point because the symptoms he describes would certainly indicate a breakdown in heater-cathode insulation.

Signs of L.F. Reaction

THE user of a Class "B" receiver tells us that quality of reproduction is greatly improved by replacing his existing H.T. battery by a new one; this in spite of the fact that the voltage of the old battery, as measured with a good voltmeter when under load, is not appreciably less than that of the new one.

Here we have a certain proof that undesirable interaction is taking place between the various anode circuits of the receiver, and we are sure that it would be worth while fitting extra decoupling in either the anode circuits of the detector or driver valves, or possibly in both. Undoubtedly, the older battery has a high resistance.

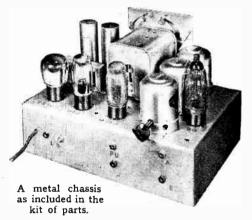
HIGH-VOLTAGE MAINS VALVES

For A.C., D.C. or Universal Receivers

S most readers know, Ostar-Ganz valves differ from others in that their heating elements are designed for direct connection across the mains without the intermediary of step-down transformers or voltage-absorbing resistances. For use on, say, 200-volt mains, one orders a 200-volt valve-just like an electric lamp.

Since these high-voltage indirectly heated valves were first introduced, the number of types available has been increased considerably; screen grid, variablemu, high-power triode, multiple grid and multiple diode types have made their appearances, and indeed almost all the requirements of a modern set designer have been anticipated. Detail improvements have been effected in several directions, notably by rearranging the base connections and by designing a special screened holder; thus the "live" electrodes are isolated from the heaters, and difficulties associated with hum have virtually disappeared.

Although Ostar-Ganz valves are usable interchangeably on alternating or direct current supplies of anything up to 250 volts, they are perhaps most attractive for D.C. or "universal" sets. For D.C. work simplicity and economy are the attractions, while the versatility of the valves allows



them to be used satisfactorily in sets intended to work interchangeably on A.C. or

To help those who wish to gain an insight into the use of these valves, we cannot do better than describe a straightforward H.F.-det.-L.F. three-valve receiver which has been produced by Mr. Eugen Forbat,



The completed receiver.

the English agent, of 28-29, Southampton Street, Strand, London, W.C.2. This set, which is available either in completed form or as a kit of parts, employs the circuit arrangement shown in the accompanying diagram; high-quality components, including Varley iron-cored tuning coils, Dubilier dry electrolytic condensers, and a Ferranti transformer, are employed.

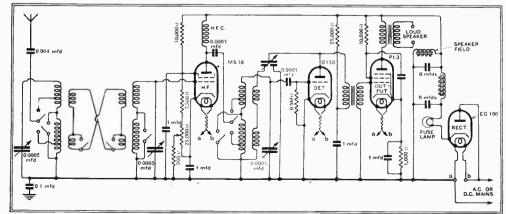
Simpler Circuits Made Possible

So far as the input and intervalve circuits are concerned there is nothing particularly unconventional; there is a band-pass input, with a tuned-grid intervalve coupling, while the detector is linked to the output pentode by a transformer.

The arrangement of the anode supply system should be studied; it will be seen that the rectifier valve operates on the halfwave principle, and that the loud speaker field is shunted across the output side of the smoothing circuit. As already inferred. all the valve heaters are connected directly across the mains.

One of these receivers, tested by The Wireless World, was found to give the performance one expects nowadays from a modern set with high-efficiency tuning coils. There was a commendable absence of hum; indeed, on either A.C. or D.C.; the performance did not in any way suggest a compromise. Although double smoothing chokes are no longer necessary, a welldesigned component should be used for this purpose.

The complete kit of parts, with valves but without accessories, costs £8 15s., while the price of the completed set is £12 12s. Two superheterodynes are also produced, one with five valves and the other, embodying the Stenode principle, with seven.



Illustrating the use of high-voltage valves: the Ostar-Ganz A.C.-D.C. 3-valve circuit.

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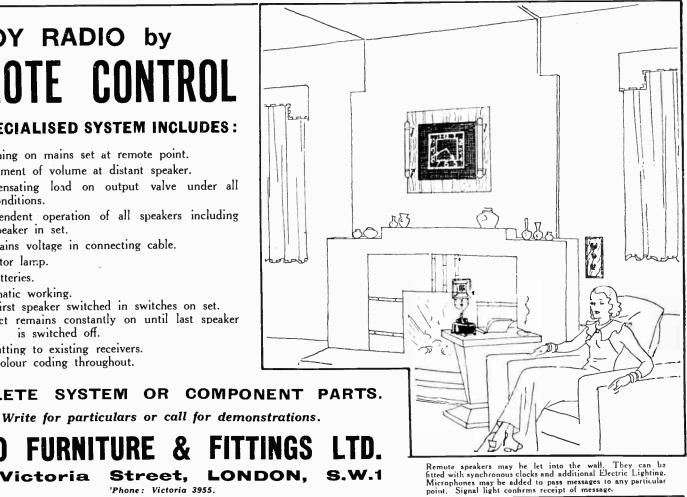
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- (6). Indicator lamp.
- (7). No hatteries.
- (8). Automatic working.

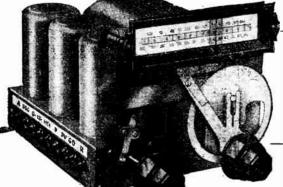
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SERIES DISCOUNTS are allowed to Trade Advertisers as follows on orders for consecutive insertions, provided a contract is placed in advance, and in the absence of fresh instructions the entire "copy" is repeated from the previous issue: 13 consecutive insertions 5%; 28 consecutive, 10%; 52 consecutive, 15%.

ADVERTISEMENTS for these columns are accepted up to FIRST POST on MONDAY MORNING (previous to date of issuel at the Head Offices of "The Wireless World," Dorset House, Stamford Street, London, S.E.I., or on SATURDAY MORNING at the Branch Offices, 19, Hertford Street, Coventry; Guildhall Buildings, Navigation Street, Birmingham, 2; 260, Deansgate, Manchester, 3; 261, Renfield Street, Glasgow, C.2.

Advertisements that arrive too late for a particular issue will automatically be inserted in the following issue unless accompanied by instructions to the contrary. All advertisements in this section must be strictly prepaid.

The proprietors retain the right to refuse or withdraw ements at their discretion

Postal Orders and Cheques sent in payment for advertisements should be made & Co. payable to ILIFFE & SONS Ltd., and crossed & Co. being untraceable if lost in transit should not be sent as remittances.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

IMPORTANT NOTICE.

Owing to the Christmas Holidays, the issue of "THE WIRELESS WORLD" for December 29th must be closed for press earlier than usual.

MISCELLANEOUS TISEMENTS for insertion in that issue can be accepted up to FIRST POST, FRIDAY, DECEMBER 22nd.

RECEIVERS AND AMPLIFIERS, ETC.

A.C. Monodial, less power unit, complete with valves; £6.-P., 29, Baldslow Rd., Hastings. [4227]

S.G. 4-valve Portable Receiver, as new, with speaker enclosed; £10.-Box 8861, c/o The Wireless World.

MURPHY 8-valve Superhet, variable tone control, as new, perfect; £15.-Box 8875, c/o The Wireless World.

A LL Mullard 3-valve Set, complete with elimin what offers over £3.—Owner, 23, Ashfield Rd., II gay, N.4. eliminator;

TRADERS, send for catalogue, 6d. stamps: mains receivers, all the best makes.—Perseus Radio, Burtonor.Trent. [0407

SUPER-HET. Bowyer-Lowe Circuit, 7/9 valves, in eliminator, trickle charger; any reasonable off Appointment, Fulham 2580. [4231

SHORT-WAVE "Empire" Superhet (W.L.S.); £3; "Melody Ranger," £2/10; valves extra; approval Home Counties.—BM/ZLME, W.C.1. (4254

A MAZING Offer.—Owner must sell world's finest superhet, 1933 16-valve, 15 to 2,200 metres, A.C. 230, beautiful Console, as new; £30.—Box, 8877, c/o The Wireless World.

"W.W." Quality A.C. Amplifier, 6 watts, undistorted output for half volt input, valves as new, Savage mains equipment throughout; £7/10, or complete speakers £10.-45, Ellington Rd., N.10. [4236]

A. C. All Mains Set, Mullard Pen, detector valves, Rola energised speaker, Westinghouse rectifier, oak cabinet, all test components, absolutely new, ready for use; urnal price 9 guineas, 100 to clear 60/- each.—260. Victoria Park Rd. E.9.

ARMSTRONG Latest 4v Chassis, now incorporates 3 pentodes, 3 tuned circuits, full band-pass square peak tuning, 2½-watts undistorted output, massive layer wound mains transformer, ideal for making high quality radiogram; 84/-, with valves 118/
ARMSTRONG 1934 Universal 4v Chassis, incorporating 3 tuned circuits, 9 kilocycles separation, practically superlucterodyne performance, full vision tuning, combined switching, 1½ watts output; 75/-, with valves 114/-; both models fully guaranteed; 7 days' trial; demonstration any time.—Phoue: Gulliver 3105. Armstrong Co., 100, King's Rd., N.W.1.

Exact to Specification

STRAIGHT

RECEIVER KIT Author's Kit of FIRST SPECI-FIED PARTS for Receiver Unit including Metal Chassis, less valves, cabinet and speaker.

Or 12 cionthly payments of \$1-3-6.

£12-15-6 Carriage Paid

POWER UNIT KIT

Cash or C.O.D.

Author's Kit of FIRST SPECIFIED £6 - 12 - 6 PARTS, excluding valve. cluding valve. Carriage Paid.
Or 12 monthly payments of 12/3.

COMPLETE KIT

Units Cash or C.O.D. Comprising Receiver & Power Units of First Specified Parts complete with all specified valves, and Baker's S.P.D. Black Cone Speaker,

Carriage Paid.

Or Deposit 26.8.0 & balance in 11 monthly payments of 22-8-0

WIT-BITS Selected C.O.D. Hems. You pay the postman. We pay post the postman between th

FINISHED INSTRUMENT

Ready Assembled, Receiver & Power Cash or C.O.D. Units, Exact to Specification, with valves, but less cabinet. Aerial tested. valves, but less cabinet. Aeriai les H.P. Terms on application. Carriage Paid.

NEW MONODIAL

KIT 'A.'—Author's Kit of First Specified Parts for RECEIVER PORTION ONLY, including Peto-Scott assembled and drilled Plymax Chassis, Panel, less cabinet and valves.

Cash or C.O.D. Carriage Paid.

£11-12 or Deposit £1.12.0 and 11 monthly payments of 20!-

POWER UNIT KIT
Author's Kit of FIRST SPRCIFIED PARTS for POWER
UNIT ONLY but with Plymax Chassis and Valves. Cash
or C.O.D.
Carriage Paid,
0r 12 monthly payments of 16,6.

Carriage Paid.
0r 12 monthly payments of 16,6.

PLYMAX Baseboard assembled and drilled as specified by the Author for RECEIVER PORTION, 14"x 12"x 1" 10/6 PLYMAX Baseboard assembled and drilled as specified by the Author for POWER UNIT PORTION, 18"x61"x1" 7/6

C. THREE A.V.C.

Kit 'A'—Author's Kit of First Specified Parts, including Peto-Scott Plymax Chassis and Ply Panel, assembled and drilled, less valves and cabinet.

Cash or C.O.D. Carriage Paid.

£10-15 or 12 monthly payments of 19/9.

Kit 'B'-As Kit 'A' with Specified Valves, but less Cabinet. Cash or C.O.D. Carriage Paid.

Standard Standard Cash or £2-1-6 Deposit and 11 monthly payments of 24-...

Kit 'C'—As Kit 'A' but with Valves and recommended PETO-SCOTT Table Cabinet.
Cash or C.O.D. Carriage Paid.
Or £3-6-6 Deposit, Balance in 11 monthly payments of 24|-.

IMMEDIATE DELIVERY
CASH—C.O.D.—H.P.

CASH — C.O.D. — H.P.
FOREIGN ORDERS. Send one-third value of goods
with order. Balance (including forwarding charges)
payable to our forwarding agents on delivery. Insurance effected if desired. All orders carefully
executed and expertly packed by special export staff.

PETO-SCOTT CO. LTD.
77, CITY ROAD, LONDON, E.C.1.
West End Showrooms: 62, High Holbern, London, W.C.1.

NUMBERED ADDRESSES.

NUMBERED ADDRESSES.

For the convenience of private advertisers, letters may be addressed to numbers at "The Wireless World "Office. When this is desired, the sum of 6d. to defray the cost of registration and to cover postage on replies must be added to the advertisement charge, which must include the words Box 000, c/o "The Wireless World." All replies should be addressed to the Box number shown in the advertisement, c/o "The Wireless World," Dorset House, Stamford Street, London, S.E. I. Readers who rebly to Box No. advertisements are warned against sending remittance through the post except in registered envelopes; in all such cases the use of the Deposit System is recommended, and the envelope should be clearly marked "Deposit Department."

DEPOSIT SYSTEM.

Readers who bestate to send money to advertisers in these columns may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Wireless World," both parties are advised of its receipt.

are advised of its receipt.

The time allowed for decision is three days, counting from receipt of goods, after which period, if buyer decides not to retain goods, they must be returned to sender. If a sale is effected, buyer instructs us to remit amount to seller, but if not, seller instructs us to return amount to depositor. Carriage is paid by the buyer, but in the event of no sale, and subject to there being no different arrangement between buyer and seller, each pays carriage one way. The seller takes the risk of loss or damage in transit, for which we take no responsibility. For all transactions up to \(\frac{f}{2} \) to, a deposit fee of \(\frac{f}{2} \) to the release of the responsibility. For all transactions over \(\frac{f}{2} \) to and under \(\frac{f}{2} \) of, the fee is \(\frac{f}{2} \) (if over \(\frac{f}{2} \) o, \(\frac{f}{2} \) of the loss. Stanford Street, London, S.E. I., and cheques and money orders should be made payable to \(\frac{f}{2} \) (if \(\frac{f}{2} \) or \(\frac{f}{2} \) os \(\frac{f}{2} \) (if \(\fr

special Note.—Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post. When sending remittances direct to an advertiser, stamp for return should also be included for use in the event of the application proving unsuccessful.

Receivers and Amplifiers, Etc.-Contd.

10 - VALVE Superheterodyne Chassis, 100-240 A.C., 15-2,000 metres, silent automatic volume control, atmospheries suppressor, tone control, 7-watt push-pull output, spare valves, special Magnavox speaker, grame-phone switch, new; £16.—55, Grove Avenue, N.10. Tudor 5703.

SPECIAL 1934 Superhet Chassis, A.C. or D.C., 6-valve, highly selective, 60 to 100 stations, guaranteed, 7 tuned circuits, mains moving coil speaker, one dial tuning, provision for pick-up, 21, watts output, built to last, fully guaranteed, ideal receiver for present day conditions; write for particulars; worth £18; chassis complete 155/; valves extra 77 6.—Phasodyne Radio, 64, Queensborough Terrace, 14238

MAINS EQUIPMENT.

SERADEX Mains Equipment, new list now ready.

ERADEX Variable Resistances for Television, etc., type II.A., 150 ohus, as specified for "Practical Mechanics Telediscovisor," also televisors described in "Amateur Wireless," and "Television"; 9/11, post paid; new illustrated leaflet just issued.

ERADEX Battery Chargers; models from £2/12/6; send for lists; a better job at a lower price.

ERADEX Filter Condensers, new list available shortly; type B, 400v. working, non-inductive, 0.5 mfd., 1 4; 1.0 mfd., 1/6; 1x1 mfd., 2/6; 2 mfd., 2/3; 4 mfd., 4/5; 4×4 mfd., 7/3.

A DVERTISEMENT of Trevor Pepper, 575, Moseley Rd., Birmingham, 12.

N. P. for Battery Chargers. See page 2 for display advertisement.
N. P. Have a New Range of Cabinet Instruments from £3/10, with 3 and 4 circuits.
N. P.—Special new lines metal rectified; 25/- to £10; send for list.
N. P.—December soiled list ready; all new at bargain

N. P.—December soiled list ready; all new at bargain prices.

N. P.—Send actual photographs and trade lists of their latest productions in mains chargers.—Nash Products, Ltd., Stechfork, Birmingham.

TRADERS.—Get all requirements (catalogue 6d.).—Perseus Radio, Burton-on-Trent. [0408

HOYNE'S Transformers and Chokes the Best Obtainable, perfect insulation, regulation and reliability.

HOYNE'S Transformers, used by many well known set manufacturers after testing all others.

HOYNE'S Transformers, fitted with tapped and screened primaries, filaments all centre tapped, stout cast aluminium clamps and clearly marked Bakelite terminal strips are fitted to all models.

HOYNE'S Components are Guaranteed for One Year; built to your own specification at very competitive prices.

HOYNE'S Components.—The components you will eventually use, start right; a dud cannot pass the

H eventually use, start right; a dud cannot pass the Hoyne test.

HOYNE'S A.V.C. Straight Four, 450-0-450v., 120 m.a., 4v. 5-6a. 18/-, post 1/3; choke, 26H., 120 m.a., 140 ohms, 9/6, post 9d.

HOYNE'S A.V.C. Three, 275-0-275v. 60-70 m.a., v4. 2.5a. 4v. 4a., 12/6, post 1/-; choke, 30 henry 50 m.a., 7, 6, post 6d.

HOYNE'S New Monodial Transformer, 425-0-425v, 120 m.a., 4v. 3a., 4v. 1a., 4v. 5a., 24/-, post 1/3; weight 10lb.; 10 henry choke, 6/-, post 6d.; 20 henry choke 7/6, post 6d.

(This advertisement continued on next page)

Mains Equipment.-Contd.

(This advertisement continued from previous page.)

HOYNE'S, 250-0-250v. 60 a.m., 4v. 1-2a., 4v. 2-4a., 10/-, post 9d.; with extra 4v. 1-2a. winding, 12/6, post 1/-:

9d. OYNE'S -200v. 200 ma.. 4v. 2-4a.. 4v. 1-2a., for HT,8: 15/6, post 1/s.

HOYNE'S Chokes, very generous cores, cotton interperated, fitted with cast aluminium clamps and terminal strips: 30H, 60 m.a., 900 ohms, 6/6, post 9d.; 30H, 120 m.a., 400 ohms 8/6 post 1/s.

HOYNE'S Chargers and Eliminators to your Specifications; keepest piles.

HOYNE'S Line Transformers (auto-wound) tapped of 100-110-200-220-240v., 60 watt, 8 6, post 9d.; 120 watt, 10, post 1/s.

M. J. HOYNE, Offices and Works, 8a, Gladstone Rd., Wimbledon, S.W.19 Tel.: Liberty 3303. [4115]

VORTEXION Lead Again.

VORTEXION A.C./34, used by author in construction of A.V.C. Three, as illustrated; 18/-.

VORTEXION.—Please note brown lead omitted in blue print, is screened primary connection and should be earthed to classis.

VORTEXION, Wimbledon, for 99.9% reliable trans-

carthed to chassis.

VORTEXION. Wimbledon, for 99.9% reliable transformers

If You haven't Tried Them Yet Ask Someone Who Has, or call and inspect complimentary letters.

CYCARANTED 12 Months, and within 5% normal and 21.2% super models, neat shronding, with detachable feet, as used by Government Departments, etc., etc.

VORTEXION.—New Monosial transformer, 200-250, 50 cycles, 425-0.425, 120 m.a., 4v. C.T. 3a., 4v. C.T. 1a., 4v. C.T. 6a., sere-n primary, open type, 20/; shronded, 22/-; super shronded, 26/-; weight 14th., carriage 2/- extra; 10 henry choke, 5/6, post 9d.; 20 huny, 8, 6.

VORTEXION for A.V.C. Straight Four, 200-250 input, 450 of 450v. 120 m.a., 4v. 2.5a. C.T., 4v. 5-5a. C.T., with screened primary, shronded in cast aluminium to prevent hum, super model 10-volt primary taps; 30/-VORTEXION 26h, 120 m.a. Choke, 140 chms, in dic cast shronding to match; 12/6.

VORTEXION.—5-watt Monoshal A.V.C. model, 400-0-400, 120 m.a., 4v. 6a., 4v. 31-2a., 4v. 2a., 4v. 1a., super screened, 20/-; shronded, 24/-.

All. Secondaries Centre Tapped.

VORTEXION.—250-0-250 60 m.a., 4v. 1 to 2a., 4v. 2 to 4a., open type 10/6; shronded, 12/6; post 9d.

VORTEXION. - 250.0-250 60 m.a., 4v. 1 to 2a., 4v. 2 to 4a., open type, 10/6' shrouded, 12/6; post 9d.
VORTEXION Transformers, tested with 2,000 volts bely even windings

VORTEXION. Transformers, tester with 2,000 voirs between windings.

VORTEXION.—Ferrocart 111, 350-0-350, 60 m.a., 4v. 2.5, C.T., 4v. 3.5, C.T.; open type 13/6, shrouded 16/; post 94

VORTEXION.—Super model for H.T.8 or 9 or 10, 4v. 1 to 2, 4v. 2 to 4; open type 14/6, shrouded 16/6;

post 1/-. VORTEXION.—350-0-350, 120 m.a., 4v. 2 to 5a., 4v. 2 to 4a., 4v 2.5a.; open type 14/6, shrouded 16/6. VORTEXION.—400 or 450 or 500v., 120 m.a., 4v. 2 to 5, 4v. 2 to 5, 4v. 2.5a.; open type 19/-, shrouded

23/.

VORTEXION. - 400 or 450 or 500, 150 ma., 4v. 4a., 4v. 2.5, 4v. 2. 4v. 2, 4v. 2, core size 2½x1½in., a superb job. 2% regulation, 25/:: shrouded with terminals, less terminals, 30/:; open type 26/:; post 1 3.

VORTEXION Auto Transformers to B.E.S.A. Specification, 100, 110, or 120v. to 200, 220 or 240 volts, 60 watts, 9½, post 9d.: 120 watts, shrouded 12/6, open type 10/6, post 1/:; 200 watts, open 14/6, shrouded 16/6, post 1/:; 2.00 watts, 9½.

VORTEXION 600 watt Transformers; £4/10, carriage free.

Volume VORTEXION 50h, at 60 m.a. Chokes, 5'6; 40h, at 60 m.a., 8'6; 30h, at 150 m.a., 200 ohms, 10'6 open type, 12'6 chrondid.

VORTEXION Transformers Made to Your Specification; price according to wattage, 6v. filaments same price unless wattage grossly exceeded; special quotations by

VORTEXICN (S. A. BROWN), 182. The Broadway, Wimbledon, S.W.19. Tel.: Liberty 2814. [4189

TANTALIM for A.C. Chargers, H.T. and L.T.—Black well's Metallurgical Works, Ltd., Garston, Liverpool. [3448]

A.C. Charging Plant (new), output 40 volts 6 amperes: list d C18 18, accept £8, Jersey, Cunnor Hill, Oxford,

Oxford. [4131]

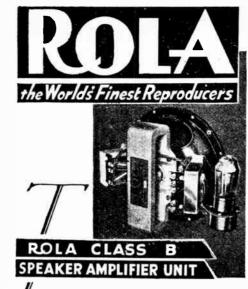
K INGSTONE and COMPANY, 372, Essey Rd., London, N.1, offer mains smoothing chokes, 30h, 100 ma; 5/- cach. [4272]

PHILIPS H.T. Supply Unit, type 3002 (A.C. mains), 253 volts, 40/100 eyeles; 60%, or best offer. Box 8872. c o The Wireless World. [4246]

E872. c o The Hiteless World. [4246]
A TLAS A C. Eliminator, incorporating trickle charger,
25 multi-mps output, practically new; cost. £4/10,
sell £2/15. Box 8867, c o The Wiceless World. [4237]
I EF168 Experimenters Can Obtain High Quality Mains
Transformers, chokes, etc., from R. W. Money; finest country mat rials and high-class workman-hip, guaranteed for two years; "Wireless World" Universal Output Transformers in stock 35 ...R. W. Money, 23, Wade Lane, Leeds, 2, Tel. 23537. [4253]

Leeds, 2, Tel. 23557. [4253]
"DULCI" Unused D.C. Eliminators, 25 milliams output, 13'-; Westinghouse rectifiers, H.T.6, H.T.7, H.T.10, 11'-3; T.C.C. 8 ml, electrolytics, 5-9; B.T.H. pick-up tone arms, 5'-; post paid, cash with order or c.a.d., Ward, 2nd Floor, 45, Farringdon St., E.C. (new address). [4199]

AC, or D.C. Chargers for 2 to 200 Cells at Low Prices; state requirements; dynamos and rotaries in stock, all sizes; Brown's Generometer, hattery superseders for H.T. for 2v, or 6v, input, 37 6 and 52'6; television and sewing machine universal motors, 25; lists.—Electradix Radies, 213. Upper Thames St., E.C.4. [0398]



The Mighty Voice Radio Realism

Let your Christmas party dance to your battery set. The Rola Class B Speaker Amplifier Unit endows it with all the power and realism of an All-Mains receiver. Volume and sensitivity are increased at least 5 times...and it takes only 5 seconds to connect.

Model A-For Mullard P.M. 2B, B.T.H. PD220. Cossor 220B, Hivae B220, Marconiphone B21, G.E.C. B21, Clarion B22.

Model B-For Cossor 240B, Ferranti HP2, Clarion B24.

(Both Models less Valve) 57/-

Class B Speakers

Whatever the Class B Valve you use, you will find a Rola Class B Speaker exactly suited to its characteristics. Write for complete list,

Extension Speakers

There is a correct Rola Extension Speaker for practically all British radio receivers. Write for Extension Speaker Broadsheet.

IMMEDIATE DELIVERY



Fitted as Standard by the large Majority of British Manufacturers

Over 4 Million in Use

THE BRITISH ROLA CO. LTD., Minerva Road, PARK ROYAL, N.W.10.

'Phone: Willesden 4322-3-4-5-6.

CABINETS.

RADIO-GRAM Cabinets; fully illustrated list free; remarkable values.—Gibert, Cabinet Maker, Swindon,

PPTON First Again! Christmas Bargains! The following polished walnut cabinets, complete with

Speaker (rets.)

BOTOLPH (abinets, with attractive black contrast elging, 15¹₄×13¹₁×8¹₄, drilled, 10/9; undrilled, 13-9; Regentone cabinets, 15×13×5, 8/9.

GUNBEAM (abinets, black contrast edging, bandsome speaker fret design, 16⁵₁×15·9¹₄, 14-3.

PHILCO Baby Superhet, Cabinets, undrilled, 15·12¹₂× 7¹₄; 10/9.—Epton, 93, New Rd., Chingford, E.4. 14280

R ADIOGRAM Cabinets, manufacturers' clearament, beca, 45 and 70/-; Zetavox (mod. A.G.), 5 new, clean goods. H. L. Smith and Co., Ltd., 289, 4 ware Rd., London, W.2.

DYNAMOS, ETC.

M^{-L} Converter, 12v. to 400, 200 m.a., with smoothing; £7.—Smith, Moulsham Lodge, St. Leighs [4247]

R OTARY Converters, 220 volts D.C. to 200 volts A.C., capacities up to 0.44 K.Y.A.; from £4 10. Milo Engineering Works, Milo Rd, East Dulwich, 8.E.22 [4355]

D.C.-A.C. Converter, NECO, input 200 volts D.C., ontput 230 volts A.C., 120 watts, sound proof hox, transformer, input smoothing chokes, excellent condition; £4/10.—Harken Electrical Co., Ltd., Croydon. [4224]

GRAMOPHONES, PICK-UPS, ETC.

P.B. Gramophones, £16/10 models only; £6.-Edison-Bell Works, Glengall Rd., Peckham, S.E.15. 4266

Is Your Woodroffe Pick-up Still Given Satisfaction?

Complete overhaul costs 7/6; pick-ups (2 years' guarantee) at 25/- cach.—J. B. Woodroffe, 93, Harwood Rd., S.W.6.

LOUD-SPEAKERS.

TRADERS.—Lond speakers of all kinds, with your other requirements: catalogue 6d.—Perseus Radio, Burton-(0409

U NIT B Spot, nearly new; cost 25/-, sent c.o.d., 7/6, or near offer; postcard,—Davis, 54, Southcote Rd., Bournemouth [4223]

UNSED Ferranti M2 Speaker and O.P.M.6 Transity former; best offer over .C3/15.—Harvey, Queen 8t., West Brouwich. [4241

R PTON First Again! Christmas Bargains!—B.T.H. m.c. speakers, 2,500 ohms, power or pentode output, with humbucking coil, 7in. cone, 13/6.

B ENTONA P.M. Speakers, power-pentode output, 7in. cone (listed 39/6), 19/11.—Epton, 93, New Rd., Chingford, E.4.

MOVING Coil Speakers.—Magnavox 1933 type 152, 2,500 ohms or 6,500 ohms, at 26/-; 154 (same voltages as in 152), at 19/-; state if power or pentode transformer (fitted humbuckers); all carriage paid, cash with order or e.o.d.—H.D. Radio Electrical Service, 9. Kingly St., London, W.1. [4185]

St., London, W.1. [4185]

30 /-!!!=B.T.H. R.K. moving coil speakers, 6in, cone, new and nnused, guaranteed; these speakers are the type as used in cinerna sound equipment, suitable for public address work; weight 30lb., and vastly superior to the cheap speakers now on the market, 100 volts, 150 volts, and 200 volts D.C.

27 /6!!!=6-volt D.C. speakers, as above; £2/716 plete with field rectifier.

B.T.H. Transformer, brand new, ratios 1-1, 2-1, 20-1, and 30-1 microphone; 7/- each.

MAGNAVON D.C.124, 2.500 and 6.500 ohns, 17/6; Littrage paid, eith with order or e.o.d.—Ward, 2nd Floor, 45, Farringdon St., E.C. (New address). [4201]

Ploor, 45, Farringdon St., E.C. (New address). [420]

P. ADIO AGENCIES Offer New Sel Manutacturers' Surpose of the plus; all goods carriage paid, cash with order, or co.d. Moving coil speakers, Magnavox X core, 7½ in. cones, 100-190 D.C., 2,500 ohms (40-76 m.a.), or 190-280 D.C., 6,500 ohms 129-43 m.a.), at 18½ each; Seniors, 9½ in. cones, same voltages, at 25½ (U.S.A.); Hola's 7½in. cones (list 35½), at 18½. Seniors, 9½, cones, list 47 6, at 25½, in following voltages; 2,000, 2,500, 6,500 ohms; on all speakers state if power cr pentode transformer, all incorporate humbuckers; also few duals, Class "B" and permanent magnets,—Radio Agencies, No. 37, Albenarle St., London, W.1. [4276] permanent magne St., London, W.1.

St., London, W.t. 14276

A MERICAN Roia M.C. Speakers, K. type, 2.000, 2,500, and 6,500 olms standard model Tolin, cones 18/-; Senio, 9in cones, at 25/-; P.M.s. Standard and Seniors also in stock, cobalt magnets; state power or pentode when ordering; dual-balanced pairs matched to customers' requirements; P.M. Midgets, andti-ratio transformers, 17/6; special, P.M.s. Töjin, cones, in patent baffle cabinet, black leatherette finish, at 32/-, wonderful tone, reproduction crisp, no high note loss, and a drum sounds like a drum, not a tin kettle; also supplied for class B., 2/- extra, makes a battery job sound like a mains set; all goods carriage paid, cash with order or cloth. Not stre which speaker will do your job best, send stamped addressed envelope and get real honest advice. K.C. Radio Electric, 14, Hardel St., London, W.C.

PICTURE RECEIVER APPARATUS.

TELEVISION Components Supplied, constructors guide, 1/3; notes 1d; entriogue free, Goodman Television, 16, Highbury Terrace, Near Highbury Station. ,4226

TRANSMITTING APPARATUS.

UNUSED Valves, Mullard VO'350, 2 Mullard VII/ 150's, 3 Mullard supports for above; this lot originally cost €32.10, best offer over €6 secures.—2AKW, 53, Church Rd., S.E.19.

VALVES.

8/9: Ostar Ganz valves any type; bu, a spare set while our stocks last, state type and voltage required; c.o.d., postage paid. - Ka. 167, City Rd., London, E.C.1.

THE WEAKEST LINK

In the Reproducing Chain is now the receiver and amplifier. The Hartley Turner Loud Speaker distorts less than most sets. As our inventive faculties do not stop at loud speaker design we have started on the Radio Receiver, and we are producing something new and very good for the home builder as well as the man who wants his set complete and ready to work. Hartley Turner technical data is that which the enthusiastic reader of "The Wireless World" has been seeking for a long time.

Let us have your name and address so that we can keep you informed of all Hartley Turner developments, and in particular send a 12d. stamp for the second edition of "New Notes in Radio."

D.C. MODEL - £7-7-0. A.C. MODEL - £8-8-0.

HARTLEY TURNER RADIO LTD.,

Thornbury Road, Isleworth, Middlesex.

'Phone: Hounslow 1854.



Valves .- Contd.

EPTON Leads Again! Christmas Bargains!—Lissen H210, H.L.219, 3-6; P.220, 4/5; Tungsram, L.G. 210, H.210, 3/3; Triotron, Z.D.2, 4/3.—Epton, 93, New R-L. Chingford, E.4. [4231

A I.I. Types of Brand New American Valves in Stock, first class makes, guaranteed; 247, 235, 224, 244, 236, 18, 19, 15, 242, 238, 46, 59, 89, 2A, 7 12/-; 80 45, 226, 227, 8/-; 250, 281, 210, 17/6; post paid, cash with order c.o.d.—Ward, 2nd Floor, 45, Farringdon St., E.C. (new old-week)

SPECIAI, Offer.-Valves by world-famous Continental manufacturers, fully guaranteed, screen grid, variable mu screen grid, high magnification screen grid, H. Hl., L.; all the above standard mains type, 4/6 each.-Premier Supply Stores, 20-22, High St., Clapham, S.W.4. Macaulay 2188

MEWMAN, the Valve Man!—Just arrived, 2,000 brand new latest type American valves, all boxed, guaranteel R.C.A. manufacture; 235 11/-, 224 12/-, 236 13 -, 247 13/6, 237 13/-, 233 15/3, 245 8/-, 244 14/-, 227 8/-, 226 6/-, 280 8/-, 242 14/-, 232 13/6, 647 16/-, etc., etc., send us your enquiries, prompt attention for cash or c.o.d.—Newmans, 309, Roman Rd., Bow, E.3. [3882]

COMPONENTS, ETC., FOR SALE.

R.

SELECTED Parts for Saie, as new, any c.o.d. or "Wire less World" deposit system, which we recommend if in sloubt as to the splendid value offered; we take risk of damage in transit to customers; goods tested for callers and guaranteed.

and guaranteed.

RADIOPHONE 2-gang, with drive complete, less cover.

8 6; Colvern 8.W. intermediates, 4 9; Dubilier, 2 · 2,
500v. working, 1/9 each to clear; Lewcos extenser oscillator, 5/6; Varley P.P. pentode choke, 10/·; pair Varley P.P. transformers, separate, G.B. 25/·; Varley Nicore I,

VARLEY Auto, 7-1 Transformer, 9/-; R.I adjustable chokes, second-hand, 200 m.a., 15/-; R.I. L.T. chokes, second-hand, 200 m.a., 15/-; R.I. L.T. chokes, second-hand, 2/6; Gecophone L.F. choke, 3/-; Wearite antimobn units, 2/6; Telsen multi ratio output transformer, 9/15/22-1, 6/

DOLAR STAR 3-gang Senior, new, 14/6, with drive, 16/6; Radiophone 3-gangs with drive, cover and fittings, complete, 15/9; Radiophone 4-gangs, split vanes and trimmers, new, 8/3; with drive and fittings, 12/9; Polar drimmers, new, 8/3; with drive and fittings, 12/9; Polar 2-gang Uniknobs, complete, 9/-; Polar disc drive, with No. 4 condenser, 4/6 pair; Lotus 4-gangs, new, fully screened trimmers, top. 15/-; pairs Polar 0.0005 thumb drive, new, S.M. complete, 12/6; Ready Radio 0.0005 extensers, 2/6, new,

S.M. complete, 12/£; Ready Radio 0.0005 extensers, 2 6, new, rew.

FERRANTI Eliminator 200. 100 m.a., £4; Exide II/T. and L.T. trickle charger, 25 ; Blue Spot P.M., 20 ; Ormond P.M., 65/- model, 35 -; B.F.H. P.M. Junior, 25 -; II.T.9 and Vortexion transformer with 4v. 4 amp., 21/-; Polar Star superhet, condenser, 3-gang, 15, 9.

CTERLING Shrowled 30H 30 m.a. Chokes, 4/6; Telsen Power grid 40H, 6 m.a. choke, 4 6; 40H 4 m.a., 3 -; Igranic C.40 choke, 5 -; Igranic Midget L.F. transformer, 5 :; Balgin 32H choke, 4/-.

TELSEN 350v., 2 4v. windings, mains transformer, 7 6; R. and A. 100 speaker, M.C., P.M., with multi ratio transformer, 25/-; Epoch P.M.G. speaker, 17/6.

SPECIAL Offer of 3v. and Rectifier (valve) Chassis, from Yagerphone, all guaranteed, new and very well made; chassis only 50-; with valves, 90-; carriage Loward.

T.H. Junior Speaker, 6in, corrugated cone, with sepa-

made; chassis only 50.; with valves, 90.; carriage forward.

B.T.H. Junior Speaker, 6in. corrugated cone, with separates and the separates of the separates of

H ELSBY Non-inductive Bakelite Condensers, new, 250v. working, 4 mf. 3 -; 2 mf. 2/-; R.I. Q.P.P. input transformers, 9 6, second-hand; Ferranti large safety boxes, 9 6; Amplion B.A. cone speaker, in solid oak.

I AMPLUGII Senior D.C. Speakers, 8 in. cone, 2,200 chms, 13 6; Collaro A.C. motor, with pick-up, com-

AMPLA GIL Seinor D. Speaker, with pick-up, complete unit, 52/6.

T.C.C. 2 mf., 35Cv. working, 1/6; T.C.C. 0.01, mica, type M., 1 -; T.C.C. 4×4 mf., 4 -; H.M.V. 4·4 mf., 5 -; T.C.C. 4×4×1×1×½ mi., 4, 6; H.M.V. ditto, 5 o; all 250v. working, UTPCASE Type Cases, in best crocodile leather, 14×14 × 8, ample room for 12in, turntable and pick-up

RYALL'S RADIO, 33, Chancery Lane, London, W.C.2 (nearest Tube, Chancery Lane; 'bus 67 passes door, or tram to Savoy t.). Holborn 3529, open Saturday afternoon. Close 7 p.m., Saturday 6 p.m. Thursday closed to clock.

 $\mathbf{R}.$

BARGAINS.—Magnavox 144 speakers, 2,500 ohms. VARIABLE Condensers.—4-gang minor and dial, 20 cditto, 3-gang, 18/6; ditto, 2-gang, 14 c; Utility 3-gang and dial, 16 c; Radiophone ditto, 25 c; superhettypes, 2 6 extra; Westinghouse H.T.8, 10 c; 9 and 10, 12 c; nanufacturers type.

COILS.—Ferrocart Colvern, F10, 11, 12 and 13, 40/per set; F1, 2, 3, 30 c; bubiler 1-watt resistance, 6 per dozen; Garrard record changer, £6/10.

MAINS Transformers.—350-0-350, 90 m.a., 4v. 2 amp., 4 amp., 10/6; ditto, 120 m.a., 12 6; 30 henry colvers, 3 6; ditto, 20 henry, 4 6; Wircless World Colvers, 3 6; ditto, 20 henry, 4 6; Wircless World Colvers, 3/5; ditto, 4 mid., 2/6; non-inductive tubulat, 0.001-0.5, 9d.; co.d. or cash with order. A. B., 14270



dependable, accurate and moderately priced.

Check your Anode Current with a Sifam Milliammeter-a moving coil is essential. All rangesfrom 1 M,A. upwards. some appearance; moulded case: deadbeat readings.

> From 27/6 (Moving iron from 7/-.)

SIFAM ELECTRICAL

> 12/6 each. Postage 6d

> > 1/6

each. Postage 3 6/6

6d

INSTRUMENT CO., LTD. York Werks, Ercuning St., S.E.17.

SURPLUS RADIO BARGAINS

Come along and pick out your own Bargain.

SIFAM

LLIAMPERES

LOOK AT THESE.

4-1-1-1 350 Volt Peak

POTENTIAL DIVIDERS. 66 Watt Wire-wound

4.500, 3,000, 2,000 Ohms or 15,000, 3,000,
2,000 Ohms ... at

DOUBLE SMOOTHING CHOKES. Mounted sound robust job, 120 M a. 14/28 Henrys each, usual rice 35,, our price Single ditto, 4/6 each.

Hundreds of other interesting bargains offered Those unable to call should write for Free List "W."
All goods sent per return, Cash or C.O.D.

SURPLUS RADIO 94, HIGH HOLBORN, LONDÓN, W.C.1.



CATALOGUE 1933-34 **NOW READY** FOR THE TRADER. Perseus supplies all makes KITS OR PART KITS,

or any components, valves or Speakers, at best discount LATEST WIRELESS WORLD & OTHER JOURNAL KITS. PERSEUS RADIO, W.W. Burton - on - Trent.

STANETT A

Write for booklet & leaflets BAKER SELHURST RADIO 75 SUSSEX ROAD, E. CROYDON.

13/11 Accumulator Chargers 13/11

Accumulator Chargers—½ amp. 2-6 volts, incorporating WESTINGHOUSE METAL RECTIFIER and Robust Transformer. Complete in ventilated metal case, with mains flex, ready for immediate use. Suitable for A.C. mains, 200-250 v. 40-50 cycles. Price 13/11 postage 6d. 1 amp. models 21.— Money returned within 7 days if dissatisfied.

The Arden Agency, Wollaston, Wellingborough.

Components, etc., for Sale.—Contd.

PREMIER.

PREMIER SUPPLY STORES Offer the Following Set Manufacturers' Surplus New Goods at a Fraction of the Original Cost, all goods guaranteed perfect, carriage paid over 5/-, under 5/- postage 6d. extra (Ireland, carriage forward).

paid over 5/-, under 9/- postage 93, 2374 (Checker Tage forward).

FILMINATOR Kits. including transformer, choke, Li Westinghouse metal rectifier, T.C.C. condensers, resistances and diagram, 120v, 20 m.a., 20/-; trickle charger 8/- extra; 150v, 30 millianps, with 4v, 2-4 amps, C.T., L.T., 25/-; trickle charger, 6/6 extra; 250v, 60 millianps, with 4v, 3-5 amps, C.T., L.T., 49/6; 300v, 60 millianps, with 4v, 3-5 amps, C.T., L.T., 49/6; 300v, 60 millianps, with 4v, 3-5 amps, C.T., L.T., 37/6; 150v, 50 millianps, 27/6.

with 4v. 3-5 amps. C.T., L.T., 49/6; 360v. 60 milliamps, with 4v. 3-5 amps. C.T., L.T., 37/6; 150v. 50 milliamps, 27/6.

T.C.C. Condensers, 750v. working, 2 mf., 3 '6; 4 mf. 6/-, 4 mf. 450v. working 4/-, 250v. working 1 mf. 1/3; 2 mf. 1/9; 8 mf. 3/6; aqueous electrolytic, 440v. working, 4 mf. 3/-, 8 mf. 3/6.

A Lt the Pollowing Lines 6d, each or 5/- per dozen; 4- and 5-pia chassis mounting valve holders; shielded screen grid or pentode leads, 1-watt wire end resistances, any value; 0.1 condensers; on-off switches, push-pull; polar ganging devices; 0.02 condensers, 0.5 condensers, 0.01 condensers, 0.2 condensers.

DOLAR 3-gang 0.0005 Condensers, split end vanes, totally screened disc drive; 6'-11.

MSCO Triple-gang, 0.0005 Condensers, with trimmers, 4/11.

T.C.C. Electrolytic Condensers 100 value working to

totally screened disc drive; 6*11.

AMSCO Triplegang, 0.0005 Condensors, with trimmers, 4/11.

T.C.C. Electrolytic Condensors, 100 volts working, 15 mfd, 1/3; 6 mf, 50v., 1/5.

PREMIER Chokes, 40 m.a., 25 hys., 4/; 65 m.a., 30 hys., 6/; 150 m.a., 30 hys., 10 6.

PYE Chokes, 20 or 32 hys., 4/; Premier multiratio output transformers, giving 15 different ratios; 7/6.

HIGH Inductance Chokes, resistance 2.500 ohms, *80 henrys, 60 m.a.; 5/6.

WESTINGHOUSE Metal Rectifiers, 120v. at 20 m.a., 6/6; 200v. at 30 m.a., 8/6; 200v., 60 m.a., 10/c.

HARLEY Pick-up, complete with arm and volume control; 12/6.

BRITISH RADIOPHONE Wire Wound Potentiometers, with mains switch incorporated, 5,000 ohms, 10,000 ohms, any value; 3/6.

KOLSTER BRANDES Gramophone Motors, dual type, can be worked by clockwork or mains, induction type 109-250 volts, 25/-; complete with all littings and turnable.

PECIAL Offer.—Microphones by preminent manufac-

109-250 volts, 25/-; complete with all littings and turntable.

SPECIAL Offer.—Microphones by prominent manufacturer, high sensitivity, uniform response, complete
with stand, transformer and battery: listed £3, 15, our
price 18/6.

PREMIER British Made Meters, moving iron, flush
mounting, accurate; 0-15, 0-50, 0-100, 0-250 milliamps, 0-1, 0-5 amps, all at 6/-.

ORMOND Condensers, 2-gang, semi shielded, 2/6; wire
wound potentiometers, 15,000 ohms, 1/6.

SPECIAL Offer of Mains Transformers, 'manufactured
by Philips, input 110-115v, or 200-250v, output 1800-180 volts, 40 m.a., 4v, 1a., and 4v, 5a., 4, 6; 200-0-200v,
4v, 1a., 4v, 5a., 4/6.

A Lt. Premier Guaranteed Mains Transformers have eninput 200-256 volts, 40-100 cycles, all windings paper interleaved.

TAREMIED II TR Transformers 250v, 60 m.a., rectified,

PREMIER II.T.8 Transformers, 250v. 60 m.a., rectified, with 4v, 3-5a, C.T., L.T., and screen primary, 15/-; with Westinghouse rectifier, 25/-, with Westinghouse rectifier, 26/-, with 4v, 3-5a, C.T., L.T., and screened primary, 15/-; with Westinghouse rectifier, 26/-, PREMIER II.T.10 Transformer, 200v. 100 m.a., rectified, with Westinghouse rectifier, 26/-, PREMIER II.T.10 Transformer, 200v. 100 m.a. rectified, with 4v, 3-5a, C.T., L.T., and screened primary, 15/-; with Westinghouse rectifier, 26/-, DUBLE Spring Motors, made by Garrard, play five sides of 10in, record, complete with turntuble and all fittings; 17/6.

CPECIAL Offer.—Accumulator chargers, input 200-250v.

OUBLE Spring Motors, made by Garrard, play nve sides of 10in, record, complete with turntable and all fittings; 17/6.

SPECIAL Offer—Accumulator chargers, input 200-250v. SPECIAL Offer—Accumulator chargers, input 200-250v. SPECIAL Offer—Accumulator chargers, input 200-250v. SPECIAL Offer—Accumulator chargers may be used during broadcast; 9/6 each. CENTRALAB Potentioneters: 50,000. 250,000 and 50,000 ohms, 2/- each; ditto, wire wound, 200 ohms, 1/-.

A FEW More Only. Western Electric 4211E's and 4211D's, 15/-: 4212's, 43: callers only.

WESTERN ELECTRIC Mains Transformers: 500-0-250 and 5,000v., 150 m.a., 4v, 3-5 amps., 4v, 2-5 amps., 4v. 2-2 amps., 4v. 2-5 amps., 4v. 2-2 amps., 4v. 2-5 amps., 4v. 2-3 amps., 4v. 1 amp., C.T., 19/6.

REMIER L.T. Supply Units, consisting of Premier transformer and Westinghouse Tretifier, inputs 200-250 A.C., output 8v. 1/2 amp., 13/6; 8v. 1 amp., 17/6; 15v.; amp., 19/-; 6v. 2 amp., 27/6; 30v. 14., 37/6.

PREMIER Mains Transformers, output 135v. 80 m.a., for voltage doubling, 8/6; 4v. 3-4a., C.T., L.T., 2-cxtra; Westinghouse rectifier for above, giving 200v. 30 m.a., 8/6.

The MIER Mains Transformers, output 250-0-250 volts.

100 m.a., 4v. 4.5a., 4v. 2-5a., with screened primary, 15/z.

PREMIER Auto Transformers, 100-110 200-250 volts or vice versa, 60-watt, 7/9; 100-wait, 10 z.

SPECIAL Offer of Manufacturers: Type Transformers, any input, output 250-0-250 volts, 60 m.a., 4v. 1a., 4v. 3a., koth C.T.), 8/6; 11.T.8 transformer, with 4v. 3-4a. (C.T.), 8/6; vith rectifier, 18/6.

MAGNAVOX D.C.144, 2-500 chms, 17/6; D.C.154, 2-500 chms, 17/6; D.C.152 Magna, 2-500 chms, 37/6; all complete with humbucking coils; please state whether power or pentode required; A.C. conversion kit for above types, 10/z; Magnavox P.M. 7in, cone, 18/6.

BULGIN 3 amp. Mains Switch, 1/z; lever switches, 2, 3 or 4 way, 3 pole, 1/z either type.

WESTERN ELECTRIC Mains Transformers, 300 0-300, 60 milliamps, 4v. 1/2 amps., 4v. 2/3 amps., 8/6.

GRAMPION P.M. Loud-speakers, 9in, cone, handles 4 watts, 18/6.

Waits, 18-6.

GRAMPION M.C. Loud-speakers, 2,500 ohm field, 9in, cone, handles 6 waits, 21 -.

H.M.V. Condenser Blocks, 4 - 4 - 1 - 1 - 0.5, 250v, working, 3-6; ditto, 400v, working, 5-6.

ELLIOT First-grade Moving Coll Meters, 0-30, 0-50, 0-100, 0-150 milliamps, projecting types, 15/- each; 0-100, 0-150 milliamps, flush types, 17-6 each; (This advertisement continued in third column.)

【 ************************* ELECTRICALLY**

This Xmas!

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W E carry large stocks and can deliver immediately (incidentally we only supply brand new articles which we can thoroughly recommend and guarantee). Always state voltage and give your full address. Here are a few timely suggestions,

SOLON Electric Soldering Iron (State vol-SOLON Electric Soldering Iron (State voltage and state "2 coil" or "3 coil" cable)

SOLON "EMPIRE" Electric Soldering
Iron (State voltage, this is a slightly heavier model for domestic or factory use)

SALON Electric WAFFLER (State colour V SALON Electric WAFFLER (State colour—blue, green, orange or naturat, and yoltage. Recipe book and instructions free SIRAMA Electric Rator, with the oscillating blade—takes any standard three-hole blade, operated by ordinary flash lamp battery which lasts three months. Shaving 25/—without teats!

SUPREME Hairdrytr—just the present for the wife! in GREEN MAHOGANY or WALNUT BAKELITE. State voltage THERMEGA Heating Pad—a boon for the bed these cold nights, and a necessity for the invalid. Size 16in. 12in. with 3 heat switch, warm in a moment (suitable for 100 250 volt A.C. or D.C. without 31/6

THERMEGA Blanket, 44in; 32in, Do. 63-1 V. ** 1 3 heat switch, warm in a moment isuitable for 100 250 volt A.C. or D.C. without adjustment)

THERMEGA Blanket. 44in. 32in. Do. 870KE8 Table-Gooker, the ideal GRILLER FRY.PAN Plate Warmer and emergency heater. Half-unit per hour...

The HOMESUN—the dependable and safe source of healthful tonic ultraviolet rays for any electrically wired home. Absolutely complete equipment. State Voltage (D.C. £15 15s.: A.C. £18 18s.)

MARY ANN Vacuum Gleaner (nothing quife so good can be obtained anywhere around this price) State voltage ...

PIFCO Motorists TORCM. Chromium Plated. Ribbed Bodies: Two Cell: LARGE FOCUS SPOTLIGHT complete with daylight Blue Bulb and batteries ...

SMITHS "CALLBOY" ELECTRIC CLOCK with Alarm for 200-250 volts A.C. 50 cycles only in GREEN. WALNUT or MAHOGANY. Bakelite case of heautiful design—if required with luminous dial. Electric TROUSER PRESSER (or Pleating Iron)

PETER—the (GAR) HEATER Absolutely 21/6

ENERGEX Battery Operated Electric Will-lice. * 1 WALNUI
SUPREME Enamelware Kettle with the new principle element which cannot harm the kettle if boiled dry!
3 pints, 750 watts 15.6 4 pints, 1,000 watts 21.6 6 pints, 1,500 watts 32.6 HOTPOINT Electric Iron with free flex-holding patent table attachment: 15.1 flex. Chromium plated. State voltage TRIGITY SUNRAY Pine Cone Fires, from SAXLITE Hexagonal Hall Lantern OXY-Copper with Pink Windows
AVOMINOR METER—the ideal present for the radio enthusiast — PIFCO Melers from 12/6 to — 42-PIFCO Electric Cycle tamp, complete — PIFCO Electric Cycle rear Lamps, complete TURNLIGHT Handlamp—the ideal household accessory—long life battery gives 60 hours life — Descriptive leaflets of any tine on receipt of stampol

Descriptive leaflets of any line on receipt of stamped addressed envelope. Enquiries for other electrical appliances invited.

Instant delivery cash with order CARRIAGE FREE throughout Great Britain (C.O.D. if required). Satisfaction assured in dealing with

CITY & GENERAL

Mail Order Dept.,

199. Deansgate, MANCHESTER 猴 Trade only enquiries to Faraday House, Henry Street, BLACKPOOL. 深深深深深深深深深 四十二

Components, etc., for Sale,-Contd.

(This advertisement continued from first column.)

(This advertisement continued from first column.)

B.T.H. Induction Type (A.C. only) Electric Gramophone Motors, 100-250v.; 30/- complete.

A. MPLION Moving Coil Speakers, type E.M.644, dual fields, 2,500 and 5,000 olms (100 and 200v.), with output transformer, 12/6; A.C. conversion kit for this speaker, 10/- extra.

W.ESTERN ELECTRIC Condensers, 250v. working, 1 mfd, 1/-, mfd, 6d., 2 mfd, 1/-; 500v. working, 4×1 mfd, 3/6; T.C.C. Condensers, 250v. working, 4×4×1 mfd, 3/6; Gx4×2×2×2 mfd, 375v. working, 6/11; 4×4×1, 6/-, PECIAL Offer of Wire Wound Resistances—4 watts any value up to 15,000 olms, 1/6; 15 watts, any value up to 15,000 olms, 1/6; 15 watts, any value up to 50,000 ohms, 2/6; 25 watts, any value up to 50,000 ohms, 2/6; 50 watts, any value up to 50,000 ohms, 3/6.

PREMIER SUPPLY STORES, 20-22, High St., Clapham, Sw. 4. Macaulay 2188. Closed 1 o'clock Wednesdays, open to 9 o'clock Saturdays. Nearest Station, Clapham North Underground.

WOBURN RADIO Offer Following New and Bankrupt

MILDMAY RADIO EXCHANGE Offers the Following, sound and perfect.

ZONOPHONE 3-valve Kits, with valves, Marroni speaker and cabinets, in scaled boxes; 50%, listed £6, 6.

PHILIPS 3-valve A.C. Mains Receiver, with built-in speaker and valves, for mains, 100-250 volt mains;

speaker and valves, for mains, 100-250 volt mains; MARCONI 1935, type 330, A.C. mains radio gram, using the following valves, M.S.48, M.H.4, M.P.T.4, F10, with moving coil speaker, pick-up, electric motor; list price £30'9, our net price £12.

BURGOYNE 5-valve Transportable Receivers, with speaker, etc., and 3 Mullard valves; 37/6.

A.C. Motors, Collaro type 32, combined A.C. motors with pick-up built in and volume-control, fully automatic plate, 59 6; Collaro Empire model, as above but less pick-up, 37 6.

BURGOYNE 5-valve Transportable Receivers, with speaker, etc., and 3 Mullard valves; 37/6.

BURGOYNE 5-valve Transportable Receivers, with speaker, 59 6; Collaro Empire model, as above but less pick-up, 37 6.

C.M.DEIP Needle Armature Pick-ups, 50/- model, 14/- each; Ferranti B1 chokes, 10/-; B2, 12/-; B5, 15/-; B3, 7/6; transformers, O.P.M.1, 10/-; O.P.M.2, 10/-; 10/

PHONE: Clissold 5001.

OPEN Thursday, Closed Saturday all 'day,

24, Mildmay Grove, London, N.1.

M.C. sbooker, less valves, 223, with 3 similar valves (P.M.11.E., P.M.2D.N., P.M.21. £3.75 (list £6 17 6).

R.E.DN RADIO Meteor "A" 3-valve Sereen Grid Kit, complete with cabinet, M.C. speaker, less valves, £3 7 6; with 3 Mullard valves (P.M.12A., P.M.2D.N., P.M.2A.), £4 10 (list £8,7/6).

R.E.DN RADIO S.T.400 Kits, as specified by Scott Tag-M.2A.1, £4 10 (list £4,7/6).

R.E.DN RADIO S.T.400 Kits, as specified by Scott Tag-M.2A.1, £4 10 (list £37 6); Marconi pick-ups, 1934 Model No. 19, 25 (list 32/6); H.M.V. volume controls, 28 6 each (list 37 6); Marconi pick-ups, 1934 Model No. 19, 25 (list 32/6); H.M.V. volume control, 4 Model No. 89 (listed 63/-), 26/-each; Radiophono volume controls, with switch, 3/- each (list 10/6); Amplion loud-speaker units, 2, 3 (list 12/6).

R.ECELVERRS—Burgoyne 3-valve fransportable, complete with 3 Cossor valves, batteries and accumulator, 53/2/6; latest (Loss B 3 Burgoyne, complete with 3 valves, batteries, accumulator, moving coil speaker, in latest oblong cabinet, £5/5, new, in original eartons, This advertisement continued on next page.)

(This advertisement continued on next page.)

Components, etc., for Sale.-Contd.

(This advertisement continued from previous page.) MISCELLANEOUS Bargains.

DUBILIER 4 mfd. Condensers (2+1+1), 1,000 volt test (2,25+2.25).

3/- each; mains switches, 3 amp. 250 volt, 8d. each, 7 6 dozen; Limophon D.C. mains energised moving coil speakers, 6,560 clims, with terminals, 11/6 each (listed 39/6); Pifco All-in-One radiometers, latest bakelite cased, 9/3 each (list 12/6); Ferreart coils, G1, G2, and G3, 32/- per set; S.T.4-500 coils, 5/6 per pair; Edison plug-in inductance coils. all values from 20 upwards, centre tapped, 9d. each, 7/6 per dozen, assorted values; metal chassis, ready bord for 3 or 4 valves, 11in.×91-gin.×31/gin., 1/6 each (manufacturers' cost 4/-).

ALL Goods Guaranteed and Sent Carriage Paid.

DRANCHES at 271/275 ligh Pd. Willegley Cross.

BRANCHES at 271-275. High Rd., Willesden Green, N.W.10. and at 46, Lisle St., W.C.2; please send all post orders to 323, Euston Rd., N.W.1.
SOUTHERN RADIO, 323, Euston Rd., London, N.W.1 (near Warren St. Tube). 'Phone: Museum 6324.

(near Warren St. Tube). Phone: Museum 6324.

MAINS RADIO'S Exclusive Guaranteed Surplus, as new, carriage paid, or call.

ERIE Hall-watt Resistors, cobour coded, 4½d, 2/- half dozen; one-watt colour coded resistors, 5½d, 2,6 half dozen; all sizes, your selection.

T.C.C. Condensers, 1 mfd., 250v. working, 1/-; 0.01 and 0.1 tubular, 350v. working, 6d.; Class B driver transformer and choke, 9/6, matched pair.

PERMANENT Magnet Sinclair M.C.s. new, boxed, 7in. cone, 20/6; ditto, energised, 16/6; Clix 4 and 5-pin chassis v.-bolders, 1/6 half dozen.

CENTRALAB 10,000 and 15,000 Potentiometers, with mains switch, 1/11; 100,000, no switch, 1/3.

THREE-GANG 0.0005 Trimmers, drum drive, 4, 11; De Forest 432 S.C. valves, 2/-; complete suitcase portable cases, 3/11.

Forest 432 S.G. valves, 2/-; complete suitcase portaoue cases, 3/11.

STERLING Block Condensers, 250v. working. 4×4×1×

1×1×1×1×1 mfd., 3/11; ten 0.1 mfds., 2/7; Polymet, 0.0001, 0.001, 0.002, fixed, 1/- half dozen.—Mains Ratio Development Co., 4-6, Muswell Hill Rd., London, N.6.

[4273]

METERS Moving Coil, Weston 301; 10 m.a. and upwards, 22/6; Galvos 30-0-30, 27/6.

NEW British Made, 1 m.a., 27/6; 250 volts (1,000 w. per volt), 32/6; Turners 20 m.a. upwards, 17/6; thermo ammeters, 1.5a, 22/6; French 3-range, 3 m.a., 6v., 240v., 22/6; 2-range, 2 m.a., 240v., 20/-; German 2 m.a., 25/-; 2,000 volts, 32/6; assorted makers, 25 m.a. and upwards 10/6; laboratory apparatus in stock; meter repairs a speciality.—The Victa Electrical Co., 47, High St., Battersea, S.W.11. 'Phone: Batt. 0780.

Battersea, S.W.11. 'Phone: Batt. 0780. [0355]

SPARK Coils, 1in. 6/-, 2in. 17/6, 18in., X-ray coils, no fittings, 50/-; mercury breaks, 50/-.—Below. X-RAY Outfit, complete less tube, oak panelled cabinet, large coil, mercury break, condenser, control switch-board, and other fittings, weight 3 cwt., condition as new, modern outfit; £10.—Below.

G.P.O. Wall Telephones, 12/6; pedestal telephones, 7/6; microphone: 4 6, 2/6 and 1/- each; microphone transformers, 2/5; single carphones, 1/-; buzzers, 2.-; hand telephones, 4/6, ctc.—Below.

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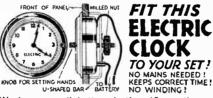
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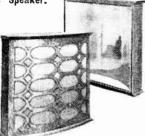
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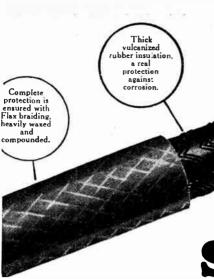


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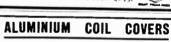
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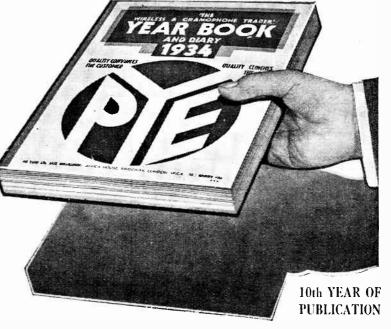
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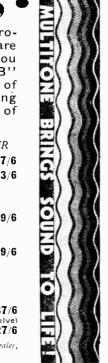
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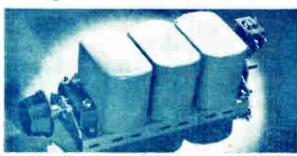
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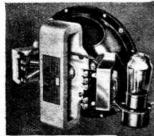
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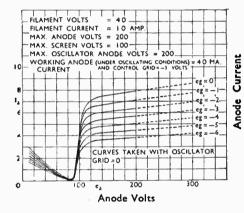
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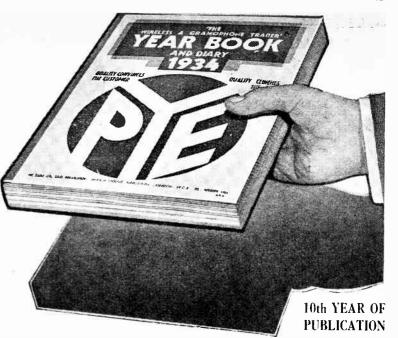
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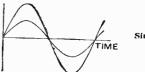
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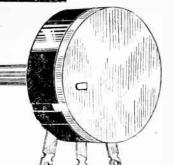
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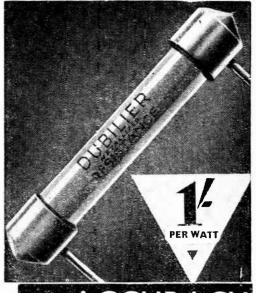
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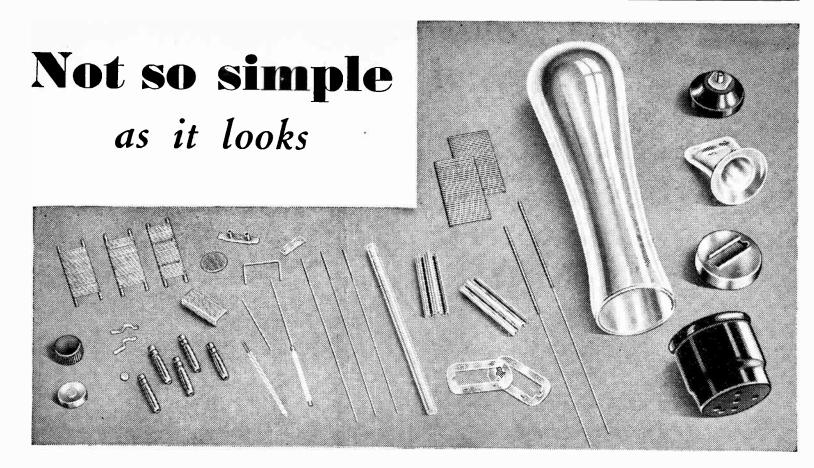
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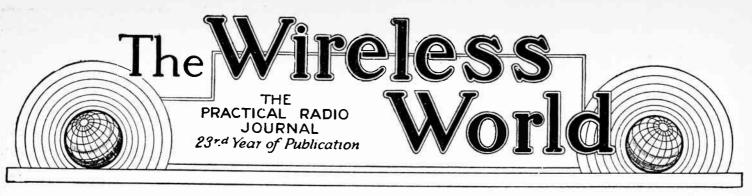
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As many of the circuits and apparatus described in these pages are covered by patents, readers are advised, before making use of them, to satisfy themselves that they would not be infringing patents.

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EDITORIAL COMMENT

The Everyman A.C. Super

Confidently Recommended to Our Readers

*VERYONE nowadays wants a superhet. Yet, some years ago the superheterodyne principle had been relegated to the archives of history and was generally regarded as a type of receiver of academic interest but of very little practical use for broadcast reception, chiefly because of difficulties in the way of attaining good quality. It was The Wireless World which revived the superheterodyne in this country. Both by theoretical articles and practical interpretations, The Wireless World proved conclusively that the disadvantages hitherto regarded as inherent in the principle could all be overcome, or even turned to special advantage, by careful design and by making use of more recent develop-

At the time that we championed the return of the superhet it was regarded as a bold step to take, so strong was the prejudice against receivers of this type; but one need not look far to-day to realise that the superheterodyne has not only returned to favour, but is rapidly taking the place of other types of receivers because of the present day need for extreme selectivity with sensitivity.

Experience Tells

The Wireless World has now had a long experience in designing superheterodynes of a variety of types, and each one has achieved outstanding popularity and has set a standard for a receiver of its kind. We have felt for some time that there was a growing need for a popular design which would

be comparatively inexpensive and yet, by making use of all the latest contributions in the way of improved valves and other components, would be outstanding in performance; a design which has, in fact, been achieved in the Everyman A.C. Super, which is described in this issue.

We make it our business to keep in touch with what is being produced in the way of designs for home construction generally, and this knowledge only serves to enhance our own opinion as to the outstanding merits of this receiver, which we can therefore recommend to our readers with the utmost confidence. Every care has been taken in design to make the construction simple and straightforward, whilst the illustrations bear testimony to the attractive appearance of the finished product.

Cabinet Design

Response to Our Invitation

N a recent issue we invited readers to send us their personal suggestions or preferences for accommodating the wireless receiver, and we take this opportunity of saying that a very interesting collection of material has been received in our offices which it is our intention to make the subject of an illustrated article in an early issue. The material is at present being prepared for publication, and whilst it will not be possible to deal with every suggestion put forward, we are choosing those which seem to us to show the greatest originality or merit. We are arranging to include with the descriptions sketches to illustrate the ideas. When this article has appeared it will be interesting to receive further comments from readers in criticism of the suggestions put forward.

The Wireless World

Everyman A.C. Super

A Four-valve Superheterodyne with A.V.C.

By W. T. COCKING

THE idea is somewhat prevalent that the superheterodyne principle is fully applicable only to a large and ambitious receiver, and that if it be applied to a small set of four valves or so it loses much of its value. While this may have been true of early designs, it is no longer so, for valve and detector development has been such as to permit a reduction in the number of valves and yet to retain the performance hitherto associated with five or six valve receivers.

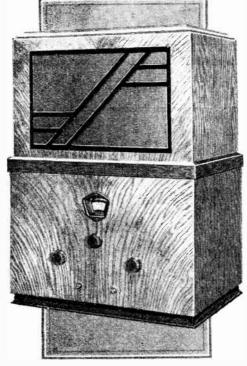
The most notable advance in superheterodyne technique during months has been the appearance of the Heptode or Pentagrid valve, for this performs the functions of the first detector and oscillator with the saving of a valve and an actual increase in efficiency and stability. Both from the technical and the economical standpoints, therefore, it

is an advantage.

A four-valve superheterodyne of a year ago would almost inevitably have had its valves arranged as detector-oscillator, I.F. stage, 2nd detector, and output. The detector-oscillator would have been a bi-grid, self-neutralised pentode, or screen-grid valve and would inevitably have given a performance below that of a two-valve arrangement. The 2nd detector would probably have been of the grid type, working with quite a small input, and hence giving a certain amount of distortion on deep modulation.

Modern Technique

In a modern design a diode type detector operated at a large input can be used to feed the output valve directly, and since a metal rectifier can be employed a valve becomes unnecessary. The output valve and the I.F. stage, of course, are retained and account for two out of the total of four valves. The frequency changer is of the Heptode type, so that the use of a single valve at this point is advantageous rather than otherwise. On account of the fact that a diode type second detector gives no amplification, while the grid detector may give a gain of over thirty times, an additional stage is necessary in order to maintain the sensitivity at a high figure. Since a valve has been saved in the detector stage, this is quite possible without exceeding a total of four, and it is naturally employed as an H.F. amplifier where it is beneficial in



helping to avoid background hiss. modern four-valve superheterodyne, therefore, has its valves arranged as an H.F. stage, frequency-changer, I.F. stage, and power output.

The complete circuit diagram is shown in Fig. 1, and it will be noted that delayed automatic volume control is obtained-a further advance which would have been almost impossible in the older type of receiver. The H.F. valve is preceded by a

M ODERN superheterodyne development shows two distinct tendencies. On the one hand there is the trend towards the large receiver in which every possible refinement is included, with cost and the number of valves receiving little consideration, and on the other there is the development of the small set of only four valves, which is relatively inexpensive, but which combines a degree of selectivity and sensitivity sufficient for all but the most exacting with a high standard of quality of reproduction. When it is said that effective A.V.C., and an output of over 3 watts are included in addition, it will be realised that in spite of its small size there is nothing small about its performance.

single tuned circuit and coupled to the tetrode portion of the frequency-changer by an H.F. transformer, so that two tuned circuits precede the frequencychanger and render second channel interference negligible under most circumstances. The grid connection to the H.F. valve, which is of the H.F. pentode type, is completed through the 0.0001 mfd. condenser C1 and the bias is applied through the 2 megohms grid leak R1. A similar arrangement is adopted for the frequencychanger, the bias of which is fed through the 2 megohms resistance R2, the grid being isolated by the 0.0001 mfd. condenser C2.

In the oscillator section a normal arrangement is employed with a grid circuit tuned by a section of the gang condenser having specially shaped plates. Here, again, the grid condenser C₃ has a value of 0.0001 mfd., while the grid leak, the flow of grid current along which produces the bias, is given a value of 0.25 megohm. On the long waveband the padding condenser C4 is automatically introduced by the switching.

The A.V.C. System

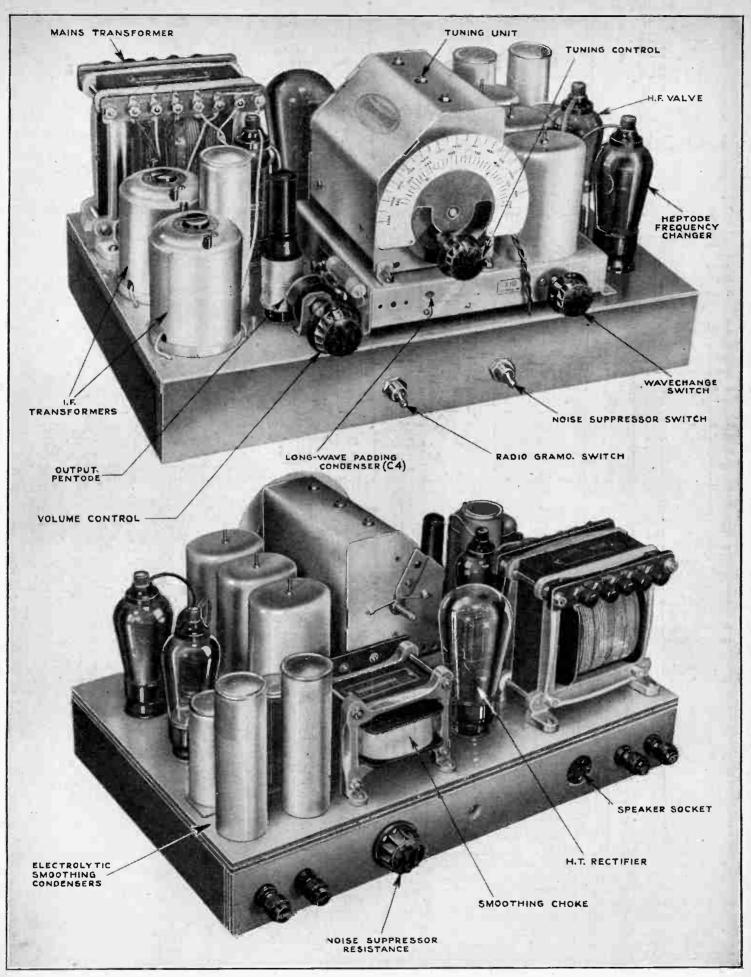
The coupling between the frequencychanger and the I.F. valve is by means of an iron-core transformer having a tapped secondary in order to maintain stability. The transformer is of the bandpass type, and provision is made for adjusting the coupling. A similar transformer, also with a tapped secondary, is used for the coupling between the I.F. valve and the second detector.

Two Westectors are used at this stage, one as the second detector, and the other for providing delayed A.V.C. Since their positive terminals are joined together, a single push-pull type component is actually used, but it functions exactly as two separate detectors. The first Westector acts to provide the L.F. output which appears across R12, and is applied through the I.F. filter comprising Chi, Cio, and Cii to the output valve. The I.F. potentials across the last I.F. transformer secondary are also applied through the 0.0002-mfd. condenser C12 to the second Westector. Now, this rectifier is biased negatively by the amount of the output valve grid bias. so that rectification does not occur until the signal voltage exceeds this figure. When it does, a potential, the value of which depends upon the excess of the signal over the delay voltages, appears across the 1-megohm load resistance R14. This potential is applied as A.V.C. bias through the filter R13 and C9 to the grids of the H.F. frequency-changer, and I.F. valves. By virtue of the large input at which the detector is normally worked, some 10 to 20 volts, and the high delay voltage which can consequently be used, the action of automatic volume control is exceptionally good.

The input to the output valve at first



A SET EMBODYING THE MOST RECENT SUPERHET IMPROVEMENTS



The inclusion of a noise suppressor circuit in conjunction with A.V.C. enables the background disturbances to be diminished while the set is being tuned.

THE CIRCUIT DIAGRAM

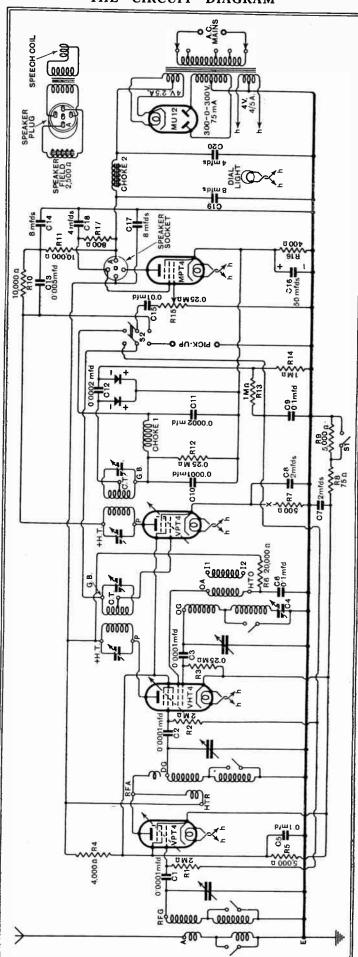


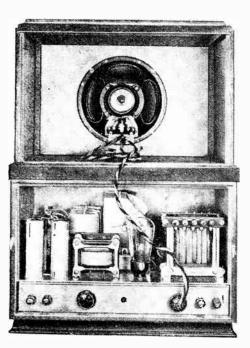
Fig. 1.—The complete circuit diagram of the Everyman A.C. Super showing the essentially straightforward arrangement of apparatus which represents sound practice

appears a little complicated, but this is due solely to the switching necessary to permit the use of a gramophone pick-up. On radio the switch S2 is closed in the upper position on the diagram of Fig. 1, and it will be seen that the L.F. output of the detector is applied to the output valve grid through the 0.01-mfd. coupling condenser C15 and the manual volume control R15. This potentiometer has a value of 0.25 megohm, and is of the tapered type to permit an even variation of volume.

Since the output valve requires an input of over ten volts for full volume, and no L.F. amplification is used, a pick-up cannot be employed directly. The only simple way out of the difficulty is to arrange the circuit so that the I.F. valve is converted into an L.F. stage for gramophone only. The anode circuit of this valve, therefore, contains an L.F. coupling, and this consists of the 10,000 ohms resistance R10 shunted by the 0.005-mfd. condenser C13. In order to avoid motor-boating, decoupling is necessary, and the components must have values effective at low frequencies. A 10,000 ohms resistance R11 is used, therefore, with an 8-mfd. condenser C14. The radio-gramophone switch S2 changes over the output valve grid connection from the second detector output to the I.F. valve anode circuit, and inserts the pick-up in the control grid circuit, at the same time disconnecting the A.V.C. bias from this stage.

The mains equipment consists of the mains transformer which feeds the indirectly heated rectifier, giving an output of about 300 volts at 75mA. The reservoir condenser C20 has the usual value of 4 mfd., and is of the electrolytic type. Initial smoothing is

provided by the 10 henry choke Ch2 in conjunction with the 8-mfd. condenser C19. The voltage available at this point is rather higher than the 263 volts required by the output valve for anode and bias supplies, so that the difference is dropped by the 800 ohms resistance R17, after which a further 4-mfd. condenser is connected. The current for the early stages is fed through the 2,500 ohms speaker field, which provides further smoothing with the 8-mfd. condenser C17. The potential of the main H.T. line is thus about 200 volts, and the



Back view of the receiver housed in the complete cabinet assembly

anodes of the H.F. and frequency changer valves are fed directly from this and the oscillator anode through the 20,000 ohms resistance R6. A potentiometer built from the resistances R4 and R5 is connected between the H.T. line and the common cathodes of the first two valves, and the screen supply of 100 volts is tapped off from their junction. The two first valves are initially biased by the drop along the 75 ohms resistance R8 (actually two parallel connected 150 ohms resistances) when the noise suppressor switch S1 is closed.

Owing to the necessity for including resistances in the I.F. valve anode circuit it cannot be fed from the 200 volts line, and the full output of the mains equipment is consequently fed to it. Since the normal anode current of the VPT4 is 5 mA, there is a drop of 100 volts along R10 and R11, and the actual anode potential of the valve is 200 volts.

The assembly of the components, wiring up, and the operation of the receiver, will be dealt with in next week's issue.

A complete list of the component parts required to build this receiver will be found on page 484.

stantaneous, a note can be repeated

rapidly in a manner not possible with pipes, especially in the lower registers.

Consequently, more music should become

available for the organ without transcrip-

tion, and composers can write passages of a nature that up till now would have been

unplayable. Whether this is any great

advantage, leading as it does chiefly to-

wards an increase of floridity, may per-

of the Poste Parisien organ is that trans-

A point of especial interest in the case

haps be questioned.

The Electronic Organ at "Poste Parisien"

Triode Oscillations and Filtered Harmonics

By R. RAVEN-HART

ANY readers of The Wireless World who have heard recitals on the peculiar organ at "Poste Parisien" must have wondered how the very remarkable tonal effects are obtained. The organ has three manuals, each of four and a half octaves, together with two and a half octaves of pedals, making a total of two hundred notes. For each of these notes a triode is provided, with its associated oscillatory circuit, this comprising a fixed condenser and an iron-cored inductance. Tuning is effected within narrow limits by a screw adjustment of the iron core. This method would appear to be much simpler than tuning an ordinary organ, but it would be interesting to know to what extent variations in supply voltage, valve ageing, and the like affect the tuning.

Another 200 triodes are fitted in the amplifiers, which feed thirteen loud speakers. There are seventy-six registers, of which sixty-six are electronic and the other ten (mostly "effects") pneumatic. Altogether, including couplers, there are ninety-five stops, and it has been said that there is a close similarity between the resources of this organ and the very large and famous instrument at Notre Dame, although the latter, presumably, does not include drums, rattles, triangles, castanets, an auto-horn or a steam whistle!

Tone quality, it is officially explained, is produced by reason of the fact that the wave forms of the oscillatory circuits are very rich in harmonics, and that the "stops" actuate groups of filters which remove various harmonics to introduce changes in tone-colour. The question of "attack" seems to have received no attention, the depression of a note of the keyboard merely starting the valve oscillating, so that, whatever register is in use, the sound commences in exactly the same manner. This appears to be a serious disadvantage, for it is well known that a considerable part of the tone-colour effect depends on the attack or beginning of the note; if, for example, a trumpet register has the same smooth

attack as that of a flute stop, no amount of filtration will restore the full difference of tone-colour.

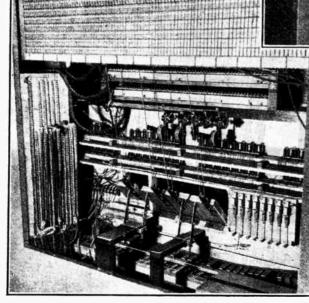
Points in favour of the new instrument include the "swell" action, with pedal-operated rheostat, applied to the whole of the organ, and not only to one or, more

M. Couplex, constructor of the organ, at the keyboard. With him is M Givelet, the inventor and designer.

(Right) The bank of 400 valves, 200 of which are amplifiers. Variation in tone-colour is obtained by means of harmonic filters.

(Below) The interior of the playing console. Note the pedal-operated rheostat for obtaining a "swell" effect.





rarely, two manuals, as in the case of the normal organ. This is a really important improvement, provided that it does not tend to sentimental playing of the cinema-organ type. Again, the response of the oscillatory circuit to the depression of the key being practically inmission by wireless comes direct, it being obviously unnecessary to convert electrical into acoustical energy by means of the loud speakers when performing "on the air."

A very attractive advantage is the ease with which auxiliary "organs" can be fitted. If the normal organ is at the west end of a church and a similar organ is needed for accompanying the choir, or, if echo effects are desired, all that would be necessary in the case of an electronic instrument would be the installation of an extra group of loud speakers suitably situated.

Probably, however, the outstanding advantage of the new instrument is its extreme compactness. The console is of normal size, the loud speakers can be installed quite unobtrusively, while the 400 valves with all their associated coils, condensers, etc., take up a total space of only about $6 \times 8 \times$ rft.—about an eighth of the space occupied by the new organ at Broadcasting House!

Practical

HINTS AND

AIDS BETTER RECEPTION

T is probably due to the increasing use of metal for receiver chassis that accidental contacts between anode-circuit wiring and earth seem to be becoming rather more common. It is not the purpose of this note to decry the use of metal.

Tracing Short-circuits.

which has obvious attractions, but to draw attention. in passing, to the need for proper insulation

where wires pass through or in close proximity to the metal work, and also to describe the best method of locating a short-circuit if need should arise.

As a rule, the quickest way of finding the "short" will be to disconnect entirely the source of H.T. supply, and then to connect a fairly sensitive continuity indicator-such as a volt-meter and a small battery-between the H.T. positive and H.T. negative lines of the set. If there is a potentiometer for regulating screening grid voltage it should be disconnected as well. Having done this, it can be definitely assumed that any deflection of the test indicator shows a "short" somewhere in the anode circuits. The question is, where?

The quickest way to find out is to disconnect in turn the H.T. supply leads for each individual valve, watching the indicator at the same time. When a lack of continuity is shown we know that the short-circuit is associated with the particular valve of which the feed lead has just been disconnected.

Assuming, for the sake of illustration,

that the detector valve is found to be at fault, we may proceed on the lines indicated in Fig. 1,

Fig. 1. -- Having located the valve in which an anode short - circuit has arisen, the exact position of the fault best found by making point-to-point tests.

still leaving the indicator in position, and after having reconnected the detector anode supply lead:

(1) Remove the valve itself; in the unlikely event of a collapse of the internal electrode assembly, the test indicator will no longer show continuity, and we need look no farther for the fault. But if the "short" still exists, we must proceed to:-

(2) Interrupt the circuit at point A; lack of continuity now shows a fault in the valve-holder or in the condenser C1.

(3) Break the connection at point B; if continuity is now in-

terrupted, we know that the H.F. choke or its wiring is "shorting" to earth.

Similar tests may be carried out by interrupting the circuits at points C and D, when we shall know that, dependent on the indications given by the continuity tester, the fault may be due either to the L.F. transformer, to the decoupling resistance R, or to the condenser C2.

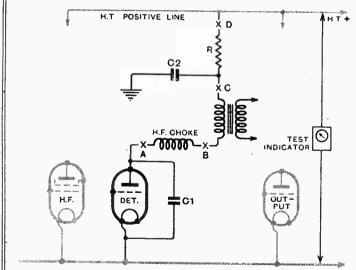
A test carried out logically in this manner takes much less time to execute than to describe, and will probably prove quicker in the long run than a haphazard examination of the wiring.

MOST superheterodyne short-wave converters embody a combined detector-oscillator valve, functioning on the autodyne principle, which must be in a state of self-oscillation when signals are being received. It is consequently quite

Short-wave Converters

a usual practice to provide fixed reaction between anode and grid circuits of this valve in order that the neces-

sary oscillation may be produced at all tuning settings. In this way the need for



an external adjustment of reaction is avoided.

But it may be pointed out that this arrangement is in the nature of a compromise, as the valve can hardly be operating under the best conditions at all wave-

lengths. Maximum sensitivity is usually attained when the valve is only just oscillating; accordingly, those who do not object to an extra adjustment will almost always bring about some improvement by substituting a variable reaction control (generally a variable condenser) in place of the fixed coupling.

EXPERIENCE shows that the anode lead of a pentagrid or heptode frequency changer is distinctly "hot"—to use the popular slang expression. In other words, this lead carries amplified signal-frequency currents, and so par-ticular care must be

A Lead to Watch

taken to dispose of it safely, especially if it happens to be long. It must not be allowed

to "couple up" with the tuned circuits of a preceding H.F. stage.

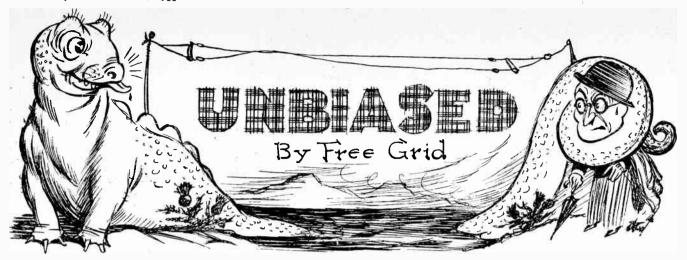
When everything else fails, the anode lead may be screened, but it should be remembered that any capacity added as a result of doing this will be thrown across the primary circuit of the first I.F. transformer, and so may upset the tuning of the I.F. amplifier. In consequence, any screened connection used should be of the lowest possible self-capacity, and, further, it is worth while considering the question of screening only a portion of the lead.

T has often been pointed out that most detector valves are habitually operated under conditions closely bordering on overloading; at any rate, in most modern sets there is seldom any great margin of safety so far as output is concerned.

Risk of Detector Overloading

This fact has an important bearing on the behaviour of a set to which a continuously variable tone-control

device (operating in the L.F. amplifier) is added. The effect of all such devices is to reduce overall amplification, and so, to obtain full output, it will usually be necessary to increase the radio-frequency input to the detector. It is, therefore, not hard to see that, failing a margin of safety, this valve may easily be overloaded when the tone control is put into operation, and if possible its capacity should be increased by applying more anode voltage.



Researches into the Telearchical Diplodocus Theory

WHILE carrying out some very special wireless work in my laboratory during the past fortnight I have been pestered by parties of juvenile waits whose rudeness is only equalled by their appalling ignorance.

Thus, upon opening my front door to the last party in order to question them concerning the good King Wenceslas of whom they sang, I found that not one of them had the vaguest idea who he was. One pop-eyed little girl ventured the opinion that the Saint was related to Old King Cole who, she alleged, was hanged, drawn and quartered for burning cakes while hiding in an oakapple tree on Christmas eve, after which he never smiled again. Talking of Good King Wenceslas, Father Christmas and such like things, brings me to yet another thing



of like-nature which is very dear to my heart. I refer, of course, to the alleged monster of Loch Ness, which has baffled our so-called men of science to such an extent that they are imagining it to be a survival of some such prehistoric creature as the homely diplodocus.

The Whistling Test

On the other hand the scoffers and the sceptics hint vaguely of tree trunks and over-indulgence in the national beverage.

So far I have not had time to track this alleged monster to its lair, but I trust that in the New Year I shall be in a position to commence certain experimental work ending in a final dramatic denouement in which I shall literally whistle the creature out of the vasty deep. It will simply be a case of "Oh whistle and I'll come to you my lad," in an entirely new setting.

The experiments will closely resemble those I carred out with a somewhat similar monster several years ago on Highgate Ponds. True my creation was considerably smaller, but so far as I recollect, it did everything that the Loch Ness creature has been reputed to do. It rested or moved along at the top of the water and even dived and went through the same evolutions under the water at my behest. Not being out for publicity or notoriety I did not deck out my contraption in any semblance of dragon or fierce-some monster of the deep.

Having no influence behind me to keep the pot boiling, and craving only to be able to pursue my researches quietly in the interests of science, I worked during the night hours, operating the key of my special short-wave transmitter in a nearby house.

Ordinary Radio Principles

My submarine contained its own reversible electric driving motors and steering and driving gear, all of which were set in motion by suitable relays operated by the transmitter.

I did not then, nor do I now, pretend that the machine derived its driving power from electric fluids in my body nor do I claim that at any time its proper functioning depended upon the state of my health or the concentration of my mind, a stunt which old readers will remember I have already exposed (new readers see page 296, "W.W.," 3/9/32.)

The whole thing was a plain and

The whole thing was a plain and straightforward application of ordinary radio principles, more commonly known under the name of Telearchics.

Neither did I make any claim for originality in my ideas; indeed, the Wireless World itself had already given full construction details several weeks prior to my experiments, in which it showed the precise method of constructing a model ship which could be controlled from the shore of a pond or lake by a low-powered go-metre trans-

mitter. The arrangement is described in a series of articles published in "W.W." under the general title of Telearchics, and I shamelessly admit that I took my ideas from them.

However, in self defence I must add that I greatly improved upon the ship, converting it into a submarine using the famous Rogers underground and underwater antenna.

The Real Truth

It is quite evident that some jocund Scot has improved upon the idea still further by housing the mechanism in an outer casing made to resemble some frightening creature of the pre-historic swamps, while doubtless he sits in his humble butt and ben feverishly controlling its movements with his transmitter.

The result is, of course, that the whole countryside is in a furore of excitement, so-called scientists have lost what little balance they ever had and policemen have been drawn from their lawful occasions.

If the P.M.G. would only send one of his detector vans up there and make a spectacular haul it would, I feel sure, have an immense effect in restoring the public's fast waning faith in the van's efficacy to detect unlawful receivers. The van would



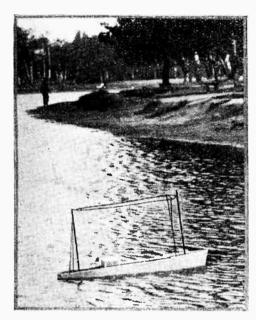
Controlling its movements.

not have to hang about until the transmitter started working; if it did, it might just as well stay at home, as the practical joker in charge of the transmitter is

^{*} This time he is right. The articles appeared in 1926.—En.

Unbiased-

obviously no fool and would lie low while the van was in the neighbourhood. Owing, however, to the P.M.G.'s remarkable ability in detecting receivers he would soon locate the monster at the bottom of the loch.



The Radio Ship Telearch I on a London pond in 1926.

As, however, the P.M.G. seems unlikely to tackle the problem I am compelled to do so myself, but I claim the right to handle the thing in a spectacular manner in the interests of the journal which is backing me. And when, after working with direction finders I locate the transmitter I shall not blow the gaff to the police or to anyone else. Instead I shall take careful observation of its wavelength and other details which will enable me to build a more powerful replica of the transmitting plant.

Needless to say, it will take me many months of patient observation with my instruments to find out all the various combinations of impulses necessary to work the many relays, but I feel sure that I shall succeed in the end, and the final denouement will, of course, be arranged when the whole of the world and his wife are in Scotland.

Then at a time appointed I shall simply whistle the monster out of the vasty deep in the sight of all men, not forgetting the B.B.C. and the Talkie News reel people. Subsequently I shall present my catch to the Science Museum.

In the meantime I shall be carrying out certain preliminary experiments with my old submarine on Highgate Ponds between 3 and 4 a.m. commencing the first week in January. Should any of you care to come along to assist me you will be given a hearty welcome. In particular I wish to get hold of an intelligent small boy—if such a thing exists—to take up his position in the submarine in order to carry out certain under-water observations while I am manœuvring the vessel from the shore.

Mark your envelopes: "Suppor for two; breakfast for one."

The Short-wave World

Winter Conditions on the Amateur Bands

SHORTLY after the previous set of notes under this heading was published, conditions below 30 metres underwent a considerable change for the better. That infallible "indicator," the 20-metre amateur band, has seen some very reliable longdistance work since the end of November, and conditions on the short-wave broadcast bands have, on the whole, been very good.

The short-wave broadcast stations are very well distributed about the spectrum. When conditions below 30 metres are very poor, one can generally find quite a lot of interest on the 49-metre broadcast band. If there were only a regular band allotted for broadcasting in the region of 90 metres, we could fairly claim that we were no longer dependent upon cycles of "conditions"

The Best Times to Listen

While short waves have become more subject to variation in the past few years, there is little doubt that the medium-wave broadcast band has been improving steadily, and this applies, in a lesser degree, to wavelengths between 100 and 50 metres.

It seems safe to assume that the 80-metre band is fairly reliable at times when the 20-metre band is almost useless.

The novice at short-wave work should therefore make a point of learning, at the outset, how to make the best use of his receiver by listening on certain wave-bands most appropriate times and seasons.

As a very rough guide, it is suggested that during this winter the 49-metre broadcast band will generally be interesting between the hours of 10 p.m. and 4 a.m.; and the African stations, Johannesburg and Nairobi, will generally be heard as early as 7 p.m. with a fair degree of reliability.

There is no point whatever in spending much time below 25 metres after 6 p.m. from now until late February or March. The 20-metre amateur band is already fading-out" by 5.30 p.m. or even earlier. When conditions maintain a steady level, it is often possible to time the fade-out within a few minutes.

A Christmas Time-table

The time of sunset varies only by a few minutes between December 15th and December 31st, and the fade-out is generally about an hour and a half later.

The 31-metre band, as might be expected, lasts much longer than the 19 or 16-metres broadcast bands, but usually fades out at this time of the year before

A suggestion for a listening-schedule on Christmas Day would be on the following lines: Morning-anything that sounds interesting, on all bands; 2 p.m. onwards, 16 and 19-metre bands; 4 p.m., 19 and 25metre bands; 6 p.m., 31-metres band, and possibly a hope of finding Nairobi on 49 metres; late evening, 31 and 49 metres only.

The amateur bands have not been included, because all three of them, 20, 40 and 80 metres, are usually interesting right through the day until sunset, after which the two upper bands will have the monopoly.

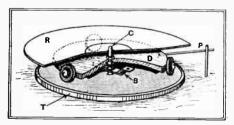
MEGACYCLE.

Playing Records Backwards

Outdoing the Modern Composers!

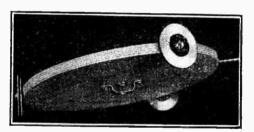
ANY cinema patrons have been mystified by hearing music resembling a cross between a concertina and a violin. The mystification is further increased when it is known that this peculiar music results from running a pianoforte sound-film backwards! When a reel is run in the correct direction, each isolated note is heard as a sharp "ping," followed by the note slowly decreasing in volume. When the film is run backwards the notes are heard as tones slowly increasing in volume and finishing with alarming suddenness. Ordinary speech sounds like a weird oriental language!

The effect is most interesting, and everybody hearing it usually wishes that they could run their gramophone records backwards to achieve the same effect. It may easily be done with simple apparatus.



Details of construction. R, Record; C, centring pin; D, wooden disc; B, metal bracket or saddle screwed to the disc. P, stop pin; T, turntable.

The main requirements are a circular or triangular piece of wood and three small wheels. Rubber umbrella rings fitted on to grooved Meccano wheels can be used, or circular erasers with metal centres, or



A simple form of reversing turntable.

even tap washers. A diameter of about 1½in. is generally satisfactory.

The centre disc should be about eight inches in diameter, and it should be fitted with a centre pin on top to guide the record while it is being rotated by the rubber wheels. The disc is kept central on the turntable by a strip of metal with a hole in it to fit over the pin on the turntable. The natural tendency for the disc to rotate with the main turntable is prevented by a light rod projecting beyond the edge of the record and lodging against a stop pin on the motor board.

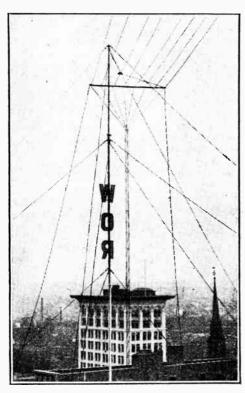
The pick-up must, of course, be temporarily raised and repositioned.

Ten Years Ago

How Broadcasting Stations and the Amateurs Made History

SO many radio developments have occurred in the last decade that we are tempted to forget the early achievements which made them possible. The year 1923 was remarkable as the beginning of a radio renaissance, both amateur and professional, as this article shows.

HE year 1923 belongs, not to the dark ages, but to the medieval period in wireless history, when nights were bold and days were, in consequence, dreamy. Those were the times when amateurs would gladly rise from a warm bed to hear the nasal renderings of a Long Island announcer or the querulous squeak of a Chicago cabaret band accompanied by a torrent of atmospherics.



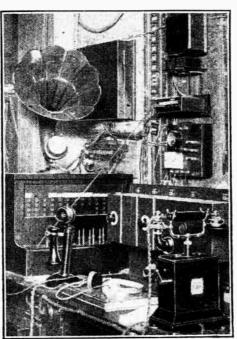
Heard in Runcorn and Halifax! WOR, Newark, N.J., which was logged by a handful of British amateurs in 1923.

It was this enthusiasm that made it possible for *The Wireless World* in December 1923—ten long years ago—to organise a transatlantic test which not only kept the American people out of bed until after midnight for a whole week, but induced the B.B.C. to operate its eight main stations until 4 and 5 in the morning! More than that: Senatore (now Marchese) Marconi and M. Georges Carpentier, the boxer, also took part, giving talks to America in the middle of the night. Much of the success of the venture was due to the enthusiasm of the engineers of the British Broadcasting Company, the chief engineer of which was Captain P. P. Eckersley.

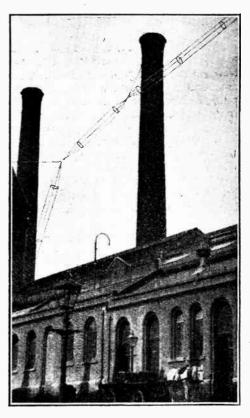
What appealed to U.S. listeners was the

fact that the Tests gave them an opportunity for the first time of hearing British stations during their more or less normal listening period between 10.45 p.m. and 12.15 a.m. (Eastern Standard Time). The ordinary British transmissions were, of course, given never later than 7 p.m. (American time), when the B.B.C. stations were usually giving their midnight closing signal. In the tests, however, which were organised by this journal in conjunction with Radio Broadcast, New York, the B.B.C. transmitters operated at varying periods from 3.45 a.m. to 5.15 a.m. (G.M.T.), giving the Americans every possible chance to hear them between 10.45 p.m. and 12.15 a.m. (E.S.T.). Meanwhile, America reciprocated with specially powerful transmissions between 3 and 4 a.m. (G.M.T.) on two nights, in which the novel features were microphone talks by Mr. Henry Ford and the President of the Radio Corporation of America.

The tests actually occupied five days. On November 26th the British stations transmitted. On the 27th America replied and later in the day we cabled reception reports to America. On November 28th this country again provided the transmissions and a day later America replied, the programme including the special address by the President of the Radio Corporation of America from WGY,



No, not a ro-watt amateur transmitter but the control room of the B.B.C. station at Newcastle ten years ago.



"I hear you calling me" wrote American listeners who picked up signals from 5SC, the Glasgow station of the B.B.C, seen above.

Schenectady. An attempt at two-way communication was made on December 2nd.

Enthusiasm ran high in both countries. In American listening circles—and judging from the letters there were as many women listeners as men—the excitement verged on hysteria. Granted that America had a more favourable listening time, i.e., before midnight, whereas British listeners had to stay out of bed several hours to hear from across the Atlantic, it was still obvious that the experience was more marvellous to America than to us, who were accustomed even then to the reception of multi-lingual programmes from the Continent and also to sometimes intelligible signals from across the Atlantic.

Unfortunate Coincidence

It was a pity that a shrill station in Western Canada chose the very first night of the test to carry out a special high power test on London's wavelength, for as a result, *The Wircless World* offices were deluged with letters from the Middle West gleefully reporting perfect reception of "Roses of Picardy." After a feverish and fruitless hunt among the records of everything transmitted from London, Bournemouth, Cardiff, Glasgow, Birmingham, Newcastle, Manchester and Aberdeen on the night in question, we had tactfully and tearfully to tell our American friends the truth. Nevertheless, the

Wireless World

Ten Years Ago-

B.B.C.'s little 1½ kW transmitters got across, none more successfully than those of London and Newcastle.

As regards reception of American stations in this country, WGY, the G.E.C. station at Schenectady, was easily first, being received in many cases on a single valve set. WHAZ, Troy, N.Y., came second. Altogether some 500 American stations were transmitting during the tests but, from the reception reports which we were able to publish, it was too painfully obvious that many had been wasting their fragrance on the desert air. KDKA at Pittsburgh, WAOB, WJZ, WNAV, WOR-most of these with a large sprinkling of query signs -were the only others to figure in the lists. with the exception of a few isolated and little-known call signs probably born of imagination and the will to win.

The Reacting Detector

Those were the good old days of the o-v-I set with a furiously reacting detector, and it tells something of the howls which must have filled the ether o' nights that this set appears to have been the most popular and the most successful in "pulling in" the Americans.

It would be better to draw a veil over the two-way communication test on

December 2nd, England 1923. spoke from 3.0 to 3.5 a.m. (G.M.T.), America from 3.5 to 3.10 a.m., England again from 3.10 to 3.15 a.m., and so on for alternate five minutes. On December 19th we wrote: "Although the last experiment cannot. by any stretch of the imagination, be considered a suc-(atmospheric conditions were most unfavourable), the universal opinion of British listeners points to the immense interest which the ex-

spared by our correspondents in praise of the heroic efforts of the B.B.C. engineers to 'get through,' and also to hear the American signals.''

No record of the closing weeks of 1923 would be complete without a mention of amateur triumphs in transatlantic communication during the tests organised at that time by *The Wireless World* and the American Radio Relay League.

The honour of being the first European amateur to establish two-way communication with America fell to the Frenchman, M. Leon Deloy, of Nice, who exchanged signals with I MO, Mr. Kenneth Warner, working the station of the A.R.R.L. at Hartford, Connecticut.

A few days later, in the small hours of December 8th, dots and dashes were exchanged between 1 MO and 2 KF, the station at Merton, London, S.W., of Mr. J. A. Partridge, who, incidentally, is now in charge of the B.B.C.'s wavelength checking station at Tatsfield.

This was a fitting climax to the great amateur efforts to span the Atlantic on short waves during 1921 and 1922. It was in the latter year that the American

amateur, Paul Godley, sent to this country by the A.R.R.L., set up his receiver on the West Coast of Scotland, and, in common with a number of British amateurs, picked up the first short-wave signals across the Atlantic and thus vindicated the despised short waves in the eyes of the world at large.

Those were the pioneering days, but we shall probably be saying the same of 1933 ten years hence! E. C. T.

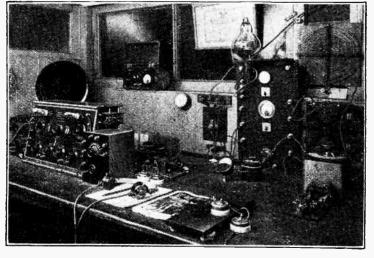
DISTANT RECEPTION NOTES

DANISH reader is kind enough to write and tell me that up to the present Kalundborg has been using only 30 kilowatts (unmodulated) in the aerial. The full 60 kilowatts for which this station is designed may be used after January 15th, but it is possible that the station will continue at 30 kilowatts for a week or two on its new wavelength.

Munich will shortly be using its highpower station with a makeshift aerial. On some recent evenings there has been a noticeable increase in Munich's strength, which again suggests that tests from the

new station were in progress.

Recently in an unguarded moment I wrote in these notes, without simultaneously touching wood, that fading was so rare as to be almost unknown on Budapest's wavelength. On the very next evening I found



With an aerial current of only 1.8 amperes, this station (J. A. Partridge, 2KF, Merton, London) established two-way communication with Hartford, Connecticut. The two-valve receiver was of the o-v-I type with a vario-coupler type of tuner.

Budapest indulging in the most violent kind of fading, the signal disappearing altogether at times.

In this connection I have something of a curiosity to report. That same evening a friend, whose house is within half a mile of mine, though on rather higher ground, was also listening to Budapest at the same time. When I mentioned the fading he was astonished, for he had held the station for an hour without a sign of it.

We were both using superheterodynes with automatic volume control, but mine was provided with a built-in frame, whilst his was worked from a suspended aerial. Bearing in mind the different ways in which these two types of collector function, I was tempted at first to wender whether it would be possible for fading to affect a frame but

not an outdoor aerial and earth system.

I believe, though, that the true explanation was that in my case the manual volume control was almost at the maximum position, so that there was not sufficient reserve of amplification to deal with the signal as it waned. With its more efficient collector the other set was able to bring in Budapest with the manual volume control turned a long way back.

By the time that these notes appear in print Radio-Paris will at long last have become the Emetteur National Français. During the week December 8th—17th the station remained silent pending alterations to the transmitter in preparation for the Lucerne Plan.

Reception on the long waves has been very much better of late; the only station, in fact, that has been seriously heterodyned is Luxembourg. Motala is somewhat below strength, and Kalundborg has suffered in the same way, except on the night already mentioned and a few others. Huizen has been free from the interference that was formerly such a nuisance. Radio-Paris, Zeesen and Oslo have all been well received.

The number of medium-wave stations now receivable with good quality and volume is very large on most evenings. There is a little fading, but it is seldom serious enough to spoil reception on a set provided with automatic volume control. Budapest, Vienna, Prague, Langenberg, Rome, Stockholm, Toulouse, Leipzig, Strasbourg, the Poste Parisien, Breslau, Heilsberg, Trieste and Nürnberg are probably the best stations, but Beromünster, Lyons Doua, Florence, Milan, Göteborg, Bordeaux Lafayette, Hilversum, Frankfurt, Hörby, Fécamp, Rennes and Sundsvall are all giving good reception on most evenings.

D. EXER.

THE RADIO INDUSTRY

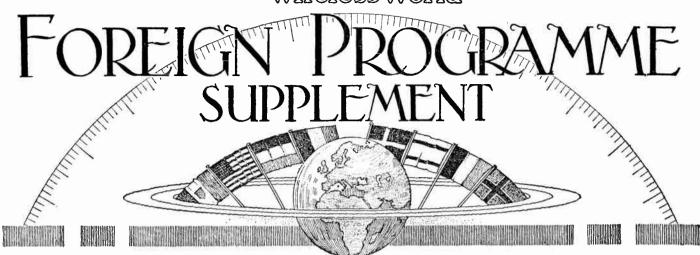
USERS of Philips sets fitted with the well-known "zone-and-number" system of tuning will not be embarrassed by the forth-coming change of wavelength. New calibration cards, showing tuning positions for all the principal stations, are available to owners who care to apply to the makers, quoting type number of set, registration number, and number of the old chart.

Those who are considering the question of converting their receivers for gramophone reproduction will be interested in the offer, by the Bon Marché, of Brixton, of full-sized walnut-finished radio-gramophone cabinets at the remarkably low price of 35s.

Mr. F. E. Attwood, for twenty years associated with the makers of Pye apparatus, has joined the board of C.A.C., and has already assumed the duties of sales director.

Page 481 follows after the Programme Supplement.

The Wireless World



DECEMBER THE TWENTY-FOURTH

ALGIERS

ALGIERS

825.5 kc/s, 363.3 metres; 13 kW.—11.30 a.m.,
Sacred Music. 12.30 p.m., Station Orehestra.
Overture, La dame blanche (Boieldien);
Waltz, Ma Reine (Wohanka); Selection from
The Barher of Seville (Rossini). 1.0 p.m.,
News. 1.5, Concert. Noel (Holmis); Légende
du point d'argentan (Fourdrain); Les Fantoccini (Lecocq). 7.0, Wind Instruments.
Clarinet Solo. Canzonetta (Pierné); Clarinet
Solo, Rigaudon (Lacombe); Flute Solo, Madrigal (Gaubert); Flute Solo from Carnen
(Bizet); Cornet Solo, La Préférée (Blémant);
Cornet Solo, Merle et Pinson (Reymond);
Tuba Solo, Mazurka Rapide (Demuynck);
Tuba Solo, Engadine (Demuynck), 7.30.
Dance Music. 7.55, Neys. 8.0, Time Signal. 8.2, Sports Review. 8.15, The Station
Orchestra, conducted by M. Henri Defosse.
Overture, William Tell (Rossini); Waltz,
Corbeille de Mariage (Wohanka); Selection
from Carmen (Bizet). 8.45, News and Records. 9.5, Concert (conid.). Ballet Music
from Faust (Gonnod); Two Pieces from Peer
Gynt (Grieg); March (Vallaury). 9.35,
News. 9.40, Duets. 9.55, News.

ATHLONE

Gynt (Grieg): March (Vallaury). 9.35, News.

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres, and Cork, 1,337 kc/s, 224.4 metres, -1.0 p.m. to 4.0 p.m., Programme by the L.B.C. (Ireland), Ltd. 1.0, Light Music: Waltz from Der Rosenkavalier (R. Strauss); Spanish Gypsy Dance (Marquina); Selection from Nocl Coward's Bitter Sweet; Lou'siana Lullaby (Newman); Chanson (Friml); Song, Come out, Vienna (Joh. Strauss); Melodiouss Memories (Finck); Angero March (Franco). 1.30, Concert; Light Music: Ht's only a Paper Moon (Harburg); Song, On the Banks of the Rio Grande; One Alone, from The Desert Song (Romberg); Beantful Giel (Freed), 1.45, Light Music, Potpourri, Looking Backward (Finck); Song, Smillin through (Penn); Dancing Butterfly (Petkere); Selection from Ball at the Savoy (Abraham). 2.0, Light Orchestral Music: Throw open wide your window (Calson); Selection from The Desert Song (Romberg); Duct, Indian Love Call (Hammerstein); Waltz from The Merry Widow (Lehár). 2.15, Orchestral Concert; Valse des Fleurs (Tchaikovsky); Minnet (Boccheriu); Harlequin's Serenade (Leoncavallo); Anitra's Dance (Grieg). 2.30, Military Band Music: Victoria March (Von Blon); The Skaters' Waltz (Waldteufel); A Gynsy Impression (Scott-Minchin); Selection from the Three Musketeers (Friml); Tally Ilo? (Barsotti); By the Bine Hawaiian Waters (Ketelbey); Whistling Rufus (Kerry); Marche Hongroise (Berlioz). 3.0 to 4.0, (Christmas Party, by Tony Reddin and his Radiolians: Signature Tune, The Gold. Digger Song; Roll up the Carpet, push back the Chairs; Story of the Old Woman who lived in a Shoe; Big Bad Wolf; A Child's Carl it albay. 8.0, Relay of Chimes from the Chirch and Judy Show; Signature Tune, Let's call it albay. 8.0, Relay of Chimes from the Chirch and Judy Show; Signature Tune, Let's call it albay. 8.0, Relay of Chimes from the Chirch and Judy Show; Signature Tune, Let's call it albay. 8.0, Relay of Chimes from the Chirch and Nusic Doc. 1.1, Time and News.

BARCELONA

BARCELONA

EAJ1, 861 kc/s, 348.4 metres; 8 kW.—7.15
a.m., Radio Journal and Gramophone Music.
8.0, Chimes, Physical Culture and Gramophone Music.
2.0, Radio Journal and Gramophone Music.
9.0, Announcements.
11.0, Chimes, Weather, 1.0 p.m., Gramophone Music.
1.30, Theatre Notes and Gramophone Music (contd.).
2.0, Sextet Concert.
3.0, Pro-

gramme for Hospitals, with Gramophone Records, 5.30, Agricultural Talk, 6.0, Concert by the Radio Orchestra, 6.30, Part Relay of an Opera from the Gran Teatro del Licco. 9.0, Gramophone Music, 10.45, Chess Lesson.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—9.0 to 9.30 a.m., Programme from Rome. 9.30, Agricultural Talk. 9.45, Religious Address. 9.58 till Close Down, Programme from Rome.

BASLE,-See Schweizerischer Landessender.

BERLIN

BERLIN

DEUTSCHLANDSENDER REICHSSENDER,
183.5 kc/s, 1,635 metres; 60 kW.—7.55 a.m.,
chimes and Divine Service. 9.5, Weather.
10.0, E. G. Kolbenheyer reads Poetry. 10.15,
Weather. 10.30, See Leipzig. 11.0, See
Munich. 12.30 p.m., Music for Horns. 1.0,
The German Poet and the Child—Radio Sequence with Children's Choir. 1.30, Turn
Musik (Windberger) by the Station Wind
Band. 2.0, A German Christmas—Programme for Young People. 2.30, The Birth of
Christ—Play relayed from Obernifer. 4.0,
Vespers from a Church in Neiderschönhausen. 5.0, Christmas Programme. The
Station Choir and Orchestra, and the Kosleck'scher Wind Ensemble. 8.0, Christmas
Address by Hitler's Deputy, Rudolf Hess.
8.15, See Leipzig. 9.15, News. 9.45, Weather.
10.0, Musical Programme. 11.0, See Leipzig.
12.20 a.m. (Monday), Reading.

BERLIN

BERLIN

FUNKSTUNDE, 832 kc/s, 360.5 metres; 100 kW. Relayed by Zeesen, DJC, DJA, DJD, DJB and DJE, -9.5 a.m., Weather, 40.0 to 10.30, Reading from a Christmas Carol (Dickens). 11.0, The Small Station Orchestra, conducted by Steiner, 1.0 p.m., Records for Children, 1.45, Records, 2.30, German Poems, 2.45, A Christmas Meditation, 3.0, See Hamburg, 4.25, Christmas Music, 4.50, Reading, 5.0, Choral Concert, 6.15, See Breslau, 7.0. The Berlin Station Orchestra, conducted by Helmar Kähler, and Soloists, 8.0, Christmas Address by Hitler's Deputy, Rudolf Hess, 8.15, The Birth of Jesus and the Angels' Message to the Shepherds, from The Christmas Mystery (Wolfrum), by the Station Choir, the Station Orchestra and Soloists, 9.0, Christmas Carols of Seventeen Countries on Records, 9.45, Christmas Eve in the City Streets, by the Freundschaft Vocal Quartet, 11.0, See Leipzig.

BERNE.-See Schweizerischer Landessender. BEROMUNSTER. — See Landessender, Schweizerischer

BODEN.-See Stockholm.

BODO.-See Oslo.

BORDEAUX-LAFAYETTE

BORDEAUX-LAFAYETTE

986 kc's, 304 metres; 13 kW.—7.45 a.m.,
News and Organ Recital, relayed from Paris
(Ecole Supérieure), 671 kc's, 447.1 metres,
11.0, Concert, relayed from Paris (Ecole Supérieure), 2.0 p.m., Programme, relayed from
Paris, or Relay of a Local Festival. 3.0,
Concert, relayed from Paris, 6.15, Radio
Journal, relayed from Paris, 6.15, Radio
Journal, relayed from Paris, 6.15, Radio
Fisher, 7.45, Sports Talk, 8.0, Talk for
Ex-Servicemen, 8.15, Lottery Results, 8.30,
Records, 9.0, The Cricket on the Hearth—
a Comedy (Ludovic de Francmesnil), after
Charles Dickens, with Incidental Music by

Massenet. After the Concert, Amusement Guide and Time.

BRATISLAVA

1,073 kc/s, 279.5 metres; 14 kW.—8.20 a.m., Talk: Bethlehem. 8.40, See Prague. 10.0, See Brno. 11.0, See Prague. 1.0 to 1.5 p.m., Tide Report. 2.30, See Prague. 4.0 to 5.0, Divine Service Relay. 6.30, See Prague. 8.15, Programme of Christmas Poems and Carols. 8.40, See Brno. 9.5, See Prague. 12.30 a.m. (Monday) (approx.), Close Down.

BREMEN.-See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW.—Relayed by Gleiwitz, 1,185 kc/s, 253-1 metres.—9.0 a.m., Reading. 9.25, Harmonium Recital. 9.50, to 11.0, See Leipzig. 11.0, See Munich. 12.30 p.m., See Berlin (Deutschlandsender). 1.0, Reading and Songs. 1.25, News. 1.35, Discussion—A New Generation of German Women. 1.55, Songs by Children. Vom Himmel hoch Ein Weihnachtsspiel; Heiligste Nacht; Lasat uns das Kindlein wiegen; Maria Wiegenlied; O Jesulein zart; Still, stille, still; auf dem Berge; Tocher Zion (Handel). 2.30, Christmas in Silesia—(Erich Hoinkis). 3.0, The Station Orchestra, conducted by Ewald Rischka. Overture, Martha (Flotow); Christmas Suite (Schumann-Rischka); Selection from Undine (Lortzing); Postludium (Rischka); Overture, The Princess in the Golden Slipers (Rust); Moment Musical (Schuhert); Albumblatt (Wagner); Cradle Song (Järnefelt); Prölliche Weihnachten (Koedeel). 4.55, See Leipzig. 5.0, Reading from A Christmas Carol (Charles Dickens), arranged as Radio Play with Incidental Music. 5.30. Chimes. 6.0, Talk; The Germanic Yule Festival. 6.15, North, Sonth, East, West, Radio Reports from a Mountain Church in Silesia, the Hallig-kirche in Hamburg, a Forester's House near Frankfurt, and the Zugspitze near Munich. 7.0, Christmas Carols, Sich, dort steht ein zerrissen Ställchen; Gott, heil'ger Schöpfer aller Stern'; Dein grosse Lieb, o Jesulein (from Moarvia); Old German Christmas Carol; Shepherd's Christmas Carol from Bohemia; Old Flemish Carol; Alter Wiehnachtsreigen (Fourteenth Century); Silesian Carol, Süsses Kind, die Zeit ist da; Austrian Carol, Süsse

BRNO

878 kc/s, 342 metres; 35 kW.—7.0 a.m., Sec Bratislava. 8.0 a.m., Sec Moravská-Ostrava. 8.15, See Prague. 10.0, Citristmas Pro-gramme. 11.0, See Prague. 2.30 p.m., Sec Prague. 4.0, German Transmission: Songs and Organ Music. 6.30, See Prague. 8.15, See Bratislava. 8.40, The Christmas Guest—a Tale. 9.5, See Prague.

BRUSSELS (No. 1)

IN.R., 589 kc/s, 509.2 metres; 15 kW.—10.0 a.m., Concert by the Small Station Orchestra, conducted by Leemans. 11.0, Gramophone Concert of Popular Music. 12 Noon, Concert, conducted by Felleman, relayed from the Grand Hotel, Antwerp. 1.0 p.m., le Journal Parlé. 1.10, Concert (contd.). 1.30, Supporters—Sketch (Lauville). 1.40, Concert (contd.). 5.0, Concert by the Station Symphony Orchestra, con-

ducted by Menlemans, 5.30 (approx.), Football Results. 6.0, Violin and Pianoforte Recital, 6.40, Gramophone Concert of Popular Music. 7.15, Religious Address. 7.30, Le Journal Parlé. 8.0, Acts I and II of Countess Maritza—Operetta in Three Acts (Kátmán). In the first interval, Le coup de Cyrano—Radio Sketch (Tristan Bernard). In the second interval, Le Journal Parlé. 10.10, Catholic Service. 11.0, Dance Music by Robert de Kers and his Cabaret Kings, relayed from the Century Hotel, Antwerp.

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.I.R.; 888 kc/s, 337.8 metres; 15 kW.—10.0
a.m., Gramophone Concert. 11.0, Concert by
the Small Station Orchestra, conducted by
Leemans. 12.0 Noon, Gramophone Concert.
12.25 p.m., Organ Recital by Joos, relayed
from the Carmelite Church. 12.45, Gramophone Records. 1.0, Le Journal Parlé. 1.10,
Gramophone Records. 1.15, A Christmas
Story. 1.30, Organ Recital (contd.). 5.0,
Concert by the Station Orchestra, conducted
by Walpot. 5.45, Programme for Children.
6.30, Choral Concert. 7.12, News. 7.15, Religious Address. 7.30, Le Journal Parlé. 7.55,
Music Review, followed by Van Jezus en St.
Janneken (De Vocht), on Gramophone
Records. 8.0, Men of Good Will—a Radio
Play. 8.50, Record: Stoet (De Vocht).
8.55, Talk. 9.10, Concert by the Station Symphony Orchestra. 9.50, Evening prayer.
10.0, Le Journal Parlé. 10.10, Gramophone
Records. 11.0, Christmas Service, relayed
from the Abbaye des Bénédictins, Lophem.
12.0 Midnight, The Story of Christmas, from
the Bible, followed by Chimes. 12.7 a.m.
(Monday), Dance Music, relayed from the
Century Hotel, Antwerp. 1.0 (approx.).
Close Down.

BUCHAREST

760 kc/s, 394.7 metres; 12 kW.—8.0 a.m., Religious Service. 9.30, Religious Talk. 9.45, Religious Music. 10.0, Records. 11.0, Records. 12.0 Noon, Radio Journal. 12.15 p.m., Records. 3.0, Rural Programme. 4.0, Variety Music by the Marco Orchestra. 5.0, Radio Journal. 5.15, Orchestral Concert (contd.). 6.0, Educational Talk. 6.20, Records. 6.45, Talk. 7.0, Christmas Carols. 8.45, Radio Journal.

BUDAPEST

BUDAPEST

845 kc/s, 550.5 metres; 120 kW. Also relayed on 840 metres from 4.0 p.m. till Close Down.—11.30 a.m., Concert by the Opera House Orchestra, conducted by Ernst Dohn-auvi. 1.0 p.m., Records. 2.0, Agricultural Programme. 2.50, Songs for Children. 3.30, For Schools. 9.0, Christmas in an Orphau-age—Radio Report. 4.30, Sports Notes. 4.40, Orehestral Loncert. conducted by Emil Abranyi. 5.30, Talk, with Records. 6.0, Relay of the B.B.C. World Broadcast of the Bells of Bethlehem. 11.0, Midnight Mass.

CASSEL.-See Frankfurt.

COPENHAGEN

COPENHAGEN

1,667 kc.'s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc's, 1,153.8 metres, and Skamlebaek, OXY, on 31.51 metres.—11.0 a.m., Time and Chimes. 11.5, Concert by Louis Preil's Instrumental Ensemble. 1.30 p.m., The Radio Orchestra, conducted by Launy Gröndahl: Soloist: Eliza Herlov (Piano), 3.30, (Pristmas Service from Copenhagen Cathedral. 4.30, Grantophone Records. 5.0, New Christmas Carols. 5.20, Reading. 5.50, Weather. 6.0, News. 6.15, Time Signal. 6.30, Christmas Greetings from the Country to the International Radio Union; Christmas Carols, Address, and Chimes. 7.2, Christmas Concert; Franz Klaebel (Organ), Fini Henriques (Violin), Frantz Klaebel (Organ), Fini Henriques (Violin), Frantz Klaebel (Organ), and Volmer Holböll (Songs). 8.0, B.B.C. Broadcast from Bethlehem: Introduction by the High Commissioner of Palestine; Chimes from London, New York, Winchester Cathedral, and the Church of the Nativity in Bethlehem. 8.15, Christmas Concert (contd.).

CORK.-See Athlone.

CRACOW

CRACOW

See Warsaw. 8.54, Announcements. 9.0, Divine Service and Sacred Music on Gramophone Records, relayed from Lwów, 788 kc/s, 381 mstres. 10.57, Time, Fanfare from St. Mary's Church, Announcements and Weather. 11.15, See Warsaw. 1.30, Records. 2.0, Talk. 2.20, See Warsaw. 4.15, Concert of Christmas Carols. 5.0, Programme, relayed from Lwów. 5.40, See Warsaw. 6.0, Announcements. 6.5, News. 6.15, Talk on Hiéronyme Lubomirski. 6.30, See Warsaw. 9.0, Humlorous Programme, from Lwów. 10.0, See Warsaw. 10.5, Records. 11.0, Mass, relayed from the Ostra Brama, Wilno.

DANZIG.—See Heilsberg.

DANZIG .- See Heilsberg. DRESDEN .-- See Leipzig.

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—8.45 a.m., till 12 Noon, Programme in English by the I.B.C. 8.45, Military Band Music. 9.30, Orchestral Concert. 10.0, Dance Music. 11.0, Happy Hour. 12 Noon, Programme in French. 2.0, to 7.30 p.m., Programme in French. 2.0, to 7.30 p.m., Programme in English by the I.B.C. 2.0, Light Music. 2.30, Orchestral Concert. 3.0, Musical Comedy Selections. 3.30, Gramophone Concert. 4.15, The I.B.C. Nursery Corner. Birthday Greetings. 4.45, My Dream, by the Rev. F. Llewellyn Hughes, M.A., M.C. 5.0, American Songs. 5.15, Orchestral Concert: The Golden Musical Box (Krame); My Hero, from The Chocolate Soldier (O. Straus); Selection from H.M.S. Pinafore (Sullivan); Mignonette (Friml). 5.30, Light Orchestral Concert: Her First Dance (Heykens); Poem (Fibich); Venetian Boatman's Song (Mantovani); Midnight (Spoliansky). 5.45, Concert of Dance Music. We'll all go riding on a Rainbow; In the Shade of the Old Apple Tree; That Naughty Waltz; Give me liberty, or give me love. 6.0, Hawaiian Band Music; Song of the Islands (King); Aloma (Bowers); That little Lock of Hair (Berrill); Let us waltz through the Night (Miller). 6.15, Concert of Dance Music. Without that eertain Thing; Tain't; Yvonne: The Monkey on a String. 6.30, Light Music. 7.0, Orchestral Concert. Ballet égyptien (Luigini); Violin Solo: Tambourin chinois (Kreisler); Entrance of the Little Fauns (Pierné); Humoresque (Dvorák); Violin Solo: Souvenir (Drdla); Ballet from Petite Suite (Debussy); Dance of the Sylphs (Berlioz). March from Sylvia (Delibes). 7.30, Programme in French. 9.0 till 11.30, Programme in English by the I.B.C. 9.0, Concert of Dance Music. 9.30, Light Music. 10.0, I.B.C. Members' Request Half-hour. The Golden Musical Box (Krame); Song: Annie Laurie (Scott); Selection from Chu Chin Chow (Norton); The Capricous Music Box (Fresco); Comin' through the Rye (arr. Smart); The Clatter of the Clogs (Flynn). 10.30, Concert of Dance Music. Making Conversation; My Wild Oat; This is Romance; Buekin' the Wind; Missourie Walts (Bock). In R FLENSBURG,-See Hamburg.

FLORENCE.-See Turin.

FRANKFURT.

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel and Trier, 1,157 kc/s, 259.3 metres.—
9.15 a.m., Christmas Legend. 9.35, Records of German Singers. 10.25, Christmas Poems. 10.30, See Leipzig. 11.0, The Wiesbaden Madrigal Circle. Soloist: Pauli Haarer (Songs): Christmas Carols with Lute aecompaniment; Old Christmas Music for Voice and Instruments. 12.0 Noon, See Stuttgart. 12.15 p.m., Opera Music on Records; Selection from Othello (Verdi); La Traviata (Verdi); The Force of Destiny (Verdi); and Aida (Verdi). 1.0, Christmas Fairy Tales. 1.30, Programme for Children. 2.0, Concert by Children. 2.30 to 5.15, See Langenberg. 5.15, Christmas Carols by a Choir from the Blind Institute. 5.45, Organ Recital from the Ilbenstadt Monastery. 6.15, See Breslau. 7.0, See Langenberg. 8.0, Christmas Address by

DEC. 24th SUNDAY

continued

Hitler's Deputy, Rudolf Hess. 8.15, See Langenberg. 9.0, Time and News. 9.10, See Stuttgart. 9.25, Alpine Christmas Carols sung by Auton Maria Topitz. 10.15, See Stuttgart. 11.0, See Langenberg. 12 Mid-night, Close Down.

FREDRIKSSTAD.-See Osto. FREIBURG .- See Stuttgart. GENEVA.—See Radio-Suisse Romande. GENOA.—See Turin.

GLEIWITZ .- See Breslau. GOTEBORG.—See Stockholm. GRAZ.-See Vienna.

HAMAR.-See Oslo.

HAMBURG

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg, and Hanover, 1,319 kc/s, 227.4 metres; and Kiel, 1,292 kc/s, 232.2 metres.—7.15 a.m., Time, News. 9.0, Christmas Music and Recitations. 10.15, Reading of a Christmas Legend. 10.30, See Leipzig. 11.0, See Berlin (Funkstunde). 1.0, Cindereila—Pantomine (Görner). 2.0, Choral Concert, with Instrumental Solos and Songs. 2.40, Reading (Walther Förster). 3.0, Orchestral Concert, conducted by Gerhard Maass. 4.25 (from Kiel), Christmas Vespers from the University Church, Kiel. 5.25, Choral and Organ Music. 6.5, Weather. 6.15, See Breslau. 7.0, Christmas Programme. 8.0, Christmas Address by Hitler's Deputy, Rudolf Hess. 8.15, A German Christmas on the High Seas—Short Wave Transmission from the Liner Milwaukee, in the Bay of Biscay. 9.0, Variety. 10.0, Wind Instrument Concert. 11.0, See Leipzig.

HANOVER .- See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 453.1 metres.—10.30 a.m., See Leipzig. 11.0, See Berlin (Funkstunde).
1.0 p.m., See Hamburg. 2.0, Reading 2.15, For Young People. 2.45, Christmas Lyries by the German Masters. 3.0, See Hamburg.
4.0, Vespers, Ielayed from Haffstrom. 4.40, Reading. 5.0, Christmas Cantata (Armin Knab), followed by Christmas Carols. 6.0, Christmas and Music and Literature. 8.0, Christmas and dress by Hitler's Deputy, Rudolf Hess.
8.15, See Leipzig. 9.15, Organ Recital. Choral Prelude: Von Himmel kam der Engel Schar (Buttstedt); Choral Prelude: Lobt Gott, ihr Christen allzugleich (Buxtehude); In dulci jubilo (Bach); Wie schön leuchtet der Morgenstern (Buxtehude); Pastorale in F (Bach); Choral Prelude: Vom Himmel hoeh (Pachelbel); Toccata in F (Pachelbel); Christmas (Reger); Prelude (Bach). 10.0, See Hamburg. 11.0, See Leipzig.

HILVERSUM

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW up to 5.40 p.m. and 20 kW from 5.40 p.m.—8.10 to 9.40 a.m., Programme of the Workers' Radio Society (V.A.R.A.).

8.10, Football Notes.

8.12, Horticultural Talk.

8.40, Organ Recital.

10.10 to 11.40, Programme of the Liberal Protestant Radio Society (V.P.R.O.). Divine Service Relay.

11.40 to 1.40 p.m., Programme of the Liberal Protestant Radio Society (V.P.R.O.). Divine Service Relay.

11.40 to 1.40 p.m., Programme of the General Broadcasting Society (A.V.R.O.).

11.40, a.m., Talk.

12.10 p.m., Kovacs Jajos and his Orchestra.

1.40 to 6.40 Programme of the V.A.R.A.

1.40, Relay of the Labour Party Christmas Programme.

2.40, Records.

2.55, Labour Party Programme (contd.).

4.10, The Station Orchestra, canducted by de Groot: Norwegian Dance (Grieg); Scottische (Wood); Ca c'est Paris (Padilla); Lied und Tanz aus Tirol (Pétras); Neapolitan Serenade (Michell); Malágueña (Moszkovsky); Russian Dance (Bortkiewicz); Polish Mazurka (Glinka): Bohemian Polka (Hilmar); Czardas (Michiels); Viennese Waltz (Benatzky); Dutch National Dance (Siep).

4.65, For Children.

5.25, Light Music.

5.50, The Adventures of Wakker and Tropenduit.

6.10, The V.A.R.A. Orchestra.

6.40 to 7.40, Programme of the V.P.R.O. Christmas Programme of the A.V.R.O.

7.40, Time and News 7.45, Talk for the following transmission.

8.0, Relay of the B.B.C. World Broadcast of the Bells of Bethlehem.

8.15, A Nativity Play with Music.

9.30, Bach Recital by Harold Samuel (Pianoforte): Fantasia and Fugue in A minor; Invention in F; Gigue in B flat; Prelude in E; Prelude and Fugue in G sharp minor; Fantasia in C minor.

9.50, The Wireless Orchestra, conducted by Nico Treep.

10.40, News.

10.45, Records of Christmas Programme.

40.11/2/EN

HORBY .- See Stockholm.

HUIZEN

160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m. Transmitted from Kootwijk on 50 kW. from

3.40 p.m.—8.10 to 9.10 a.m., Programme of the Christian Radio Society (N.C.R.V.). 8.10, Divine Service. 9.10 a.m. to 4.40 p.m., Programme of the Catholic Radio Society (K.R.O.). 9.10 a.m., Records. 10.10, High Mass, relayed from the Vrouwekerk, Amsterdam. 11.25, Records. 11.40, The K.R.O. Orchestra, conducted by van 't Woud: Selection from Sigurd Jorsalfar (Grieg); Overture, Rund um die Liebe (O. Straus); Selection from The Bartered Bride (Smetana); Waltzes, Op. 54, Nos. 1 and 4 (Dvorák): Moment musical (Schubert); Two Slav Dauces (Dvorák). 12.25 p.m., Records. 12.40, Talk on Japan. 1.0, The K.R.O. Orchestra (contd.): Unter dem Doppel-Adler (J. F. Wagner); Valse triste (Sibelius); Selection from Ritter Paszmann (Strauss); Overture, Poet and Peasant (Suppé). 1.40, Records. 1.50, Talk: The Restoration of a Benedictine Abbey. 2.10, Sacred Music, Christmas Carols and Records. 3.10, Vocal and Instrumental Music. 3.30, Records. 3.40, For Women. 3.55, Vocal and Instrumental Music (contd.). 4.10, For Invalids. 4.40 to 7.25, N.C.R.V. Programme. 4.40, Divine Service, relayed from the Westerkerk, Deventer. 6.10, Christmas Carols by Mile. Annie Geest (Soprano) and Rie Schaffsma (Contralto). 7.10, Records. 7.25 till Close Down, K.R.O. Programme. 7.25, Football Results. 7.30, Talk. 7.55, News. 8.0, Relay of the B.B.C. World Broadcast of the Bells of Bethlehem. 8.15, Christmas Concert by the K.R.O. Choir and Orchestra. conducted by Vermeulen, the Bois-le-Duc Musical Society, conducted by Wierts, and Soloists: Mme. Immink (Contralto). Van den Berk (Tenor) and Bode (Baritone): Extracts from the Christmas Oratorio (Bach); Carols: (a) Inno Pontificio, (b) Rex Clementissime, (c) Daar is cen roos ontloken, (d) O, hoe heerlijk, (e) Benedicta tu, (f) Adeste fidelos, (g) De Herdertjes, (h) Drie Koningen zagen een Steer, (i) Stille Nacht, Die heilige Nacht (Gade). 10.10, News. 10.15, Records. 10.20, Epilogue by the Small K.R.O. (Choir: Glory to God in the Highest. 10.40, Peace on Earth and Goodwill towards Men. Programme of Carols of a

INNSBRUCK.—See Vienna.

JUAN LES PINS

JUAN LES PINS

1,205 ke/s, 249 metres; 0.6 kW.—8.0, Amuscment Guide and Sports Notes. 9.0, News. 9.15, Radio Concert. 10.0, Request Concert. 10.30 till Close Down, Programme in English by the I.B.C. 10.30 Military Band Concert: Gaiety Echoes; El Abanico (Javaloyes); The Parade of the Tin Soldiers (Jessel); Selection from La Source (Delibes); Fire Star (Carter); Carry On (Dundas); Le Rève Passe (Krier). 11.0, Instrumental Concert. 11.30, Light Orchestral Concert: Stardust (Carmichael); Selection from Mother of Pearl (O. Straus); Song, You Are My Heart's Delight (Lehár); Granny's Photo Abbum (Greer); Just Once for all Time (Heymann); Song, At Dawning (Cadman); Jollification (Reeves). 12 Midmight, Dance Music: I Called to Say Good-night; What a Perfect Combination; Put a Little Springtime in the Winter of their Lives; I Can't Remember; The Old Spinning Wheel; It's Within Your Power; Isn't it Romantic; Love is the Sweetest Thing; Sweetheart; Sittin' in the Dark; Harlem Fuss; Waltzing in a Dream; Hold ne; I'll see You in the Morning; Let's Put Out the Lights; Let's all Dance the Polka. 1.0 a.m. (Monday) (approx.), I.B.C. Good-night Melody and Close Down.

KALUNDBORG.—See Copenhagen.

KALUNDBORG.—See Copenhagen.

KIEL.-See Hamburg.

KLAGENFURT.-See Vienna.

KOSICE.—See Prague.

LANGENBERG

LANGENBERG
635 kc/s, 473 metres; 60 kW.—9.45 a.m.,
Gramophone Records. 10.20, Talk: Reminiscences of a Westphalian.
218. 11.0, See Frankfurt. 12 Noon, See
Stuttgart. 12.15 p.m., The Kammer-Quintett.
1.0 to 2.30, See Frankfurt. 2.30, Song and
Pianoforte Recital. 3.30, Christkinds Erdenreise—Children's Opera in Four Scenes
(Gustav Kneip). 4.45, Der Weihnachtsbettler
—A Sequence of Poems (Waldeck). 5.0,
German Bells on the Rhine. 5.15 to 6.10
g.m., See Frankfurt. 6.15, See Breslau. 7.0,
Concert of Old Music. The Station Chamber
Quintet and Soloists. 3.0, Christmas Address
by Hitler's Deputy. Rudolf Hess. 8.15, See
Leipzig. 9.15, See Stuttgart. 9.30 (approx.),
See Frankfurt. 10.15 to 11.0, See Stuttgart.
11.0, Christmas Mass from a Church in
Kohlenpott.
LAUSANNE.—See Radio-Suisse Romande.

LAUSANNE.-See Radio-Suisse Romande.

LEIPZIG

T70 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—10.15 a.m., Talk on the following transmission. 10.30, Gelobet seist dn. Jean Christ, dass duensch geboren bist—Cantata (Bach), by the Municipal and Gewandhaus Orchestra, the Choir of St. Thomas and Soloists. 11.0, See Munich. 12.30 p.m., Old and New Christmas Carols. 1.25, Christmas Reading. 1.35

(approx.), Reading. 1.55, Carols sung by Children. 2.10, Das Spiel von den heiligendrei Königin (Pelix Timmermans). 3.0, See Breslau. 4.45, News. 5.0, Talk: The Origin of the Carol Stille Nacht, heilige Nacht. 5.45, Records of the Leipzig Trumpet Ensemble. 6.15, See Breslau. 7.0, Organ Recital. 7.25, See Munich. 8.0, Christmas Adress by Hitler's Deputy, Rudolf Hess. 8.15, Thirty German Cathedrals ring in Christmas. 9.15, Die Weihnachtsbotschaft—Christmas Cantata for Four-Part Mixed Choir, Soloist, Strings and Organ (Hermann Simon). 9.45, Records of Organ Music. 10.5, See Munich. 11.0, Catholic Service from the Dresden Hofkirche.

LINZ.-See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—9.30 a.m.,
Orchestral Concert, with Songs. 10.15, Concert of Yugoslav Music. 11.0, Weather, News.
3.30 p.m., Songs by Octet. 4.30, Records.
5.0, Chimes. 5.15, Christmas Number for
Children. 5.40, Christmas Concert by the
Station Orchestra. 7.0, Talk on Christmas.
7.30. Concert. 8.0, Chimes, relayed from
Bethlehem. 8.15, Christmas Carols. 9.0,
Recitations. 9.30, Guitar Solos. 10.0, Records.
11.0, Divine Service Relay.

LUXEMBOURG

LUXEMBOURG

282 kc/s, 1,191 metres; 200 kW.—8.30 p.m.,
Concert by the Station Orchestra, conducted
by Henri Pensis: Overture, Hamlet (Tchaikovsky); Dance No. 6 (Dvorak). 8.50, News
in French. 9.0, Operetta Music by the Station
Orchestra, conducted by Pensis: Selection
from a Waltz Dream (Osear Straus); Selection from Frederica (Lehár), and Die Fledermaus (Joh. Strauss). 9.30, English Dance
Music. 9.45, News in German. 9.55, Concert
by the Station Orchestra, conducted by
Pensis: Overture, Prince 1gor (Borodin);
Selection from Der Geist des Woewoden
(Grossmann); Suite. Goliardica (Armandola); Rhapsody in Blue (Gershwin); Sereuade (Moszkovsky); Kaiserwalzer (Joh.
Strauss). 11.0, Christnus Concert by
the Station Orchestra, conducted by
Pensis.
Soloist: Gustave Simon (Songs).

MADRID

MADRID

ARANJUEZ (EAQ); 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., See Madrid (EAJ7). After the Relay, Radio Chronicle. 12.0 Midnight till Close Down, Programme arranged by the International Broadcasting Company. 12.0 Midnight, Dance Music: Signature Tune, Come Back to Erin; My Lucky Day (Davies); Let him live (Kahal); Headin' for a Weddin' (Adamson); Isn't it heavenly? (Meyer); Stay out of my Dreams (Petkere); Somebody stole my Gal (Wood); Sweet Savinniah Sue (Brooks); Ilurricane Ilarry (Steininger); Signature Tune, Come back to Erin. 12.30 a.m., Concert of Light Music: Scotch Hot (Whitlock); Potpourri of Haydn Wood's Songs; Black-eyed Susan Brown (Hoffmann); Selection from The Vagabond King (Friml); The Siege of Monte Carlo (Heymann): Richard of Taunton Deane (arr. Molloy); I bring a Song (Young). 1.0, I.B.C. Goodnight Melody and Close Down.

MADRID

MADRID

EAd7, 707 kc/s, 424.3 metres; 2 kW.—7.0 p.m., Chimes, and Announcements. 7.5 (approx.). Christmas Carols of the Nations, followed by Dance Music. 9.0, Relay of the B.B.C. Transmission from Bethlehem. 1.0 a.m. (Monday) till Close Down, Programme in English by the I.B.C. 1.0, Dance Music: Let the World go drifting by; At the Old Pig and Whistle; Nobody's Sweetheart; Reflections in the Water; Let's call it a Day; We belong Together; If you'll say Yes, Cherie; The Gold Digger's Song; Hold me; Remember my Forgotten Man; Shadow Waltz; We went strolling round the Town; I'll take an option on you; Sweet Dreams, Pretty Lady; Sing another Line; Sundown in a Little Green Hollow. 2.0, I.B.C. Goodnight Melody and Close Down.

MALMO.—See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

1,137 kofs, 263.8 metres; 11 kW.—8.0 a.m., Religious Address. 8.15, See Prague. 10.0, See Brno. 11.0, See Prague. 2.30 p.m., See Prague. 6.30, See Prague. 8.15, See Brati-slava. 8.40, See Brno. 9.5, See Prague.

MOSCOW

MOSCOW

KOMINTERN, RW1, 202.5 kc/s, 1,481

metres; 500 kW.—8.0 a.m., Orchestral and
Choral Concert. 8.55, Time. 9.0, News. 9.15,
Literary Programme for Collective Farm
Workers. 10.15, Request Orchestral and
Choral Concert. 1.45 p.m., Announcements.
2.15, For Children. 2.55, Time. 3.0, News.
3.15, Talk. 3.30, Talk: The Communist
Party. 4.30, Red Army Programme. 5.30,
Programme for Collective Farm Workers.
6.30, Talk on Aviation and Announcements.
7.0 Vocal Quartet and Wind Instrument Orchestra. 8.0, Talk in German: Christmas Eve
without a Christmas Tree. 8.55 Chimes from
the Red Square. 9.5, Talk in English: The
Smiths visit their Parents in Moscow. 10.5,
Talk in Swedish: Clubs instead of Churches.

MOTALA.-See Stockholm.

MUHLACKER .- See Stuttgart.

MUNICH

MUNICH

716 kc/s, 419 metres; 60-100 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 550 metres; and Nürnberg, 1,256 kc/s, 239 metres.—9.15 a.m., A Christmas Legend. 10.15 to 11.0, See Leipzig. 11.0, Orchestral Concert. 12.30 p.m., See Berlin (Doutschlandsender). 1.0, Time, Weather, Announcements. 1.10 (from Nürnberg), Agricultural Talk. 1.30, Christmas Music on Records. 2.30, Ihr Kindeleim, kommet—A Nativity Play (Emma Heunies and Lydia Neisser); Music by Fuchs. 3.0, See Breslau. 4.45, See Leipzig. 5.0, Songs of the Alps—for Choir and Orchestra. 5.20, The Star in the East—Three Scenes (Lippl). 6.15 to 7.25, See Breslau. 7.25, The One Hundred and Twelfth Psalm (for Soprano, Mixed Choir, and Orchestra (Handel). 8.0, Christmas Address by Hitler's Deputy, Rudolf Hess. 8.15, See Leipzig. 9.15, Favourite Christmas Carols of Seventeen Countries. 10.5, Heilige Nacht—a Christmas Legend (Ladwig Thoma). 11.0, See Leipzig.

NAPLES,-Sec Rome.

NOTODDEN.-See Oslo

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredrikestad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Rlukan, 671 kc/s, 447.1 metres; and Jelöy, LCL, 6,990 kc/s, 442.92 metres—9.15 a.m., News. 9.20, Chimes and Divine Service, relayed from the Cathedral, Stavanger. 3.0 p.m., For Children. 4.0, Organ Recital, relayed from the Church, Sandefjord. 4.30, Reading of Christmas Stories, 5.0, Christmas Programme; The Station Orchestra, a Choir and Soloist; Solveig Borthen (Contralto), Orator and Orchestra: A Christmas Prologne (Rolf Hjorth Schöyen), with Music hy Per Reidarson; Christmas Motet for Contralto, Choir and Organ (Alnæs); Pianoforte Quintet, Largo (Handel); Ave verum (Mozart); Contralto Solo, Christmas Carol; Christmas Seene (Humperdinek); Choir and Orchestra, Christmas Eve Visit with the Microphone to a Police-Station, Railway Stations, and a Fire Station, 7.0, Time. 8.0, Relay of the B.B.C. World Broadcast of the Bells of Bethlehem. 8.15 (approx.), Close Down.

OSTERSUND .- See Stockholm.

PALERMO

356 kc/s, 539.5 metres; 3 kW.—12 Noon to 1.0 p.m., Light Music. In the in-terval, Time, News and Weather. 4.30 to 5.30, Gramophone Records. 7.0, News and Giornale Radio. 7.20, Records. In the in-

DEC. 24th SUNDAY

terval, Sports Notes, Time and Announcements, 7.45, Sacred Music. In the interval, Talk and Announcements. 10.0, Giornale Radio.

PARIS

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—12.30 p.m., Dance Music by the Meelingor Band. 1.0, News. 1.15, Dance Music (contd.). 5.45, Le Journal Parlé, 7.15, Weather. 7.25, News. 7.30, Records; Part 1: Christmas Music; Part 11: Variety Music.

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—10.0 a.m., Grannophone Music: Joyeux Noël; Silent Night. 10.7, Talk. 10.10, Press Review. 10.30, Records. 11.0, Grannophone Concert. 11.30, Popular Concert. 12.15 p.m., Extracts from Sound Films. 12.45, Sponsored Programme. 12.50, Half an hour of Fantasy by Paul Weill. 1.25. Recitations by André Gaudelette. 1.30, Records. 6.15 to 6.45, Programme in English by the I.B.C.; Special Christmas Eve Broadcast of Christmas Carols. 7.0, Le Journal Parlé. 7.5, Sports Notes. 7.15, Le voyage du père—Radio Sketch for Children (Raymond Cogniat). 8.20, Carols on Grannophone Records. 8.30, Recitations. 9.20, Christmas Stories (Maurice Bouchor). with Music by the Station Orchestra and Choirs. 10.0, Christmas Carols. 10.35, Concert of Christmas Music. 11.0, Relay from Bethlehem. 11.15, Records. 11.25, Dance Music on Records.

PARIS

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725
metres; 75 kW.—12.20 p.m., Sacred Music.
12.30, Bilboquet Programme. 12.45, Records.
1.0, Concert. 2.30, White Horse Inn—Operetta (Stolz-Benatzky), relayed from the
Mogador Theatre. 7.0, Jazz Music by The
Cadets, conducted by Nys. 8.0, Dramatic
and Musical Programme. In the intervals,
News. 12 Midnight, Dance Music.

PITTSBURGH

KDKA; 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres—2.0 p.m., Children's Hour, from Néw York. 3.0, Sonthland Sketches, from New York. 4.0, First U.P. Church. 5.15, Baby Rose Marie, from New York. 5.30, Radio City Concert, from New York. 6.30, Old

Songs of the Church. 6.45, Sunday Favourites. 7.0, Bar-X Ranch, from New York. 7.30, Grenadier Guards Band, from New York. 8.0, International Tit-bits, from New York. 9.0, Railroad Adventures, from New York. 9.15, Egizi's Salon Orchestra. 9.30, Vester Services. 10.30, Grand Hotel, from New York. 10.00 Services. 10.30, Grand Hotel, from New York. Vesper Services. 10.30, Grand Hotel, from New York. 11.0, Symphony Programme, from New York.

continued

PORSGRUND.—Sec Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW. 9.45 a.m.,
Harp Solos. 10.0, See Brno. 11.0,
Chimes and News. 11.15, Orchestral Concert, conducted by Jan Pesta. 12 Noon,
Christmas Carols. 12.30 p.m., Talk on
Agriculture. 1.0 to 1.10, Announcements.
2.30, Programme for Children. 3.0, Sacred
Christmas Music. 3.15, Records. 3.30,
Reading. 3.45, Records. 4.0 to 4.30, German
Transmission: Review of the Music, Broadcasts and Recital of German Carols. 6.30,
Christmas Programme. 7.15, Carillon Recital. 8.0, Relay of the B.B.C. Transmission
from Bethlehem. 8.15, See Brno. 8.16,
8.40, See Brno. 9.5, Recitations. 9.20,
Christmas Mass. 10.15, Organ Recital by
Alois Michl, relayed from the St. Salvator
Church. 10.55, Christmas Chimes. 11.0,
Gregorian Mass, relayed from the Abbey
of Emauzy. 12.30 a.m. (Monday), Close
Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW., and Geneva, 395 kc/s, 760 metres.—10.0 a.m. (from Geneva), Records. 11.30, News and Weather. 11.40 (from Geneva), Records. 1.0 to 2.0 p.m., Interval. 2.0, The Radio Suisse Romande Orchestra, conducted by Echemard. 3.0, Records. 3.30, The Radio Suisse Romande Orchestra (contd.) 4.0 to 5.0, Interval. 5.0 (from Geneva), Records. 5.30 (from Geneva), Christmas Readings. 6.0 (from Geneva), Christmas Readings. 6.1 (from Geneva), Christmas Concert by the Radio Suisse Romande Orchestra, conducted by Ansermet. 8.0, Relay of the B.B.C. World Broadcast of the Bells of Bethlehem. 8.20, Christmas Concert (contd.). 9.15, News, Weather. 9.25 (from Geneva), Christmas Tales. 9.50 (from Geneva), Goodwill to all men—Christmas Programme for all European Countries (on Records). 10.38

(from Geneva), The Story of the Birth of Christ. 10.45 (from Geneva), Midnight Mass, relayed from St. Joseph's Church.

RIGA

RIGA

571 kc/s, 525.3 metres; 15 kW.—7.30 a.m.,
Sacred Music. 9.0, Divine Service. 11.0,
Weather. 11.30, Agricultural Talk. 12 Noon,
For Children. 1.0 p.m., Talk: The American
Indians. 1.30, Records: Overture, Preciosa
(Weber); Overture (Meyerheer); Prelude
and Arias from Lohengrin (Wagner); Selection from Tiefland (d'Albert); Overture,
Alessandro Stradella (Flotow). 2.15, French
Lesson. 2.45, Christmas Concert for Children.
4.0, Divine Service from the Cathedral. 5.15,
Reading (Schma Lagerloef). 5.45, News. 6.0,
Christmas Concert, conducted by Parups;
Two Carols for Choir; Address; Three Carols
for Choirs; Hunting Horn: (a) Carol (Fech).
(b) Motet (Brant). (c) Song (Mozart). (d)
Heilige Nacht (Beethoven); Songs for Choir;
Air (Bach-Reger); Meditation (BachGounod); The Heavens are telling (Beethoven); Two Viola Solos; Prayer (Grieg);
Biblical Pictures (Reinecke). In the interval,
Weather. 8.0, Relay of the B.B.C. World
Broadcast of the Bells of Bethlehen. 8.15,
Concert (contd.): Ave Maria (Kahn); Piece
(Hannekam). 8.30, Relay of Foreign Stations,
8.0, Catholic Service.

RJUKAN.—See Oslo.

RJUKAN.-See Oslo.

ROME

ROME

Call 1R0, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres, from 7.40 p.m.; and 2R0, 11,810 kc/s, 25.4 metres.—10.0 to 11.0 a.m., Sec Turin. 11.30, Records. 11.45 to 1.15 p.m., Sec Turin. 2.45 (Naples), Programme for Children, Weather, Sports. 3.0, Concert for Mother's and Children's Day. 3.38, Records and Sports. 4.0, Chamber Music. 5.30, Weather. 6.30, News. 7.0, Time. Annonneements, and Records. 7.5, Soprano and Baritone Solos. 7.30, Sports Notes. 7.40, Christmas Concert. 10.0, Giornale Radio. 11.0, Midnight Mass. SAL7RIEG.—Sec Vienna.

SALZBURG.—See Vienna.

SCHENECTADY

SCHENECTADY
WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by WZXAF on 31.48 metres and by WZXAD on 19.56 metres.—7.0 p.m., tiene Arnold and the Commodores, from New York. 7.30, Looking over the Week, by John B. Kennedy, from New York. 7.45, tiems of Melody, from New York. 8.0, Wayne King's Orchestra, from New York. 8.30, Musical Programme, from New York.

SCHWEIZERISCHER

LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; Basie, 1,229 kc/s, 244.1 metres; and

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SUNDAY DEC. 24th

continued

Berne, 1,220 kc/s, 245.9 metres.—9.45 a.m. (from Basie), Concert of Salvation Army Music. 10.30 (from Basie), Reading from the Works of Swiss Authors. 11.0 (from Basie), Records. 11.30, Time and News. 11.40 (from Zürich), The Beromünster Orchestra. 12.30 p.m. (from Basie), Agricultural Talk. 1.0 to 1.30 (from Basie), The Basie Zither Quartet. 2.0 (from Basie), The Basie Zither Quartet. 3.0 (from Basie), Two Plays. 5.40 (from Zürich), The Beromünster Orchestra. 4.40 (from Basie), Two Plays. 5.40 (from Zürich), The Beromünster Orchestra. 6.0, Time and Weather. 6.5 (from Basie), Records. 6.30 (from Basie). Talk on Christmas Eve. 7.0, News. 7.10 (from Basie), Christmas Music on Records. 8.0, Relay of the B.B.C. World Broadcast of the Bells of Bethlehem. 8.15 to 9.30 (from Basie), Christmas Festival relayed from a Church. 11.0 (from Basie), Midnight Mass relayed from St. Joseph's Church.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by
Boden, 242 kc/s, 1,239.5 metres; Götehorg,
932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257
metres; Motala, 222.5 kc/s, 1,347 metres;
Gotersund, 402 kc/s, 746.2 metres; and Sundsvall, 554 kc/s, 542 metres.—1.0 p.m., Christmas Programme by Calle Möller. 1.50, Talk:
Christmas in Rome. 2.15, Recital of Swedish
Christmas Carols by Nils Svanfeldt. 2.55,
For Children. 3.0, A Nativity Play, with
Music (Hermann). 4.5, Divine Service, relayed from the Uppsala Cathedral. 5.15,
Records. 6.15, Weather, News. 6.25, Programme of Christmas Dances. 7.30, Christmas Music by the Radio Cholr, The Septiman
String Ensemble, Edit Widmark-Lundblad
(Songs) and Oscar Tjernberg (Songs). 8.0,
Relay of the B.B.C. World Broadcast of the
Bells of Bethlehem. 8.15, Christmas Music
(contd.). 8.45, Weather. 8.50, Records.

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.0 a.m.,
Gramophone Concert: Christmas Music.
11.30, Catholic Service in German. 12 Noon,
Gramophone Concert. 12.45 p.m., News. 1.0,
Time Signal. 1.1, Gramophone Concert. 2.0,
Agricultural Talk in German. 3.0, Symphony
Concert, relayed from the Conservatoire,
Paris. 5.0, Christmas Carols on Gramophone
Records. 6.0, Medical Talk. 6.15, Sports
Talk. 6.30, Orchestral Concert, conducted by
Roskam. 7.30, Time Signal. 7.31, News. 7.45,
Gramophone Music. 8.0, News in German.
8.30, Chamber Music Concert: Soloist:
Georges Petit (Songs). In the interval, Press
Review. 10.45, Christmas Eve Service, relayed from a Protestant Church. 11.45,
Chimes, Te Deum and Midnight Mass from
Strasbourg Cathedral. 1.0 a.m. (Sunday),
Close Down.

STUTTGART

MUHLACKER, 563 kc/s, 533 metres; 100 kW. Relayed by Freiburg, 1,157 kc/s, 259.3 metres, and 527 kc/s, 570 metres (until January 16, 1934).—8.0 a.m., Sacred Music. 8.30, Children's Service. 9.15, See Frankfurt. 9.35, Records. 10.30, See Leipzig. 11.0, See Frankfurt. 12 Noon, Topical Talk. 12.15 p.m., With the Microphone at the Canary Show. 12.30, New Records. 1.0 to 2.30, See Frankfurt. 2.30 to 5.15, See Breslau. 7.0, See Langenberg. 5.15 to 6.15, See Frankfurt. 6.15, See Breslau. 7.0, See Langenberg. 8.0, Christmas Address by Hitler's Deputy. Rudolf Hess. 8.15, See Leipzig. 9.15, Junggesellenweihnacht—Radio Scene (Paul Enderling). 9.25, See Frankfurt. 10.15, The New Radio Set—a Sketch (Cut Elwenspoeck). 10.30, Records of Christmas Music. 11.0, See Langenberg.

STUTTGART

SUNDSVALL.—See Stockholm.

TOULOUSE

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 382
metres; 8 kW.—11.0 a.m., Dance Music.
11.30, Military Music. 11.45, Light Music.
12 Noon, Orchestral Music. 12.15 p.m.,
Operetta Music. 12.30, Catholic Service.
12.45, Concert by a Viennese Orchestra. 1.0,
Market Prices and Time. 1.5 Music from
Sound Films. 1.30, Orchestral Music. 1.45,
Protestant Service. 2.0, Operetta Music.
2.15, Agricultural Notes. 2.30, Light Music
2.45, Chansounettes. 3.0, Symphony No. 3—
The Eroica (Beethoven), by the Augmented
Symphony Orchestra. 4.0, Military Music.
4.15, Accordion Music. 4.30, Russian Songs.
4.45, Music by an Argentine Band. 5.0,
Dance Music. 5.45, Operetta Music.
6.45, Orchestral Music. 7.0, Orchestral
Music. 7.15, News. 7.20, Ballet Music
from Sylvia (Delibes) by the Symphony Orchestra. 7.45, Opera Music. 8.45,
Music. by a Viennese Orchestra. 9.0, Concert Version of Un soir de reveillon—Operetta (Moretti). 9.40, Christmas Music. 9.45,
Operetta Music. 10.0, Hunting Horn Music.
10.15, News. 10.30, Concert for Listeners in
Morocco. 11.0, Music from Sound Films.
11.15, Orchestral Music. 11.30, Chansonnettes. 11.45, Spanish Dance Music. 12
Midnight, News. 12.5 a.m. (Monday),
Choral Concert of Sacred Songs. 12.30,
Concert. 2.0 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—8.40 a.m., See Turin. 8.55, Mass from the Cathedral of San Giusto. 9.40, See Turin. 10.0, Reli-gious Address. 10.20, Agricultural Talk. 11.0 till Close Down, See Turin.

TRONDHELM .- See Oslo.

TURIN

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 959 kc/s, 591.6 metres: and Florence, 598 kc/s, 591.6 metres: and Florence, 598 kc/s, 591.6 metres: A.40 a.m., Giornale Radio. 9.40, Agricultural Talk. 10.0, Mass from the Church of the Annunciation, Florence. 11.0, Bible Reading. 11.30, Records. 11.45, Orchestral Concert. conducted by Titro Petralia. 12 Noon, Time and News. 12.45 p.m., Records. 2.30, Records and Sports Notes. 2.45, Choral Concert. 4.0, Concert for Mothers' and Children's Day. In the intervals, Sports Reports. 5.0, Sports Review. 5.15, Weather. 6.0, Time. Announcements. 6.15, Records. 6.50, Announcements and Records. 7.40, The Christmas Carol—Musical Play (Nelly Nelson). 8.0, Christmas Concert, conducted by Ugo Tansini. Soloist: Ulisse Matthey (Organ). Choir Master: Ottorino Vertova. Concerto grosso No. 8 for Organ and Orchestra (Corelli). Organ Solo: Prelude and Pastorale (Pasquini); Soprano Solo with Organ: Carol (Daquin); Gloria in excelsis 19e0. for Choir, Orchestra (Parelli). Talk. Pastorale (Jachino); Cello Solo, Aria (Porpora); Extracts from L'enfance du Christ (Berlioz). Organ Solos (Guilmant); (a) Pastorale, (h) Piece. Announcements. 9.30 (approx.), The Birth of Jesus (Vitali), for Soloists, Choir and Orchestra. 10.0, Giornale Radio. 10.5, Christmas Carols. 11.0, Midnight Mass from the Chiesa dell' Ara Coeli.

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.1 metres; Linz, 1,228 kc/s, 245.9 metres, and Salzburg, 1,373 kc/s, 218.5 metres,—7.0 a.m., Announcements, 7.5, Gramophone Concert: Four Pieces (Grieg): (a) Morning, (b) The Death of Ase, (c) Anitra's Dance, (d) In the Hall of the Mountain King; Alt-Wien

(Schubert Friedman); Caprice viennois (Kreisler); Waltz, Die Schönbrunner (Lanner); Melody (Denza); Potpourri, So schön, wie's einmal war (Dauber); Fantasia, Fortissimo (Kálmán); Waltz, The Blue Danube (Joh. Strauss-Schulz-Evler). 8.20, Gym. 8.40, Weekly Review. 9.0, Organ and Soprano Song Recital by Franz Schutz and Louise Helletsgruber. 9.30, Reading (Ruth Schaumann). 9.60, Pianoforte Recital by Emmy Kopf. 10.20, Religious Programme. 11.0, Concert by the Wiener Symphoniker, conducted by Max Schönherr. Soloists: Lenz and Scheimbauer (Duets). 1.50 p.m., Time, and Announcements. 2.0, Kay and Gerda—(Children's Play (Hulda Mical). After the Programme, Distribution of Christmas Prizes. 3.30, Recital of Advent Hymns and Christmas Carols by the Schola Gregoriana, conducted by Franz Kosch, with Introductory Talk. 4.0, Concert. 5.0, Talk. 5.30, Recital by the Stiegler Quartet. 6.0, Time and Announcements. 6.10, Missa, Puer natus est (Springer) by an Orchestra. 7.20, Recitation. 7.50, Address by the Archbishop of Vienna. Dr. Theodor Innitzer. 8.0, Christmas in Bethlehem—Programme relayed from Bethlehem. 8.15, Gramophone Concert of Christmas Music. 9.0, News. 9.15, The Station Orchestra, conducted by Max Schönherr. 10.50, Midnight Mass, relayed from St. Stephen's Cathedral. After the Programme, Announcements.

WARSAW

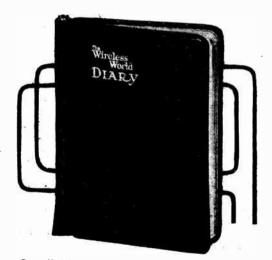
WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—9.0 a.m.,
Divine Service and Sacred Music on Gramophone Records, relayed from Lwów, 788
kc/s, 381 metres.—10.57 a.m.. Time Signa!
and Fanfare from St. Mary's Church
Cracow. 11.5, Anouncements. 11.10, Weather
11.15, Joh. Strauss and Liszt Concert by the
Philharmonic Orchestra. During the interval, Talk. 1.0 p.m., Dramatic Programme.
1.30, Popular Music (on Gramophone
Records). During the interval, News. 2.0,
Talk: Village Festivals. 2.20, Concert by
the Station Orchestra. 3.0, For Children.
3.30, Records of Jan Kiepura. 3.45, Reading. 4.0, Talk: The Birth of a New World.
4.15, Christmas Carols, relayed from
Lwów, 788 kc/s, 381 metres. 5.40, Song
Recital. 6.0, Announcements. 6.5 News.
6.30, Review of the Weck's Events for Young
People. 6.45, Art Notes. 6.50, Light Music
by the Station Symphony Orchestra. 7.50,
Radio Journal. 8.0, Topical Talk. 8.15,
Concert (contd.). 9.0, Humorous Programme from Lwów. 10.0, News. 10.5,
Records. 11.0, Midnight Mass, relayed from
Wilno.

ZURICH.—See Schweizerlscher Landessender.

ZURICH.—See Schweizerischer Landessender.

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ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 219 metres, and Cork, 1,337 kc/s, 2244 metres.—7.30 p.m., Artane Brass and Reed Band. 8.15, Christmas Stories and Verses by P. J. O'Connor Duffy. 8.50, Yuletide Instrumental Quartet. 9.20, Yuletide Instrumental Quartet. 9.20, Stories and Verses by P. J. O'Connor Duffy.

8.50, Yuletide Instrumental Quartet. 9.20, Relay of Christmas Greetings to America.

9.35, "Home Ties"—a Christmas Play (W. Huntly Adams). 10.5, The Noel Quartet.

10.15, Yuletide Instrumental Quartet. 10.30, Ceilidhe Numbers by the Noel Quartet with S. Mac Aonghusa and P. O'Higgins (Pipes and Fiddle).

BARCELONA

BARCELONA

EAJ1, 861 kc/s, 348.4 metres; 8 kW.—11.0
a.m., Chimes and Weather. 12 Noon, Programme for Women. 12.45 p.m.,
Granophone Music. 1.0, Gramophone
Music (contd.). 2.0, Sextet
Concert. 3.0, Programme for Hospitals,
with Gramophone Records. 3.15, Television Transmission. 6.0, Orchestral Concert: Hungarian March from The Damnation of Faust (Berlioz); Waltz. Sentiers
fleuris (Waldtenfel); Potpourri (Balagner);
Sueño de estio en la terraza (Turina);
Overture, The Bohemian Girl (Balfe). 7.0,
Songs and Duets from Musical Comedics
(on Gramophone Records). 8.0, Dance
Music, relayed from Hollywood Bar. 9.0,
Chimes and Weather. 9.5, Announcements.
9.15 (approx.). An Opera relayed from the
Gran Teatro del Licco. 11.0, News.

BASLE.—Nee Schweizerischer Landessender.

BASLE.— \mathbf{Sre} Schweizerischer Landessender.

BERLIN '

BERLIN '

DEUTSCHLANDSENDER (REICHSSEN-DER); 183.5 kc/s, 1,635 metres; 60 kW.—8.0 a.m., Divine Service. 8.30, Talk. 9.5, Weather. 10.0, Talk on German Art. 10.15, Weather. 10.30, See Leipzig. 11.0, See Hamburg. 11.55, Time. 12.0 Noon, See Breslau. 1.0, In the Children's World-Radio Sequence. with Records. 1.50, Reading. 2.10, The Station Orchestra. conducted by Sonntag: Overture, The Princess in the Golden Slippers (Rust); Suite, The Sleeping Beauty (Tchaikovsky); Mariä Wiegenlied (Reger); Serenade for Violin (Kreichgauer); Selection from The Christmas Fairy (Pfitznor); Tanzweise No. 2 (Meyer-liemund); Serenade from Don Juan's letztes Abentener (Graener); Second Little Suite (de Micheli); Concert Waltz (Glan); Overture, Nakiris Hoclzeit (Lincke). 4.0, Rehay from St. Mary's Church: Prelude in E Flat for Organ (Bach); Three Pieces for Choir, Op. 58 (Wetz.): (a) Und das Wort ward Fleisch, (b) Also hat Gott die Welt geliebet, (c) Singet frisch und wohlgenut; Soprano Solos, with Organ Accompaniment: (a) Wiegenlied der Maria (Görner), (b) Die Hirten (Cornelius). (c) Vom Himmel in die tiefsten Klüfte (Berger), (d) Mariä Wiegenlied (Reger); Three Pieces for Choir, Op. 34 (Preuss): (a) Advent, (b) Zu Bethlehem geboren, (c) Hell'ge Weilmacht; Pastorale for Organ, Op. 59 (Reger); Christmas Carols for Mixed Choir: (a) Il dulci jubilo (arr, Thiel), (b) O freudenreicher Tag, (c) Es ist ein Reisentsprungen (arr, Prætorins), (d) Maria and dem Berge (Woyrsch), (e) Vom Himmel hoch, da komm ich her, (f) O Jesulcin zart; Organ Music, 5.0, Variety, 6.15, Talk on the following Transmission. 6.30, Arabella—Opera (Richard Strauss), 8.35, Variety, 9.30, News. 9.45, Weather. 10.0, Dance Music.

BERLIN

FUNKSTUNDE; 832 kc/s, 360.5 metres; 100 kW. Relayed by DJC, DJA, DJD, DJB, and DJE.—10.0 a.m., Reading (Timmermans). 10.30, See Leipzig. 11.0, See Hamburg. 1.0, m., Records of Schubert's Songs. 1.20, The Christmas Tree—Radio Sequence (Otto Brües). 2.5, Records of Verdi Music. 2.30, Radio Report. 3.0, See Heilige Nacht und die Tiere—Nativity Play (Richard Billinger), Music by Haus Kammeier. 5.30, Topical Talk. 6.0, Transmission for all German Stations; Lichtnacht der Wende—Play about the Winter Solstice, with Songs (Peter Hagen), Music by Herbert Windt. 7.5, See Hamburg. 9.0, News. 9.30 till Close Down, See Hamburg.

BERNE .- See Schweizerischer Landessender.

BEROMUNSTER. - See Sohweizerischer

BODEN.-See Stockholm.

BODO.-See Oslo.

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—7.45 a.m., News, relayed from Paris (Ecole Supérieure), 671 kc/s, 447.1 metres. 10.30 a.m. to 12.45 p.m., Sie Strasbourg. 12.45 p.m., Time and Quintet Concert. In the interval, News. 1.50, Exchange. 2.0, Records. 6.15, Radio Journal. relayed from Paris (Ecole Supérieure). 7.30, News and Market Prices. 7.35, Talk: Bordeaux a Century Ago. 7.50, Charades. 8.0, Medical Talk. 8.30, Trio Concert of Classical and Modern Music with Songs. After the Concert, Amusement Guide and Time.

DECEMBER THE TWENTY-FIFTH

BRATISLAVA

1,073 kc/s, 279.5 metres; 14 kW.—10.0 a.m., 1,073 kc/s, 279.5 metres; 14 kW.—10.0 a.m., Nedbal Commenoration Concert by the Station Orchestra, conducted by Dyk, with A Talk by Koricansky: Scherzo Caprice, Op. 5; Selection from Andersen; Suite from Peasant Jack; Krakowiak, 11.0, See Prague, 12.30 p.m., Agricultural Talk, 1.0 to 1.5, Tides Report, 3.0, See Moravská-Ostrava, 4.30, Christmas Carols and a Play, relayed from Kosice, 1,022 kc/s (293 metres), 6.0, See Prague, 10.0 (approx.), Close Down.

BREMEN,-See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Rclayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—8.5 a.m., Protestant Service. 9.0, Reading (Rainer Maria Rilke). 9.25, Organ Music from a Church in Carlsruhe, Upper Silesia. 9.50 to 11.0, See Leipzig. 11.0, See Munich. 12 Noon, The Station Orchestra. conducted by Topitz: Overture, The Italian Girl in Algiers (Rossin); Adagio for Violin (Nardini); Overture, Iun Reiche des Indra (Lincke); In a Persian Market (Ketelbey); Selection from Eva (Lehâr); Waltz, Wenner Madin (Zichrer); Gallop. Der Jongleur (Dittrich). 1.20 p.m., See Berlin (Funkstunde). 2.0, A Christmas Legend. 2.15, Listen Everyhody! 2.25, For Children. 3.0, See Munich. 5.0, Das Gleichnis vom deutschen Opfer—Christmas Play (Steguweit). 5.35, The Station Quartet: Scenes pittoresques (Massenet); Waltz, Hottballtänze (Lanner). 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, See Leipzig. 8.30, Relay of a Nativity Play from a Silesian Church. 9.30, News. 9.50, Local News. 10.25, See Leipzig. 12.18 a.m. (Tuesday), Radio Report from St. Nicholas' Church in Brieg. Germany's Oldest Church.

BRNO

878 kc/s, 342 metres; 35 kW.—8.0 a.m., Programme to be announced. 8.15, See Prague. 10.0, See Bratislava. 11.0, See Prague. 12.30 p.m., Agricultural Talk. 3.0, See Moravská-Ostrava. 4.30, See Prague. 5.0, German Transmission: Selection from Hansel and Charles Charge. Ostrava.

Transmissiou: Selection from Hauser
(Gretel-Opera (Humperdinck). 6.0,

Prague. 9.20, Christmas Programme Esperanto.

BRUSSELS (No. 1)

BRUSSELS (No. 1)

1.N.R., 589 kc/s, 509-2 metres; 15 kW.—10.0 a.m., Concert by the Small Station Orchestra, conducted by Leemans, 10.30, Concert of Carols from Germany, Austria, Belgium, Denmark, France, Italy, the Netherlands, Poland, Switzerland, Czechoslovakia, and Yugoslavia. 12 Noon, Christmas Music (on Gramophone Records): Christmas Mass; Allcluia from The Messiah (Handcl); Christmas Melodies (Witheman). 12.20 p.m., Pianoforte Recital by Frances Duquennois: The Children's Corner (Debussy); Honnmage à Ravel (Honegger). 12.26, Gramophone Concert of Old Songs: Le cornemuseux i Qu'il est doux d'aimer; En revenant des noces; Corsican Lullaby, Nini-Nana; Les épouseux du Berry; Corsican Song, O Cinciarella, 1.0, Le Journal Parlé. 1.10, Song Recital by Marie-Roze: Pastoral (Purcell); Bergertete (Purcell); Fifteenth Century Song, L'amour de Moy; Aria (Gluck). 1.25, Gramophone Music: Free as the Air (De Kers); Give me a Ring; I wish I had Wings (Woods); Popular Pieces; Have you had a Good Day To-day? (Edmund); Potpourri, What's yours? (Somers). 5.0, Concert by the Station Symphony Orchestra, conducted by Kumps: Fantasia on Two Walloon Christmas Cards (Jongen); Symphonic Poem, Rédemption (Franck); Fantasia on Flemish Thenes (De Bocck), 5.30, For Children, 6.5, Literary Review. 6.15, Two Movements in Symphonic Form (Morrick), 6.30, Concert by the Giller Concert Society, relayed from the Servics Church. Soloist: Plum (Organ). Sonata for Violin, Viola. "Cello and Organ (Leellet); La salutation angelique for Voice and Organ (Plum); Violin and Organ: Grave (Bach-Guller); Tantum ergo for Three Voices and Organ (Fauré); Sonata for Two Violins and Organ (Handel). 7.15, Review of the Week. 7.30, Theatre and Film Review. 8.0, Concert by the Station Symphony Orchestra, conducted by Kumps. Soloist: Marguerite Thys (Songs)

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.I.R., 888 kc/s, 337.8 metres; 15 kW.—10.0 a.m., Grannoplone Records: The Archangel Gabriel announces the Birth of Christ to the Shepherds (Porten); Prayer (Hasselman); Finale from Symphony No. 2 (Widor); Two Chorals (Baeh-Schönberg); Nuit. de Noël (Noirel); Pax vobiscum (Johnson); Nocturne from the Quartet in D Minor (Borodin); Saite from Aleina (Handel); Andante religioso (Lang). 11.0 a.m., Concert by the Small Station Orchestra, conducted by Leemans: Overture (Casadesus); Suite of Old Dances, Ballet de Cour (Pierné); Three Old Carols (Franck-Busser); Zampognari (d'Indy); Pitres Napolitains (d'Indy); Pitres Napolitains (d'Indy); Piere (de Sévérac); Danse grotesque (Schmitt); Old Carols; Suite from La (Igale (Massenet); Marche des Rois (Bizet); Graunophone Records: (a) Onde Kerstliederen (Cuypers), (b) Het was een maghet (Cuypers), 12.0 Moon, Concert by the Small Station Orchestra, conducted by Leemans: Overture, Zampa (Hérodi); Noël d'amour (Faulx); Selection from Hérodiade (Massenet); Scènes gitanes (Manuel Infante); Coronation March from The Prophet (Meyerheer); Waltz from The Rose of Stamboul (Fall); Chant sans paroles (Tchaikov-sky); Andante from the Violin Concerto (Mendelssohn); Hungarian March (Schuhert). 1.0 p.m., Le Journal Parlé. 1.10, Records: Toccata in D Minor (Bach); Scottish Symphony (Mendelssohn); Three Extracts from The Messiah (Handel). 5.0 Concert by the Station Orchestra, conducted by André: March (Grieg); Selection from Les cloches de Corneville (Planquette); Silver (Could (Ketelbey); Petite Suite (Jongen); The Foige in the Forest (Ellenberg); Libradomarsch (Alpacrts). 5.45, Programme for Children. 6.30, Concert by the Station Symphony Orchestra, conducted by Leemans: Overture, The Gipsy Baron (Joh. Strauss); Russian Potpourri, Saschinka (Ralf); Records: (a) Berceuse de Jocclyn (Godard), (b) I would that my love (Mendelssohn); Selection from The Nuremberg Doll (Adam); Tarantella (Caladi). 7.12, News. 7.15, Christmas Stories. 7.30, Reading. 8.0, Concert by the Station Sy

BUCHAREST

760 kc/s, 594.7 metres; 12 kW.—11.0 a.m., Gramophone Records 12.0 Noon, Radio Journal. 12.15 p.m., Gramophone Records. 4.0, Light Music by the Sibiceano Orchestra. 5.0, Radio Journal. 5.15, Light Music (contd.). 6.0, Educational Talk. 6.20, Gramophone Records. 6.45, Talk. 7.0, La Grande Veillée—Opera in Two Acts (Brediceano). relayed from the Studio. Between the Acts, Reading. After the Opera, Radio Journal.

BUDAPEST

BUDAPEST

545 ko/s, 550.5 metres; 120 kW. Also relayed on 840 metres from 7.0 p.m. till (lose Down.—11.45 a.m.. Concert by the Opera House Orchestra, conducted by Fridl: Overture, King Stephen (Beethaven); Symphony in C (Dittersdorf); Moments musicales (Schnbert-Dohnanyi); Turkish March (Mozart). In the interval, Radio Notes. 1.0 p.m., Records. 2.0, For Children. 3.0, Orchestral Concert. 4.0, Talk: Christmas Customs at Home and Abroad. 4.30, Sports Notes. 4.40, Christmas Concert by the Choir of St. Stephen's Church and the Municipal Orchestra, conducted by Eugen Kereszty and Josef Zasaskovszky. relayed from the Academy of Music. 5.40, Talk with Records. 6.10, The Karl Bura Czigány Band. 7.0, Humorous Programme. 7.30, The Gipsy Princess—Operetta in Three Acts (Kálmán). 9.45, News. 10.0 (approx.), The Georg Guttenberg Cigány Band and Paul Kalmar (Songs), relayed from the Café Ostend.

CASSEL,-See Frankfurt.

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres; and Skamlebaek, OXY, on 31.51 metres.—7.25 a. Sacred Music. 8.20, Christmas Music by a Brass Band. 9.0, Divine Service. 10.30, Weather. 10.40, News. 11.0, Time and Chimes from the Town Hall. 11.5 (approx.),

Mogens Hansen's Instrumental Ensemble, and Inger Stockmar Hermann (Sougs). 1.0 p.m., Reading. 1.30, Records: Christmas (Roquemaure and Adam); Romance in F for Violin and Orchestra (Beetheven); Aria from La Traviata (Verdi); Sei mir gegrüßst (Schubert): Sonetta del Petrareu (Liszt); Der Doppelgäuger from the Cycle Schwanengesang (Schubert). 2.0, The Station Chamber Orchestra, conducted by Fritz Mahler. 4.0, Divine Service. 5.20, Chimes, followed by Organ Recital by Jens Laumann, relayed from the Frederiksborg Castle Church: Two Old French Folk Songs: (a) Christmas, (b) Pavane; In dulci jubilo (Bach); Sarabande (Handel); Theme and Variations on the Choral, Mcin Jesus, lasse ich nicht (Walther). 5.50, Weather. 6.0, News. 6.15, Time. 6.30, Christmas Carols, Greetings and Chimes. 7.0, Time from the Town Hall. 7.2, Aladdin—Play in Five Acts (Adam Qehlenschläger) arranged for Radio with Music by Carl Nielsen. 10.0 (approx.), Close Down.

CORK .- See Athlone. DANZIG .- See Heilsberg. DRESDEN .- See Leipzig.

FECAMP

FECAMP

1,328 kc/s 225.9 metres; 10 kW.—11.0 a.m. to
12 Noon, Programme in English by the I.B.C.
11.0, Happy Hour. Part I—Orchestral Concert. Part II—Christmas Carols, 12 Noon,
Programme in French. 3.30 to 6.0, Programme in English by the I.B.C. 3.30, Orchestral Concert for Chichester and Bognor Listeners. 4.0, Programme for Children. 5.0,
Concert for Hastings and Fastbourne Listeners. Part I—A Sing-Song by the Fireside.
Part II—Gramophone Concert. 6.0, Programme in English by the I.B.C. 10.0, Light Music: A Radio Roundabout (Noack); Moonbeam (Peter); Xylophonia (Green); Little Yvonne (Schwartz); The Coon among the Chickens (Ives); Marching through Georgia (Wark); Accordeon Joe (Wimbrow); Persian March (Friml). 10.30, Organ Recital. 11.0, Christmas Carols: The First Nowell; While Shepherds watched; Organ Solo, Priere & Notre Dame (Boelli); The Star of Bethlehem; Once in Royal David's City; Organ Solo, Toccata (Boelli); Good Christian men rejoice; Hark, the Herald Angels sing. 11.30, I.B.C. Time Signal. 11.31, Concert arranged by the I.B.C. (Ireland), Ltd. 12.5 a.m., Late News in English. 12.10 (approx.), Club Concert for Lymington and Barton Milford Listeners. 1.0, I.B.C. Time Signal. 1.1, Dance Music. 2.0, I.B.C. Good-night Melody and Close Down.

FLENSBURG.—See Hamburg.

FLENSBURG.-See Hamburg. FLORENCE.-Sec Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel, 1,220 kc/s, 246.9 metres; and Trier, 1,157 kc/s, 259.3 metres.—9.0 a.m., See Langenberg. 9.45, Choral Concert from the Frieilberg Blind Institute: Herr, deine Gütereicht so weit (Grell); Recitation: The Blind Man (Rosegger); Wie soll ich Dich empfingen (Bach); Recitation: Christmas (Wildenbruch); Die ganze Welt ist voll des Herrn Macht (Klein); Recitation: Neujahrslied (Ernst); Leise, leise, fromme Weise (Weber); Aennehen von Tharau (Silcher); Es ziehn nach fernen Landen (Abt); Frisch voran (Abt). 10.30, See Leipzig. 11.0, The Station Orchestra, conducted by Hans Rosbaud. Soloists: Josef Peischer (Violin), Karl Vöhse ('Cello), Hermann Töttcher (Oboe) and Gustav Jung (Bassoon); Concerto grosso No. 25, Water Music (Handel); Symphonie concertante for Violin. Cello, Oloe, Bassoon and Orchestra (Haydn); Concert grosso No. 25, Second Part (Handel). 12 Noon, Records of Modern Classical Music: Symphonic Poem, Don Juan (Richard Strauss); Pianoforte Concerto in E flat (Liszt); Symphonie pathétique (Tchaikovsky). 1.20 p.m., See Berlin (Funkstunde). 2.0 to 5.0, See Stuttgart. 5.0, Reading. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, Sports Notes. 7.10, The Station Orchestra, conducted by Hans Roshaud. 9.0, Time and News. 9.20, See Stuttgart. 9.30, Weather. 9.45, See Stuttgart. 1.0 a.m. (Tuesday), Close Down.

EREDRIKSSTAD .- See Oslo. FREIBURG.-See Stuttgart. GENEVA.-See Radie-Suisse Romande. GENOA .- See Turin. GLEIWITZ .-- Sce Breslau. GOTEBORG.-See Stockholm. GRAZ .- See Vienna. HAMAR.—See Oslo.

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 296.8 metres; Flensburg and Manover, 1,319 kc/s, 227.4 metres; and Kiel, 1,292 kc/s, 232.2 metres.—7.45 a.m., Wind Instrument Church Music. 8-0, Orchestral Music from Kiel. 8-55, Divine Service from the Gnadenkirche. 10.15, Reading. 10.30, Old and New Christmas Carols. 11.0, The Small Station Orchestra, conducted

DEC. 25th MONDAY

continued

by Adolf Secker, Overture, Euryanthe (Weber): Turkish March (Mozart); Weltenland Suite (Knümann); Berceuse (Sgambati); Serenade from Don Juan's letztes.

Abenteuer (Graener); Ballet Music, from Lakmé (Delibes); Romance (Tcherepnin); Sevillana (Nieniann); Waltz, Destiny (Baynes); Selection from Paganini (Lehâr); Waltz, The Wedding of the Winds (Hall); Three Russian Sketches (Dreyer); March, Entry of the Gladiators (Fueik). In the interval, News, Weather. 1.0 p.m., Poetry Reading. 1.20, See Berlin (Funkstunde).

2.0, Maria durch die Heide geht—a North German Nativity Play (Wilhelm Winkel).

3.0, See Heilsberg. 4.20, Christmas Oratorio.—Op. 23 (Kurt von Wolfurt). 5.50, Weather. 6.0, Transmission for all German Nationa, relayed from Berlin (Funkstunde). 7.5, Opera and Operetta Concert by the Philharmenic Orchestra, conducted by Richard Richter. Soloist: Carl Günther (Songs). Overture, The Merry Wives of Windsor (Nicolai); Aria Communication Ladame blanche (Boieldien): Hymn from Allessandro Stradella (Flotow); Selection from The Barber of Seville (Rossini); Prelude to the Third Act, Dance of the Apprentices and Greeting to Hans Sachs from The Mastersingers (Wagner); Strauss Operetta Potpourri Music (Schlögel); Selection, from The Arabian Nights (Joh. Strauss); Lehâr Potpourri, Rendez-vous bei Lehâr (Hruby). 9.0, News. 9.30, Dance Masic.

HANOVER .- See Hamburg.

HEILSBERG

HEILSBERG

1.085 kc/s, 276.5 kc/s, 244.1 metres:—10.30
a.m., See Leipzig. 11.0, Concert by the Königsberg Opera House Orchestra, conducted by Wolfgang Brückner. Overture, Oberon (Weber); Selection from The Mastersingers (Wagner); Symphonic Poem, Sarka (Smetana); Waltz, Tales from the Vienna Woods (Joh. Strauss); Ballet Music from Sylvia (Delibes); Hungarian Rhapsody No. 2 (Liszt); Selection from Die Puppenfee (Bayer); Overture, Die schlöne Galathee (Suppé). 1.0, p.m., For Children. 1.20, See Berlin (Funkstunde). 2.0, Talk on the Singer, Thomas Koschat, with Records. 2.35, Reading. 3.0, The Small Station Orchestra, conducted by Eugen Wilcken. Kinderlieder Marsch (Lindemann); Christmas Potpourri (Hartmann); Dance from Peterchens Mondfahrt (Schmalstich); Baby's Spielzeug (Noack); Volkslieder-Walzer (Egg); Frühlingsbotschaft (Fucik); Czardas No. 8 (Michaels); Idylle passionelle (Razigade); Potpourri, Fortissimo (Feigl) Overture, Im Reiche des Indra (Lincke). In the interval, Radio Report. 5.0, (from Danzig), Talk: Hans Sachs in Danzig. 5.25, Christmas Carols. Ich steh an deiner Krippen hier; Geborn ist, uns ein Kindelein; Wach, Nachtigall, wach auf; Maria durch ein Dornwald ging; Auf dem Berge da wehet der Wind; Extracts from Das Mittelstück (Timmermanns): (a) Der Heiland ist geboran, (b) Still, still sein. (c) Es kommin ein Schiff geladen, (d) Bist einmal gekommen, (e) Freude. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.5 to 9.0, See Hamburg.

HILVERSUM

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW. up to 5.40 p.m. and 20 kW. from 5.40 p.m. Programme of the Workers' Radio Society (V.A.R.A.).—8.40 a.m., Records. 9.40, Divine Service. 10.55, Records. 11.40, The Rotterdam Philharmonic Orchestra, conducted by Flipse, and the Apollo Male Voice Choir. 1.40 to 4.40 p.m., Programme of the General Broadcasting Society (A.V.R.O.). 1.40, Time. 1.41, Sacred Concert by Piet van Egmond (Organ); To van der Sluys (Soprano) and Annie Woud (Contralto). 2.25, Reading. 2.55, Violin Sonatas by Andries Roodenburg: Sonata in G (Beethoven); Sonata in A Minor (Schumann). 3.25, Christmas Carols by the Wireless Children's Choir, relayed from the Concertgebouw, Amsterdam. 3.55, Records. 4.25, Records of Christmas Music. 4.40 till Close Down, V.A.R.A. Programme. 4.40, The V.A.R.A. Orchestra conducted by H. de Groot: Overture, Phèdre (Massenet); Selection from Rosamunde (Schubert); Romantic Waltz (Reinecke); Selection from Les millions d'Arlequin (Drigo); Melody (Caylor); Der fidele Christel (Lorenz). 5.25, Recitations. 5.40, The V.A.R.A. Orchestra (contd.); Soloist, Jong (Organ): Organ Concerto (Corelli); Andante from the Symphony in B Minor (Bach); Christmas Fantasy (Grit). 6.10, Talk. 6.30, Records. 6.40, Song Recital by a Vocal Ensemble (Cordell); Andante from the Ensemble (Cordell); Andante from the Symphony in B Minor (Bach); Christmas Fantasy (Grit). 6.10, Talk. 6.30, Records. 6.40, Song Recital by a Vocal Ensemble (Contd.). 7.25, News. 7.40, The V.A.R.A. Orchestra; Soloists, Mile. Marie Vos (Soprano) and Aramesco (Tenor): Overture and Duet from The Magic Flute (Mozart); Selection from Cavalleria rusticana (Mascagni); Extracts from La Bohème (Puccini). 8.25, Her worde licht—Radio Play (Bevershiis), with Organ Music by Jong, and Records. 8.55, The V.A.R.A. Orchestra (contd.): Overture, La belle Hélène (Offenbach); Soprano Songs from Le pont des soupirs (Offenbach); Selection from The Tales of Hoffmann

(Offenbach); Tenor and Orchestra, Auftrittslied des Barinskis (Strauss); Duets from The Land of Smiles (Lehár). 9.40, Recitations. 9.55, Variety Concert: Steyn (Organ), Mulder (Saxophone Clarinet), Charmon (Pianoforte and Songs), Hagenaar (Trumpet), Vogel (Pianoforte), and Carlquist (Guitar and Banjo. 10.40, Records.

HORBY.-See Stockholm.

HUIZEN

HUIZEN

160 kc/s, 1,875 metres; 7 kW, until 3.40 p.m. Transmitted from Kootwijk on 50 kW. from 3.40 p.m.—7.10 a.m., Religious Programme of the Christian Radio Society (N.C.R.V.). 8.10, Religious Programme of the Catholic Radio Society. 9.10 till Close Down, N.C.R.V. Programme. 9.10, Records. 9.30, Divine Service, relayed from the Nieuwe Westerkerk, Rotterdam. 11.10, Recital of Christmas Carols by Ina Mulder-Belser, with Flute Ohbligato by Wittpen. 12.10 p.m., Records. 12.40. Organ Recital. 1.40, Carillon Concert, relayed from the Palais Royal, Amsterdam. 2.40, An Instrumental Ensemble and Maartje Offers (Mezzo-Soprano). 425, The Apeldoorn Male Voice Choir. 7.55, The Small Station Orchestra, conducted by den Hurk; Jo Vincent (Soprano). Suze Luger (Contralto), van Tulder (Tenor) and Willem Ravelli (Bass). In the interval, Recitations. 19.25, News. 10.40, Records. INNSBRUCK.—See Vienna.

KALUNDBORG .-- See Copenhagen. KIEL .-- See Hamburg.

KLAGENFURT .-- See Vienna. KOSICE.-Sce Prague.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—6.0 a.m., Sacred Concert. 9.0, Catholic Service. 10.0, See Stuttgart. 10.30, See Leipzig. 11.0, See Frankfurt. 12 Noon to 1.20, See Stuttgart. 1.20 See Berlin (Funkstunde). 2.0 to 5.0, See Stuttgart. 5.0 to 6.0, See Frankfurt. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, Sports Notes. 7.10 to 9.20, See Frankfurt. 9.20, See Stuttgart. 9.30, News. 9.45 to 1.0 a.m. (Tuesday), See Stuttgart.

LAUSANNE .-- See Radio-Suisse Romande

LEIPZIG

770 kc/s, 389.6 metres; 120 kW.—Relayed by Dresden, 941 kc/s, 319 metres.—9.50 a.m., Christmas Letters by Hebbel. Goethe and Rilke. 10.15, Talk on the following Transnission. 10.30, Sehet, welch' eine Liebe hat uns der Vater erzeiget—Cantata (Bach), by the Municipal and Gewandhaus Orchestra, the Choir of St. Thomas and Soloists. 11.0, See Munich. 12 Noon, See Breslau. 1.0, Reading. 1.20, See Berlin (Funkstunde). 2.0, A Folk Song Trio (Albert Kranz). 2.25, Reading: Christmas in the Great War. 2.45, A Christmas Tale. 3.0, See Munich. 5.9, Talk: Nordic and Germanic Sun Worship. 5.25, Christmas Carols to the Lute, and Readings. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde)). 7.0, Christelfein—Opera in Two Acts (Pfitzner). 8.30, See Breslau. 9.45, News. 10.5, Sports Notes, Weather. 10.25, The Station Orchestra, conducted by Theodor Blumer. Overture, König Drosselbart (Hanel); Suite, Pictures from the South (Nicodé); Waltz, Loreley-Rheinklänge (Joh. Strauss); Selection from Der Wildschütz (Lortzing); Pianoforte Solos (Grieg): (a) An den Frühling, (b) Erotica; Overture, Der dumme August (Gfaller); Joh. Strauss Waltz Potpourri (E. Strauss); Selection from Das Fürstenkind (Lehâr); March, Perpetuum mobile (Blon).

LINZ .- See Vienna.

LUXEMBOURG

LUXEMBOURG

262 kc/s, 1,191 metres; 200 kW.—12.0 Noen, Concert by the Station Orchestra, conducted by Henri Pensis: Overture, Semiramis (Rossini); Humoresque (Dvorak); Torna a Sorriento (Curtis); Ballet Music from La Source (Delibes); Suite, Le Roi David (Honegger-Salabert); Liebesbrief (Königsberger); March, Heil Europa (von Blen). 1.0 p.m., Gramophone Concert: Invocation (Ganne); Introduction and Allegro for Strings (Elgar); Andante religioso (Thomé); 'Cello Solo, Elegy, Op. 24 (Fauré); Organ Solo (Bach); La Procession Nocturne (Rabaud); Ballet Music and Hungarian March from The Damnation of Faust (Berlioz); Joyeuse Marche (Chabrier). 5.30, Gregorian Chants and Organ Solos relayed from the Benedictine Abbey at Clervaux. 6.30, Quintet in F minor (Franck) on Gramophone Records. by Alfred Cortot and the International String Quartet. 7.0, (Concert by the Station Orchestra, conducted by Pensis: Coriolanus Overture (Beethoven); Flute Concerto in C (Mozart); A Night on the

Bare Mountain (Mussorgsky); Interlude (Vreuls); Chromatic Gallop (Liszt). 8.0, Dance Music. 8.30, Italian Concert by the Station Orchestra, conducted by Pensis; Sclection from Sicilian Vespers (Verdi); Brise de mer (Leoncavallo). 8.50, News in French. 9.0, Italian Concert (contd.): Selection from The Barber of Seville (Rossini); Caro mio ben (Giordano); Waltz (Carena); Leggenda d'amore (Becce); Selection from Madame Butterfly (Puccini). 9.45, News in German. 9.56, Violin Recital by Theo Ratner: Il Trillo del Diavolo (Tartini); Campanella (Paganini). 10.20, Dance Music on Gramophone Records.

MADRID

MADRID

ARANJUEZ (EAQ7), 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Concert of Light Music. 10.45, Radio Chronicle. 11.0, Programme for Catalonians Abroad. 12.0 Midnight till Close Down, Programme in English by the I.B.C., Ltd. 12.0 Midnight, Concert of Old Favourites: Love's Old Sweet Song (Molloy); Widdicombe Fair (Jacob); Swanee (Gershwin); The Sweepers (Elgar); The Blue Danube (Strauss); O dem golden Slippers; Smile, darn ya, smile (Rich); The Rosary (Nevin). 12.30 a.m. (Tuesday), Light Music: Selection from Noel Coward's Cavalcade; Le Rêve passe (Krier); 'Tis the Day (Leoncavallo); Learn to Croon (Coslow); Parade of the Minutes (Myers); A Perfect Day (Jacohs-Bond); Two of Irish (Whitlock). 1.0, I.B.C. Goodnight Melody and Close Down.

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—2.0 p.m., Chimes, Time, Weather and Announcements. 2.15 (approx.), Concert, Two-Step, Jardines de España (Cañadas); The Dancing Doli (Poldini); Fado das Penas (d'Oliveira); Fantasia; Minuet (Mozart); Selection from The Barber of Seville (Rossini); Taugo, Suspiros (Canaro); Drinking song, Don Gil de Alcala (Penella); Spanish Rhapsody (Albéniz); Brazilian Dance (Milhaud); Foxtrot (Berlin); Valse triste (Sibelius); Overture, Fingal's ('ave (Mendelssolin). In the interval: Exchange. 3.55, Announcements. 4.0 to 7.0, Interval. 7.0, Chimes, Exchange, Announcements and Dance Music. 8.15, Radio Journal. 8.30 (approx.), Close Down.

MALMO.—See Stockholm.

MILAN.-Sec Turin.

MORAVSKA-OSTRAVA

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—8.15 a.m., see Prague. 10.0, See Bratislava. 11.0, See Prague. 12.30 to 1.0 p.m., See Bratislava. 11.0, See Prague. 12.30 to 1.0 p.m., See Bratislava. 3.0 p.m., Concert by the Station Orchestra, conducted by Plichta; Soloists: Vera Repkova (Pianoforte) and Cerny (Violin): Overture, Op. 62 (Ibvorák); Selection from The Bartered Bride (Smetana); Appassionata from Op. 17 (Suk); Slovak Song for Violin and Pianoforte (Kubat); Waltz from Princess Hyacinth (Nedbal); A Christmas Tale; Suite, Jeux d'enfants (Bizet); Scherzo-Waltz, Op. 40 (Moszkovski); Spanish Caprice, Op. 37 (Moszkovski); Pianoforte Solo: Scherzo, Op. 16, No. 2 (d'Albert); Melody (Godard); Polka from Schwanda the Piper (Weinberger). 6.30, See Prague.

MOTALA.—See Stockholm.

MOTALA.-See Stockholm. MUHLACKER .- See Stuttgart.

MUNICH

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 239 metres. —9.0 a.m., Catholic Service. 9.45, Chimes, 9.50, Reading from the Works of Leading Men. 10.15 to 11.0, See Leipzig. 11.0, Concert from the Feldherrnhalle: Overture. Dies ist der Tag des Herrn (Lachner); Liebesmahl der Apostel (Wagner); Selection from Hansel and Gretel (Humperdinck); Two Old German Peasant Dances (Merkling); Potpourri, Wirmarschieren (Woitschach). 12 Noon, See Breslau. 1.0 p.m., Time, Weather, Announcements. 1.20, See Berlin (Funkstunde). 2.0, Christmas Concerto for Strings (Corelli). 2.30, For Chidren. 3.0, Concert: Sacred Music (Tunder-Buxtehude); Choral Prelude: Von Himmel hoch, da komm ich her (Bach); Two Chorals from the Christmas Oratorio (Bach); Variations on a Silesian Carol (Kusche); Christmas Music; Church Sonata for Violin and Organ (Haas); Four Songs for Organ and Soprano (Schadewitz); Four Old Christmas Carols (Beer-Waldbrunn); Christmas Carols (Beer-Waldbrunn); Christmas Carols (Gerrelius). 5.0, See Breslau. 5.35, Pianoforte Sonata in G Minor (Schumann). 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, See Leipzig. 8.30, See Breslau. 9.45, See Leipzig. 10.5, Weather, Sports Notes. 10.25, See Leipzig. zig. NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Riukan, 671 kc/s, 447.1 metres; and Jelöy, LCL, 6,990 kc/s, 42.92 metres.—8.45 a.m., Christmas Carols relayed from Trondheim, 605 kc/s, 495.8 metres. 9.20 a.m., Chinnes and Divine Service, relayed from the Nidaros Cathedral, Trondheim. 4.0, Concert of Chamber Music by Fanny Elstad (Contralto), Oscar Harlem (Harp) and Hugo Kramm (Viola). Viola Solo: Largo (Bach); Aria for Contralto, Viola and Harp from Rinaldo (Handel); Contralto and Harp Duets: (a) Nu brister i alle de kölfter (Alnaes). (b) Melody (Selmer), (c) Ser du dyet funkle (Lindemann), (d) Der flyver, sa mange fugler (Anderson); Viola Solos (Fauré): (a) Après un rêve, (b) Berceuse, (c) Elégie; Contralto Solo with Viola and Harp: Morgen (R. Strauss); Contralto Solo with Harp: (a) Le cygne (Saint-Sains), (b) Svarte rosor (Sibelius), (c) Stille mit hjertte (Hannikainen); Contralto Solo with Viola and Harp: Ave Maria (Schuhert). 4.50, Chimes. 5.0, Divine Service, relayed from St. Saviour's Church. 6.15, News. 6.30, Talk: Christmas Customs in the Country. 7.0, Time. 7.1, Earth—a Play in Three Acts (Carl Schönherr). After the Play, Talk.

OSTERSUND .-- See Stockholm.

PALERMO

FALEKMO

556 kc/s, 539.5 metres; 3 kW.—9.40 to
10.5 a.m., Sacred Music. 11.45, Giornale
Radio. 12 Noon to 1.0 p.m., Records. In
the interval: Time and News. 4.30, Records.
5.0 to 8.30, For Children. 7.0, Announcements. 7.20, Records. In the interval: Time
and Announcements. 7.45, Chamber Music;
Soloist: Mannino (Pianoforte); Sonata (Barbieri); Pianoforte Solo: Ballade (Chopin);
Quartets: (a) Strimpellata (CastelnuovoTedesco), (b) Canzonetta (Mendelssohn);
Seherzo (Manno). After the Concert, Records). 10.0, Giornale Radio.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at .9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—12.30 p.m., Concert, relayed from Paris (Ecole Supérieure), 671 kc/s, 447.1 metres. 5.45, Le Journal Parlé. 7.15, Weather. 7.25, News. 7.30, Conte de Noël—Play (Maurice (Bouchor). 8.0, Le Miracle de Théophile—Thírteenth Century Mystery Play (adapted by Gustave Cohen).

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—10.0 a.m., Press Review and News. 10.15, Records of Christmas (Arolls: Symphonic Piece, Christmas (Koenigsberger); Noël des gueux (Vargnes). 10.30 p.m., Records: Plaisirs d'Hiver; Please; Rainger; Nous somnies deux copains; Say it isn't true; Ca fait peur aux oiscaux; Le roi fait battre tambour; Ma cousinette; Dessous le laurier blanc. 11.0, Records: Arlas from (a) Hérodiade (Massenet), (b) La Traviata (Verdi), (c) The Dammation of Faust (Berlioz); Cavatina from Romec and Juliet (Gounod); Waltz, Mon rêve (Waldteufel); Melody (Strauss); In the Temple of the Bells (Yoshitomo). 11.30, Extracts from Un mois de vacances (Mireille-Nohain), on Gramophone Records. 11.45, Records: Extracts from Marius (Pagnol): Extracts from Vignes du Seigneur (de Flers and de Croisset). 12.10 p.m., Concert by the Station Orchestra: Overture. Oberon (Weber); Suite, España (Albeniz); Invocation à la nuit (Charpentier); Mascarade (Lacôme); Flute Solo: Concertino (Chaminade); Printemps nouveau (Vidal); Selection from Sapho (Massenet); Fête polonaise (Chabrier). 12.30, Sponsored Programme. 12.40, Orchestral Concert (contd.). 1.15, Orchestral Concert (contd.). 6.45, Exchange. 6.50, Records: Noël (Daquin); (Soeur Monique (Couperin). 7.0, A Short Film. 7.15, Le Journal Parlé. 7.30, Catholic Review. 8.10, A Revue hy Max Régenier and his Company. 8.55, Concert: Aria from Die Dreigroschenoper (Kurt (Weill); Old Song, Retour du marin; Tango. Synickerty skip (Mackay); Jahberty Flip (Mackay); Air from Nina Rosa (Romberg); Les marins de Surcoul (Tranchant); Finesse (Maltip); Ducky (Peri). 9.45, Act I of Vive Paris.—Revue relayed from the Casino. 10.30, News.

PARIS

PARIS

RADIO-PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—7.45 a.m., Records. 8.0, News and Weather. 12 Noon, Records; Part 2—For Children. 2.0 p.m., Concert. 4.0, For Children. 5.0, Christmas Stories. 5.30 Concert by The Cadets, conducted by Nys; Selection from Ascanio (Mozart); In the Village (Ippolitov-Ivanov); March of the Sirdar (Ippolitov-Ivanov); Clair de lune (Debussy); Song from Deux sous de Fleurs (Benatzky); Hungarian Czardas (Leoni); Pourquoi quand je dis je t'aime (Valerio);

Sevillá (Albeniz); Serenade (Kayners); Pavane pour une infante defunte (Rayel); Overture, Poet and Peasant (Suppé); The Pathetic Sonata (Beethoven); Match Parade (Wekl); Rhapsody for Colio (Pepper); Loin de toi (Itoliamber); Extreme orient (de la Presle); Selection from Madame Pompadour (Fall); Tristesse (Chopin); Danse Rommaine (Leoni); You are my Heart's Deligid, from The Land of Suiles (Lebrir); The Student Passes By (Banez); An der Frühling (Grieg); Selection from The Gipsy Princess (Kalmān); Dance from La Vida Breve (Falla), 7.30, Variety, 8.0, Le Petit Duc—Operetta (Lococq). In the intervals, News.

PITTSBURGH

PITTSBURGH

KDKA, 980 kc/s, 306 metres: 50 kW. Relayed by W3XK on 48.86 metres and 25.27 metres:—12 Noon, Musical Clock. 1.0 p.m., Monsing Devotions, from New York. 1.15, Don Hall Trio, from New York. 1.30, Lew White. Organist, from New York. 2.0, Breakfast Club, from New York. 2.45, Minute Manners. 3.0, Programme to be autonomeed. 3.15, Clara, Lu in' Em, from New York. 3.30, To-day's Children, from New York. 3.45, Irma Glen, Organist, from New York. 4.0, Four Southern Singers, from New York. 4.15, Sammy Fuller. 4.30, Rhythm Ramblers, from New York. 4.45, Ella Grambart. 5.0, Gene Arnold, from New York. 5.15, Four Aces. 5.30, Programme to be autonomeed. 5.45, Ernie Holst's Orchestra. 6.0, Farm and Home Homr, from New York. 6.30, Ernie Holst's Orchestra. 7.0, Musical Originalities, from New York. 7.30, Programme to be aunounced. 8.0, Radie Guild from New York. 9.15, Egizi's Salon Orchestra. 9.30, Programme to be announced. 8.0, Radie Guild from New York. 9.15, Egizi's Salon Orchestra. 9.30, Programme to be announced. 1.45, Words and Music, from New York. 10.0, Uncle Tom and Betty, 10.15, KDKA Kiddies Klub. 10.30, The Singing Lady, from New York. 10.45, Orphan Annie, from New York. 10.0, Programme Preview. 11.30, Egizi's Salon Orchestra. 11.45, Lowell Thomas, from New York.

PORSGRUND. -See Oslo.

PRAGUE

PRAGUE

614 kc's, 488.6 metres; 120 kW. -8.15 a.m., Reading, 8.35, Talk with Recitations, 9.0, Sacred Music, 10.0, See Bratislava. 11.0, Chimes and News. 11.15, Military Band Concert: March (Sykora); Overture, II Guarany (Gomez); Sloyak Dance (Chimp); Selection from Pulibor (Smetana); March (Dobrodinsky); Selection from Polendint (Nodbad); National Dances (Provaznik); Overtare (Hrimaly); March from The Bartered Bolde (Smetana), 12.30 to 1.0 p.m., See Bratislava, 3.0, See Moravská-Ostrava, 4.30, Talk, 445, Records, 5.0, German Transmission: Reading and News, 6.0, News, 6.5, Readings, 6.25 Introductory Talk to the Following Transmission, 6.30, Der Freischütz Opera in Three Acts (Weber), relayed from the State Opera House, In an interval; Talk, 9.20, News, 9.40, Records, 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Ganeva, 395 kc/s, 760 metres.—10.0 (from Lausanne), Records, 11.30, News, Weather, 11.40 (from Lausanne), Records, 1.0 to 3.0 p.m., Interval. 3.0, See Schweizerischer Landessender, 5.0, Concert relayed from Fribourg, 5.35 (from Lausanne), Violin Recital by Oleis; Prelude and Allegro (Pugnani-Kreisler); Romance in G (Becthoven); Adagio from the Concerto in G minor (Bruch); Le zéphir (Hubay); Introduction and Tarantella (Sarasate), 6.5 (from Lausanne), Christmas Carols by a Mixed Choir, conducted by Theurillat, 6.25 (from Lausanne), Christmas Poems, 6.40, (from Lausanne), Song Recital by Marcel Crot (Baritone); Song (Schubert); Four Carols; Nocturne (César Franck), 7.0, Recitations, 7.10 (from Lausanne), The Flight into Egypt—Poem (Flechter) with Music by Stierlin-Vallon, 7.30 (from Lausanne), Concert by the Small Radio Lausanne) rochestra, conducted by Moser, Soloist; Flore Gabella (Songs), 8.30 (from Lausanne), A Christmas Mystery, 9.0, News and Weather,

RJUKAN. - Sec Oslo.

ROME

ROME

Call 1R0, 680 kc, \$, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc.s, 453.1 metres) from 7.39 p.m.; and 2R0e 11,810 kc/s, 25.4 metres.—11.0 a.m., High Mass. 11.30, Records of Opera Masic, 1.0 p.m, Time and Annonnectments. 4.0, Concert: Dance from La Pisanella (Pizzetti-Corti); Tzigane (Ravel); Two Arias from Worther (Massenet): Piamotorte Solos: Two Popular Spanish Songs forr, Laparra). (a) Endecember, (b) Sevillana; Waltz Song from The Willy Widow (Wolf-Ferrari); Tenor Solos, 3.4 Guitars (Maszkowsky), (b) Moto perpetus (de Gnarnieri); Polonaise from Mignon (Thomas). 6.30, Records, 7.5, Song Recital, 7.40, Concert of Light Music. In the interval, Talk; Allegro and Minnet (Handel); Rondo (d'Andreu); Popular Songs of Cuba; Eighteenth Century French Songs; Toccata

DEC. 25th MONDAY continued

(Paradisi); Minuet (Rutini); Popular Italian Dance; Monologue; Dance Music, 10.0, Giornale Radio.

SALZBURG.—See Vienna

SAN SEBASTIAN

SAN SEBASTIAN

EAJ8, 662 kc/s, 453.1 metres; 6.6 kW,—
1.0 a.m. (Tuesday) till Close bown. Programme in English by the LB.C. 1.0, Light
Music: The Skaters' Waltz (Waldtenfel);
Song of the Islands (King); Selection from
The Count of Luxembourg (Lehār); Song;
Down in the Valley (Harrington); Julien
(Domata); The Clock is playing (Pierre);
Hungarian Medley (arr. Legelt); Snacks in
Bars (Egerer) 1.30, Gramophone Concert;
Harch, Kamschamola; Luis XIII Song
(Couperin-Kreisler); Waltz from The Vagabond King (Frimt); Hungarian Bance No.
6 (Brahms); Variation on Themes from The
Mage Fla(e (Mozart); Volga March (Dostal); Moditation from Thals (Massenet); O
come all ye Faithful (Traditional). 2.0,
LB.C. Good night Melody and Close Down.

SCHENECTADY

WGY, 790 kc's, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAD on 19.56 metres.—7.30 p.m., Revolving Stage, from New York, 8.0, Health Hunters. 8.15, Soloist, from New York.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 638 ke's, 459 metres; 60 kW.; Basle, 1,229 ke's, 244.1 metres; and Berne, 1,220 ke's, 244.9 metres.—10.15 a.m. (from Zürich), Records. 10.40 (from Zürich), Christmas Play in Dialect. 11.0 (from Zürich), Records. 11.29, Time and News

Weather, 4.5, Records. 5.0 (from Göteborg), Evensong. 6.15, Weather and News, 6.25 to 10.0, Programme for Swedes Abroad. 6.25, Talk. 6.45, Cantata to the Memory of Arthm Hazelins (Rangström); The Girl from the Marsh—Play (Herbert Grevenius) after the Novel by Selma Lagerlöf, 9.0, Weather, 9.5, Programme for Swedes Abroad (contd.); The Radio Orelectra, conducted by Nils Grevillins; Festspel (Alfven); Symphonic Poom. Hemifran (Lindberg); Aria from Pastoralsvit (Atterberg); Three Pieces for Strings (Kallstenius); Fritjof och Ingeborg (Broman). (Broman).

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—9.30 a.m.,
Protestant Service from St. Stephen's
Church, Mulhouse, 10.30, Gramophone Concert. 11.30, Catholic Service. 12 Noon,
Gramophone Concert. 12.45 p.m., News.
10, Time Signal. 1.1, Gramophone Concert:
Selection from The Merry Widow (Lehar);
Narcissus (Newin); Bereeuse (Durocher);
Bruits des bereeux (Botrel); Waltz, Barceloua
(Warms); Paris qui brille (Mahienx);
Selection from Les Saltimbanques (Ganne);
Mon ami Pierrot (Goffe); Petit bonheur
(Christine); Canzone (Bixio); Guitarita
(Fragna); Selection from Lilac Time (Schubert-Berte), 3.0 p.m., Gramophone Concert Bell Ringer; Sedibal; Le Moulin; El
Cabullero (Halet); Mamita (Delfino);
Carufa (Collaze); Les trois baisers; Sito;
Sige no mas; Galate Corazon; Two Melodies; Aria from Frederica (Lehār); Aria
(Lehār); Song from The Desert Song (Romborg), 40, Orchestral Concert, conducted
by Roskam, 6.0, Fortnightly Literary Review, 6.15, Talk in German; Christmas Custons in Alsace-Lorraine. 6.30, Gramophone

from The Prophet (Meyerbeer); Overture Benvenuto Cellini (Berlioz); Selection, Madame Butterlly (Puccini); Prelude to Carmen (Bizet), 2.30, Songs. 2.45, Orchestral Music: The Grasshoppers Dance (Buealossi); Mekody (Frind); Ständeher: (Heykens); Selection, Waltzes from Vienna (Joh, Strauss), 3.0, Concert of Christmas Music, 3.30, Orchestral Music: Dance, Salomé (R. Strauss); Selection, Vardar (Cladigerov); Liebeshed (Strauss), 4.0, Concert of Christmas Music, 3.30, Orchestral Music: Dance, Salomé (R. Strauss); Selection, Vardar (Cladigerov); Liebeshed (Strauss), 4.0, Opera Arias; Arias from The Magic Flute (Mozart), Philémon et Bancis (Gounod), Don Giovanni (Mozart) and L'Africaine (Meyerheer), 4.15, Operata Music: Selection, Ginette et moi (Messier); Melody (Lawrence); Selection, The Desert Song (Romberg), 4.30, Music from Sounal Films, 4.45, Military Music. 5.0, The dansant, 5.45, Military Music. 5.0, The dansant, 5.45, Music by an Argentine Band. 6.0, News. 6.15, Opera Music: Aria from Carmen (Bizet); Aria from Madame Butterfly (Puccini); Prologne, to Il Pagliacci (Leoncavallo); Duet from La datne blanche (Boieldiet). 5.30, Music by a Viennese Orchestra: Waltz. The Blue Danube (Joli, Strauss); Les grenadiers (Waltterfel); Selection from The Land of Smiles (Lehár); Dance Potpourri (Dostal); Melody (Ivory), 7.0, Chansonettes, 7.15, News, 7.30, Divertissement on Russian Songs (Raband), by the Station Orchestra, 7.45, Operata Music: Arias from Frasquita (Lehár), Oh, Papa (Yvain), and La tulipe noire (Richepin), 8.0, Light Music, 8.30, Chamber Music; Polonaise in A (Chopin); Dolls' Dance (Hagen); Union Frasquita (Lehár), Oh, Papa (Fyain), and Chopin); Dolls' Dance (Bacen); Union Frasquita (Lehár), Oh, Papa (Fyain), and La tulipe noire (Richepin), 8.0, Light Music, 8.00, Chamber Music; Polonaise in A (Chopin); Dolls' Dance (Guncoli), 10.15, News, 10.30, Opera (contd.), 12.25 a.m. (Tuesday), News.

TRIESTE

1.2.11 ke/s, 247.7 metres; 10 kW.—8.55 a.m., Mass from the Cathedral of San Giusto, 10.0 a.m. to 1.15 p.m., See Turin. 3.45, Balilla Programme. 4.10 till Close Down, See Turin.

TRONDHEIM,-See Oslo.

TURIN

TURIN

1,096 kc's, 273.7 metres; 7 kW. Relayed by Milan, 903 kc's, 332.2 metres; Genoa, 959 kc's, 312.8 mstres; and Florence, 598 kc's, 501.6 metres.—10.0 a.m., Mass from the Church of the Annunciation. Florence, 11.30, Records. 11.45 a.m. to 1.45 p.m., Trio Concert. 12 Noon, Time. Announcements. 3.45, Announcements. 4.10, Orchestral Concert, conducted by Tito Petralia. 4.55, Weather. 5.0, Announcements. 6.0, Time and News in Pereigin Languages. 6.30, Records. 6.50, Announcements. 7.0, Records. 7.30, Announcements. 7.40, Chamber Music. 8.30, One-Act Comedy. 9.0, Records. 9.30, Dance Music. 10.0, Giornate Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning); and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in Italian, 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

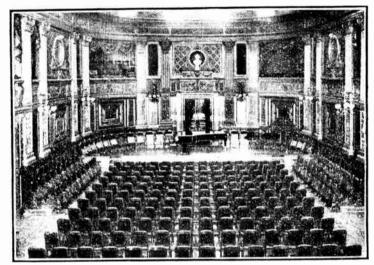
VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—9.20 a.m., Choral Concert, conducted by Leopold Emmer. 9.50, Traum van Capri—Reading, 10.10, Light Music by the Wiener Symphoniser, conducted by Max Schrönherr. 12.10 p.m., The Week's Review. 12.30, Orchestral Concert of Contemporary Swiss Music, conducted by Kurt Rothenbüller: Soloists, Viktor Brégy (Tenor) and Felix Löffel (Bass). 2.0, Time and Announcements. 2.5, Book Review. 2.30, Brass Band Concert, 4.0, Talk, with Record Illustrations; Christmas among the Spanish Herdsmen. 4.30, The Mairecker Quartet. 5.30, bie Gabe des Wenisen (Hayek). 6.0, Song Recital by Elizabeth Schumann. 6.50, Time and Announcements. 7.0, Der Lustige Krieg—Operetta (Joh. Strauss). 9.15, News and Weather. 9.30, Records.

WARSAW

WARSAW

212.5 kc/s. 1,411 metres; 120 kW.—8.50 a.m.,
Announcements. 9.0, Divine Service from
Lwów. 10.57, Time Signal and Fanfare from
St. Mary's Church, Cracow. 11.5, Announcements. 2.0 p.m., Orchestral Concert. relayed
from Lwów. 3.0, Programme for Children,
relayed from Lwów. 3.30, Records. 3.45,
Reading. 4.0, Orchestral Concert: Polonaise
(Brzezinsky); Mazurka (Tymolsky); Coniavienne; Oberek (Namysłowsky); Polish Waltzes
(Dzierzanowsky); Dance (Miszczak); Soldiers' Songs (Suchocki). 5.0, Dramatic Programme. 5.40, Talk. 5.45, Announcements.
6.0, Peace and Good Will—Christmas Greetings from the Capitals of Europe. 7.0,
Programme, relayed from Lwów. 8.0, Reading. 8.15. Pianoforte Recital of Polish
Music by Mine, Rabeewicz: Sonata in C
Minor, Op. 8 (Szymanowsky); Two Polish
Dances (Rozycki); Three Pieces (Paderevsky); (a) Sarabande, (b) Polonaise, Op. 9
(c) Cracovienne fantastique. 9.0, Sports
Notes. 9.10, Dance Music on Records (10.0),
News. 10.5, Dance Music on Records (20.0td.).
ZURICH.—See Schweizerischer Landessender. ZURICH,-See Schweizerischer Landessender.



A CHRISTMAS MORNING BROADCAST. The celebrated Gewandhaus of Leipzig. The Gewandhaus and Municipal orchestras combine with the choirs of St. Thomas this morning in the Bach Cantata: "Sehet, welch' eine Liebe," to be broadcast from Leipzig at 10.30.

eine Liebe, to be broader

11.40 (from Zürich). The Beromünster Orchestra. 12.20 p.m. (from Zürich). Reading
of Christmas Stories. 1.0 to 1.30 (from
Zürich). The Anton Smetak Züher Trio. 3.0
(from Zürich). A Christmas Poems for Children.
4.0 (from Zürich). Glory to God in the
Highest a Biblical Sequence for Children,
with Music by Pestalozzi. 5.0 (from
Zürich). Catholic Service. 5.30 (from
Zürich). Records. 6.0 (from Zürich). Time
and Sports Results. 6.10 (from Zürich).
Talk on the Christmas Song. Stille Nacht.
6.30 (from Zürich). Records. 7.0 (from
Zürich). The Beromünster Orchestra.
9.15 (from Zürich). Sports Report.
SOTTENS.—See Radio-Suisse Romande.

SOTTENS,-See Radio-Suisse Romande,

STOCKHOLM

STOCKHOLM

689 kc's, 436 metres; 55 kW. Relayed by Boden, 242 kc s, 1,239.5 metres; Góteborg, 902 kc s, 322 metres; Horby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,347 metres; Ostersund, 402 kc s, 746.2 metres; and Sundsvall, 554 kc s, 542 metres.—40.0 a.m., High Mass, relayed from a Church in Falun, 977 kc s, 307 metres: 11.45, Weather and Ice Report. 1.0 p.m. (from Góteborg). Christmas Carols with Commentary. 2.0, For Children. 3.0, Military Band Concert, conducted by Ivar Widner, Extracts from H Trevatore (Verdi); Schubort Fantasia (Urbach); Christmas Medley (Peterson-Berger); Potpourri, Sangarminnen (Widner); March from Gustaf Vasas sage (Hallen). 4.0,

Music. 6.45, Christmas Service, relayed from the Cathedral; Chimes; Organ Music; Old Christmas Carols and Address; How Christmas came to Mankind, 7.36, Time and News, 7.45, Gramophone Music. 8.15, Records, Lottery Results, 8.15, Records, Alsatian Programme of Literature Music, 10.0 (approx.), Close Down.

STUTTGART

STUTTGART

MUHLACKER, 563 kc/s, 533 metres; 100 kW. Relayed by Freiburg, 1,157 kc/s, 259.3 metres, and 527 kc/s, 570 metres (until January 16, 1931).—8.30 a.m., Programme from Frankfurt. 9.0, See Langenberg. 10.0, The Stuttgart Motet Choir. 10.30, See Leipzig. 11.0, See Frankfurt. 12 Noon, First Act of La Bohène—Opera (Puccini). on Records, 12.30 p.m., Es war einmal ein Musikus—Talk and Records. 1.20, See Berlin (Funkstunde). 2.0, for Children. 3.0, Concert. 3.45, Concert ly (the Station Orchestra, conducted by Ferdinand Drost; Karl Hagen (Tenor). 5.0 to 6.0, See Frankfurt. 6.0, Tratsmission for oll German Stations, relayed from Berlin (Funkstunde). 7.0, Sports Notes. 7.10 to 9.20, See Frankfurt. 9.20, Things you should know. 9.30, Local News. 9.45, Sketch with Vocal and Instrumental Concert. 10.45, The Ghost in the Music Shop—Sketch (Carl Struve). 11.30, Seenlade.

SUNDSVALL,-See Stockholm.

TOULOUSE

779 kc/s, 385 metres; 8 kW.—2.0 p.m., Concert of Opera Music: Coronation March



DECEMBER THE TWENTY-SIXTH

ALGIERS

ALGIERS

825.5 kc/s, 363.3 metres; 13 kW.—12.30 p.m.,
The Station Orchestra. 1.0, News. 1.5, The
Station Orchestra (contd.). 7.0, Exchange.
7.10, Shipping Notes. 7.15, Weather. 7.20,
Airs from Boris Godunov (Mussorgsky) on
Records. 7.55, News. 8.0, Time and Lottery
Results. 8.10, Sonata for Violin and Pianoforte (Virardot). 8.40, Symphonic Poem,
La Mer (Debnssy), on Records. 9.0, Oriental
Music. 9.30, News. 9.35, Oriental Music
(contd.). 9.55, News.

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Rclayed by Dublin, 1,382 kc/s, 217 metres; and Cork, 1,337 kc/s, 224.4 metres.—6.0 p.m., For Children. 6.45, News Bulletin. 7.0, Talk by C. M. Ni Dhubhghaill. 7.15, Music by the Station Orchestra. 7.30, Soprano Solos by Kathleen McCully. 7.45, Annual Pantomime with Orchestral Music. 8.45, Tenor Solos by N. O'C Redmond. 9.0, Violin Solos by Oakley. 9.15, Bass-Baritone Solos by M. O'C Magnire. 9.30 to 10.30, Programme by the I.B.C. (Ireland). Ltd. 9.30, Military Band Music: Signature Tune. Choo, Cloo; Overture. Zampa (Hérold); Praeludium (Järnefelt); Les Cloches de St. Malo (Rimmer); Siren Magic Waltz (Waldtenfelt); Signature Tune, Choo, Choo. 9.45, Dance Music: Dinner at Eight (McHught); This is Romance; I don't like her dog. Fido (Woods); The song that you gave to me. 10.0, Dance Music: There's no harm in hoping; By a Waterfall; I want to ring bells; Racing Commentary; Sittin' on a backyard fence; Just a year ago to night; Beloved; Darkness on the Delta, 10.30, I.B.C. Goodnight Melody, followed by News, 10.40, Irish Music.

BARCELONA

BARCELONA

EAJ1, 861 kc/s, 348.4 metres; 8 kW.—7.15
a.m., Radio Journal and Gramophone Records. 8.0, Chimes. Physical Culture and Gramophone Music. 8.20, Radio Journal and Gramophone Music. 9.0, Aumouncements. 11.0, Chimes. Weather. 12.0 Noon, Programme for Women. 12.45 p.m., Gramophone Music. 1.0, Gramophone Records of Light Music. 1.30, Theatre Notes and Gramophone Music (contd.). 2.0, Catalan Notes and Sextet Concert. 3.0, Programme for Hospitals, with Gramophone Records. 6.0, Trio Concert. Selection from The Flying Dutchman (Wagner); Valse lente in A Mimor (Chopin): Roudo (Elgar); Selection from Samson and Delilah (Saint-Saëns); Selection from A Masked Ball (Verdi); Halian Song (de Taeyer); March (Fucik). 7.0, Request Gramophone Records. 7.30, Exchange and Talk in Catalan. 8.0, Gramophone Music. 8.30, Catalan Educational Programme: History and Geography Lessons, followed by News. 9.0, Chimes and Weather. 9.5, Announcements, Messages to Seamen, Exchange and Market Prices. 9.10, Concert by the Radio Orchestra. 10.0, Symphony Music (on Gramophone Records). 11.0, News and Dance Music, relayed from the Casa Llibre.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—No Transmission.

BASLE .- See Schweizerischer Landessender.

BELGRADE

BELGRADE

698 kc/s, 429.7 metres; 2.8 kW.—10.0 a.m.,
The Radio Orchestra. 10.20, Tides Report.
The Radio Orchestra. 10.59, Time, Chimes.
11.5, The Radio Orchestra. 11.35, Exchange,
Records, 12.30 p.m., News, Time, 3.0, The Radio
Orchestra. 5.0, Song Recital by Mme, Ljubica
Milivojevic, 4.30, Dance Music, 5.55, Time,
Programme Announcements, 6.0, Records,
6.15, Violin Concerto, Op. 46 (Rubinstein), by
Karl Holub, 7.5, See Prague, 9.0, Time,
News; Records, 9.45, Cigány Music from
the Kesina Restaurant.

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHESSENDER), 183.5 ke/s, 1,635 metres; 60 kW.—7.30 a.m., Records. 8.0, Reading. 8.15, Chamber Music: Part I: Songs by Günter Stenzel and Anton Topitz, by Lotte Teile; Serenade for Flute, Violin and Viola, Op. 25 (Beetloven). 9.5, See Berlin (Funkstunde). 10.0, Weather. 10.15, Between Time and Eternity—Radio Sequence from the Works of Dietrich Eckart, on the Tenth Anniversary of his Death. 11.0, See Munich. 11.55, Time. 12 Noon, See Stuttgart. 1.0 p.m., Talk. 1.20, A Children's Choir. 2.0, The Steinbock Orchestra. 3.0, See Langenberg. 4.0, Robinson must not die—Play (Friedrich Forster). 5.0, For Children. 6.0, Humorons Musical Programme. 7.0, Christmas Programme by Herbet Ernst Groh, Paul Hörbiger and the Station Orchestra, 9.0, News. 9.35, Radio Report of the Lee Hockey Match. 9.45, Weather. 10.0, Light Music and Dance Music from the Excelsion Hotel. 1.30 a.m. (Wednesday), Close Down.

BERLIN

FUNKSTUNDE, 832 kc/s, 360.5 metres; 100 kW. Relayed by Zeesen, DJG, DJA, DJD, DJB, and DJE.—7.55 a.m., Chimes and Sacred Music, relayed from the Potsdam Garrison Church, Chimes from Berlin Cathedral. 9.5, Weather. 10.0, For Children, 11.0,

See Munich, 12.5 p.m., The Small Station Orchestra, conducted by Steiner: Overture, Der Dildschütz (Lortzing); Solvieg's Song (Grieg); Elfentanz (Heykens); Folk Song, Spinn, spinn; Waltz (Waldteufel); Selection from La Traviata (Verdi); The Tyrol in Song and Dance (Fetras). 1.0 p.m., See Leipzig. 2.0, Christkinda in Schlesien—a Nativity Play (Otto Eggers-Rotter). 3.0, The Station Orchestra, conducted by Werner Richter Reichhelm: A Comedy Overture (v. Reznicek); Jeux d'enfants (Bizet); Waltz, Op. 51 (Glazunov); Extract from Tsar Saltan (Rimsky-Korsakov); Overture, Der Opernball (Heuberger); Waltz, Windsor-Klänge (Joh. Strauss); Selection from La Poupée (Andran); Waltz, Toujours on jamais (Waldteufel); Selection from The Land of Smiles (Lehár); Overture, Isabella (Suppé). 5.0, A Family Christmas—a Puppet Play with Music (Heynicke). 5.40, Sports Notes. 6.0 to 8.20, See Munich. 8.20, The Small Station Orchestra, conducted by Willy Steiner; Wiegenlied (Kaun) The Kiss Waltz (Waldteufel); Peasant Suite (Ailbont); Serenata appassionata (Steiner); Waltz, Flattergeister (Jos. Strauss). 9.0, News. 9.30 till Close Down, See Hamburg.

BERNE.- See Schweizerischer Landessender.

BEROMUNSTER. - See Schweizerischer

BODEN.-See Stockholm.

BODO .- See Oslo.

BORDEAUX-LAFAYETTE

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—7.45 a.m..
News, relayed from Paris (Ecole Superieure), 671 kc/s, 447.1 metres. 10.30, Instrumental Concert, relayed from Toulouse (PTT, 1,176 kc/s, 255.1 metres. 12 Noon, Concert, relayed from Paris (Ecole Supérieure). 12.30 p.m., Time and Dance Music. In the interval. News. 1.50, Exchange. 2.0, Chamber Music and Variety Music. 4.30, Chamber Music and Variety Music. 4.30, Chamber Music relayed from Lyons (La Doua), 644 kc/s, 465.8 metres. 6.15, Radio Journal, relayed from Paris (Ecole Supérieure). 7.35, News. 7.40, Talk for Women. 7.55, Lottery Results. 8.5, Talk, relayed from Paris (Ecole Supérieure). 8.15, News, Market Prices and Weather. 8.30, See Paris (Eiffel Tower). After the Programme. Amusement Guide and Time. After the and Time.

BRATISLAVA

1,073 kc s, 279.5 metres; 14 kW.—8.0 a.m., Talk, with Record Illustrations: Christmas in Song. 9.0, See Pragus. 10.0, See Brno. 11.0, See Pragus. 11.15, See Moravská-Ostrava. 12.30 p.m., See Prague. 1.5 to 1.10, Tides Report. 3.0, The Station Orchestra, conducted by Dyk. 4.30, Concert. relayed from the Institute for the Blind. 6.0, See Prague. 9.15, See Brno. 10.0 (approx.), Close Down.

BREMEN.-See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—8.0 a.m., Christmas Tales. 8.30, Christmas Carols (arr. Friedrich Wirth), by the Station Orchestra and Soloists. 9.10 (from Gleiwitz), Talk: Christmas in the Colonies, 9.30, The Station Orchestra ann Soloists. 11.0, See Munich. 12.0 Noon, Military Band Concert. 1.0 p.m., See Leipzig. 2.0, Chamber Music. 2.30, For Children. 3.0 to 5.0, See Munich. 5.0, Talk: A Naturalist's Christmas Walk. 5.20, Fiddle Solos and Songs with Introductory Talk. 6.0 to 8.20, See Munich. 8.20, The Station Orchestra. conducted by Topitz: Overture. Lachendes Leben (Rust); Waltz, Mein Lebenslauf ist Lieb und Lust (Joh. Strauss); Potpourri (Konzak); Polka (Jos. Strauss); Intermezzo (Tantenhayn); Waltz (Zichrer); March (Netsieh); Potpourri (Gangleberger); Gallop (Zichrer). 9.30, See Leipzig. 9.50, Time, News. Weather. 10.5, See Leipzig.

BRNO

BRNO

878 kc/s, 342 metres; 35 kW.—10.0 a.m., Children's Concert. Overture, To the Story of the Lovely Melusina (Mendelssohn); Children's Songs (Blech); The Children's Corner (Debussy). 11.0, See Prague. 11.15, See Moravská-Ostrava. 12.30 p.m., Agricultural Talk. 3.0, See Bratislava. 4.30, Carol Singers—Scene (Kroupa). 4.50, Records. 5.0, German Teansmission; Christmas Story (Schmitzler) and Christmas Shopping—Play. 6.0, See Prague. 9.15, Concert by the Station Orchestra, conducted by Bakala. Overture, Orphens in the Underworld (Offenbach); Waltz from The Geisha (Jones); Selection (Benes); Russian Song (Priml); Czech Dance (Balling); March, Unele Teddy (Fucik); Cradle Songs (Kapral); Marionettes (Kriska).

BRUSSELS (No. 1)

BRUSSELS (No. 1)

1.N.R., 590 kc/s, 509.2 metres; 15 kW.—12
Noon, Programme by Mickey's Club Jazz
Attraction. 1.0 p.m., Le Journal Parié.
1.10, Programme by Mickey's Club Jazz
Attraction (contd.). 5.0, Extracts from Les
Cloches de Corneville—Operetta (Planquette)
on Records. 6.0, Talk: Christmas. 6.15,
Concert by the Small Station Orchestra,
conducted by Leenans: Overture, Heimkehr
ans der Fremde (Mendelssohn); Noeturne
(Brenta); Two Pieces (Lelen); Bercense
(Dupuis). 6.45, News. 7.5, (Zech Concert,
relayed from Prague. 8.0, Talk for Women
and Art Notes. 8.10, (oncert from Prague
(contd.). 8.45, Records: Andaluza (Falla);
Choral in A Minor (Franck). 9.0, Dance
Music, relayed from the Saint Sauveur
Dance Hall. 10.0, Le Journal Parié.

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.I.R., 888 kc/s, 337.8 metres; 15 kW.—12
Noon, Concert by the Small Station Orchestra, conducted by Leemans: Paso doble, Pan y Toros (Dessart); Waltz, Die Kosenden (Lanner); Intermezzo, Burlesca (Culotta); Records: (a) Pimpinella (Tchnikovsky), (b) Vieni sui mar; Selection from The Christmas Fairy (Pitzner); Selection from Hansel and Gretel (Huraperdinck); Records: (a) Cara Piechii (Lama), (b) Reginella (Lama); Sérénade d'Arlequin (Van Dam); Foxtrot, Wer einmal nur geküsst ein Midinettchen (Mann and Weiss), 1.0 p.m., Le Journal Parlé, 1.10, Records: Selection from Countess Maritza (kálmán); Mattinata (Leoncavallo); Pour un baiser (Tosti); La capinera (Benedict); Waltz, Parla (Arditti); Selection from Wonder Bar (Katscher); Il tunga delle capinera (Bixio); Song: A.B.C. (Cosentino); Selection from Folly to be wise (Hupfeld), 5.0, Concert by the Station Orchestra, conducted by Walpot: Hungarian Connedy Overture (Kéler Béla); Rossini Potpourri (Tavani); Records; (a) Song of the Volga Boatmen, (b) The Mighty Deep (Juda); Waltz, Moonlight on the Alster (Fetras); The Butterfly Chase (Kéler Béla); Overture, Chal Romano (Ketelbey); March (Blankenburg), 5.46, Programme for Children, 6.30, Talk, 7.9, Song Recital by Armand Crabbé); Na coleta; La yota (Falla); Ay, ay (Sobrinko), 7.15, Variety Items, 7.30, Talk for Wonnen, 8.0, Accordion Recital by Vervest and Kenna; One-step, Click and Clack (Doyer); Waltz, Rossy (Boets); Tango, Zigenner, yon have stolen my Heart (Vacck); Melody (Wood); Foxtrot, Please (Donaldson), 8.15, Menske—a Monologue in Seven Scenes (Ys Vis; cl), 9.15, Concert by the Station Orche-Stra, conducted by Walpot: Melody (Elsler); Overture, The Gipsy Baron (Joh, Strauss); Valse lente (Chopin), 9.30, Accordion Recital (contd.); Waltz (Vacck); Tango (Vacck); Foxtrot, Butterfly (Wood); Waltz (Kolz); Marche aux flamheaux (Meyerbeer); Waltz, Küstlerleben (Joh, Strauss); Perpetum mobile (Joh, Strauss); Perpetum mobile (Joh, Strauss); Perpetum mobile (Joh, Strauss); Perpetum parlé.

BUCHAREST

760 kc/s, 394.7 metres; 12 kW.—11.0 a.m., Records. 12 Noon, Radio Journal. 12.15 p.m., Records. 4.0, Variety Music by the Motoi Orchestra. 5.0, Radio Journal. 5.15, Orchestral Concert (contd.). 6.0, Educational Talk. 6.20, Records. 6.45, Talk. 7.0, Pianoforte Recital of Romanian Music by Madeleine Cocorasco. 7.30, Talk. 7.54, Romanian Song Recital by Georges Folesco (Bass). 8.15, Dance Records. 8.45, Radio Journal. 9.0, Light Music from the San Remo Restaurant.

BUDAPEST

BUDAPES 1

545 kc, \$, 550.5 metres; \$120 kW. Also relayed on \$40 metres from \$6.0 p.m. till Closs Down. —10.15 a.m., Divine Service from the Greek Church. 11.30, Guitar, Viola da gamba and Viola damor Solos and Songs. 12.45 p.m., Military Band Concert, conducted by Friesay. 2.0, For Girls, 2.30, Records. 3.30, Talk: Edmonde de Amicis. 5.20. Sports Notes. 5.30, Talk. 6.0, Christmas Festival in Hungary—Relay from Sany. 7.0, Lehår Potpourri from Vienna. 8.30, News. 8.50, The Hetenyl-Buday-Schö Trio from the Café Simplon. 10.0, Talk in English, with Records: Christmas Customs. 10.30, The Inter Magyari Cigány Band from the Hotel Hungaria.

CASSEL.-See Frankfurt.

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc s, 1,153.8 metres,

and Skamleback, OXY, on 31.51 metres.—7.0 a.m., Gym. for Women. 7.15, Gym. 9.9. Divine Service. 10.30, Weather. 10.40 News. 11.0, Time and Chimes from the Town Hall. 11.5, Carl Rydahl's Instrumental Ensemble. Overture, Maritana (Wallace); Waltz, Soirée d'été (Waldteufel); Selection, from Lilac Time (Schubert); Norwegian Dance in G (Grieg); La lettre de Manon (Gillet); Gipsy Tango (Lacime); Barcarolle, Le beau rêve (Flégier); Serenade (Kubin); October from The Seasons (Tchaikovsky); March (Kral). 12.30 p.m., Extracts from Aida—Opera (Verdi) on Records. 1.30, Programme for Children. 2.0, Talk for Housewives. 2.10, Accordion Music: March (Oscheit); Mazurka (Deiro); Serenade from Les Millions d'Arlequin (Drigo); Tango (Anderson); Polka (Johanson); Waltz (Cederqvist-Schmidt); Piece (Normann Andersen). 2.40, Reading (A. J. Cromin). 3.0, Orchestral Music, relayed from the Wivex Restaurant. 4.0, Divine Service. 5.20, Talk. 5.50, Weather. 6.0, News. 6.15, Time. 6.30, Quintet in A for Clarinet. Two Violins, Viola and 'Cello (Mozart). 7.0, Time from the Town Hall. 7.2, Songs from The People of Copenhagen—Sound Film (Carl Viggo Meincke). 8.10 p.m. to 1.0 a.m. (Wednesday), Christmas Radio Ball. 8.10, Dance Music. 8.45, News. 9.0 (approx.), Dance Music (contd.), 10.15, Programme by The Valencia Orchestra. conducted by Kai Julian. 11.0, Time and Chimes from the Town Hall. 11.5 (approx.), Orchestral Music from the Ritz Restaurant. 12 Midnight, Orchestral Conducted by Jens Warny. 1.0 a.m. (Wednesday), Close Down. and Skamleback, OXY, on 31.51 metres.

CORK,-See Athlone.

DANZIG .- See Heilsberg.

DRESDEN .- See Leipzig.

FECAMP

1,328 kc/s, 225.9 metros; 10 kW.—11.0 a.m. to 12 Noon, Programme in English by the I.B.C. Happy Hour. Part 1: Orehestral Concert. Part II: Dance Music. 22 Noon, Programme in French. 3.30 to 6.0 p.m., Programme in English by the I.B.C. 3.30, Concert for Torquay and Exeter Listeners. Part II: Hawalian Band. Part II: Dance Music. 4.20, The I.B.C. Nursery Corner, Birthday Greetings. 5.0, Concert for Plymonth and Devonport Listeners. Light Music. The Music Clock of Madiane Pompadour (Noack); Baby won't you please come home?; Gipsy Moon (Borganov); Happy Darkies (Godfrey); Pianoforte Sciection Words and Music (Noel Coward); Siboney (Lecuona); In a Clock Store (Orth); The Brooklyn Cakewalk (Thurban); Pianoforte Sciection from He Wanted Adventure (Waller); Song, Reflections in the Water (Loeb); The Dance of the Nymphs (Birch); A Charming Episode (Ormandy); Signature Tune, 5.45, Concert of Dance Music. Old Fashioned Swethearts; I only want one girl; Missouri Waltz; A Couple of Fools in Love, 6.0, Programme in French. 10.0 (approx.). till Close Down, Programme in English by the I.B.C. 10.0 (approx.). Dance Music, 10.30, Military Music. Here, There and Everywhere (Bose); Selection from The Miracle (Humperdinck); Cupid's Army (Slevier); The Doge's March (Rosse); Waltz, Les Sirenes (Waldteufel); Le Grandier March (Mohr); La Benédiction des Poignards (Meyerheer); Jolly Fellows (Vollstedt). 11.0, Orchestral Concert. Intermezzo Selection (arr. Anceliffe); Barcarolle (Waldteufel); Violin Solo, Chanson bohémienne (Boldi); By the Swanee River (Myddleton); Selection from Wiener Blut (Joh. Stranss); Song, Throw open wide your window (Calson); Pale Volga Moon (O'Hagan); Nautical Moments (arr. Winter). 11.30, I.B.C. Time Signal, 11.31, Concert arranged by the International Broadcasting Company (Ireland), Ltd. Signature Tune, Come back to Erin; 12.5 a.m. (Wednesday), Late News Bulletin in English. 12.10 (approx.). Chub Concert for New Fore-t Listeners. The day you came Along (Co-low); Sympliony of the Breeze (Leon); Laughing Waltz; Sw

tral Invitation to the Waltz (Weber). 2.0, I.B.C. Good-night Melody and Close Down.

FLENSBURG,-See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by
Cassel and Trier, 1,157 kc/s, 259.3 metres.—
5.35 a.m., Programme from Heilsberg. 7.15,
News. 7.25, Gym. 8.0, Organ Recital by
Metzen. 8.30, See Langenberg. 9.0, See
Stuttgart. 9.45, Choral Concert. 10.30,
Talk: Christmas in the Mountains. 11.0,
See Munich. 12.0 Noon, See Stuttgart. 1.0
p.m., See Leipzig. 2.0 to 6.0, See Langenberg. 6.0 to 8.20, See Munich. 8.20, News.
8.30, See Stuttgart. 9.0, News. 9.20 to 9.30,
See Stuttgart. 9.30, News. 9.45 to 12.0
Midnight, See Langenberg.

FREDRIKSSTAD .- See Oslo.

FREIBURG,-See Stuttgart.

GENEVA.-See Radio-Suisse Romande.

GENOA.-See Turin.

GLEIWITZ.—See Breslau.

GOTEBORG.-See Stockholm.

GRAZ. -See Vienna.

HAMAR, -See Oslo.

HAMBURG

HAMBURG

806 kc/s, 372 mtres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flonsburg and Hanover, 1,319 kc/s, 227.4 metres; and Kiel, 1,222 kc/s, 232.2 metres; and Kiel, 1,322 kc/s, 232.2 metres; and Kiel, 1,322 kc/s, 232.4 metres; and Kiel, 1,322 kc/s, 232.4 metres; and Luback Cathedral. 10.40, Recitations with Pianoforte Accompaniment. 11.0, Programme relayed from Berlin (Funkstunde). 1.0, Programme relayed Leipzig. 2.0, Pianoforte Recital by Hildegard Schefe-Könicke: Fantasia in C Minor (Mozart); Internezzo No. 2. Op. 119 (Brahna-); Ballad in B Minor (Liszt). 2.30, Humorous Tales. 3.0, Orchestral Concert relayed from Berlin (Funkstunde). 4.45, A Happy Father: Comedy (Görner). 5.35, Sports Notes, Weather. 6.0 to 8.20, See Munich. 8.20 (from Hanover). Orchestral Concert, conducted by von Sosen: Friedensfeier Overture (Nehl); Selection from Die Königskinder (Humperdinck); Inder Christnacht (Hanekam); Perpetum mobile (Joh. Strauss); Selection from La Punpée (Andran); Waltz, Winterlandschaft (Lineke); Potpourri (Noack); Humoresque from Max und Moritz (Zimmer); Eine Muh. termezzo (Siede); Pizzicato-Arabesque (Frauchetti); Reigen from Peterchens Mondfahrt (Schmalstich); The Skater's Waltz (Waldtenfel); Ballet Music (Lassen); March (Blankenburg). In the interval at 9.0, News. 9.30, Orchestra (contd.).

HANOVER.-See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—9.55 a.m., Weather. 10.0. Christmas Carols. 10.35, Recitations, relayed from Danzig. 11.0 to 12 Noon, see Munich. 12.5 p.m. to 12.56, Orchestrid Concert. conducted by Georg Wöllner: Overture. The Princess in the Golden Slippers (Rust); Selection from Der Zigemerprimas (Kálmán); Mazurka from the Bailet Suite Coppelia (Dellies); The Sanctuary of the Heart (Ketelbey); Potpourri (Weninger); Flower Waltz from the Nnt-Cracker Suite (Tchalkovsky); March (Schmidt Hagen). 1.0 to 2.0, See Leipzig. 2.0, Records. 2.20, For Children. 3.0, Orchestral Concert, relayed from Berlin (Funkstunde). 5.0, Variefy Programme. 6.0 to 8.20, See Munich. 8.20 to 10.20, Orchestral Concert. conducted by Brückner: Introduction to Act III of Die Königskinder (Humperdinck); Selection from The Miracle (Humperdinck); Selection from The Sleeping Beauty (Tchaikovsky); Overture, A Midsummer Night's Dream (Mendelssohn); Selection from The Arabian Nights (Strauss); Selection from The Arabian Nights (Strauss); In the interval at 9.0, News and Sports Notes. 10.20 to 11.0, Dance Music (on Gramophone Records).

HILVERSUM

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW up to 5.40 p.m., and 20 kW. from 5.40 p.m.,—7.40 to 9.40 a.m., Programme of the General Broadcasting Society (A.V.R.O.). 7.40, Time Signal, 7.41, Sacred Music on Records. 8.10, Records. 8.40, Divine Service. 8.55, Records. 9.40 to 11.40, V.P.R.O. Programme, 9.40, Organ Recital. 10.10, Divine Service and Organ Recital (contd.). 11.40 till Close Down, A.V.R.O. Programme. 11.40 till Close Down, A.V.R.O. Programme. 11.40 till Close Society in the interval. 1.40 p.m., Christmas Story. 2.10, The Concertgebouw Orchestra conducted by Albert van Raalte. Soloists: Klasen (Flute) and Blanchard (Olioe); Symphony in E flat for Strings, two Flutes and two Horns (Stamitz); Tocata, Aria, Minuet and Gigne (Scarlatti); Symphony in G, No. 7 (Mozart); Records; Three Traditional Scottish Tunes (Gerard Williams); Concerto fugato for Flute, Oboe and Strings (Gustav Holst);

DEC. 26th TUESDAY continued

Miniature Suite (Arthur Bliss). 3.40, Records. 4.10, Children's Choir. 4.40, Programme for Children. 5.40, The Wireless Orchestra, conducted by Nico Treep: Overture, Le roi l'a dit (Delibes); Snite from Carmen (Bizet); Serenade for Strings (Pierne); French Military March (Saint-Saöns). 6.40, Strauss Concert by the Wireless Orchestra, conducted by Albert van Rallte: Overture, Die Fledermans; 's gibt mur a Kaiserstadt; 's gibt nur a Wien; Mazurka, Francuherz; Waltz, Roses from the South. 7.10, Chopin Pianoforte Recital by Imre Ungar. 7.40, Time and News. 7.55, The Wireless Orchestra, conducted by Albert van Raalte. Alma Moodie (Violin); Overture. Oberon (Weber): Concerto for Violin and Orchestra (Mendelssohn); Slav Dance No. 8 (Dvorak). 8.40, Gnessing Competition. 9.10, syncopated Music by the Comedian Harmonists. 9.40, Revords. 9.56, Kovacs Lajos' Orchestra.

HORBY.-See Stockholm.

HUIZEN

HUIZEN

160 kc/s, 1,875 metres; 7 kW. until 3.40
p.m. Transmitted from Kootwijk on 50
kW. from 3.40 p.m.—8.10 to 9.10 a.m., Programme of the Christian Radio Society
(K.C.R.V.) 8.10, Divine Service. 9.10 till
Glose Down, Programme of the Catholic
Radio Society (K.R.O.) 9.10, Records. 9.25,
High Mass relayed from the St. Ritakerk,
Amsterdam. 10.55, Records. 11.40, Police
Notes. 11.55, Carillon Recital by Van Balkom relayed from St. John's Church, Boisle-Due. 12.25 p.m., The K.R.O. Orchestra,
conducted by Gerritsen. 1.10, Records.
1.40, Carillon Recital (contd.), 2.10 to 2.20,
Interval. 2.20, Christmas Programme by
the Scola Cantorum Choir, conducted by
Ilubert Cuypers. In the interval, Recitations, 4.10, Records. 4.40, The K.R.O.
Boys, conducted by Lustenhouwer. 5.25,
Records. 5.55, The K.R.O. Boys (contd.).
6.40, Police Messages. 6.55, Medical Talk,
7.16, Records. 7.40, The K.R.O. Orchestra,
conducted by Gerritsen. Soloist: Mme. Jo
Vincent (Soprano): Overture. Der Schauspieldirektor (Mozart); Scleetion from Idomenco (Mozart); Extracts from Julius
Clesar (Handel); Andante con moto, from
the Fifth Symphony (Schubert). 8.10,
News. 8.15, Song Recital by Mme. Jo Vincent (Soprano). 8.25, Records. 8.30, Soprano
Song Recital (contd.). 8.40, The K.R.O.
Orchestra (contd.): Overture. The Secret
Marriage (Cimarosa); Selection from Alessandro (Handel); Phaeton (Saint-Saëns);
Aus galanter zeit (Klass). 9.25, A Christmas Play (Röttger). 10.10, News. 10.15,
The K.R.O. Orchestra (contd.): Overture.
Eine Nacht in Venedig (Joh. Strauss);
Domauweibehen (Joh. Strauss);
Domauweibehen (Joh. Strauss);

INNSBRUCK.—See Vienna.

KALUNDBORG.-See Copenhagen.

KIEL,-See Hamburg.

KLAGENFURT.-See Vienna.

KOSICE .- See Prague.

LANGENBERG

LANGENBERG

635 kc 's, 473 metres; 60 kW.—8.0 a.m., See
Frankfurt. 8.30, Medical Talk. 9.0, See
Stuttgart. 10.0 to 10.35, Wagner Records.
11.0, See Munich. 12.0 Noon, See Stuttgart.
1.0 p.m., See Leipzig. 2.0, For Children.
3.0, Concert. Part I. Chamber Music by
Schneiderhan (Violin). Grape and Wielsch
(Pianoforte), Glahe and Hartung (Oboe),
and Hirnet (English Horn). Piece for Two
Pianofortes, Op. 23 (Arensky); Serenade for
Violin and Pianoforte (Tchaikovsky); Introduction and Tarantella for Violin and Pianoforte (Sarasate): Variations on Reich mir
die Hand for Two Oboes and English Horn
(Beethovent. Part II, Lortzing Opera Music
by the Station Choir and Orchestra, conducted by Kühn and Brener. Soloists: Kläre
Hansen-von der Leithen (Soprano),
Erdmuthe Fiebiger (Contralto), Schlebusch
and Dingarten (Tenor), and Baur and
Rodens (Bass). Overture, Chorns and Bridal
Song from Carr and Carpenter; Overture,
Duet, Two Arias, and Hunting Song from
Der Wildschütz: Ballet Music, Chorus, and
Two Choruses from Der Walfenschmied, 5.0
to 5.55, Humorons Programme. 6.0 to 8.20,
See Munich. 8.20, See Stuttgart. 9.30, Annonneements. 9.45. Records. 10.0 p.m. to
1.0 a.m., Dance Music.

LAUSANNE,-See Radio-Suisse Romande.

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 349 metres.—10.10 a.m., Quintet. Op. 163 (Schubert) by the Dresden String Quartet. 11.0 to 1 p.m., See Munich. 1.0, Talk: Dietrich Eckart, a Nazi Poet. 2.0, Announcements. 2.20, Talk: The Original

Meaning of Christmas. 3.0, See Munich. 5.0, Extracts from Das Apostelspiel (Max Mell). 6.0 to 8.20, See Munich. 8.20, See Breslau. 9.30, Time and News. 9.50, Weather and Sports Notes. 10.5 to 12.30, Variety.

LINZ.-See Vienna.

LJUBLJANA

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Strehestral Concert with Songs. 10.15, Concert of Yugoslav Music. 11.0, Weather, News. Records. 3.0 p.m., Dramatic Programme. 3.30, Operetta on Records. 7.0, See Prague. 8.45, Weather and News. 9.5, Records. 9.30 till Close Down, Programme in English by the I.B.C. 9.30, International Broadcasting Club Concert: Flower of Spain; Coming round the Mountain; Will you Dance through Life with me? Ziganette; Come along with me; Venetian Lady; Play, fiddle, Play; My Donna Rita.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—Belgian
Evening, 7.0 p.m., Children's Choir and the
Station Orchestra. 8.0, Dance Music. 8.30,
Tableaux Grees (Marsick) by the Station
Orchestra, conducted by Pensis. 8.45 (approx.), Exchange, 8.50, News in French, Belgian Song Recital by Marie-Thérèse Grosfilsbe Cuyper: Sonnet (Huberti); Il était une
fois (Stiénon-Dupré); Lied (Franck); Comme
nne fleur (Tincl); La flancée de la mer
(Blockx); Nocturne (Franck). In an interval,
Cello Solo, Abendlied, Op. 85, No. 12 (Schumann) on Gramophone Records, by Pablo
Casals, 9.30, L'apprenti Sorcier (Dukas) on
Gramophone Records, 9.45, News in German.
9.55, Enigma Variations, Op. 36 (Elgar), on
Gramophone Records, by the Royal Albert
Hall Orchestra, conducted by the Composer.
10.20, Dance Music by the Radio Jazz Band
conducted by Ferry Jusa.

MADRID

MADRID

ARANJUEZ (EAQ7), 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Popular Concert. 10.45, Radio Chronicle. 11.0, Popular Concert (contd.). 11.45, Light Music. 12 Midnight till Close Down, Programme in English by the LB.C. 12 Midnight, Dance Music. There's Something about a Soldier; Whusting under the Moon; Somebody stole my Gal; Isn't it Heavenly? A broken Rosary; Let bygones be bygones; I cover the Waterfront; I've told every little Star; There's a Cabin in the Pines; Jog along. 12.30 a.m. (Wodnesday), Dance Music. Don't blame me; Cecilia Mia; Morning, Noon and Night; Oh, Johanna; H's the Talk of the Town.; Dinner at Eight; The Last Roundap; Solitario. 1.0, LB.C. Good-night Melody and Close Down.

MADRID

MADRID

EAJ7; 707 kc/s, 424.3 metres; 2 kW.—12.0 Noon, Chimes, Radio Journal and Aunouncements. 12.15 p.m., Time. 2.0, Chimes, Time, Weather, and Theatre Notes. 2.15 (approx.), Concert: Overture, Cosi fan tutte (Mozart); Selection from Coppélia (Delibes); Tango (Vaccarezza and Hoyos); Allegro (Fioceo); Waltz (Kountz and Shilkert); Selection from Rigoletto (Verdi); Foxtrot. (Marion and Whiting); In a Monastery Garden (Ketelbey); Adios, valle del Palmar; O Star of Eve, from Tamhäuser (Wagner); Duet, La picarona La procesión del Rocio (Turina); March (Borodin); In the interval, Exchange. 3.40, Radio Journal and Film Review. 3.50, News. 4.0 to 7.0, Interval. 7.0, Chimes, Exchange, Topical Talk, Announcements, and Dance Music. 7.15, Talk and Dance Music (contd.). 8.15, Radio Journal. 9.15, English Lesson. 9.30, Chimes, Time, and Radio Journal. 9.45 (approx.), A Musical Comedy. 11.45, Radio Journal. 12.0 Midnight, Chimes. 1.0 a.m. (Wednesday) till Close Down, Programme in English by the 1.B.C. 1.0, Dance Music: When my Little Pomeranian; Oloha Oe; Ding, Dong, Ding; Happy as the Day is Long; Lou'siana Lullaby; Trouble in Paradise; Wood Violets; Isn't this a Night for Love; Twixt the Devil and the Deep Blue Sea; My Kingdom for a Smile from Von; Mi Annor esta cn cl Valle; Love's Old Sweet Song; If you were the only Girl; The changing of the Guard; You are my Heart's Delight; Say it with Music. 2.0, I.B.C. Goodnight Melody.

MALMO .- See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—5.45 a.m., Programme from Prague. 7.30, Programme from Brno. 8.40, Programme from Prague. 10.0, See Brno. 11.0, See Prague. 11.15, Con-cert by the Station Orchestra, conducted by Plichta. 12.30 p.m., See Prague. 3.0, See Bratislava. 4.30, See Prague. 9.15, See Brno.

MOSCOW

KOMINTERN, RW1, 202.5 kc/s, 1,481 metres; 500 kW.—8.0 a.m., Pianoforte, Baritone and Sopiano Recital. 8.55, Time. 9.0, News. 9.15,

Concert. 1.45 p.m., Anno incements. 2.15, Mozart Concert for Children. 2.55, Time. 3.0, News. 3.15, Music. 3.30, Talks. 4.30, Red Army Programme. 5.30, Programme for Collective Farm Workers. 6.30, Talk: The New Soviet Engine. 7.0, Lermontov in Music—Concert with Literary Interludes. 8.8, Talk in German; Foreign Policy of the Soviet Union. 8.55, Chimes from the Red Square. 9.5, Talk in French: The Care of Public Health in the Soviet Union. 10.5, Talk in Dutch: The Foreign Policy of the Soviet Union.

MOTALA.-See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

MUNICH

716 kc/s, 419 metres; 60-100 kW. Relayed by Augsburg and Kaiserlautern, 536 kc/s, 569 metres, and Nürnberg, 1,256 kc/s, 239 metres.

-9.0 a.m., Protestant Service. 9.45, Chimes from Our Lady's Church. 9.50, Reading, 10.10, Christmas in Old Munich: Radio Picture by Hohenstatter. 11.0, Orchestral Concert, conducted by Franz Adam. 12 Noon, Sonatas by Winkler (Violin) and Staab (Pianoforte). 1.45 p.m., Time, Weather, Announcements. 1.0, See Leipzig. 2.0, New Records: Extracts from the Oboc Quartet (Mozart); Ballet Music from Sylvia (Delibes); Selection from Ariadne auf Naxos (R. Strauss); Aria from Lohengrin (Wagner); Ständchen (Schubert); Waltz from The Merry Widow (Lehar); Marching Song (Werner). 2.40, Talk on Wilhelm Dörpfeld on his Eightieth Anniversary. 3.0, The Franken Orchestra, conducted by Böhm, relayed from Nürnberg: March (Schmidt); Overture, Der Erlenhügel (Kuhlau); Waltz (Lanner); Selection from La Boléme (Puccini); Impromptu (Schubert); Overture, Die Fledermaus (Strauss); Seremade for Flute (Roland); Serenade (Metra); Hungarian Dances (Brahms); Polonaise from Eugene Onegin (Tchaikovsky); Dance (Gungl); March (Michael). 4.40, Song Recital by Max Hartmann (Baritone); Heliopolis (Schubert); Abendlied (Schumann); Wennich mit Menschen-und mit Engelnzungen redete (Brahms); Wichtulied auf der Wartburg (Wolf); Der Weckruf (Pfitzner). 5.0, For Children. 5.20, German Folk Songs. 5.45, Weather, Sports Notes. 6.0 (from Nürnberg), Dietrich Eckart Heinnat: A Radio Sequence by the Station Choir, conducted by Zengerle, the Station Orchestra conducted by List, and Soloists. 8.20, See Breslau. 9.30, See Leipzig. 9.50, Weather, News and Exchange. 10,5 to 12 Midmight, See Leipzig.

NAPLES .- See Rome.

NOTODDEN .- See Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Rjukan, 671 kc/s, 447.1 metres, and Jelöy, LCL, 6,990 kc/s, 42.92 metres.—9.15 a.m., Weather. 9.20, Records. 9.50, Chimes and Divine Service for Children, relayed from the Military Church. 10.15, Divine Service, 11.10, Exchange. 11.56, Time. 12 Noon to 1.0 p.m., Records. In the intervals, Weather, Agricultural Report and Exchange. 3.0, The Radio Ensemble, conducted by (Instavsen: March (Borg); Two Pieces (Grieg): (a) Prayer, (h) Temple Dance; Norwegian Melodies (Borch); Piece (Nordraak); Urolig hav (Svan); I ensomme stunder (Ole Bull). 3.30, Talk, relayed from Bergen, 824 kc/s, 364 metres; Christmas on the Frozen Seas. 4.0, The Radio Ensemble (contd.): Prelude (Svendsen); Melody (Grieg); Aftenlandskap (Halvorsen); Violet (Svendsen); Homage March to Prince Olav (Borg). 4.30, A Play for Children. 5.15, Sacred Songs by Cally Monrad. 5.40, Interviews with Representatives of Iceland, the Fraroe Isles, Greenland and the Shetland Isles, relayed from Bergen. 5.5, News. 6.30, Reading. 7.0, Time. 7.1, Concert by the Philharmonic Orchestra, conducted by Fjelstad, and the Church Choir, conducted by Sandvold, relayed from St. Saviour's Church. 8.40, News. 9.0, Topical Talk. 9.15, Variety Programme from Bergen. 10.0, Dance Music on Records.

OSTERSUND.-See Stockholm.

PALERMO

PALERMO

PALERMO

Solventres: 3 kW.—11.45 a.m., Giornale Radio. 12 Noon to 1.0 p.m., Light Music. Festival March (Alfano); Tango, Beny (Rosa Clot); Selection from Andrea Chenier (Giordano); Intermezzo, Largo (Mulè); Melody from a Sound Film (Wachsmann); Potpourri. Ufaton e Bamben (Borchert); Hesitation Waltz, Sull'Isarco (Mascagni); Cholomiro (Prato). In the interval. Time and News. 4.30, Programme for Women. 4.40, Records. 5.10 to 5.30, Bailila Programme. 7.0, Announcements. 7.20, Records. In the interval, Time and News. 7.45, Othello—Opera in Four Acts (Verdi), on Gramophone Records. In the intervals, Talk and Notes. 10.0, Giornale Radio.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—12.30 p.m., Concert relayed from Paris (Ecole Superieure), 671 kc/s, 447.1 metres. 1.0, Market Prices. 1.15, News. 1.30, Agricultural Notes. 1.45, Report of the Labour Bureau. 2.0, Exchange. 2.15, Economic Notes. 2.30, Exchange and Colonial Report. 2.45, Anusement Guide. 3.0, Annonements. 3.15. Exchange thange and Colonial Report. 2.45, Anusement Guide. 3.0, Announcements. 3.15, Exchange. 3.30, Exchange and News. 3.45, African Report. 4.0, Tourist Notes. 4.15, Exchange and Market Prices. 5.45, Le Journal Parlé. 7.15, Weather. 7.25, News. 7.30, Records. 7.45, Talk on the History of Art. 8.0, Science Talk. 8.15, Political Talk. 8.30, Hungarian Concert. The Orchestra and Choir, conducted by Dorati. Luccionu (Tenor), Mne. Darre (Pianoforte).

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.10 a.m., Fanfare anc Records: Petit Quinquin (Desrousseaux); Marche des fleurs (Renard); C'est p. 18 juste (Van Parys); Un sourire et çà suff t (Borel-Clerk); The Skaters' Waltz (Waldteufel); Les yeux noirs; Speak to me of Love (Lenoir); Two Pieces from Katinka; Song and Czardas; Three Pieces (Scotto): (a) Au pays du soleil, (b) La partie de pêche, (c) A petits pas; Air from Les brigands (Offenbach); Air, from Mademoiselle Nitouche (Hervé). 7.30, News, Humorous Items and Gastronomic Talk. 12.5 p.m., Operetta Music on Records: Selection from Rip (Planquette); Véronique (Messager); Le jour et la nuit (Lecoeq). 12.20, Sponsored Programme. 12.30, Records. 1.15, Records: Un peu de poésie (Pingault); Tout en bleu (Pingault); On ne s'était rien dit (Sylvanio); Cinéma (Daix). 1.30, Records. 2.0, Financial News. 3.15, Financial News. 3.45, Financial News. 4.50, Tinancial News. 6.45, Financial News. 6.50, Talk on the Music Hall. 7.0, Symphonic Suite of Waltzes (Melichar), on Records. 7.7, Cinema Review. 7.15, Journal Parlé. 7.30, Records. 8.10, Concert by the Station Symphony Orchestra, conducted by Mathieu; Overture, Fingal's Cave (Mendelssohn); Nöel Berrichon (Rousseau); Ballet Music from Manon (Massenet); Les chansons des trains et des gares (Fraggi); Madrigal in Four Parts (Rieti); L'arlequinade (Huttel); Suite algérienne (Saint-Saëns). 10.30, News.

PARIS

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—12 Noon, Fcrests, Meadows and Villages—Gramophone Concert. La diligence dans la forêt; The Mill in the Forest (Eilenberg); Sous bois tStaub); La forêt qui chante (Charlys); La voix des chênes (Goublier); Air from Lattaque du moulin (Bruneau); Das la forêt près du lac; The Nightingale's Soug (ZeHer); La chanson des peupliers (Beria); Sous la feuillée (Thomé); Forest Murnnurs from Siegfried (Wagner); La chanson des blès d'or (Beria); Papillon (Zubalov); La petite cglise (Delmet); La laitière et le pot au lait (La Fontaine); Song (Persiani-Jourdan); Aria from Mirella (Gounod); Les boeufs (Dupont); Les cigales (Chabrier); Semailles (Goublier); La procession (Franck); Les pommiers (Fremine); Three Songs from the Cycle, Die schöne Müllerin (Schubert); La petite maison; Les vieilles de chez nous (Levadé); Dors, mon gars (Botrel); Tout le pays l'a su (Borel-Clere; Le p'tit quinquin (Desrousseaux), 2.5 p.m., News. 3.45, Exchange. 6.20, News, Talk and Exchange. 6.40, Records: Greek March (Gaune); Chérie tous les deux (Alabreze-Simonot); Blelody (Navarina); Selection from Il Trovatore (Verdi-Lange); Les lilas (Doelle); It's you, Baby (Mitchell) 7.0, Theatre Review. 7.20, Gramophone Records. 7.45, News. 8.0, The Merry Wives of Windsor—Comedy (Shakespeare), arranged for Radio by Jean Variot. In the intervals, News.

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—12 Noon, Musical Clock. 1.0 p.m., Morning Devotions, from New York. 1.15, Don Hall Trio, from New York. 1.30, Organ Recital, from New York. 2.0, Breakfast Clibb, from New York. 2.36, Style and Shopping Service. 2.45, News, Work-a-day Thoughts. 3.0, Edward MacHugh, from New York. 3.15, Clara, Lu 'n' Em, from New York. 3.45, Singing Strings, from New York. 3.45, Singing Strings, from New York. 4.0, Four Southern Singers, from New York. 4.15, Sammy Fuller. 4.30, Shut-in Hour, from New York. 5.30, News, Market Reports. 5.45, Ernie Holst's Orchestra. 6.0, Farm and Home Hour, from New York. 6.30, Ernie Holst's Orchestra. 7.0, Four Aces. 7.15, Musical Originalities, from New York. 7.30, KDKA Home Forum. 8.0, Rochester Orchestra, from New York. 9.0, Betty and Bob, from New York. 9.15, Congress of Clubs. 9.30, News. Market Reports. 9.45, Brown Palaee Orchestra. from New York. 10.15, KDKA Kiddies, Klub. 10.30, Singing Lady, from New York. 11.0, News, Pat Haley. 11.15, Sports, Programme Preview. 11.30,

DEC. 26th TUESDAY continued

Egizi's Salon Orchestra. 11.45, Lowell Thomas, from New York.

PORSGRUND.—See Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—9.0 a.m., Choral Concert of Russian Music. 9.30, Literary Programme. 10.0, See Bron. 11.0, Chimes and News. 11.15, See Moravská-Ostrava. 12.30 p.m., Agricultural Programme. 3.0, See Bratislava. 4.30, Theatre Reminiscences by Bohuslav—the Blind Actor. 4.45, Records. 5.0, German Transmission: Sanctissimum—Allegory (Kienzl), with Music by the Station Orchestra. After the Programme, News. 6.0, News. 6.5, Midnight Mass at Krecovice—Scene from the Life of Josef Suk; The Station Orchestra and the Society for Sacred Music, conducted by Nemec. Solvist: Loskot. 7.5, Slav Dances, Op. 46 and Op. 72 (Dvorák) by the Czech Philharmonic Orchestra, conducted by Stupka, relayed from the Smetana Hall. In the interval, Talk on Astronomy. 9.0, Time and News. 9.15, See Brno. 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE
SOTTENS, 743 ke/s, 403 metres; 25 kW.; and
Geneva, 395 ke/s, 749.9 metres.—11.30 a.m.,
News, Weather. 11.40 a.m. (from Geneva),
Records. 12 Noon (from Geneva), Financial
News. 12.10 p.m. (from Geneva), Records.
1.0 to 2.58, Interval. 2.58, Time Signal from
Neuchâtel Observatory. 3.0 (from Lausanne),
Concert by the Radio Lausanne Orchestra,
conducted by Moser: Famous Marches and
Waltzes, Operetta Music, Country Melodies
and Dance Music. 5.0 (from Lausanne), Talk
for Honsewives. 5.30, Talk; The Briton Poet,
Brizeux. 6.0, See Vienna. 7.30 (from Lausanne), A Waltz Dreann—Operetta in Three
Acts (O. Strauss), relayed from the Théâtre
Bel-Air. In the interval; News and Weather
and Answers to Correspondence.

REYK JAVIK

250 kc/s, 1,200 metres; 21 kW.—11.40 a.m., Weather. 12.0 Noon, Divine Service. 4.0 p.m., Variety Programme. 7.45, For Children. 8.10, Weather. 8.20, Music and Announcements. 8.35, 'Cello Recital by Arnason. 9.0, Chimes and News. 9.30, Reading. 10.0, Concert. 12.0 Midnight, Dance Music.

RJUKAN.-See Oslo.

ROME

ROME

Call 1RO; 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 682 kc/s, 453.1 metres from 7.40 p.m.; and 2RO, 11,810 kc/s, 25.4 metres.—11.30 a.m., Records. 12.0 Noon, Sce Turin. 12.30 p.m., News and Exchange. 3.30, For Children. 3.55, Giornale Radio, Exchange. 4.30, 'Cello 'Recital by Gaspar Cassado, relayed from the Royal Philharmonic Academy. 5.0, Wheat Markets. 5.10, News. 5.45 (Naples), Shipping and Sports Notes. 5.50, Morse Lesson and News. 6.0, News in Foreign Languages. 6.30, Records. 6.50, Glornale Radio and Sports. 7.0, Time, Announcements, and Records. 7.10 (approx.), Song Recital by Nadia Krusceva (Soprano): Wiegenlied (Mozart); O del mio amato ben (Donaudy); Bulgarian Song (Naidenov); Bulgarian Song (Bobeevski). 7.40, Request Records. 8.10, Love is blind—Comedy in One Act (Forzano). 8.40 (approx.), Concert. (Cello Solos: (a) Adagio (Ziino), (b) Bourrée auvergnate (Canteloube), (c) Noeturne in E Flatt (Chopin-Silva); Italian Songs; Records: (a) Selection from Les Troyens (Berlioz), (b) Symphonic Poem, Finlandia (Sibelius), (c) Slav Dance from Le of malgrélui (Chabrier), (d) Intermezzo from The Jewels of the Madonna (Wolf-Ferrari). 10.0, Giornale Radlo.

SALZBURG.-See Vienna.

SCHWEIZERISCHER LANDESSENDER

LANDESSENDER
BEROMUNSTER, 653 kc/s, 459 metres; 60
kW.; Basle, 1,229 kc/s, 244.1 metres; and
Berne, 1,220 kc/s, 245.9 metres.—11.0 a.m.
(from Zürich), Concert. 12.25 p.m. (from
Zürich), Time and Weather. 2.30 (from
Zürich), The Small Beromünster Orchestra,
conducted by Scherbaum. 2.59, Time from
Neuchätel Observatory. 3.0, See RadioSuisse Romande (Sottens). 5.0 (from Berne), Records. 5.30 (from Berne), Talk:
The Breeding of Fur-bearing Animals. 5.55
(from Berne), Time, Weather and Notes on
the Broadcasts for Schools, 6.0, See
Vienna. 7.30, Programme to be announced.
8.0, Weather and News. 8.10 (from Berne),
Traffic Report. 8.20, Overture. Oberon
(Weber). by the Beromünster Orchestra,
conducted by Gilbert. 8.30 (from Berne),
Talk in English.

SOTTENS.-See Radio-Suisse Romande,

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres; Ostersund, 402 kc/s, 746.2 metres, and Sundsvall, 554 kc/s, 542 metres, and Sundsvall, Weather and Ice Report. 1.0 p.m., Light Music by the Herman Martensson Ensemble: Norwegian Dance No. 6 (Grieg); Overture, Heimkehr aus der Fremde (Mendelssohn); Hungarian Dance No. 6 (Brahms); Extracts from The Sleeping Beauty (Tchaikovsky); Selection from The Pearl Fishers (Bizet); Mazurka (Becucci); Waltz, Loin du bal (Gillet); Intermczzo (Kahrman); Two Pieces (arr. Ringual). 2.0, Reading. 2.30, Provincial Programme. 3.0, For Children. 4.5, Records. 5.0, Talk: Peter Forsskal, relayed from Uppsala, 662 kc/s, 453.1 metres. 5.30, Piunoforte and 'Cello Recital by Anita Harrison (Pianoforte), Witkowsky (Pianoforte), and Gustav Gröndahl ('Cello). 6.15, Weather and News. 6.30, Il.R.H. Prince X—Comedy (Rybrant), with Music by Karl Wehle and Georg Enders, 8.45, Weather and News. 9.0, Dance Music.

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—10.30 a.m.,
Orchestral Concert, relayed from Toulouse
(PTT). 12 Noon, Orchestral Concert, conducted by de Villers. Spanish Dance and
Italian Dance from Le Tribut de Zamora
(Gound); Overture, Zanetta (Auber); Selection from La Legende du Point d'Argentan (Fourdrain); Japanese Variations
(Vidal). 12.45 p.m., News. 1.0, Time. 1.2,
Orchestral Concert (contd.). Overture, Qno
Vadis (Scassola); Selection from The
Mastersingers (Wagner); Suite, Bal à la
cour (Thome); Nocturne from Cocorico
(Ganne); Prelude and Dance from Das Pensionat (Snppé); Bohemian March (Filipueci. 4.45, Talk in French on Dijon. 5.0,
Orchestral Concert, conducted by Roskam.
Marche gauloise (Debaar); Valse-Intermezzo
(Démaret); Overture, Les Saltimbanques
(Ganne); Selection from Jocelyn (Godard);
Viola and Pianoforte Duet, Lied (Stolz);
Esquisses provençales (Popy); Two Pieces
(Tosti); (a) Serenata, (b) Vorrei morire;
Selection from Bouche à bouche (Yvain).
6.0, History Talk in French. 6.15, Orchestral Concert, conducted by de Villers, Two
Spanish Dances (Falla); Ballet Music from
Henry VIII (Saint-Saëns); Rhapsody No. 14
(Liszt); Selection from The Girl of the
Golden West (Puccini); Marche greeque
(Ganne), 7.30, Time. 7.32, News. 7.45,
Records. 8.0, Lottery Results. 8.15, Records. 8.30, See Paris (Eiffel Tower).

STUTTGART

STUTTGART

MUHLACKER; 563 kc/s, 553 metres; 100 kW. Relayed by Freiburg, 1,157 kc/s, 259.3 metres, and 527 kc/s, 559 metres until January 16th, 1934.—8.30 a.m., See Langenberg. 9.0, Würtemburg Landes Symphony Orchestra. conducted by Fredinand Drost. Soloists: Reichardt ('Cello), Hubl and Oswald (Violins). Seyfert (Cembalo). Christmas Symphony (Schilassi); 'Cello Concerto with String and Cembalo Accompaniment (Handel); Concerto for Two Violins (Stamitz). 16.0, Records: Overture. The Magic Flute (Mozart); Aria from II re pastore (Mozart); Overture, II Scraglio (Mozart); Song from Der Evangelimann (Kienzi); Prelude to Act III, Lohengrin (Wagner). 11.0, See Munich. 12.0 Noon, The Station Orchestra, conducted by Gustav (Griich: Overture, Si j'etais Roi (Adam); Extract from Der Evangelimann (Kienzi); Finzug des Schnee-königs (Noack); Mazurka (Millöcker); Polka (Bayer); Waltz (Keler-Bela); Gallop (Eilenberg). 1.0 p.m., See Laigzig. 2.0 to 6.0, See Langenberg. 6.0 to 8.10, See Munich. 8.10, See Bresiau. 8.20, Sports Notes. 8.30, The Station Orchestra, conducted by Gustav Görlich. 9.0, See Frankfurt. 9.20, Things you minst know... 9.30, News, Weather, and Sports Notes. 9.45 till Close Down, See Langenberg.

SUNDSVALL.—See Stockholm.

TOULOUSE

TOULOUSE

779 kc/s, 385 metres; 8 kW.—8.0 a.m., Dance Music. 8.30, News. 8.35, Orchestral Music: Selection from Alessandro Stradella (Flotow); Pavane pour une infante défunte (Ravel). 8.45, Operetta Music: Rondo and Couplet from Le petit duc (Lecocq); Duet from Véronique (Messager). 12.0 Moon, Opera Arias: Arias from William Tell (Rossini); The Damnation of Faust (Berlicz); and The Tales of Hoffmann (Offenbach). 12.15 p.m., Orchestral Music: Selection from The Desert Song (Romberg); O Frühling, wie bist du so schön (Lincke): In a Bird Shop (Lake); Ländler. 12.30, News. 12.45, Request Music. 1.0, Amusennent Guide, Market Prices and Time. 1.5, Military Music. 1.15, Music from Sound-Films. 1.30, Operetta Music: Villa's Song from The Merry Widow (Lehár); Selection from Die geschiedene Frau (Fall). 1.45, Songs. 2.0, News. 4.15,

News. 6.0, News. 6.15, Argentine Band. 6.30, Talk. 6.45, Operetta Music: Selection from Eva (Lehiar); Selection from The Dollar Princess (Fall); Viennese Operetta Potpourri (Robrecht). 7.0, Russian Songs. 7.15, News. 7.30, Violin Recital: Mazurka (Zarzycki); Scherzo, Tarantella, and Gavotte (Grétry); Variations (Tartini). 7.45, Chansonnettes. 8.0, Light Music: Ständchen (Schubert); Extase (Ganne); The Song of the Angels (Braga). 8.15, Opera Music: Arias from La juive (Halévy), Siegfried (Wagner), and Il Trovatore (Verdi). 8.30, Military Music. 8.45, Orchestral Music. 9.0, Concert Version of White Horse Inn—Operetta (Stolz-Benatzky). 9.45 (approx.), A Viennese Orchestra. 10.0, Music from Sound-Films. 10.15, News. 10.30, Orchestral Music: Selection from The Secret Marriage (Cimarosa); Old Spanish Song (Aubert); Spharenklänge (Joh. Strauss). 10.45, Songs. 11.15, Dance Music. 12 Midnight, News. 12.5 a.m. (Wednesday), An caveau de minuit—a Radio Fantasy.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—No Transmission.

TRONDHEIM.—See Oslo.

TURIN

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 598 kc/s, 501.6 metres.—10.15 a.m., Records; Slav Marsh (Chalkovsky); Danze e arie antiche (Respighi); Concerto grosso in G minor (Molinari); Aria from Lakmé (Delibes); Air from The Pearl Fishers (Bizet); Extract from Andrea Chenier (Giordano). 11.30, Records. 11.45, Giornale Radio. 12 Noon, Time and Announcements. 12.5 to 1.15 p.m., Trio Concert. In the interval, Records. 3.35, Giornale Radio. 3.45, For Children. 4.10, Chamber Music. 4.55, Weather. 6.0, Time and News in Foreign Languages. 6.30, Records. 7.30, Announcements. 7.40, I granatieri—Operetta in Three Acts (Valente). In the intervals, Talk, Literary Notes, and Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in English. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—
9.50 a.m., 'Cello Recital by Friedric Buxbaum. 10.30, Talk. 11.0, Light Music by the Wiener Symphoniker, conducted by Max Schönherr. 1.30 p.m., Time and Announcements. 1.35, Records: Don Pasquale—Opera (Donizetti). 3.50, Talk: Austrian Peasant Art at Christmas. 4.15, The Tautenhayn Quartet. 5.20, Talk: Christmas in the Provinces. 5.50, Time and Announcements. 6.0, Lehar Radio Potpourri (Hruby). 7.30, Winterlegende—Dream Play in Three Acts (Paul Busson). 9.50, News and Weather. 10.0, Gramophone Records.

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—8.0 a.m.,
 Time Signal and Christmas Carol. 8.5, Gym.
 8.20, Records. 8.35, Radio Journal. 8.40,
 Records. 8.50, For the Housewife. 8.54,
 Announcements 9.5, Divine Service from
 the Cathedral, Poznan. After the Service,
 Sacred Music on Gramophone Records. 10.57,
 Time Signal and Fanfare from St. Mary's
 Church, Cracow. 11.5, Announcements. 11.10,
 Weather. 11.15, Concert by the Philliar
 monic Orchestra, conducted by Oziminski.
 Solois: Marie Mokrzycka (Songs). Overture. La Savoyarde (Moniuszko); Polish Fan tasia, Noël (Szawlowski); Craeovienne from
 the Polish Symphony (Dobrzynski); Four
 Polish Songs; Selection from The Haunted
 Castle (Moniuszko); Three Songs; Serenade
 (Pergolesi-Nowowiejski); Slav Dance in G
 Minor (Dyorák). 1.0 p.m., Agricultural
 Talk. 1.15, Polish Music on Gramophone Re cords. 2.0, For Housewives. 2.20, Jazz
 Music. Foxtrot, Ay, ay, ay (Freire); Waltz.
 Souvenir (Wilkosz); Foxtrot (Mohr); Slow
 Foxtrot, Ninon (Kaper-Jurman); Tango
 (Lederman); Foxtrot (Young); Slow Fox trot (Wilkosz). Programme for Children.
 3.30, Violin Recital by Kreisler, on Gramo phone Records. 3.45, Reading. 4.0, Talk:
 Winter Hunting. 4.15, Concert of Christmas
 Carols by the Station Orchestra and a Choir.
 Soloists: Azarewiez (Soprano), Korolkiewicz
 (Baritone), Pasierb and Langer (Har monium). 5.0, Dramatic Programme. 5.40,
 Song Recital by Janowski. 6.0, Announce ments. 6.5, Miscellaneous Items. 6.30, Re cords. 6.40, Talk on Art. 6.45, Topical Talk.
 7.0, Ball at the Savoy—Operetta (Abraham).
 In the intervals, Radio Journal and Sports
 Notes. 10.0, Weather and Police Notes. 10.5,
 Dance Music.

ZURICH.-See Schweizerischer Landessender.

ATHLONE

DECEMBER THE TWENTY-SEVENTH

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres, and Cork, 1,337 kc/s, 224.4 metres.—1.30 p.m., Time. News and Records. 2.0, Records. 6.0, For Children. 6.45, News. 7.0, Talk in Gaelie, by Micheal O. Maolaim. 7.15, German Lesson by Wenekstern. 7.30, Time. 7.31, Mnise by the Station Orchestra. 7.45, Pantonime by Brennan and Company, with Orchestral Music. 8.45, Station Ladies' Choir. 9.15, Lonis Pasteur Memorial Programme. 9.30 to 10.30, Programme by the I.B.C. (Ircland). Ltd. 9.30, Dance Music: My Imaginary Sweetheart; Shanghai Lii, When the Sweet Magnolias bloom again; Blue Roses. 9.45, Dance Music: Signature trune, There's a new day comin'; Sentamental Gentleman from Georgia; Dear Strauger; Waltzing alone with Horer's a new day comis'. 160.0, Orchestral Music; Melodious Memories (Finck); Chauson (Friml); Cavastina (Raff); Racing Commentary; The Cuekoo Waltz (Jonasson); Selection from Nool Coward's Bitter Sweet; Banjo Solo (de Fietro); The Blue Danube (Joh. Strauss). 10.30, I.B.C. Good-night Melody, followed by News. 10.40, Irish Music.

BARCELONA

10.30, 1.B.C. Gaddings steamy, follows, 10.40, 1rish Music.

BARCELONA

EAJ1, 861 kc/s, 348.4 metres; 8 kW.-7.15 a.m., Raulio Journal and Gramophone Music. 8.0, Chimes, Physical Culture and Gramophone Music. 8.20, Radio Journal and Gramophone Music. 8.20, Radio Journal and Gramophone Music. 9.0, Announcements, 11.0, Chimes from the Cathedral and Wenther. 12 Noon, Programme for Women. 12.35, Gramophone Music. 1.0, Gramophone Records, 1.30, Theatre Notes and Gramophone Records, 1.30, Transmission. 6.0, Trio Concert. Selection from Siegfried (Wagner); Minut (Gervasio); Clair de Lune from Werther (Massenet); The Musical Box (de Severac); Venetian Barcarolle (Mendelssohn); Love Song (Bure); Selection from Norma (Bellini). 7.0, Request Gramophone Records (contd.). 8.0, Gramophone Music. 8.30, Catalan Eductional Programme and News. 9.0, Chimes from the Cathedral and Weather. 9.5, Announcements, Eychange and Market Prices. 9.10, Concert by the Philharmonic Mandoline Orchestra, conducted by Felix de Santos Schasfian, 11.0, News. 11.10 (approx.), Dance Music. relayed from the Casa Llibre. 1.0 a.m. (Thursday) till Close Down, Programme in English by the I.B.C. 1.0 a.m., Accordion Music: Selection from Viktoria and her Hussar (Abraham); Spanish Sweetheart (Hargreaves); Marche Lorraine (Game); Coal Black Manmy (St. Heller); Selection from The Land of Smiles (Lehár). 1.30, Light Music: Overture Potpourri (Peters); Scherzo, Sylvia (La Thicre); Negro Song, Water Boy (Dewy); Chanson (Friml); Te fuista Ja Ja (Matros); For ever and for ever (Tosti); Rose Down. BASLE.—See Schweizerischer Landessender.

BASLE.—See Schweizerischer Landessender.

BERLIN

BERLIN

DEUTSCHLANDSENDER

(REICHSSENDER), 183.5 kc/s, 1,635 metres; 60 kW.7.45 a.m., For Women. 8.0, Records. 8.40,
Gymn. 9.0, News. 9.10, Sopramo and Baritone Recital by Eva Duffing and Werner
Gisevins. 10.0, Talk. 10.15, Weather. 10.30,
Talk: 010 Wedding Customs. 10.50, Topical
Talk. 11.0, Weather. 11.5, Records,
Deutscher Föhn (Hanfstaengel): Overture,
The Gipsy Baron (Joh. Strauss); Overture,
Der Wahlmeister (Strauss); Polka, Bittesselhön (Strauss); Ballgeflüster (Meyer-Helmund); Elegy (Massenet); Waltz, Amoureuse
(Berger); Waltz, Vibraphon (Löhr): Overture to the Carmival Suite (Schmadstich);
Fröhliches Wandern (Woitschach); Two Airs
from The Gipsy Baron (Joh. Strauss);
Deutschmeister-Marsch (Jurck). After the
Programme, Weather. 11.55, Time. 12.45
p.m., News. 1.0, Records: Koketterie
(Mahr); Deingedenk ich, Margarethe
(Meyer-Helmund); Drei Wünsche (Furber);
Lichste glapb an mich (Lehar); Ukranian
Sketches (Sibirski); Waltz, Mia bella (Sommerfeld); Giit's im Radio Tanzamusik (Kollo); Tanzende Teepuppe (Schmidt-Hagen);
Hoppla, Hoppla (Freundorfer): Zehn
Meilen vor der Stadt (Schachel); GlückRiche Reise (Künneke); Kleinbahnfahrt
(Rathke). 1.45, Reading of Two Fairy
Stories, 2.0, Pani Albordes reads, from his
own Works. 2.30, Weather, Exchange. 2.46,
Reading. 3.0, Sec Leipzig. 40, Talk: Old
Christmas Customs and their History. 4.20,
Walter Niemann in a Programme of his own
Music. 5.0, Poems. 5.5, Streichholzpeterchens Himmelfahrt—A Musical Radio Play
(Marie Basler). 5.50, Announcements. 6.0,
Transmission for all German Stations, relayed from Stuttgart. 7.0, To-day's Motto.
7.10, Dance Music by Oskar Johost's Band
with Gustav Jacobi and others. 9.0, News.
3.30, Technical Wireless Talk. 9.45, Weather.
10.0, Dance Music, relayed from the Eden
Hotel. 11.30 (approx.). Close Down.

BERLIN

FUNKSTUNDE, 932 kc/s, 360.5 metres; 100 kW. Relayed by Zeesen, DJC, DJA, DJD,

DJB, and DJE.—10.30 a.m., The Small Station Orchestra, conducted by Steiner: Waltz, The Blue Danube (Joh. Strauss); Minnet (Boecherini); La lettre de Manon (Gillet); Waltz from Fanst (Gonnod); Overture, The Force of Destiny (Verdi); Solveig's Song (Grieg); Leggenda d'amore (Becce); Waltz from The Count of Luxembourg (Lehár); Folk Song, Wenn ich ein Vöglein wär; Viennese Song Potpourri, Soschön, wie's einmal war (Danber). In the interval, Weather, 12 Noon, Records: Waltz from The Count of Luxembourg (Lehár); Was ieh längst erträumte, from Der Göttergatte (Lehár); Air from Wild Violets (Stolz); Hab' ein blaues Himmelbett, from Frasquita (Lehár); Air from The Land of Smiles (Lehár); Frei und jung dabei from Schön ist die Welt (Lehár), 12.20 p.m., See Hamburg, 1.15, News, 1.35, Extracts from Manon Lescant—Opera (Puccini). on Records. 2.0, Exchange, 2.20, Pianoforte Concerto No. 2 in A (Liszt), 2.45, Report from a Women's Gymnasium, 3.0, See Heißberg, 4.0, In the Home—a Merry Programme, 4.30, Variations on a Theme of Haydn, Op. 56b, for Two Pianofortes (Brahms), by Kurt Rasch and Wolfgang Wilcke, 5.5, Records, 5.30, The Funkstunde informs its Listeners. . . . 5.35, Review of the Week, 6.0, Transmission for all German Stations, relayed from Stuttgart, 7.0, Annonneement, 7.5, The Station Orchestra (Wikarski); Planoforte Concerto, Op. 26 (Trapp), 8.5, Love is the greatest Folly—Comedy (Ernst), 9.0, News, 9.30, Dance Music, relayed from the Wilheinshalle in the Zoo.

BERNE,-See Schweizerischer Landessender. BEROMUNSTER. - See Schweizerischer Landossender.

BODEN .-- See Stockholm.

RODO -See Oslo.

BORDEAUX-LAFAYETTE

BORDEAUX-LAFAYETTE
986 kc/s. 304 metres; 13 kW.—7.45 a.m.,
News, relayed from Paris (Ecole Supérieure),
671 kc/s, 447.1 metres. 10.30, Concert, relayed from Lyons (La Doua), 644 kc/s, 465.8
metres. 12.45 p.m., Time and Quintet Concert. In the interval, News. 1.50, Exchange. 2.0, Records. 3.0, Concert, relayed from Paris (Ecole Supérieure). 6.15.
Radio Jonemal, relayed from Paris (Ecole
Supérieure). 7.35, News and Market Prices.
7.40, Talk on the Ginema. 7.55, Lottery Results. 8.5, Talk, relayed from Paris (Ecole
Supérieure). 8.20, Agricultural Talk.
8.35,
News, Market Prices and Weather.
8.40.
Records. 9.10. Concert. After the Con-

BRATISLAVA

BRATISLAVA

1,073 kc/s, 279.5 metres; 14 kW.—10.5 a.m., Records. 10.55, See Prague. 11.0, Agricultural Report. 11.10, See Prague. 11.05, The station Orchestra: March from A Midsummer Night's Dream (Memdelssohm); International Suite (Moszkovsky); Wedding Seenes (Smetana); Intermezzo (Kocián); Slav Danees Nos. 5 and 6 (Dvorák). 12.35 p.m., See Prague. 12.45, News in Slovak, German and Humgarian. 12.55 to 1.0, See Prague. 2.50, See Prague. 3.50, See Prague. 3.50, See Prague. 4.35, For Children. 4.50, Records. 4.55, Hungarian Programme: Christmas Carol and Cello and Pianoforte Duct. 5.55. For Honsewives. 6.0, See Prague. 6.25, Xylophone Solos: Mazurka, La Czarine (Ganne); The Skaters' Waltz (Topinka). 6.50, See Prague. 7.5, The Station Orchestra: Soloists: Rudolf Polák (Violin) and Jan Polák (Violin); Symphony in G for Two Violins and Orchestra (Alard); Czech Suite. Op. 39 (Dvorák). 7.45, See Prague. 8.10, A One-Act Play (Kozik). 9.0, See Prague. 8.10, A One-Act Play (Kozik). 9.0, See Prague. 9.15 (approx.), Uose Down. BREMEN.—See Hamburg.

BREMEN.-See Hamburg. **BRESLAU**

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—10.20 a.m (from Gleiwitz). Agricultural Talk. 10.40, Annonneements, 10.50 to 1.15 p.m., See Leipzig. 1.15, Time, Weather. 1.20, Post Office Programme with Records, 1.50, Annonneements, 2.20, Talk: The Edda. 2.30 (from Gleiwitz). Programme for Children. 3.0 to 5.10, See Leipzig. 5.10 (from Gleiwitz). Agricultural Prices; Review of the Upper Silesian Heimatkalender. 5.25, Programme to be announced. 5.45, Announcements, 6.0, Transmission for all German stations, relayed from Suttgart. 7.0, See Leipzig. 7.10, Twenty Degrees below Zero-Variety Programme. 9.0, See Leipzig. 9.20, Announcements, 9.35, The Silesian Hillharmonic Orchestra, conducted by Wolfgang Friebe: Overture, Maritana (Wallace); Se-

lection from Carmen (Bizet); Hungarica Rhapsody (Reindel): Waltz, Aquarellen (Joh. Strauss); Die Verlassene Mühle; Prähndium, Chorus and Dame from Das Pensionat (Suppé); Waltz, Estudiau-tina (Waldteaffel); Potpourri, From the Rhine to the Danube (Rhode).

BRNO

BRNO

878 kc/s, 342 metres; 35 kW.—10.0 a.m., Gramophone Records, 10.55, See Prague.

11.0, Market Prices, 11.10, See Prague.

11.0, Market Prices, 11.10, See Prague.

11.0, Market Prices, 12.35 p.m., See Prague.

11.0, Market Prices, 2.30, See Prague.

12.35 p.m., See Prague.

12.40, Talk for Children.

12.50, See Prague.

12.40, Talk for Children.

12.50, See Prague.

12.51, Records.

12.51, Records.

12.52, Records.

12.52, Records.

12.53, Records.

12.54, Records.

12.55, Records.

12.55, Records.

12.56, See Prague.

12.56, See Prague.

12.57, Records.

12.58, Records.

12.59, Records.

12.50, See Prague.

12.50, See Prague.

12.50, See Prague.

12.51, Records.

12.52, Records.

12.54, Records.

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12.57, Records.

12.58, Records.

12.59, Records.

12.50, Re

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509.2 metres; 15 kW.—12
Noon, Concert by the Paul Moreau Orchestra, relayed from the Scala Tavera. 1 p.m., Le Journal Parlé, 1.10, Concert by the Radio Orchestra: Soloist; Marguerite Thys (Songs); One-Step (Grothe); Dances from The Rehel Maid (Montague Phillips); Russian Melodies (Higgs); Songs: March, Les petits soldats de plomb (Pierné); Intermezzo from Charles Stratton (Dejoncker); Habanera (Grillaert and Van Herck); Valse musette. C'est mon p'tit (Mercier); Persian Caravan (Benson)? Bavarian Dances (Pacheruegg), 5.0, Leonora Overture No. 1 (Beethoven) on Records, 5.10, 'Cello and Pianoforte Recital by Rodolphe Sciron and Marcel Gazelle: Variations in E Flat (Beethoven); Sonata for 'Cello and Pianoforte (Rachmaninov), 6.0, Talk on Embryology, 6.15, Records: Allegro molto from the Sonata No. 6 (Mendelssohn); Minnet (Mozart): Toccata (Boëllmann); Arabesque (Debussy), 6.30, Variety Items, 7.0, Request Gramophone Music: Geraidoland (Padilla-Becucci); Love me To-night (Hart); Foxtrot. The Old Man of the Mountain (Brown); Play, fiddle, play (Lawrence); Foxtrot, Please (Robin); Selection from The Maid of the Mountain (Fraser-Simson), 7.30, Medical Talk, 8.0, (oneert by the Radio Orchestra, conducted by Franz André; March from White Horse Inn (Benatzky); One-Step, Happy-go-lucky Days (Wallaee); Suite, Henry VIII (Fondls); Violin Solo: Zigennerweisen (Sarasate); Rhapsody in A Flat (Dvorak); Burlesque (Poot); Symphonic Suite (Herry); Good-night Sweetheart (Noble); Little Girl (Hyde), 8.45, Talk on the Belgian Writer Leon Songuenet, with Readings from his Works, 9.0, Concert (Cond.); Ballet Music from The Two Widows (Smetana); Polonaise for Violin and Orchestra (Wieniawsky); Extract from The Miraele (Humperdinek); Hungarian Rhapsody No. 2 (Liszt); Suite, En Floride (de Bourgrignon); Ballet Music from the Nuteracker Suite (Tehaikovsky); Hungarian Rhapsody No. 2 (Liszt); Suite, En Floride (de Bourgrignon); Ballet Music from the Nuteracker Suite (Tehaikovsky); Hungarian Bance (Brahms).

Nuteracker Suite (Tchaikovsky); Hungarian Dance (Brahms). 10.0, Le Journal Parle.

BRUSSELS (No. 2)

N.I.R., 888 kc/s, 337.8 metres; 15 kW.—12.0 Noon, Concert by the Station Orchestra, conducted by André. Soloists: Margnerite Thijs (Songs), Gason (Flute) and Béthune (Violin): Lio-ting (Staub.); Moment musical (Schubert): The Niggers Feast (Robert): Flute Concertino (Chaminade); Songs; Abbanian Suite (Kostal); Waltz, II bacio (Arditi); Violin Solo: Initation des petits tambours (Poliakin): Humoresque (Demarct); The Nursery (Inghelbrecht): Rumba, Flor de Cuba (Grégor); Paso doble, Viva España (Frank Speyer). 1.0 p.m., Le Journal Parlé. 1.10, Orchestral Concert, relayed from the Taverne Scala, Antwerp. 5.0, The dansant, relayed from the St. Sauveur Palais de danse, Brussels. 5.30, Concert by the Station Symphony Orchestra, conducted by Meulemans. Soloist: Gabrielle Tambnyser (Pianoforte): Overture, Promethens (Beethoven); Pianoforte Concerto No. 2 in C sharp (Rachmaninov); Third Movement from Symphonic Sketches, La mer (Gilson). In the interval, Talk. 7.15, Talk on Economics. 7.30, Gardening Talk. 8.0, Concert by the Eupen Male Voice Quartet, with Nyssen (Violin): Sanctus (Schubert): In Epiphania Domini (Neumann). Violin Solos: (a) Sonata (Pierné), (b) Rigandon (Raff); Ave Regina Coclorum (Mommer). 8.45, Recitation. 9.0, Choral Concert (contd.): Magnificat (Mommer), Violin Solos: (a) Romance (Waguer-Willhelmy). (b) Spanish Dance (Sarasate); Der Lindenbaum (Schubert): Vom Naschen (Mozart): Wiegenlied (Brahms). 10.0, Le

BUCHAREST

BUCHAREST

760 kc/s, 394.7 metres; 12 kW.—4.0 p.m., Pr.pular Rumanian Music, by the Fanica I.uca Orehestra. 5.0, Radio Journal. 5.15, 7.0neert (contd.). 6.0, Educational Talk. 6.20, Gramophone Records. 6.45, Talk. 7.0, Station Orehestra; Carnaval (Dvorák); Winter's Tale (Czibulka); Christmas (Könüssberger); Danee of the Snowflakes (Dron); Christmas Carols Medley (Mamnfred). 7.40, Reading. 8.0, The Station Orehestra; Robert Stolz Song Medley (Dostal); Marche solennelle (Bossi). 8.45, Radio Journal.

BUDAPEST

BUDAPEST

545 kc/s, 550.5 metres; 120 kW. Also relayed on 840 metres from 6.30 p.m.—5.45 a.m., Gym. and Records. 9.0, Talk, with Records. 10.10, Tides Report. 11.0, Chimes from the University Church. 11.5, The Stefan Bertla Orchestra. 12.30 p.m., A Police Band. 2.30, Educational Programme. 3.0, Sports Talk. 4.0, Talk: The Heroism of the Slovak Regiments in the Great War. 4.30, Records. 5.0, Italian Lesson. 5.30, Tarogato Recital by Stefan Luckesson. 5.30, Tarogato Recital by Stefan Luckesson. 5.50, Tarogato Recital by Stefan Luckesian F. Opt. 59. No. 1 (Beethoven) by the Opera House Orchestra, conducted by Otto Berg: Overture, Light Cavadry (Suppé); Waltz, España (Waldtenfel); Selection from Herbstmanöver (Kähmán); Piece (Kling); In a Persian Market (Ketelbey); African Intermezzo, Kukokama Estapo (Lincke); Potpourri of Old Songs (Feesi).

CASSEL .- See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s. 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc s, 1,153.8 metres and Skamleback, OXY, 31.51 metres.—11.0 a.m., Town Hall Clinnes. 11.2. String Ensemble from the Wivex Restaurant. 2.0 p.m., Gramophone Records. 2.30. The Station Orchestra. conducted by Lanny Gröndahl. 4.30, Exchange. 4.45, Agricultural Talk. 5.15, Talk: Pioneers of Efectricity. 5.45, Weather. 5.54, Report of the Danish Radio Club. 6.0, News. 6.15, Time Signal. 6.30, Talk: Denmark as seen by Foreigners. 7.0, Vocal Quartet: Danish Folk Melody: Ravnen; Song (Rung. arr. Schierbeck); Jeggismig ud en Sommerdag (Hartmann); Alle Tracer staar saa stille (Paul Hellmuth); Jenny i Rugen (Paul Hellmuth); Den danske Sang (Carl Nielsen). 7.20, Evocation rythmique—Humoresque for Obose and Planoforte (Morean). 7.45. Talk: Questions of the Time. 8.15, Sonata for Planoforte (Bela-Bartook). 8.50. Records of Sound Film Music. 8.45, News. 9.0, The Radio Orchestra. conducted by Fritz Mahler. Nocturne No. 5 in C (Haydn); Overture. Cosi fan tutte (Liozart); Eine kleine Nachtmusk (Mozart); German Dances (Schubert-Weber); Overture in Italian Style (Schubert) Waltz, Roses from the South (Joh. Strauss). 10.55 Dance Music from the Lodberg Restaurant.

CORK .-- See Athlone. DANZIG .- See Heilsberg.

DRESDEN .- See Leipzig.

FECAMP

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—11.0 a.m. to 12 Noon, Programme in English by the LB.C. Happy Hour. Part I: Request Programme. Part II: Light Music. Signature Tune. 12 Noon, Programme in French. 3.30 to 6.0 p.m., Programme in French. 3.30 to 6.0 p.m., Programme in English by the LB.C. 3.30, Concert for Isle of Wight Listeners. Part I: Orchestral Music. Part II: Dance Music. 4.30, The LB.C. Nursery Corner. Birthday Greetings. 5.0, Concert for Portsmouth and Southsea Listeners. 6.0, Programme in English by the LB.C. 10.0, Dance Music. 10.30, A Musical Trip around Europe. March of the Russian Hussars (Traditional); Norwegian Dance, No. 2 (Grieg); Oh Zuyder Zec; The Blue Danube (Strauss); Once on the Rhine (Ostermann); Milano (Le Clerc); Madrid (Rotter); Dawn in Montmarte (Demarc). 11.0, Talkie Time—Tunes from the Talkies and Shows; Signature Tune, Sittin' in the Dark; Schection, Aunt Sally (Woods); Song, Pretty One (Strauss); You are my Heart's Delight (Lehár); Selection from The Dubarry (Millöcker-Mackeben); Talking to me about you (Snyder); Let me give my Happiness to You (Posford); A Nous la Liberté (Aurie); Signature Tune, Sittin' in the Dark (1.30, J. B.C. Time Signal. 11.31, Club Concert for Aldershot and Farnborough Listeners. Part I. Sea Shantics: A Life on the Ocean (Biding); At Santa Barbara (Russell); Shemandosh (Terry); I Kiss your lips (Rudolfe); The Drunken Sailor (Terry); One dollar fitty a day; Preludium (Järnefeldt); Blow the Man Down; The Merchant Ship. 12.5 a.m. (Thursday), Late News Bulletin in English. 12.10 (approx.). Part II, Dance Music: Symphony of the Breeze (Leon); Laughing Waltz; When Autumn comes around (Silver); Lover's Lane (Miller); Everyone loves my Marguerite (Woods), 12.30, Dance Music: Signature Tune, Trate Russell of Normandy; I've got to pass your House (Brown); The Veleta; Don't Blamme, Oh Johanna; Wood Violets (Fetras);



Dear Stranger (Hansen); Sweep; The last round up. 1.0, I.B.C. Time Signal. 1.1, Dance Music: Dear Dear; An Old Man with on Old. Old Pipe (Gordon); Learn to croon (Coslow); We'll all go riding on a Rainbow (Woods); Dawn in Montmartre (Demare); if was a handsome young soldier (Pola); Swingy little thingy (Green); Trouble in Paradise (Weber); I bring a Song (Young); Lazylones; Happy and Contented; Did my heart beat; Lover; In the Park in Pare; The Wind's in the West; Wheezy Anna's Wedding Day; Signature Tune. 2.0, I.B.C. Good-night Melody and Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Gassel and Trier, 1,157 kc/s, 259.3 metres.—
9.0 a.m., News. 9.45, Hints for the Housewife. 10.40, Concert. 10.40, Announcements.
11.0, See Langenberg. 12.15 p.m., Time and News. 12.35, The Station Orchestra, conducted by Reinhold Merten: Overture, Gasparone (Millöcker): Waltz, Wiener Blut (Joh. Strauss); Polka-Mazurka from Der Bettelstudent (Millöcker): Waltz from Der Rastelbinder (Lebär); March from The Merry Widow (Lehär); Overture, Ihre Exzellenz (Heuberzer); Annen-Polka (Joh. Strauss); Uncifer-Polka (Joh. Strauss); Janitscharen-Marsch (Reiterer). 1.30, See Stuttgart. 2.30, Weather Forcast. 2.40, Time and Market Prices. 3.0 to 5.35, See Langenberg. 5.35, Topical Talk. 5.50, News. 6.0, Transmission for all German Stations, relayed from Stuttgart. 7.0, Topical Talk. 7.10, See Langenberg. 9.0, Time and News. 3.20, See Stuttgart. 9.30, News. 9.45 till Close Down. See Stuttgart. 12 Midnight, Close Down.

FREDRIKSSTAD.—See Oslo. FREIBURG .-- See Stuttgart. GENEVA.-See Radio-Suisse Romande. GENOA .- See Turin. GLEIWITZ,-See Breslau, GOTEBORG.—See Stockholm. GRAZ.-See Vienna. HAMAR .-- See Oslo.

HAMBURG

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 259.8 metres; Flensburg and Hanover, 1,319 kc/s, 227.4 metres; and Kiel, 1,292 kc/s, 232.2 metres; 7.25 a.m., Ice Report. 9.9, Records. 9.50, News. 10.0 Schumann Concert on Records: Scherzo from the Second Symphony, Op. 81: Three Pieces from Kinderszenen, Op. 15: (a) Glückes genng, (b) Wichtige Begchenheit, (c) Tränmerei; Mondnacht; Finale from the Planoforte Trio in D Minor, Op. 63: Wohlanf noch getranken. 10.30, See Berlin (Funkstunds). 11.5, Report for the Housewife. 11.10, Time, News. 11.20, Concert from Berlin (Funkstunde). 12 Noon, Exchange. 12.10 p.m., Weather. 12.20, Musical Programme. 1.15, News. 1.35, Records: Heiterkeit und Fröhlichkeit, from Der Wildschütz (Lortzing); Arabesque on The Blue Damnbe (Joh. Stranss); The Zephyr (Hubay); Glücklich am Morgen, glücklich am Abend from Liselott (Künneke); Kommi in die Gondel, from Eine Nacht in Venedig (Joh. Stranss); March, Glückliche Reise (Künneke). 2.0, Exchange. 2.40, Announcements. 2.50, Ice Report. 3.0, See Heilsberg. 4.0, See Berlin (Funkstunde). 5.0, Folk-Song Recital in Dialect with Commentary. 5.40, Exchange. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Stuttgart. 7.5, See Berlin (Funkstunde). 8.5, De Hochtied in de Pickhalje—Comedy in Dialect (Scharremann).

HANOVER.—See Hamburg

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—10.5 a.m., Talk: Christmas in the Country. 10.30, See Berlin (Funkstunde). 12.5 p.m., Records, 1.30, Programme arranged by the Post Office, with Gramophone Records, 2.0, Agricultural Prices, Exchange, 2.20, Hints for the Housewife. 2.30, Christmas Fairy Stories for Children. 3.0, The Small Station Orchestia, conducted by Wilcken: Overtare, Marinarella (Fucik); O let me Dream (Sullivan); Czardus (Hubay); Waltz, Neu-Wien (Joh, Strauss); Ballett-Divertissement (Blättermann); Russian Folk Melodies (Fetras). 4.0, See Berlin (Funkstunde). 5.0, Book Review. 5.15, Agricultural Prices, Ice Report, 5.25, Medical Talk. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Stuttgart, 7.0, News. 7.5, See Berlin (Funkstunde). 9.0, News. 9.30 (approx.). Dance Music from Berlin (Funkstunde).

HILVERSUM

TILL VERSOLIA
1,013 kc/s, 296.1 metros; 7 kW. up to 5.40
p.m. and 20 kW. from 5.40 p.m.—7.40 to
9.40 a.m., Programme of the Workers' Radio
Society (V.A.R.A.). 9.40 to 9.55, V.P.R.O.,
Programme; Divine Service. 9.55 till Close
Down, V.A.R.A. Programme. 9.55, Recitations. 10.10, Concert conducted by Wins.
10.40, Recitations (contd.). 10.55, Concert

DEC. 27th WEDNESDAY continued

(contd.). 11.40, The V.A.R.A. Orchestra, conducted by H. de Groot: Russian March (Stranss); Overture, Girofié-Girofla (Lecocq); Valse des brunctes (Ganne); Die letzte Pferdebahn (Russch); Tenzeu mächtich (Kalmán); Records: Overture, Im Reiche des Indra (Lincke); Fenilles éparsés (d'Ambrosio); Piece (Ibanez); Katharina (Michiels); Records: Cracovienne (Leopold); Ein Tag im Wienerwald (Kreuzberger); Mendelssohn Potponrri (Urbach). 1.40 to 1.55 p.m., Interval. 1.55, Records. 2.40, For Children. 4.40, Records. 5.10, Organ Recital. 5.40, Concert, conducted by Van de Horst: Oh. Johanna (Hall); You're mine, you (Green); Lover (Rodgers); Liedjes van vroeger (Buiterman); Hold me (Little); For ever (Sievier); Canamon (Leonardi); Selection from Deux sous de fleurs (Benatzky); El Chignero (Lucchesi); I was in the Mood (Pola). 6.25, Organ Recital (contd.): Old Folks at Home; Selection from Les Cloches de Corneville (Planquette). 6.40, Records of Sacred Music, with Commentary. 7.46, News and S.O.S. Messages. 7.55, The V.A.R.A. Orchestra, conducted by H. de Groot: Selection from Die Lichesprobe (Mozart); Romance from the Symphony. La Reine (Haydn); German Dances (Schubert); Waltz for Strings (Tchaikovsky); Song Recital by To van der Sluys. 9.0, The V.A.R.A. Orchestra (contd.): Overture, Nakiris Hochzeit (Lincke); Die Wienerin (Steiner); Brise du soir (Gillet); Boléme joyense (Gillet); Serenade (Toselli); Selection from Das Hollandweibehen (Gilbert). 9.40, Records. 10.0, The V.A.R.A. Orchestra (contd.). 10.40, Records.

HORBY .- See Stockholm.

HUIZEN

HUIZEN

160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m. Transmitted from Kootwijk on 50 kW. from 3.40 p.m. Programme of the Christian Radio Society (N.C.R.V.).—7.40 a.m., Bible Reading and Prayer. 7.55 to 9.10, Records. 10.10, Religious Programme. 10.40, Recital by the van der Horst Trio and Mine. C. Van Ravenzwaay. Möllenkamp. 11.40, Police Notes. 11.55, Records. 12.10 p.m., Concert (contd.): Trio Sonata in D minor (Buxtchude); Christmas Carols on Records: Movement from Trio Sonata in D minor (Buxtchude); Christmas Carols on Mecords: Songs; Movement from the Trio in G (Mozart). 1.10, Records. 1.40, Cello Recital by Mile. Straatman and Mile. Hendriks: Sonate (Corelli): Sarabande (Handel); Bourée (Handel); Air (Bach); Sonata in G minor (Marcello), on Gramophone Records; Pregliera (Schubert); Variations on a Theme of Mozart (Beethoven); Adagio (Mendelssohn): Forest Calm (Dvorak); Ballad (Arensky). 2.40, Religions Reading. 3.10, Records. 3.40, Organ Recital. 4.40, For Children. 5.40, Talk. 6.10, Programme to be amnounced. 6.40, Police Notes. 6.55, Religious News. 7.30, Talk. 7.40, Concert by the Small N.C.R.V. Orchestra, conducted by Piet van der Hurk; Soloist, Ronald Parker (Organ): Overture, Giralda (Adam); Ballet russe (Ganne); Four Indian Love Lyries (Woodford-Finden); Melody (Aekerman); Selection from Madame Butterfly (Puccini); Rhapsody (Priedemann). 8.40, Popular Talk, 9.10, Concert (contd.); Overture, Ciralda (Hansel); In a Monastery Garden (Ketelbey). 9.40, News. 9.45 (approx.), Concert (contd.). 10.25 to 11.10, Records. 11.10 (approx.), Close Down.

INNSBRUCK .-- See Vienna. KALUNDBORG,-See Copenhagen. KIEL.-See Hamburg, KLAGENFURT.-- See Vienna. KOSICE .- Sec Prague.

LANGENBERG

LANGENBERG

635 kc/c, 473 metres; 60 kW,—9.0 a.m., See Frankfurt. 9.5, Announcements. 9.10, Topical Talk. 10.10, Records. 10.25, Sponsored Programme with Records. 10.25, Sponsored Programme Stranss Concert (on Records); Military March; Two Songs; (a) Heimliche Aufforderung, (b) Zneignung; Extract from Der Bürger als Edelmann; Two Songs; (a) Cäcilie. (b) Ständehen; Extract from Schlagobers; Two Songs; (a) Geduld, (b) Morgen; Extract from Der Bürger als Edelmann; Extract from Arabella. 12.15 p.m., Serfrankfurt. 12.25, News. 12.35, See Frankfurt. 1.30, See Stuttgart. 2.30, Market Prices. 2.50, Political Announcements. 3.0, Concert of Chamber Music by Erdmuthe Fiebiger (Contralto). Robert Grote (Viola da Gamba and Cello), and Willi Jansen (Harmonium). 3.45, From an Old Song Book—Concert by Erdmuthe Fiebiger (Contralto). Willy Schneider (Bass), Heinz Hoersch (Tenor), and Willi Jansen (Bandonian); Bandonian Solo. 4.15, Dance Music (on Records). 5.0, German for Germans. 5.20, Talk on Race. 5.35, Reading (Boehme). 5.45, Announcements. 6.0, Transmission for all German Stations, relayed from Stuttgart. 7.0, See Frankfurt. 7.10, All's Well that Ends Well—Radio Sequence. 9.0, See Frank-

furt. 9.20, A Flying Visit. 9.30, News. 9.45 till Close Down, See Stuttgart.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—9.45 a.m., Post Office Programme with Records. 10.46, News. 11.6, Orchestral Concert, conducted by Blumer. Soloists: Charlotte Sommer (Soprano), Irmgard Fritzsche (Contralto), and Käthe Herr (Contralto). 12.15 p.m., News. 12.25, Records. 1.0, News. 1.20, Talk: Scandinavian Legends. 1.30, Die Reise ins Schlaraffenland—Radio Play for Young People (Eich). 2.0. Talk: German Family Numes. 2.25, The Capitals of Europe—Book Review. 2.40, Market Prices. 3.0 (from Dresden). The Dresden Philharmonic Orchestra, conducted by Hilmar Weber. Soloist: Else Liebe-Zipfel (Pianoforte). 4.50, Song Recital by Anton Maria Topitz: Three Songs from Der Liebesgarten (Schmalstich): (a) Liebes-lied. (b) Das Pfand. (c) Was ich hah'; Songs (Schütt): (a) 21s ich dich Raum geseh'n, (b) Daheim; Mädel ade (Pepöck); Der Fahrende vor der Himmelstür (Bümel); Deutsches Hoffen (Mannfred). 5.10, Book Review. 5.30, Talk: The Modern Home. 5.45, Announcements. 6.0, Transmission for all German Stations. relayed from Stuttgart. 7.0, Today's News. 7.10, See Breslau. 9.0, News. 9.35, Concert from Breslau.

LINZ .- See Vienna.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—7.0 p.m.,
Variety Concert on Gramophone Records.

7.30, Under the Christmas Tree; Programme
for Children. 8.5, Choral Concert by the
Orphéon Choral and Dramatic Society. 8.45
(approx.). Exchange. 8.50, News in French.
9.0, Concert by the Station Orchestra, conducted by Henri Pensis; Overture. Les
Dragons de Villars (Maillart); Selection from
The Daughter of the Regiment (Donizetti);
Selection rrom Phi-phi (Christiné). 9.30,
Concert by the Station Orchestra, conducted
by Pensis; Soloist, Jean Dax (Pianoforte);
Overture, Tamhäutser (Wagner); Pianoforte
Concert in A Minor (Schumann). In the
interval at 9.45, News in German. 10.30,
Dance Music on Gramophone Records.

MADRID

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Popular Concert. 10.45, Radio Chronicle. 11.0, Popular Concert. (contd.), 11.45, Light Music. 12.0 Midnight (Monday) till Close Down: Programme arranged by the International Broadcasting Company. 12.0 Midnight, Light Music: Light of Foot (Latann): I have twelve Oxen (Ireland); For ever and for ever (Tosti); Marine March (Herzer); The Rebels are out (Waller); Tiptoe through the Tulips (Dubin): My Beautiful One (Rondot); Selection from The Land of Smiles (Lebar); Signature Tune, Come back to Erin. 12.30 a.m., Concert of Popular Music: The Wedding of Mr. Mickey Mouse' (Pola): You are my Heart's Delight (Lebar); Tick. Tock (Vienna); Changing of the Guard (Flotsam and Jetsam); Say it with Music (Berlin); African Lament (Lecuona): Twixt the Devil and the Deep Blue Sea (Schwartz); Isn't this a night for love? (Burton). 1.0, I.B.C. Good-night Melody and Close Down.

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—12.0 Noon, Chimes and Radio Journal, 12.15 p.m., Time, 2.0, Chimes, Time, Weather and Theatre Notes, 2.15 (approx.), Concert; Two-Step (del Campo); Romance (Asenjo del Alamo and Lima); Serenade No. 2 (Toselli); Foxtrot (Yellen and Ager); Solveig's Song (Grieg); Dance from Le Bourgeois Gentilhomme (Stranss); Selection from Manon Lessant (Paceini); Selection from La Revoltosa (Chapi); Mintet (Sor); Song (Mojica and Troy San); Overture, Mignon (Thomas). In the interval, Exchange. 3.40, Radio Journal. 3.50, Announcements. 4.0 to 7.0, Interval. 7.0, Chimes, Exchange Announcements. Dance Music and Talk, 8.15, Radio Journal. 8.30 to 9.30, Interval. 9.30, Chimes, Time and Radio Journal. 9.45 (approx.). Concert by the Madrid Philbarmonic Orchestra, conducted by Pérez Casas. 11.45, Radio Journal. 12.0 Midnight, Chimes and Close Down.

MALMO .- See Stockholm. MILAN,-See Turin.

MORAVSKA-OSTRAVA

MUKAVSKA-USIKAVA

1,137 kc, s, 263.8 metres; 11 kW.—5,16 a.m.,
Programme from Prague. 8.50, Programme
from Prague. 9.10, Concert by the State
Police Band. 10.0, Records. 10.55, See
Prague. 11.0, Agricultural Talk. 11.10, See
Prague. 11.35, See Bratislava. 12.35 p.m.,
See Prague. 2.30, See Prague. 3.0, Concert
by the Station Orchestra, conducted by
Plichta: Selection from Werther (Massenet);
Waltzes (Smetana); Dvorák Potpourri (Leopold); Czech Polka (Balling); March (Provaz-

nik). 3.50, See Prague. 4.55, Records. 5.9, Talk on the Actor, Emanuel Lozdech. 5.15, See Prague. 5.35, The Village Band of Radvanice. 6.0, See Prague. 6.10, Talk. 6.25, See Brno. 6.50, See Prague.

MOTALA. See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

MUNICH

716 kc/s, 419 metres; 60-100 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Nurnberg, 1, 256 kc/s, 238 metres.—10.30 a.m., Programme arranged by the Post Office with Records. 10.40, See Leipzig. 11.0, See Leipzig. 12.15 p.m., See Leipzig. 12.25, Records. 1.0, See Leipzig. 1.10, News. 1.20, Programme arranged by the Post Office with Records. 1.50, Concert for Children. 2.30 (from Nürnberg). Military Report. 2.50, Weather. 3.0 (from Oresden). Concert by the Dresden Philharmonic Orchestra, conducted by Hilmar Weber. Soloists; Herbert Müsthoff (Pianoforte): Overture, Rosamund (Schubert); Pianoforte Concerto in G (Beethoven); Invitation to the Dance (Weber); Forest Murmers from Siegfried (Wagner); Hungarian Rhapsody No. 6 (Liszt); Waltz from Der Rosenkavalier (R. Strauss). 4.50, See Leipzig. 5.10, Travelogue, with Records: In Lapland. 5.30, Records: Aria from The Bartered Bride (Sinetana); Tango. 5.45, Time. News. 6.0, Trausmission for all German Stations, relayed from Stuttgart. 7.0, See Leipzig. 7.10, New Breslau. 9.0, See Leipzig. 9.20, News. 9.35, See Breslau.

NAPLES .- See Rome.

NOTODDEN.—See Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredrikastad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Rjukan, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Rjukan, 671 kc/s, 447.1 metres; Allikan, 682 kc/s, 482.2 metres, 12.0 Noon to 1.0 p.m., Records, In the intervals Weather, Agricultural Report and Exchange, 4.0, Orchestral Concert, conducted by Krauman, Overture, Die Fledermans (Joh. Strauss); Lyric Intermezzo (Gustavsen); Tambourin chinois (Kreiser); Old Dances (Trish); Serenade mélaucholique (Tchaikovsky); Le Carnaval des animaux (Saint-Sacis), 8.10, Review of Politics, 8.40, News, 9.0, Topical Talk, 9.15, Concert relayed from Trondheim, 605 kc/s, 495.8 metres, 10.0, Dance Music on Records.

OSTERSUND. -- See Stockholm.

PARIS

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m., (Preliminary and 6-dot Signals).—12.30 p.m., (Concert, relayed from Paris (Ecole Supérieure), 671 kc/s, 447.1 metres. 1.0, Market Prices, 1.15, News. 1.30, Agricultural Talk. 1.45, Report of the Labour Bureau. 2.0, Exchange and Science Notes. 2.15, Economic Notes. 2.30, Commercial Prices and Colonial Report. 2.45, Amusement Guide. 3.0, Talk on Hygiene and Anhouncements. 3.15, Exchange and Market Prices. 3.45, Report. 4.0, Tourist Report. 4.15, Exchange and Market Prices. 5.45, Le Journal Parlé. 7.15, Weather. 7.25, Political Talk. 7.45, For Children. 8.15, The Station Symplony Orchestra. conducted by Flament; Gabor (Pianoforte): Pianoforte Concerto in D minor (Bach): Fantasia con Fuga (Flament) for Flute. Oboe, Chrinet, Horn. Bassoon and Tello; Selection from The Mastersingers (Wagner).

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 69 kW.—7.10 a.m., Chimes and Gramophone Concert. In the interval at 7.30, Press Review. 8.0, Sponsored Concert. In the interval at 8.20, News. 8.45, Talk for Housewives. 12 Noon, Financial News. 12.5 p.m., Concert by the Station Orchestra: Overture, Mignon (Thomas); Waltz No. 4 (Dvorák); Entracte from Les Erynnies (Massenet); Sarabande (Delussy); Selection from Coppélia (Delibes); Aragonesa (Granados); Ronde des Latins (Nerini); Selection from Boris Godunov (Mussorgsky); Suite No. 2 (Guirand). In the intervals at 1.5 and 1.25, Financial News. 4.45, Financial News. 4.50, Financial News. 4.45, Financial News. 4.50, Financial Notes. 6.45, Market Prices. 6.52, Talk on Social Insurance. 7.0, Gramophone Records. 7.38, Talk on Aviation. 7.45, Gramophone Music. 8.2, Le Misanutrope—Play In the interval at 8.20, Financial Notes. 10.0, Orchestral Music, relayed from the Champs Elysées Restaurant.

PARIS

RADIO-PARIS, CALL GFR, 174 kc/s, 1,725 metres; 75 kW.—12.15 p.m., Chopin Records, Mazurka No. 4; Nocturne in F Sharp; Pre-linles; Scherzo in B Flat Minor, 12.30, Organ Recital by Desserre, relayed from the Gaumont-Palace, The Blue Danube (Strauss); Ballet Music from Faust from P.

(Gounod); I Cover the Waterfront (Green); 1-0, Exchange and News. 1.5, Records, Les deux Amis (Maguen); Voici mon coeur (Cremieux-Varenne); L'Amour de mea vie (Bose-Marinier), La Fontaine de Araouët (Omer Letorey); Je suis à la mode (Avignon; Si j'aimais (Erwin); Eternel Printemps (Popy); Les Fantoches (Raiter); Tue m'as juré (Lenoir); L'oisean et la fontaine (Silesti); Selection from Les Saltimbanques (Game); Place Blanche (Melò); Song (Heymann-Falk); Linyera (Dios-Filiberto); Féte du Hameau (Gillet); In the interval; Exchange. 3.45, Exchange. 6.20, Weather, Talk: Prohibition and French Wines, and Exchange. 6.45, Book Review, 7.0, Medical Talk, 7.20, Records, Cachadera (Lomito); Le Chanteur de Seville (Lomelly; Thuly (Magine); Bonhoume (Nadand); Nenette (Mario-Flouron); Rien que toi (Nesson), 7.45, News. 8.0, Elocution Lesson, 8.30, News and Fashion Review, 8.45, Orchestral Music; Symphony (Bruckner); Burlesque for Pianotorte and Orchestra (R. Stranss); Act I from Ariane et Barbe-Blene (Dukas), In the Interval; News.

PITTSBURGH

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—12, Noon, Musical Clock. 1.0 p.m., Morning Devotions, from New York. 1.15 Don Hall Trio, from New York. 2.0, Breakfast Club, from New York. 2.0, Breakfast Club, from New York. 2.30, Kyle and Shopping Service. 2.45, News and Minnte Manners. 3.0, Programme to be announced. 3.15, Clara, La 'n' Em, from New York. 3.30, Tooday's Children, from New York. 4.0, Four Southern Singers, from New York. 4.15, Sammy Foller. 4.30, U.S. Army Band, from New York. 5.0, Eva Taylor, Crooner, from New York. 5.15, From Aces, 5.30, News, and Market Reports. 5.45, Ernie Holst's Orchestra. 6.0, Farm and Home Hour, from New York. 6.30, Ernie Holst's Orchestra. 7.0, Musical Originalities, from New York. 7.30, KDKA Home Forum, 8.0, Words and Music, from New York. 8.15, Happy Days in Dixie, from New York. 8.45, Human Values, 9.0, Betty and Bob, from New York. 9.15, Utility Hall. 9.30, Frances Ingram, 9.45, News and Market Report, 10.0, Programme to be announced, 10.15 KDKA Kiddies Klub. 10.30, The Singing Lady, from New York. 11.0, News, Pat Haley, 11.15, Sports Noves and Programme Preview, 11.30, Egiz's Salom Orchestra. 11.45, Lowell Thomas, from New York.

PORSGRUND. See Oslo.

PRAGUE

PRAGUE

314 kc s, 488.6 metres; 120 kW, 9.10 a.m., See Moravská-Ostrava, 10.0, Records, 10.55, Agricultural Talk, 11.0, Talk, 11.10, Records, 11.20, Weather and News, 11.35 a.m. to 12.35 p.m., See Bratislava, 12.35, Talk on Commerce, 12.45, Records, 12.55 to 1.0, Exchange and Weather, 2.30, Records, 2.40, Talk for Students, 2.50, Weather and Exchange, 3.0, See Moravská-Ostrava, 3.50, Programme for Children, 4.35, Records, 4.45, Talk, 4.55, Records, 5.5, Agricultural Talk, 5.15, Talk for Workers, 5.25, News in German, 5.30, German Transmission: Programme for Workers, 6.0, Time, News and Weather, 6.10, Advanced French Lesson, 6.25, Mandoline Band Concert, 6.50, Talk; Pasteur, 7.5, Saxophone Recital by Riha, 7.30, Denmatic Programme, 7.45, The Lark Quartet in D. Op. 64, No. 5 (Haydn), played by the Ondricek Quartet, 8.10, The Station Orchestra, conducted by Otskar Parik, Snite (Skvor); Czech Song and Dance (Kubin); Extract from the Snite, Op. 22 (Suk); Cocagne (Elgar); Hungarian Rhapsody No. 2 (Liszt), 9.0, Time, News, 9.15, News in French, 9.30 (approx.), Close Down,

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Geneva, 395 kc/s, 749.9 metres.—11.30 a.m., News. Weather. 11.40 from Geneva). Geneva, 395 kc s, 749.9 metres; 25 kW,; and Geneva, 395 kc s, 749.9 metres,—11.30 a.m., News. Weather. 11.40 (from Geneva). Records. 12.0 Noon (from Geneva). Records. 12.0 Noon (from Geneva). Records. 1.0 to 2.58. Interval. 2.58, Time Signal from Neuchittel Observatory. 3.0, See Schweizerischer Landessender. 5.0 (from Lausanne). Programme for Children. 6.0 (from Geneva). Talk: Primitive Man. 6.30 (from Geneva). Radio Chronicle and Annonnecments. 6.59, Weather. 7.0 (from Geneva). Concert by the Radio-Snisse Romande Orchestra, conducted by Ernest Ansennet: Symphony in C (Mozart); Snadt Snife for Strings (Hock): Esquisses for Orchestra (Frank Martin): Nine Country Dances (Jean Binet). 8.10 (from Geneva). Interlude by Edouard Combe. 8.25 (from Geneva). Le Chien du jardinier Opéracomique in One Act (Grist). 8.0, News. Geneva), Le Chien du jardinie comique in One Act (Grisar), 9. Weather. 9.0, News,

RJUKAN. Sec Oslo.

ROME

KOME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; Milan (Vigentino), 662 kc/s, 453.1 metres from 7.30 p.m.; and 2RO, 11,810 kc/s, 25.4 metres.—6.45 a.m., Gyn. 7.0, Time and Annonneements. 11.30, Records. 12.0 (Noon), Orehestra: Foxfort (Weiss); Canzone a Rumba (Rampoldi); Festa di maggio (Culotta); Slow Foxfrot (Kruger);

DEC. 27th WEDNESDAY continued

Selection from Bacco in Toscana (Brogi); Qui si paga per contanti (Cergoli); Foxtrot. Hawaiian Moonlight (Barzizza); One Step (Cortopassi). 12.30 p.m., Exchange. 1.0, News. and Orchestra (contd.). 3.30, For Children. 3.55, News. 4.10, Orchestral Concert: Slow Foxtrot (Doellet; Tango, Ricordo (Nicolasi); Slav Dance No. 6 (Dvorak); Notte sul Tago (Travaglia); Selection from Fedora (Giordano); Bacchanale (Azzoni); Fiorella (Culotta); One Step (Hamud). 4.55, Weather. 5.0, Wheat Markets. 5.10, News. 5.20, Report of the International Institute of Agriculture (in Italian and English). 5.55, Shipping and Sports Notes. 6.0, News. in Foreign Lauguages. 6.30, Medical Talk. 6.50, News. 7.0, Time. Announcements and Talk. 7.10, Vocal Duets. 7.30, Government Announcements. 8.0, An Opera. Talk in the interval.

SALZBURG.-See Vienna.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc s, 459 metres; 60 kW.; Basie, 1,229 kc s, 244.1 metres; and Berne, 1,220 kc s, 245.9 metres.—11.0 a.m. (from Berne; Records. 11.29, Time from Nenchâtel Observatory and News. 11.40 (from Berne), Records. 12.25 p.m. (from Berne), Records. 12.25 p.m. (from Berne), Records. 12.25 p.m. (from Berne), Records. 12.55 p.m. (from Berne), Records. 13.40, (from Berne), Records. 14.50 p.m. (from Berne), Records. 15.50 p.m. (from Berne),

Roskam; March (Arnand-Marwys); Waltz (Witz); Interuczzo (Debaas); Overture, Der Bettelstudent (Milficker); Wagneriana (Fourdrain); Madrigal (Ganne); Menuecheuri (Ganne); Eautasia; Philadelphia March (Engel), 6.0, Chamber Music, relayed from Lille, 1,128.5 kc s, 265.8 metres. 7.0 p.m., Talk; Strikes in the Public Services. 7.15, Talk in German; The Skilled Trades. 7.30, Time and News. 7.45, Records. 8.0, News in German. 8.30, Les nouveaux chevaliers—tomedy in One Act (Folletrau), and Le nid déserté Play in Three Soenes (Vablelièvre). In the interval, News. 10.30, Orchestral Concert, conducted by Jenine, relayed from the Grand Kléber Taverne; March, Sidi Brabin (Porot); Waltz, Etimeelles (Waldteutel); Overture, The Nuremberg Doll (Adam); Anita (Meisel); Overture, Orpheus in the Inderworld (Offenbach); Tango (Markush); Waltz (rom The Dollar Princess (Fall); Promenade à l'Exposition de 1900 (Salabert); March, The Scorcher (Rosey).

STUTTGART

MUHLACKER, 563 kc/s, 533 metres; 100 kW. Relayed by Freiburg, 1,157 kc s, 259.3 metres, and 527 kc/s, 570 metres till January 16th, 1934. 7.50 a.m., Post Office Concert 8.40, Talk: The Education of Children. 9.0, See Frankfurt. 9.10, Reading. 9.40, Fecker Song Recital by Eva Fein (Contration: Die kleine Mutter; Maria mit dem Kinde. 10.0, Records. 10.25, Post Office Concert. 10.55, Weather. 11.0, See Langenberg. 12.15 p.m., See Frankfurt. 12.25,

GAIETY IN THE STUDIO. The Dutch studios are decorated at Christmas and on other festive occasions, as is shown in this picture of the famous K.R.O. Orchestra at Huizen.

4.0, Recital of Swiss Songs, 4.30, Chamber Music, 5.0 (from Berne), For Children, 5.30 (from Zürich), Financial Talk, 6.0 (from Zürich), Time, Weather, Market Prices, 6.20 (from Zürich), Talk in English: The Traditions of English, Law and Order, 6.50 (from Zürich), The Beronninster Orchestra, 7.30 (from Zürich), Talk on Hygiene, 8.0, Weather and News, 8.10 (from Zürich), Orchestral Concert, relayed from the Grand Café Explanade. Café Esplanade.

SOTTENS. - See: Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM
689 kc/s, 436 metres; 55 kW. Relayed by
Boden, 242 kc/s, 1,239.5 metres; Góteborg.
932 kc/s, 322 metres; Horby, 1,167 kc/s, 257
metres; Motala, 222.5 kc/s, 1,348 metres;
Ostersund, 402 kc/s, 746.2 metres; and Sundsvall,
554 kc/s, 542 metres;—11.45 a.m., Exchange, 11.55. Time, 4.0 p.m., Weather, 4.5
(from Sundsvall). Provincial Programme, 5.0,
Records, 6.0, A Dialogue The Doctor and
the Patient, 6.15, Weather and News, 6.30,
Talk, 7.0, Carmen Opera in Four Acts
(Bizet), relayed from the Royal Theatre. In
the interval, Weather and News.

STRASBOURG

STRASBOURG

869 kc s, 355 metres; 11.5 kW. 10.30 a.m.,
Orchestral Concert, relayed from Lyons-laDoua, 644 kc s, 465.8 metres. 12 Noon,
Gramophone Concert. 12.45 p.m., News. 1.0,
Time and News. 1.5, Orchestral Concert,
conducted by Roskam; March from Katinka
(Lajiai); Waltz, Hiroudelles de
(Uvergotts); Hungarian Conedy Overture
(Kéler-Béla); Piece for String Quartet
(Kéler-Béla); Piece for String Conartet
(Wormser); It's time to sing Sweet Adeline
again; Roll up the Cappet; Selection from
Le postillon de Longjumean (Adam); Tango;
Shadow Waltz; En se jouant (Gabriel
Marie); Why can't this Night go on for
ever?; March. 4.45, Electrical Talk in German. 5.0, Orchestral Concert, conducted by

News. 12.35, See Frankfurt. 1.30, Programme for Voung People. 2.30, Planoforte Recital by Kurt Abrecht: Die Tellskapelle (Lisat); Hirtengesang (Lisat); Romance in B (Schumann); Variations and Fugne in F (Albrecht). 3.0, See Langenberg. 5.35, Time. Announcements. 5.45, Talk: Richard Wagner in France. 6.0, Transmission for all German Stations: The Moon is Up Variety Programme. 7.5, See Berlin (Deutschlandsender). 9.0. See Frank-Transmission for all German Kations: The Moon is Up Variety Programme, 7.5, See Berlin (Deutschlandsender). 9.0, See Frank-tt. 9.20, Talk: What everyone should know. . . 9.30, News. 9.45, Records. 10.0, Orchestral Concert of Request Music. 11.0, Supported.

SUNDSVALL, -- See Stockholm.

TOULOUSE

TOULOUSE

799 kc s, 385 metres; s kW. 8.0 a.m., Dance Music. 8.30, News. 8.35, Military Music. 8.45, Arias from Operas. 12 Noon, Opera and Opereta Music. 12.30 p.m., News and Exchange. 12.45, Request Programme: Tyroliome from White Horse Inn (Benatzky); Duet from II Trovatore (Verdi); Emilienne (Oberfeld); Overture, Les Saltimbanques (Ganne). 1.0, Annisement Gnide and Market Prices. 1.5, Bal Musette. 1.30, Viennese Orchestra. 1.35, Songs from Sound Films. 2.0, News and Exchange. 4.30, News and Exchange. 6.0, News. 6.15, Operetta Music; Selection from Le petit due (Leccoq); Selection from Le fille de Madame Angot (Leccoq); Songs from Katinka (Latjai). 6.30, Songs. 6.50, Allegro from the Sympliony (Bach) and Andante (Bach). 7.15, News and Exchange. 7.30, Suite, Mascarade (Lacóme). 7.45, Opera Music; Aria from Faust (Gounod); Aria from Thais (Massenet); Elle ne croyait pas, from Mignon (Thomas); Je suis Escamillo from Carmen (Bizet). 8.0, Viennese Orchestra. 8.30, Popular Songs. 8.45, Argentine Orchestra. 9.0, Music Hall. 9.30 Opera Comiques Music; Selection from Carmen (Bizet); Intermezzo

from Cavalleria rusticana (Mascagni).

9.45, Arias from Operas: Si Dien l'avait voulu from Hérodiade (Massenet); Aria from Figaro (Mozart); Dans son regard plus sombre from Hamlet (Thomas). 10.0, Military Music. 10.15, News. 10.30, Songs from Sound Films. 10.45, Popular Music. 11.0, Request Music. 11.15, Dance Music. 12.0 Midnight, News. 12.5 a.m. (Monday), Operetta Songs: Song from Marietta (Oscar Strauss); Y en a plus, from Le coeur y cest (Parès and Van Parys): Au revoir Paris from Encore Cinquante centimes (Yvain), 12.15, Balalaika Music: Chantsans paroles (Tehaikovsky); Torcador et Andalous (Rubinstein); The Echo in the Forest; The twelve Robbers. 12.30, Close Down.

TRIESTE

1,211 kc's, 247.7 metres; 10 kW.-No Trans-

TRONDHEIM.-See Oslo.

TURIN

TURIN

1,096 kc s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; Genoa, 959 kc s, 312.8 metres; and Florence, 598 kc s, 501.6 metres.—6.45 a.m., Gym. 7.0, Time and Announcements. 10.15, Trio Concert. 11.30, Records. 11.40, Giornale Radio. 12 Noon, Time and Announcements. 12 to 1.15 p.m., Opera Records. Selection from Arodo (Verdi); Selection from La Bohème (Puecini); Aria from Attila (Verd!); Intermezzo from L'Amico Fritz (Mascagm); Intermezzo from Edgar (Puecini); Aria from Samson and Delilah (Saint-Saïus); Prelude to Parsifal (Wagner). In the interval, Exchange. 1.15, Giornale Radio. 3.45, Programme for Children. 4.10, Song Recital. 4.55, Weather, 5.0, Announcements. 6.30, Records. 6.50, Announcements. 7.40, A Three-Act Comedy. 9.0 (approx.). Records. 9.30, Dance Music. 10.0, Giornale Radio.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc s, 352.1 metres; 1nnsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres;—10.30 a.m., The Wiener Symphoniker, conducted by Josef Holzer, 10.55 Weather, 11.0, The Wiener Symphoniker (contd.). 12.0 Noon, Time, Weather, Aumouncements. 12.10 p.m., Records, Paderevsky; Nocturne (Chopin); Völker; Heimweh (Wolf); Leo Slezak; Prize Song from The Mastersingers (Wagner); Heinrich Schlusmus; Es muss ein Wunderbares sein (Liszt); Leo Schützendorf; Aria from Car and Carpenter (Zimmermann); Maria Cebofari; Aria from La Bohéme (Puccini); Vasa Prihoda; Serenade (Foselli); Mignel Fleta; Rudolf's Aria from La Bohéme (Puccini); Lotte Lehmann; Song from The Merry Wives of Windsor (Nicolai); Kreisler; Humoresque (Dvorák), 2.0, Time and Announcements, 2.15, Talk for Young Stamp-Collectors, 2.30, Talk, 2.55, Song and Pianoforte Recital by Christ Kern (Soprano), Franz Frankl (Baritone), and Maria Daxenbiehler (Pianoforte), 3.35, For Children, 4.0, Talk; Successes and Failures, 4.20, Talk; Joseph Rimaldini—Contemporary Austrian Composer, 5.10, Medical Talk, 5.35, Talk for Workers, 6.0, Military Band Concert. In the interval, Time, Weather, Amnonneements, 6.45, Concert (contd.), 7.20, Topical Talk, 7.35, The Wiener Symphoniker, conducted by Josef Krips, Soloist; Vladimir Kacznar (Bass), 9.5, News and Weather, 9.20, Programme to be announced.

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW,--6.0 a.m., Time Signal and Christmas Carol. 6.5, Gym. 6.20, Records, 6.52, For Housewires, 6.35, Radio Journal. 6.55, Announcements. 10.40, Polish Press Review. 10.50, Talk. 10.57, Time Signal and Fanfare from St. Mary's Church, Cracow. 11.5, Records. 11.30, Radio Journal. 11.35, Weather. 11.38, Johann Strauss Waltzes on Records. 2.25 p.m., News. 2.30, Economic Notes. 2.40, Records. 2.250, Soprano Song Recital from Wino (533 metres). 3.10, For Children. relayed from Lwów (331 metres). 3.40, Answers to Wineless Correspondence. 3.55, Records. 4.10, Concert of Chamber Music, relayed from Poznan (335 metres). 4.50, Agricultural Notes. 5.0, Talk for the Anniversary of the Polish Revolution. 5.20, Concert by the Adamska-Grossman Orchestra: Waltz. Madeleine (Waldtenich); Serenade, Invano (Tosti); Ballet Music from Sylvia (Delibes); Adios mi vido (Castrucho); Foxtrot (Winn); Barcarolle (Gall); Melody (Ranzato). 6.0, Announcements. 6.25, Reading. 6.40, Sports Notes. 6.47, Radio Journal. 7.0, Concert by the Station Orchestra. conducted by Nawrot: Overture, Morning. Noon and Night (Suppé); Selection from The Christmas Tree (Rebikov); Berceuse (Syendsen); Selection from Der liche Augustin (Fall); A Fombre au bord du Nil (Schnelli); Sinna, Nauna (Micheli); Spanish March (Gyldmark). 8.0, Reading. 8.15, Song Recital by Eve Bandrowska-Turska. 9.0, Talk in Esperanto: Helping the Blind in Poland. 9.30, Dance Music. 10.0, News. 10.5, Dance Music (contd.).

ZURICH,-See Schweizerischer Landessender.

Wir**eles**s World

DECEMBER THE TWENTY-EIGHTH

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres; and Cork, 1,337 kc/s, 224.4 metres.—1.30 p.m., Time. News and Records. 2.0, Records. 6.0, For Children. 6.45, News, 7.0, French Lesson by Mmes. Guidicelli and Redmond. 7.15, Recital of Poetry by Cathleen Murphy. 7.30 p.m., Time. 7.50, Bass Solos by H. McCormack. 8.0, Green Leaves—8ketch (Bernard Duffy), by the Emer Comedy Company. 8.30, Piano Solos by Mai Johnson. 8.45, Soprano Solos by Elleen Driscoll. 90, Talk on National Health Insurance. 9.15, Concert by the Station Orchestra. 9.30 to 10.30, Programme by the I.B.C. (Ireland). Ltd. 9.30, Vocal Concert: Mail Man Bluts; Love is the thing; I like Mountain Musie; Illold your man. 9.45, Light Music: At the Bal Musette (Alexander); Xylophone Solo (Frisk): Banjo Solo, The Wedding of the Painted Doll (Brown); The Valse of the Gigolo (Alexander). 10.9, Dance Music: Lay your head on my shoulder; Dear Stranger; If you'll say Yes Chérie; Racing Commentary; Love in the Moonlight; Sentimental Gentleman from Georgiu; Louisville Lady; It's only a Paper Moon. 10.30, I.B.C. Good-might Melody, followed by News. 10.40, Irish Music.

ATHLONE

BARCELONA

BASLE.-See Schweizerischer Landessender.

BERLIN

BERLIN

DEUTSCHLANDSENDER

(REICHSSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—
7.45 a.m., For Women. 8.0 a.m., Reading.
8.40, Reading (Grube). 9.0, News. 9.10,
Records. 10.0, Talk: Wilhelm Doerpfeld.
10.15, Weather. 10.30, Records. 11.0,
Weather. 11.2, Records. Atter the Programme, Weather. 11.55, Time. 12.45
p.m., News. 1.0, Records: Festival Overture (Lassen); Extract from Der Wildschütz.
(Lortzing); Puecini Potpourri; Auf dem Wasser zu singen (Schubert-Liszt); Extract from The Geisha (Jones); Folk Song, Mein Mädel hat einen Rosenmund; Frühling am Rhein (Röser); Moonlight on the Alster (Fetras); Lorelei-Rheinklänge (Strauss); Torgauer-Marsch (Frederick the Great). 1.45, Programme for Children. 2-10, Talk with Gramophone Illustrations: Old Music. 2.30, Weather. Exchange. 2.45, Reading. 3.0, See Stuttgart. 4.0, Radio Report on Records. 4.20, Handel Concert: Henry Wollf (Songs), Werner Richter-Reichhelm (Pianoforte), Richard Kerschbaumer (Violin), and Reinhold Preiss (Cello); In den angenehmen Büschen; Süsse Stille sanfte Quelle ruiniger Gelassenheit; Meine Seele hört im Schen; Flammende Rose; Zierde der Erden; Das zitternde Glünzen der spielenden Wellen; Sonata No. 4 in D for Violin and Pianoforte (Handel). 5.0, Poems. 5.5, Talk. 5.30, Report on Records: A Visit to a Sugar Refinery. 5.50, Announcements. 6.0, Fransmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, To-day's Motto. 7.5, Reading. 7.25, Love Scenes and Love Duets on Records: Lorenzo and Jessica; Käthelnen von Heilbronn; Troilus and Cressida; Romeo and Juliet. 9.0, News. 9.25, A Discussion: Swimming for Women. 9.45, Weather. 10.0, See Langenberg.

BERLIN

BERLIN

FUNKSTUNDE, 832 kc/s, 350.5 metres;
100 kW. Relayed by Zeesen DJG, DJA,
DJB and DJE.—8.45 a.m., For
Children. 9.0, News. 9.10, Retail Prices.
9.30, Records. Announcements. 10.25, Exchange. 10.30, See Heilsberg. In an interval, Weather. 12 Noon, Records: Waltz
in E Minor (Chopin): Tango (Albeiniz);
Songs without Words (Dubez): The
Butterfly (Harty); Waltz in A Flat
(Chopin). 12.20 p.m., See Hamburg. 1.15,
News. 1.35, Records: Extract from Martha
Opera (Flotow). 2.0, Exchange. 2.20,
Records: Potpourri, Servus Wien (Dostal).
2.30, A Discussion: The Film Industry in
Germany and America. 2.40, Educational
Report. 3.0, See Heilsberg. 5.0, Book
Review. 5.36, The Funkstunde informs its
Listeners. . . 5.35, Legal Review for 1933.
6.9, Trausnission for all German Stations:
Mozart Concert; The Orchestra, conducted
by Hans von Benda; Soloists: Gertraud
Dirrigl (Planoforte), Max Strub and Bruno Dirrigl (Pianoforte), Max Strub and Bruno

Masurat (Violins), Wilhelm Sicgesmund (Oboe) and Hans Schrader ('Cello). 7.0, Announcements. 7.5 till Close Down, Dance Evening; The Station Orchestra, conducted by Vack, the Station Choir, conducted by Weigel, Arno Berger's Dance Band and Soloists. In an interval, News.

BERNE.-See Schweizerischer Landessender. BEROMUNSTER. - See Schweizerischer

BODEN .- See Stockholm.

BODO.-See Oslo.

BORDEAUX-LAFAYETTE

BORDEAUX-LAFAYETTE
986 kc/s, 304 metres; 13 kW.—7.45 a.m.,
News relayed from Paris (Ecole Supérieure),
671 kc/s, 447.1 metres. 10.30, Concert, relayed
from Lillie (PTT), 1,128.5 kc/s, 265.8 metres.
12.45 p.m., Time and Quintet Concert. In
the interval. News. 1.50, Exchange. 2.0,
Records. 4.0, Programme for Children. 6.15,
Radio Journal, relayed from Paris (Ecole
Supérieure). 7.30, News. 7.40, Talk arranged
by the International Labour Bureau. 7.55,
Lottery Results and Charades. 8.5, Talk,
relayed from Paris. 8.15, Talk on Wine.
8.30, News, Market Prices and Weather. 8.35,
A Connedy.

BRATISLAVA

BRATISLAVA

1,073 kc/s, 279.6 metres; 14 kW.—10.5 a.m., See Moravská-Ostrava. 10.55, See Prague. 11.0, Agricultural Talk. 11.10, See Prague. 11.35, The Station Orchestra, conducted by Kolprecht. 12.35 p.m., See Prague. 12.45, News in Slovak, German and Hungarian. 12.55, See Prague. 3.0, See Brno. 4.15, Talk: Boy Scouts. 4.25, Records. 4.35, See Prague. 3.0, See Brno. 4.16, Talk: Boy Scouts. 4.25, Records. 4.35, See Prague. 4.50, Talk. 5.5, Records. 5.10, Programme to be announced. 5.55, Hints for Housewives. 6.0, See Prague. 6.15, Talk. 6.30, See Moravská-Ostrava. 7.0, See Brno. 7.5, See Prague. 9.15, Introductory Talk to the following Transmission. 9.25, Smetana Pianoforte Recital by Makudzinski, Fantasia on Czech Folk Songs; Study in C; On the Sea-Shore.

BREMEN.-See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—11.0 a.m., The Silesian Philharmonic Orchestra, conducted by Hoffmann. 12.15 to 1.15 p.m., See Leipzig. 1.15, Time. Wenther. 1.20, Post Office Programme, with Records. 1.50, Agricultural Prices, Exchange. 2.20, Talk: Skining Equipment. 2.30, Programme for Children. 3.0, Orchestral Concert. conducted by Rischka. Soloist: Hans Rothensee (Baritone). Overture. The Merry Wives of Windsor (Nicolai); The Butterfly Chase (Keler-Béla); Wohin mit der Freud' (Silcher); Polk Song, Swahian Ländler; Folk Melody, Hans und Liesel; Noch sind die Tage der Rosen (Buumgartner); Im Märchenwald (Gaughberger); Quadrille, Waidmanns.Judel (Hermann); Ballet Overture (Lincke); Pizzikatoständchen (Krome); Folk Melodies; (a) Die Lore am Tore, (b) Der Tod von Basel, (c) Der Schlossergesell; Vonn Rhein der Wein (Brandt): Erinnerungen an Franz Abt (Mannfred); Spanish March, Cadiz (Valverde). 4.30, Talk: Handicarit. 4.50, Kinderszenen, Op. 15, for Piano (Schumann), by Charlotte Weinhold. 5.10, Agricultural Prices; Reading. 5.30, Programme to be announced. 5.50, Announcements. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, See Leipzig. 7.18 to 9.20, See Munich. 9.20, See Leipzig. 9.30, Talk by Kurt Sell: What People are saying in America (on Records). 9.45, Time, News. 10.0 till Close Down, Concert from Leipzig.

BRNO

BRNO

878 kc/s, 342 metres; 35 kW.—10.55 a.m., see Prague. 11.0, Agricultural Talk.

See Prague. 11.35, See Bratislava.
p.m., See Prague. 2.30, See Prague. 2.40,
Talk for Women. 2.50, See Prague. 3.0,
Concert by the Station Orchestra, conducted by Janota. Dramatic Overture. Op. 1
(Dvorák); Scherzo caprice, Op. 5 (Nedbal); Yugoslav Rhapsody, Op. 60 (Bendl). 3.50,
Programme for Children. 4.25, Records.

4.35, See Prague. 4.50, Records. 5.0,
Theatre and Film Review. 5.15, See Prague.

5.26, German Transmission: News and A
Reciter's Dilemma—Play (Lorenz). 6.0, See
Prague. 6.15, Talk. 6.30, Concert by the
Moravian Wind Quintet. Serenade. Op. 5
(Suchon): Prélude and Figue (Picka); Sarabande and Minuet (Rosenberg). 7.0, Talk.

7.5, See Prague. 9.15, See Bratislava.

BRUSSELS (No. 1)

I.N.R., 689 kc/s, 509.2 metres; 15 kW.—12 Noon, Concert by the Small Station Orches-tra, conducted by Pierre Leemans; The

March of the Highlanders (Lewinnok); Waltz, Martin (Zeller); Romance à Manon (Demaret); Selections from Un bon garcon (Yvain); Piccolo Solo: L'écho des bois (Damaré); Violin Solo, Selection from Nina Rose (Ronherg); Waltz, Pardon, Madame! (Abraham); Fidèle (Stauch); Les filles de Panama (Grothe). 1.0 p.m., Le Journal Parlé. 1.16, Concert by the Station Orchestra, conducted by Moulemans: March (Weyts); Waltz from Faust (Gounod); Sicilienne from Cavalleria Rusticana (Mascagni); Ballet égyptien (Luigini); La Houssarde (Ganne). 5.30, Musical Programme. 6.0, Talk: Cooperation. 6.15, A Marionnette Play, 7.15, Talk for Workers, 7.30, Le Journal Parlé. 8.0, Concert by the Station Orchestra, conducted by Meulemans: Overture. The Flying Dutchman (Wagner). 8.15, Cabaret Programme. 8.45, Political Talk, 9.0, Concert by the Station Orchestra (contd.): Extracts from Hérodiade (Massenet); Ballet Music from Samson and Delilah (Saint-Saëns); Prelude to Le Déluge (Saint-Saëns); Selection from The Steeping Beauty (Tchaikovsky); Indian March (Sellenick). 10.0, Le Journal Parlé.

BRUSSELS (No. 2)

N.I.R., 888 kc/s, 337.8 metres; 15 kW.—12

Noon, Gramophone Concert: March, The Great Little Army (Alford); Slow Fox-trot (Walberg-Henry); Oboe Solo, Simple aveu (Thomé); Selection from Ball at the Savoy (Abraham); Waltz Song, Morgenblätter (Joh. Strauss-Winter); Fox-trot. Let's Make Up (Little); Selection from Patience (Sullivan); Melody (de Souza); Selection from Princess Ida (Sullivan); Foxtrot, Lou'siana Lullaby (Newman); Oboe Solo, Lc Cygne (Saint-Saëns); Foxtrot, Free as the Air (de Kers); March (Emmerson). 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by Leenans: March, Morgenrot (Jessel); Waltz, Lachender Mai (Komzak); Melody, Notre amour (Boëlmann); Selection from La Navarraise (Massenet); Pianoforte Solo, Three Waltzes (Van Hoof); In a Chiucse Temple Grden (Ketclbey); Mélodie enchanteresse (Ackermans); Suite, Dances of the Nations (Manfred). 5.0, Dance Music by Robert de Kers and his Cabaret Kings, relayed from the Century-Hotel Antwerp. 6.0, Violin Concerto (Bralma) on Gramophone Records. 7.30, Le Journal Parlé. 8.9, Act One of The Magic Flute—Opera (Mozart), relayed from the Royal Flemish Opera House, Antwerp. 9.12, Reading from Three Men in a Boat (J. K. Jerome), followed by Senata in A (Mozart) on Gramophone Records. 7.30, Le Journal Parlé. 8.9, Act Two of The Magic Flute (Mozart). 10.35, Le Journal Parlé. 10.46, Act Three of The Magic Flute (Mozart). 10.35, Le Journal Parlé. 10.46, Act Three of The Magic Flute (Mozart). 11.10, Close Down.

BUCHAREST

750 kc/s, 3947 metres; 12 kW.—11. a.m., Exchange and Gramophone Records, 12 Noon, Radio Journal, 12.15 p.m., Gramophone Records, 3.15, Programme for phone Records. 3.15, Programme for Children. 4.0, Light Music for the Dinico Orchestra. 5.0, Radio Journal. 5.15, Concert (contd.). 6.0, Educational Talk. 6.20, Talk. 6.40, Opeca (on Gramophone Records). After the First Act: Talk. At the emi: Radio Journal.

BUDAPEST

BUDAPEST
on 840 metres; 120 kW. Also relayed
on 840 metres from 6.38 (approx.) till Close
Down.—11.5 a.m., The Bela Endre Vocal
Quartet. 12.30 p.m., Concert by a Band of
Unemployed Musicians. 3.0, Talk. 4.0, Agricultural Talk. 4.30, Pianoforte Recital by
Sári Biro. 5.0, English Lesson. 5.30, Concert. 6.0, Talk. 6.30, The Tales of Hoffmanu—Opéra-Comique in Four Acts (Offenbach), relayed from the Royal Hungarian
Opera House, followed by the Maudits Orchestra and Julius Szantho (Songs), relayed
from the Café Patria.

CASSEL .- See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s, 281 netres; 0.75 kW. Relayed by Kalundborg, 266 kc/s, 1,153.8 metres, and Skamlebaek (OXY) on 31.51 metres.—11.0 a.m., Time Signal and Chimes from the Town Hall. 11.2, The Leonard Gyldmark String Ensemble, relayed from the Bellevue Strandhotel. 2.30 p.m., Carl Rydmll's String Ensemble: Connedy Overture (Keler-Bela); Waltz (Gungl); Selection from Lucia di Lammermoor (Donizetti); Setenade (Moszkovsky); Ballet Music (Rydall); Mazurka (Ganne); Piamforte Solos: (a) Ballad, Op. 24 (Grieg). (b) Caprice in E (Sinding), (c) Rustle of Spring (Sinding); Apollo March (Lincke); Serenade (Rachmaninos); Metody (Gabriel-Marie); Selection from The Merry

Widow (Lehár); Waltz (Gyldmark-Thingsted); Crépuscle (Schröder); MacMahon March (Lumbye). 4.30, Exchange. 5.0, Time, and Chimes, relayed from the Town Hall. 5.2, Discussion. 5.45, Weather. 6.0, News. 6.15, Time.' 6.30, Talk: Cheap Schoolbooks. 7.0, Time Signal from the Town Hall. 7.1, Der var engang (Once upon a Time)—Drama in Five Acts (Drachmann), with Incidental Music by Lange-Müller. 9.15, News. 9.30, Mandoline Concert by the Venetian Trio: Le menuet d'amour (Massenet); Serenade (Borodin); Frühlingsahnung (Zilcher); Spiel unter der Linde (Zilcher); Duet from The Queen of Spades (Tchaikovsky); Le streghe (Calzelli); Relgen (Jensen); Réponse à Manon (Gillet), 10.0, Dance Music, relayed from the Palace Hotel. 11.0, Time and Chimes from the Town Hall. 11.2, Dance Music (contd.).

CORK .- See Athlone. DANZIG .-- See Heilsberg. DRESDEN .- See Leipzig.

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—10.30 to 11.30 a.m., Programme in English by the I.B.C. 16.30, Happy Hour. Part I, Military Band Music. Part II, Dance Music. 11.30, Programme in French. 3.30 to 6.0 p.m., Programme in English by the I.B.C. 3.30, Concert for Worthing and Littlehampton Listeners. Part I, Organ Recital. Part II, Dance Music. 4.30, The I.B.C. Nursery Corner: Birthday Greetings. 5.0, Concert for Brighton and Hove Listeners. Part I, From the Cotton Fields: Plantation Songs Medley: Banjo Quartet, Darktown Dandies (Morley); Deep River (Traditional); Poor Old Joe (Foster); Tiger's Tail (Thurban); O dem Golden Slippers (Bland); Levee Song; Down South (Myddleton). 6.30, I.B.C. Time Signal. 5.31, Concert for Brighton and Hove Listeners: Light Musie: The Glow Worm's Wedding (Siede); Monsieur Tricotrin (Rawlingson); Everybody loves my Baby (Palmar); Toujoūrs. toujours (Manilla); Signature Tune. 5.45, Concert of Dunce Music: Buckin' the Wind (Johnston); The Wind's in the West (Woods): La cachimba de San Juan (Ognacio); Night and Day (Porter). 6.0, Programme in French. 10.0 (approx.), till Gloss Down, Programme in English by the I.B.C. 10.0, Dance Music. 10.30, Tango Band: Ranne de la Noche; To-night; Spanish Eyes; Si, Si, I'll keep you in my heart always; The Song of the Rose; Julian; A Girlike Nina. 11.0, Military Band Concert: Washington Post March (Sousa); Classical Memories (arr. Ewing); Old Comrades (Teike); Selection from The Geisha (Jones). 11.16, Concert: Let's all be Happy together (Thomas); Who's afraid of the Big Bad Wolf (Churchill); My Moonlight Madonna (Webster-Fibieh); Riding on a Rainbow (Woods). 1.30, I.B.C. Time Signal. 11.31, Concert arranged by the International Broadcasting Company (Ireland), Ltd.: Signature Tune. Come back to Erin; Danube Waves (Ivanovici); Kisses in the Dark (de Micheli); Song, Kleen Alannah (Bonheu): Selection from The Pirates of Penzance (Sulivan); The Golden Musical Box (Krome); Irish Medley; Song, I give my heart (Leighl); Moonlight on the Alster (Fetras). Signature

FLENSBURG.—See Hamburg.

FLORENCE,-See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; i7 kv/. Relayed by Cassel and Trier, 1,157 kc/s, 259.3 metres.—
9.0 a.m., News. 9.45, Hints for the Housewife. 10.0, Concert. 10.40, Announcements. 11.0, Orchestral Concert, eonducted by Affred Priedolt! March, King Carnival (Rosey); Overture. The Bohemian Girl (Balfe); An der schouen grunen Narenta (Komzak); Blumengefluster (Elienberg); Two Symphonic Dances (Schmeling); Die Nachtpatronille (Trbach); Waltz, Wo meine Wiege stand (Ziehrer); March Potpourri, Alle unit uns (Robrecht). 12.15 p.m., Time and News. 12.35, See Langenberg. 1.49, Programme for Children. 2.30, Weather. 2.40, Time and Market Prices. 3.0 to 5.33, See Stuttgart. 5.35, Talk on Cless. 5.50, News. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.6,



all Talk 7.10 to 9.0, See Langenberg. fime and News. 9.20, See Stuttgart. See Langenberg. 9.45, News. 10.0 to 12 lght, See Langenberg.

PRIKSSTAD .- See Oslo. BURG .- See Stuttgart. EVA .- See Radio-Suisse Romande.)A.—See Turin. WITZ.—See Breslau. :BORG .- See Stockholm. -See Vienna. AR .- See Oslo.

HAMBURG

HAMBURG

10/5, 372 metres; 1.5 kW. Relayed by en, 1,112 ke/s, 269.8 metres; Flensburg Hanover, 1,319 ke/s, 227.4 metres; and 1,292 ke/s, 232.2 metres,—9.0 a.m., ds. 9.50, News. 10.0, Records: Steiger. (Faust); Potpourri, Mit Laute und (Lautenschläger); Polka-Mazurka Poti-(Kermbach); Feldbergrutscher; Poti-(Ventralen); Polka-Mazurka Poti-(Kermbach); Feldbergrutscher; Poti-(Ventralen); Polka-Mazurka Polka-(Ventralen); Polka-Mazurka Polka-(Ventralen); Polka-(Ventr OVER .- See Hamburg

HEILSBERG

HEILSBERG
kc/s, 276.5 metres; 60 kW. Relayed by ig, 662 kc/s, 453.2 metres.—8.5 a.m.,: Thirty Years with a German Family, News. 19.0, lee Report. 10.30, The I Station Orchestra, conducted by Engensen: Sclection from Manon Lescautimi); Overture, Casanova (Lincke); tion from The Dubarry (Millöckereben); Extract from Cagliostrio in (Joh. Strauss); Sclection from accio (Suppé). 12.5 p.m., Records: ro (Dittersdorf); Minuet (Dittersdorf); nte from the Quartet in D (Mozart); zo from the Quartet in D (Mozart); zo from the Quartet in D (Mozart); xo from the Gartet in A minor (Schul); Air on the G String (Bach); String tet in E flat, Op. 51 (Dvorák); Adagio the String Quartet in B flat, No. (aydn); Andante con moto, Op. 67, from fifth Symphony in C minor (Beethoven); th Movement from the Fourth Symphony in E minor, Op. 98 (Brahms); Liebeser from the Ballet Suite, Op. 130, No. (eger). In the intervals, News. 2.0, unlural Prices and Exchange. 2.15, Review. 2.30, Talk for Hitler Youth. The Small Station Orchestra, conducted ficken: Overture, Jeanne d'Arc (Verdi); n Solos (Schubert-Wilhelmy): (a) Ave a, (b) Am Meer); Suite der Freude impflug); Waltz from Der Rosenkavalier Strauss); Overture, Lestocq (Auher); ice Taormina (Rossini-Respighi). 4.10, ary Programme. 5.0, Technical Talk. Agricultural Prices, Ice Report. 5.25, ultural Talk. 5.50, Weather. 6.0, smission for all German Stations, refrom Berlin (Funkstunde). ice intervals, News and Talk on Gramoe Records: Will People are saying in ica.

HILVERSUM

HILVERSUM

kc/s, 296.1 metres; 7 kW. up to 5.40
and 20 kW. from 5.40 p.m.—Programme
the General Broadcasting Society
R.O.). 9.55 a.m., Sacred Music on
rds. 10.10, Soprano Recital by Marie
ers: Care Inci (Leon); Aria from Figaro
art); Seng (Haydn); Two Songs (Schu1); (a) Schneeglöckchen, (b) O lhr HerTwo Songs (Schubert): (a) Das geheim(b) Lachen und weinen; Two Songs
ms): (a) Der Jüger, (b) Meine Liche
ilin. 10.40, For Women. 11.10, Records,
Time. 11.41, The Rentuneester Orchestra,
eintervals, Records. 2.10 p.m., Records,
Violin and Pianoforte Recital by van
Wijngaart and Jan Wagenaar. 3.40, Talk
Hospitals. 4.10, Talk on Music, with
uphone Illustrations. 5.10, Light Music
covaes Lajos and his Orchestra, 6.10,
s Talk. 6.40 till (Tose Down, A.V.R.O,
rec. 7.10, Bach Concert by the Station
estra, conducted by van Raalte. SoloPierre Palla, Egbert Veen, and Gerard
cy (Pianoforte). Sinfonia from Cantata
or Two Flutes, Two Oboes, and Strings;
nia from Cantata 156 for Oboe and
gs; Sinfonia from Cantata 75 for Two
sand Strings. 7.40, Time and News.
Records. 7.55, Concert by the Station
estra, conducted by Gerharz and the
a Choir: Radetzky March (Joh.
1885): Waltz, Wine, Woman and Song
Stranss); Ballgeffüster (Meyer-Hel19; Serenade (Heykens); Carrambalina,
unboletta (Kálmán); Two Pieces (Gil-

DEC. 28th THURSDAY continued

let): (a) La lettre à Manon. (b) Réponse de Manon; March Potpourri (Weninger). 8.40, Initations by the Dutch Illustrator, Koos Koen. 8.55, The Station Orchestra, conducted by Nico Treep; Hélène Cals (Soprano); Kaisermarsch (Wagner); Arietta from Dinorah (Mcyerbeer); Arietta from Mirclla (Gounod); Polonaise (Chopin); La mia eanzone (Tosti); Serenade (Moskovsky); March (Schertzinger). 9.30, Dialogue. 9.35, Fragments from a Revue by Lou Bandy's Ensemble. 10.10, Light Musie by Kovacs Lajos and his Orchestra. 10.40, News. 10.50, Dance Musie by Tom van der Stap and his Ten White Ravens, relayed from the Pschorr Dance Hall, Rotterdam.

HORBY.-See Stockholm.

HUIZEN

HUIZEN

160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m.
Transmitted from Kootwijk on 50 kW. from
3.40 p.m.,—7.40 a.m., Programme of the
Catholic Radio Society (R.R.O.): Records,
9.40 to 10.40, Programme of the Christian
Radio Society (N.C.R.V.). 9.40, Records,
9.55, Religious Programme, 10.25, Records,
10.40 to 1.40 p.m., K.R.O. Programme, 10.40
a.m., Records, 11.10, Religious Address,
11.40, Police Notes, 11.55, Concert by the
K.R.O. Orchestra, conducted by van 't
Wond: Marche tartare (Ganne); Overture
to a Revue (Lincke); Toujours ou jamais
(Waldteufel); Potpourri, From A to Z
(Geiger); Overture, Banditenstreiche
(Suppé); Records; Le régiment du Sambre
et Mense (Turlet); Potpourri, Musikalische
Telegramme (Urbach); Weaner Mehlspeise
(Dufort); Selection from The Land of Smiles
(Lehár); Victoria March (v. Blon). 1.40
p.m. till Close Down, N.C.R.V. Programme.
1.40, Handicrafts Lesson. 2.40, For Women.
3.40, Religious Programme. 4.40, Handwork
Lesson. 5.10, The Amsterdam Chamber
Music Ensemble. 6.10, Talk. 6.25, Records.
6.40, Police Notes, 6.55, Religious Report.
7.10, Political Review. 7.40, Choral Concert
of Sacred Music. 7.55, Address. 8.25, Choral
Concert (contd.). 8.40, News. 8.55, Religious Address. 9.40, Concert by a Male
Voice Choir, with Gramophone Interludes.
10.40, Records.

INNSBRUCK.-Scc Vienna.

KALUNDBORG .- See Copenhagen.

KIEL.-See Hamburg.

KLAGENFURT.-See Vienna.

KOSICE .- See Prague.

LANGENBERG

LANGENBERG

635 ke/s, 473 metres; 60 kW.—9.0 a.m., See Frankfurt. 9.5, Announcements. 9.10, Topical Talk. 10.10, Records. 10.25, Sponsored Programme with Gramophone Records. 10.55, Weather. 11.0, See Frankfurt. 12.15 p.m., See Frankfurt. 12.25, News. 12.35, Records. Overture. Flotte Bursche (Suppeé); Waltz Potpourri (Edward); Liebesständchen (Waldau); Overture. Gipsy Love (Lehár); Love's Dream after the Bail (Czibulka); Selection from Lisefotte (Künneke); Melody (Tosti); Es gibt nur eine Liebe (Künneke); Serenade No. 1 (Drdla); Für dich allein (Geehl); Waltz, Sorgenfrei (Tschmann); Gallop, Rasch wie der Blitz (Millöcker). 2.0, Rending. 2.15, Sonata in D minor for Tello and Pianofort (Defesch) by Paul Schmidt and Walter Wielsch. 2.30, Market Prices. 2.50, Political Announcements. 3.0, See Stuttgart. 5.35, Medical Talk. 5.45, Announcements. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, See Frankfurt. 7.10, Das Träneukrüglein (Georg Schumann) by the Station Choir and Soloists, 7.45, Topical Programme. 8.35, Concert of Military Music by the Station Chorkestra and Male Voice Choir, Rodens (Baritone). Schneider (Bass) and Jansen (Bandonian). Commentary by Hermann Tölle. 9.0, See Frankfurt. 9.20, See Stuttgart. 9.30, Talk: What people are falking about in America. . . 9.45, Announcements. 10.0, The Station Orchestra, conducted by Buschkötter: Overture, Undine (Lortzing); Suite from Der Bürger als Edelmann (R. Stranss); Tarantella from Venezia e Napoli (Liszt). 11.0, Debussy and Ravel Concert (on Records): Two Nocturnes (Debussy): (a) Nuages, (h) Fétes: Prelhade a l'après-midi d'un fanue (Debussy); Sarabande (Debussy-Ravel): Dance (Debussy-Ravel); Introduction and Allegro for Harp, String Quartet and Wood Wind Instruments (Ravel): La Valse (Ravel). 12.0 Midnight, Close Down.

LAUSANNE.-See Radio-Suisse Romande.

LEIPZIG

TEIPZIG
770 kc/s, 389.6 metres; 120 kW. Relayed by
Dresden, 941 kc/s, 319 metres.—9.45 a.m.,
Post Office Programme, with Records. 10.40,
News. 11.0, See Breslau. 12.16 p.m., News.
12.25, Records: March. Fehrhelliner Reitermarsch; Badenweiler Marsch (Fürst); Deutscher Föhn (Hanfstaengl); Das dritte Reich
(Hellmann); Parade March (Hellmann);

Admiral-Marsch (Friedemann); Deutschland zur Sec (Sylvar); Overture, Light Cavalry (Suppé); Hoch Heidecksburg (Herzer); Feuert los (Holzmann). 1.0, News. 1.20, Film Review. 1.30, Talk for Young People: A Visit to Northern Siberia. 2.0, Sonata in E Minor, Op. 131d, for Viola (Reger) played by Ernst Hoenisch. 2.45, Market Prices. 3.0, See Breslau. 5.10, Review of the Past Year. 5.38, Topical Talk. 5.45, Market Prices. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, To-day's News. 7.10, See Munich. 9.0, News. 9.20, News and Weather. 9.30, Talk by Kurt G. Sell: What People are saying in America, relayed from America. 9.50, The Emdé Orchestra.

LINZ.-See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—11.15 a.m., Gramophone Records. 11.45, News. 12 Noon, Weather, News. 5.0 p.m., Talk for Women. 5.30, The Letter-Box. 6.0, Serbocroat Lesson. 6.30, Request Records. 7.0, Programme from Belgrade. 9.0, Weather, News, Dance Music.

LUXEMBOURG

LUXEMBOURG
252 kc/s, 1,191 metres; 200 kW. German Evening.—7.0 p.m., Gramophone Concert: Overture, Semiramis (Rossini); Schubert Potpourri (Urbach); Viennese Potpourri (Dostal); Selection from Monte Carlo, 7.30, Aria Recital by Elisabeth Gorty: Three Arias from Figaro (Mozart); Aria from The Magic Flute (Mozart); Aria from The Magic Flute (Mozart); Aria from Figaro (Mozart), 8.0, Dance Music. 8.30, A Story for Children (Hans Andersen). 8.35, Selection from Carmen (Bizet) on Gramophone Records. 8.45 (approx.), Exchange. 8.50, News in French. 9.0, Beethoven Planoforte Recital by Lilo Müller. 9.30, Concert: Overture, Cockaigne (In London Town) (Elgar) on Gramophone Records, by the Royal Albert Hall Orchestra, conducted by the Composer. 9.45, News in German, Double Concerto in A minor, Op. 102 (Brahms), on Gramophone Records. 10.25, Dance Music on Gramophone Records.

MADRID

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., See Madrid (EAJ7). After the Relay, Radio Chronicle. 12 Midnight till Close Down, Programme in English the I.B.C. 12 Midnight, Dance Music, Pettin' in the Park; Two Buck Tim; Remember my forgotten Man; Whistle and Blow your cares away; The grass is getting greener all the time; The Shadow Waltz; There's a Cabin in the Pines; If You'll say "Yes" Chérie. 12.30 a.m. (Friday), Light Music. I raised my hat (Pola); On the other side of Lover's Lane (Gibbons); Twelfth Street Rag (Bowman); Roll up the Carpet (Hauley); The Wave (Metra); Let's call it a day (Brown); Secrets (Discepolo); Happy as the day is long (Arlen). 1.0 a.m., I.B.C. Good-night Melody and Close Down.

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—12
Noon, Chimes, Radio Journal, 12.15 p.m.,
Time. 2.0, Chimes, Time, Weather, and
Theatre Notes. 2.15 (approx.), Concert of
Popular Music, In the interval, Exchange.
3.40, Radio Journal. 3.50, News. 4.0 to
7.0, Interval. 7.0, Chimes, Exchange, Announcements, and Programme for Children.
8.15, Radio Journal. 8.30 to 9.15, Interval.
9.15, English Lesson. 9.30, Exchange, Time
and Radio Journal. 9.45 (approx.), Two
Plays. In the interval, Song and Pianoforte Recital. 11.45, Radio Journal. 12
Midnight, Chimes. 1.0 a.m. (Friday) till
Close Down, Programme in English by the
I.B.C. Dance Music: Whistling under the
Moon; You loving me; In a little SecondHand Store; Symphony of the Breeze; Pagan
Moon; Sundown in a little Green Hollow;
A One-Horse Town; Forty-Second Street;
Here you come with Love; Hiawatha's Lullaby; My Moonlight Madouna; Young and
Healthy; Stringin' along on a Shoe String;
Adorable; You're mine, you; Don't blame
me. 2.0, I.B.C. Good-night Melody.

MALMO.—See Stockholm.

MALMO.-See Stockholm.

MILAN.-Sec Turin.

MORAVSKA-OSTRAVA

MORAVSKA-OSTRAVA

1,137 kg/s, 263.8 metres; 11 kW.—5.15 a.m.,
Programme from Prague. 8.50, Programme
from Prague. 10.0, Records. 10.5, Military
Band Concert, conducted by Krepela. 10.55,
See Prague. 11.0, See Brno. 11.10, See
Prague. 11.35, See Bratislava. 12.35 p.m.,
See Bratislava. 2.30, See Prague. 3.0, See
Brno. 4.15, See Prague. 5.5, Talk: Doctors.
5.15, See Prague. 5.30, German Transmission: Stories for Young People and Talk:
The History of Art. 6.0, See Prague. 6.15,
See Bratislava. 6.30, See Prague. 7.0, See
Brno. 7.5, See Prague. 9.15, See Bratislava.

MOTALA.-See Stockholm.

MUHLACKER .-- See Stuttgart.

MUNICH

MUNICH

716 kc/s, 419 metres; 60-100 kW. Relayed by Augsburg and Kaisersl.utern, 536 kc/s, 550 metres; and Nürnberg, 1,256 kc/s, 239 metres.—10.30 a.m., Post Office Programme Records. 10.50, See Leipzig. 11.0, See Breslau. 12.15 p.m., See Leipzig. 12.25, Records; Prelude to Tristan and Isolda (Wagner); In der Konditorkuche trom Schlagobers (Strauss); Aria from William Tell (Rossini); Overture, The Queen's Kerchief (Strauss); Folk Melody (arr. Grundgens); Song (Green); In der Lathenkolonie (Wolter); Geburtstagsständehen (Alex). 1.0, See Leipzig. 1.10, Announcements. 1.30, Concert. Three Soprano Solos (Prince Ludwig Ferdinand). (a) ber Mond ist aufgegangen, (b) Wie wundersam, (c) Kennst du dies Lied. Three Contralto Solos (von Fielitz): (a) Die Sittsame, (b) Lotos und Mädcheft auf dem Teich, (c) Bruderliebe; Aus frühen Kindheitstagen Suite for Violin and Plano, Op. 32 (Seyboth); Three Soprano Solos (V. Hornstein): (a) Lasst, o lasst mich, (b) Sein Schritt, (c) In freudigen Gefängen. 2.5, Reading. 2.30, For Women. 2.50, Announcements. 3.0 to 5.10, See Breslau. 5.10, Agricultural Talk. 5.30, Records: Waltz (Scott); Laugh Punicinello (Leoncavallo; Serenade from Faust (Gonnod); Aria from A Masked Ball (Verdi); Laehen und Weinen (Schubert. 5.45, Time, Announcements. 6.0, Transmission for all German Stations relayed from Berlin (Funkstunde). 7.0, See Leipzig. 7.10, Austria. 7.30, The Merry Widow—Operetta in Two Acts (Lehar). 9.30, Talk by Kurt G. Sell: What People are saying in America, relayed from America. 9.45, Announcements. 10.0, Concert from Leipzig.

NAPLES .- See Rome.

NOTODDEN .-- See Oslo.

OSLO

OSLO

277 kc/s, 1.083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Noïodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Rjukan, 671 kc/s, 447.1 metres; and Jelöy, LCI, 6,990 kc/s, 42.92 metres.—10.15 a.m., Divine Service. 11.10, Exchange. 11.55, Time. 12.0 Noon to 1.0 p.m., Records. In the intervals, Weather, Agricultural Report and Exchange. 4.0, Records. 5.0, Talk: Clristmas in Music. 5.30, Divine Service relayed from Stavanger, 1,247 kc/s, 240.6 metres. 6.0, Announcements. 6.30, Violin and Accordion Recital of Old Norwegian Dances. 7.0, Time. 7.1, Agricultural Programme. 7.30, Orchestral Concert, conducted by Kramm. Soloist: Anne Marie Orbeck (Pianoforte); Overture in the Italian Style (Schubert); Pianoforte Concerto in D (Haydn); Suite, The Jester at the Wedding (Coates); Suite ancienne (Halvorsen). 8.40, News. 9.0, Topical Talk. 9.15, Choral Concert relayed from Christiansand 1,273 kc/s, 235.5 metres.

OSTERSUND.—See Stockholm.

PALERMO

PALERMO

PALERMO

p.m., Light Music: One-Step, Povero Jolli (Lanzetta); Intermezzo: Goece di rugiada (Giacchino); Selection from Iris (Mascagni); Slow Foxtrot, Jonny (Hollaender); Characteristic Piece. Bebè danza (Manno); Selection from The Blue Mazurka (Lehár); Waltz. Se più non m'ami (Pignacca); One-Step (Szokoli). In the interval, Time and News. 4.30, Gramophone Records. 5.0 to 5.30, Programme for Children. 7.0, Announcements. 7.20, Records. In the interval, Time and News. 7.45, Symphony Concert, conducted by La Rosa Parodi. In the interval, Talk. After the Concert, Records. 10.0, Giornale Radio.

PARIS

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—12.30 p.m., (Concert relayed from Paris (Ecole Supérioure), 671 kc/s, 447.1 metres. 1.0, Market Prices. 1.15, News. 1.30, Agrieultural Notes. 1.45, Report of the Labour Bureau. 2.0, Exchange and Literary Report. 2.15, Economic Notes. 2.30, Commercial Prices. 2.45, Amusement Guide, Talk, and Aviation Notes. 3.0, Sec Strasbourg. In the interval at 3.30, Exchange. 4.15, Exchange and Market Prices. 5.45, Le Journal Parlé. 7.15, Weather. 7.25, News. 7.30, Records. Overture and Aria, Martha (Flotow): Selection from Le Postillon de Longjumcan (Adam). 8.0, Political Talk. 8.15, Records (contd.): End of Act 11 and Act III of The Barber of Seville (Rossini).

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres;
60 kW.—7.10 a.m., Chimes and Sponsored
Gramophone Concert. In the intervals at
7.30 and 8.20, News; and at 8.45, Talk for
Housewives. 12 Noon, Financial Notes. 12.5
p.m., Gramophone Records. 12.30, Sponsored Concert. 1.5, Financial News. 1.10,
Sponsored Music. 1.25, Financial Notes. 1.35,
Gramophone Records. 2.0, Financial Notes.
3.15, Financial News. 3.45, Financial Notes.
4.50, Exchange. 6.45, Market Prices. 6.52,
Agricultural Talk. 7.0, Gramophone Music.

Wireless \ World

7.7, Talk. 7.15, Le Journal Parlé. 8.10, Review of the Week. 8.17, Concert. In the interval at 8.20, Financial Notes. 8.55, Gramophone Concert. 9.30, Fashion Review. 9.45, Concert (contd.). 10.10, News.

PARIS

PARIS

RADIO PARIS, Call GFR, 174 kc/s, 1,725 metres; 75 kW.-12 Noon, Protestant Address. 12.30 p.m., Records: Magda Tagliafero: (a) First Movement from the Concerto in D (Mozart), (b) Prelude (Debussy), (c) Sarabande (Debussy); Charles Panzera: (a) Three Arias from The Damnation of Faust (Berlioz), (b) Extase (Duparc), (c) Lament (Duparc), (d) Kaddish (Ravel); Bronisław Hubermann: (a) La capricieuse (Elgar), (b) Waltz in A (Brahms), (c) Rondo a la Clochette (Paganin); Elisabeth Schumann: (a) Es ist Volibracht (Bach), (b) Two Arias from Figaro (Mozart); Arsene Lupin (Lattes); Coucou (Jonasson); Should I (Nacio-Herb-Brown); Adieu Paris (Souders); Songs from La Vagabonde (Borel-Clerc); Overnight (Alter-Herb-Conelly). 3.45, Exchange. 6.20, Weather, Agricultural Talk and Exchange. 6.45, Film Review. 7.0, Book Review. 7.20, Records: Three Pieces (Dalcroze): (a) La Ronde de la Jardinière, (b) Le méchant petit garçon, (c) Le petit Noël; Three Pieces (Zimmermann). 7.45, News. 8.0, Chamber Music and Poems. Soloists: Mile. Save (Recitations), Léon Kartun (Pianoforte), Mme. Malnory-Marseillac (Songs), and Serge Tenenbaulm (Violin). String Quartet (Respighi); Six Poems; Pianoforte Solo: Images (Debussy); Songs: (a) Sacred Songs (Bach), (b) Wiegenlied (Mozart), (c) Promenade matinale (Bordes), (d) Bernadette (de Berville), (e) Mandoline (Fauré): Violin Solos; Five Poems; Quintet No. 2 (Fauré). News and Weather in the interval.

PITTSBURGH

PITTSBURGH

KDKA, 980 kc/s, 396 metres; 50 kW. Relayed by W8XK on 48.85 metres; and 25.27 metres,—12 Noon, Musical Clock. 1.0 p.m., Morning Devotions, from New York. 1.15, Don Hall Trio, from New York. 1.30, Lew White, Organist, from New York. 2.0, Breakfast Club, from New York. 2.30, Style and Shopping Service. 2.45, News, Work-a-Day Thoughts. 3.0, Edward Mac-Hugh, from New York. 3.15, Clara, Lu''n' Em, from New York. 3.20, To-day's Child-ren, from New York. 3.20, To-day's Child-ren, from New York. 3.45, Magic Moments, from New York. 4.15, Sammy Fuller. 4.20, Rhythm Ramblers, from New York. 5.16, Four Accs. 5.30, News and Market Reports. 5.45, Ernie Holst's Orchestra. 6.0, Farm and Home Hour, from New York. 6.30, Ernie Holst's Orchestra. 7.0, Musical Originalities, from New York. 7.0, KDKA Home Forum. 7.45, Pioneers, KDKA. 8.0, State Federation of Pennsylvania Women. 8.15. Rochester Orchestra, from New York. 9.15, Programme to be announced. 9.30, Business News and Market Reports. 9.45, Billy Leech. 10.0, Uncle Tom and Betty. 10.15, KDKA Kiddies' Klub. 10.30, The Singing Lady, from New York. 11.0, News, Pat Haley. 11.15, Sports, Programme Preview. 11.30, Egiz's Salon Orchestra. 11.45, Lowell Thomas, from New York.

PORSGRUND.—See Oslo

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—9.10 a.m.,
Gramophone Records. 16.6, See Moravskáostrava. 10.55, Agricultural Talk. 11.0, Time
and Agricultural Talk. 11.18, Records. 11.20,
Weather. 11.25, News. 11.35, See Bratislava. 12.35 p.m., Labour Market Report.
12.45, Records. 12.55 to 1.0, Exchange and
Weather. 2.30, Records. 2.40, Talk: Christmas in Carpathian Russia. 2.50, Weather.
3.0, See Brno. 4.15, Talk for Workers. 4.25,
Records. 4.35, Elementary French Lesson.
4.50, Records. 5.5, Talk for Beekeepers.
5.15, Talk for Workers. 5.25, News in German. 5.30, German Transmission: Talk on
Winter Sports and Agricultural Talk. 6.0,
Time, News and Weather. 6.10, An Appeat
for the Red Cross Society of Czechoslovakia.
6.15, See Bratislava. 6.30, Concert by the
Prague Mandoline Quartet: Mazurka
(Graziani); Romance (Mazurtini); Bolero
(Ignotus); Foxtrot (Sorge). 6.45, Recital of
English Songs by Margaret Melan. 7.0, See
Brno. 7.5, Concert by the Moravian
Teachers' Vocal Union, conducted by Vach,
relayed from the Smetana Concert Hall.
8.0, Time and Meteorological Talk. 8.15,
Milltary Band Concert. 9.0, Time, News and
Sports Notes. 9.15, See Bratislava.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE
SOTTENS, 743 kcjs, 403 metres; 25 kW.; and
Geneva, 395 kc7s, 749.9 metres.—11.40 (from
Geneva), Fridolin et son Copain. 12 Noon
(from Geneva), Financial News. 12.10 p.m.
(from Geneva), Records. 1.0 to 2.58, Interval.
2.58, Time Signal from Neuchatel Observatory. 3.0 (from Geneva), The Radio-Suisse
Romande Orchestra, conducted by Robert
Echenard: Overture, Orpheus in the Underworld (Offenbach); Suite, Gitanella (Ruzi,
gade); Selection from William Tell
(Rossinl). 3.50, Records. 4.20, The RadioSuisse Romande Orchestra (contd.): Two

DEC. 28th THURSDAY continued

Pieces (de Séverac); Four Ways (Coates). 5.0 (from Lausanne), Talk: Italian-Suisse Literature. 5.30, Talk. 5.55 (from Lausanne), Tourist Talk. 6.5 (from Lausanne), Theatre Review. 6.30 (from Lausanne). Talk: Poultry Farming. 6.59, Weather. 7.0 (from Geneva), La Flute de Pan (Jean Cras) for Tenor, Flute, Violin. Viola and 'Cello (Jean Cras). 7.20 (from Geneva), La comédie de celui qui épousa une femme muette—Play in Three Acts (Anatole France). 8.0 (from Geneva), Concert by the Landwehr: March, Colonel Bogey; Overture, Frau Luna (Lincke); Les Fanfares (Liadov-Glazunov). 8.20 (from Geneva), Review of the Week, by Ruy Blag. 8.30 (from Geneva). Concert (contd.): Italian Caprice (Tchaikovsky); Gladiator March (Blankenburg). 8.50, News and Weather. 9.0 (from Geneva), Tourist Talks. 9.15 (from Geneva), Answers to Correspondence.

REYK JAVIK

Weather. 1.15 p.m., Variety Programme. 4.0, Weather. 8.0, Musical Programme. 8.10, Weather. 8.20, Music and Announcements. 8.35, Programme to be announced. 9.0, Chimes and News. 9.30, Reading. 10.0, Recital by the Radio Trio, followed by Arias (on Gramophone Records). 11.0 to 11.30, Dance Music.

RJUKAN.—See Oslo.

ROME

ROME

Gali 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by Milan (Vigentino), 662 kc/s, 453.1 metres, from 7.40 p.m., and 2RO, 11,810 kc/s, 25.4 metres.—11.30 a.m., Records. 12.5 to 1.15 p.m., See Turin. At 12.30, Exchange. 3.30, Chidren's Radio Review. 3.50, Exchange. 4.0, Concert: Prelude and Fugue in A Minor (Bach-Lisat): Tenor Solos: (a) Dubist die Ruh (Schubert), (b) Flori e lagrime (Carnevali); Soprano Solos: (a) Air from The Daughter of the Regiment (Donizetti), (b) Aria from Le Cid (Massenet), (c) Il grillo del Natale (Zanella); Pianoforte Solos: (a) Poissons d'or (Debussy), (h) Bourrée fantasque (Chabrier); Tenor Sòlos: (a) Aria from Manon Lescaut (Puccini), (b) Aria from The Force of Destiny (Verdi). 4.55, Weather. 5.0, Wheat Markets. 5.10, News. 5.20, Talk. 6.0, News in Foreign Languages. 6.30, Mezzo-Soprano Songs. 6.50, News. 7.0, Time, Announcements, Records. 7.30, Government Report. 7.40, Symphony Concert, conducted by Rito Selvaggi. Talk in the interval. 10.0, Giornale Radio.

SALZBURG.—See Vienna

SCHWEIZERISCHER

LANDESSENDER

LANDESSENDER
BEROMUNSTER, 653 kc/s, 459 metres; 60
kW.; Basle, 1,229 kc/s, 244.1 metres; and
Berne, 1,220 kc/s, 245.9 metres,—11.0 a.m.
(from Zürioh), Light Orchestral Music. 12.20
p.m. (from Zürich), Time, Weather and Exchange. 12.25 (from Zürich), For Housewives. 12.30 to 2.30, Interval. 2.30 (from
Berne), Records. 2.59, Time Signal from
Neuchâtel Observatory. 3.0, See RadioSuisse Romande (Sottens). 5.0 (from
Basle), Records. 5.30 (from Basle), A
Dialect Play (Frieda Bruner). 6.0 (from
Basle), Time, Weather and Road Report. 6.5 (from Basle), Modern Hungarian
Vlolin Music. 6.40 (from Basle), Talk: The
Aviary of the Basle Zoological Gardens. 7.10,
The Beromtinster Orchestra. 8.0, Weather
and News. 8.10 (from Basle), Die Blumen
der Frau Dimpflinger—Programme of Vienuese Music and Old Folk Songs (Thea Herberger-Hosch). 9.15 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

SOTTENS.-See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres; Ostersund, 402 kc/s, 746.2 metres; and Sundsvall, 554 kc/s, 542 metres;—11.45 a.m., Exchange. 11.55, Time. 4.0 p.m., Weather. 4.5 p.m., Divine Service, relayed from Malmö, 1,301 kc/s, 230.6 metres. 4.30, For Children. 4.45, Records. 5.45, Talk on Agriculture. 6.15, Weather and News. 6.30, Talk. 7.0, The Radio Orchestra, conducted by Tor Mann; Soloist, Sven Brandel (Pianoforte): Overture, Meeresstille und glückliche Fahrt (Mendelssohn); Christmas Pastorale (Corelli): Pianoforte Concerto in F Minor (Chopin); Largo from the Nymphony. From the New World (Dvorák); Symphonic Poem, Die Moldau (Smetana); Le Cygne (Saintsaéns); Pomp and Circumstance (Elgar). 8.30, Weather Report. 8.45, Weather and News. 9.0, Siögren-Stenhammar Concert; Marianne Mörner (Songs, Torval Hagelin (Pianoforte), and the Stockholm Quartet: Four Songs from Holger Drachmanns' Tannhäuser (Sjögren); String Quartet in C. Op. 2 (Stenhammar); Three Songs from Holger Drachmanns' Tannhäuser (Dp. 3 (Sjögren)).

STRASBOURG

STRASBOURG

869 kc/s, 346 metres; 11.5 kW.—10.30 a.m.,
Orchestral Concert conducted by de Villers:
Two Pieces from Manfred (Schumann);
Suite in D minor (Erb); Rhapsody No. 12
(Liszt); Humoresque (Reger); Danses
d'Estérelle (Casadesus); Selection from
Ariadne auf Naxos (R. Strauss); Jota
Aragonesa (Saint-Saëns). 12.0 Noon, Records. 12.46 p.m., News. 1.0, Exchange.
1.5, Records. 2.0, For Children. 3.0, Orchestral Concert. conducted by de Villers:
Overture, Le Roi l'a dit (Delibes); Waltz,
Je t'aime (Waldteufel); Selection, Carmén
(Bizet); Minuet (Paderevsky); Serénade
(Moszkovsky); Suite from the Ballet Callirhoé (Chaminade); Selection from Der
Orlov (Graniclistädten). 4.15, Programme
for Children relayed from Bordeaux-Lafayette, 396 kc/s, 304 metres. 6.0, Talk in
German: Austrian Civilisation. 6.15, For
Women. 6.30, Records. 7.30, Time and
News. 7.45, Records. 8.0, Talk in German.
8.30, Concert of Chamber Music. Soloist:
Mille. Portafaix (Soprano); Sonata for
Violin and Pianoforte (Lalo); Four Songs a.su, Concert of Chamber Music. Soloist: Mile. Portafaix (Soprano); Sonata for Violin and Pianoforte (Lalo); Four Songs (Ropartz); Sonata in G Flat for Pianoforte (Schubert); Three Songs (Fauré); Sonata for Viola and Pianoforte (Monfeuillard). In the interval, News.

STUTTGART

STUTTGART

MUHLAGKER, 563 ke/s, 533 metres; 100 kW. Relayed by Freiburg, 1,157 ke/s, 259.3 metres, and 527 kc/s, 569 metres until January 16, 1934.—7.59 a.m., Post Office Concert. 9.0, See Frankfurt. 9.10, Violin and Pianoforte Recital of Transylvanian Music by Kurt Krause and Traute Zarges. 10.0, Records. 10.25, Post Office Concert. 10.55, Weather. 11.0 a.m., See Frankfurt. 12.25, News. 12.35, See Langenberg. 1.36, For Children. 2.30, Soprano Recital by Martha Weber-Neubeck: Three Songs (Weber): (a) Ich sah ein Röslein, (b) Die gefangenen Sänger. (c) Mein Schatzerl; Three Songs (Franz): (a) Liebchen ist da. (b) Gute Nacht. (c) Für Musik; Three Songs (Bleyle): (a) Sei gegrüsst. (b) Vergissmeinicht. (c) Warum so traurig. 3.0, The Station Orchestra, conducted by Haelssig: Prelude to an Opera (Hisgele): Overture, The Merry Wives of Windsor (Nicolai); Selection from The Bird Fancier (Zeller-Bauckmer); Waltz, in lauschiger Nacht (Ziehrer); Selection from The Maid from the Black Forest (Jessel): The Emperor Waltz (Joh. Strauss); Overture, Titus (Mozart); Extracts from Die Geschöpfe des Prometheus (Beethoven); First Peer Gynt Suite (Grieg); Andante from the Fifth Symphony (Tchaikovsky). 5.0, Spanish Lesson. 5.20, Talk on Winter. 5.35, Time and News. 5.45, Talk. 6.9, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, See Frankfurt. 7.10, See Langenberg. 9.0, See Frankfurt. 5.20, News. 9.30, Talk. 10.0, See Langenberg.

SUNDSVALL .- See Stockholm.

TOULOUSE

TOULOUSE

779 kc/s, 385 metres; 8 kW.—8.0 a.m., Dance Refrains. 8.35, Orchestral Music. 8.45, Popular Melodies. 12 Noon, Orchestral Music: The Flight of the Bumble Bee (Rimsky · Korsakov); Japanese Lantern Dance (Yoshitomo); Harlequin Doll (Darcy). 12.15 p.m., Opera Music: Arias from Carmen (Bizet); The Pearl Fishers (Bizet); La Basoche (Messager); and Tosca (Puccini). 12.30, News and Exchange. 12.45, Request Gramophone Music. 1.0, Announcements. 1.5, Caharet Programme. 1.15, Chansonnettes. 1.30, Operetta Music. 1.45, Military Music. 2.0, News and Exchange. 4.15, News and Exchange. 6.0, News. 6.15, Orchestral Music. 6.30, Programme for Children. 7.0, Music by a Vienness Orchestral. 7.15, News, Exchange, and Announcements. 7.30, Pianoforte Recital. 7.45, Sound-Film Music. 8.0, Orchestral Pieces: Overture, Die Fledermaus (Joh. Strauss); Marche joyeuse (Chabrier); Overture, Sicilian Vespers (Verdi). 8.15, Operetta Music. Air from Enlevez-moi (Gabaroche); Marius à Paris (Mahieux); Le petit Duc (Leccq); Les Cloches de Corneville (Planquette); Nina Rosa (Romberg); and The Merry Widow (Lehâr). 8.45, Organ Solos. 9.4, Concert Version of Samson and Delliah—Opera (Saint-Saëns). 9.45, Concert. 10.15, North African News and Announcements. 10.30, Light Orchestral Pieces. 11.0, Orehestral Music. 11.15, Dance Music. 12 Midnight, News and Announcements. 12.5 a.m. (Friday), Opera Music: Arias from Romeo and Juliet (Gounod); Lakmé (Delibes); and Manoun (Massenet). 12.15, Military Music. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—6.45 a.m. to 3.45 p.m., See Turin. 4.10 till Close Down, See Turin.

TRONDHEIM .- See Oslo.

TURIN

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed
Genoa, 959 kc/s, 312.8 metres; and Floren
598 kc/s, 501.6 metres.—10.15 a.m., Record
Selection from Casanova (Graham-Strauss
Selection from La donna perduta (Pietr.
Italian Aria; Strauss Operetta, Potpour
Selection from The Desert Song (Romberg
Fantasia on Celebrated Themes (Geigei
Overture (Suppé); Selection from Orpheus
the Underworld (Olfenbach). 11.30, Record
11.45, Giornale Radio. 12 Noon, Time a
Announcements. 12.5 p.m., Humorous Pl
gramme. 12.10 to 1.15, Orchestral Conce
in the interval, Records; Exchange. 3.
Giornale Radio. 3.46, Announcements. 4.
Dance Music.
Time and News in Foreign Languages. 6.3
Records. 6.50, News; Records. 7.30, A
nouncements. 7.40, Records. 8.0, Relay
an Opera. In the intervals, Talk, Art Note
and Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) at 5,969 kc/s, 50.26 metres (Evening); 10 kW. 10.0 to 10.15 a.m., Religious Information French. 7.0 to 7.15 p.m., Religious Inform

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW.—Relay by Graz, 852 kc/s, 352.1 metres; Innsbruct, 1,058 kc/s, 283 metres; Kiagenfurt, 662 kc, 463.1 metres; Linz, 1,220 kc/s, 245.9 metre and Salzburg, 1,373 kc/s, 218.5 metres.—10.

a.m., Records of Alpine Music. 10.

a.m., Records of Alpine Music. 10.

Weather. 11.0, The Wiener Symphonike conducted by Josef Holzer. Overture, P. Bettelstudent (Millöcker); Extracts fro Der Evangelimann (Kieuzl); Waltz, Neu Leben (Komzák); Albumblatt (Kremser Intermezzo from The Arntbian Nights (Jo Strauss); Violin Solo Serenade (Toselli Potpourri, Reisebilder (Noack). 12 Noo Time, Weather and Aunouncements. 12.

p.m., The Wiener Symphoniker (contd. Extracts from Das Pensionat (Suppé); Spinir ein Lied auf der Geige (Jurmann Waltz from Der Obersteiger (Zeller Nocturne and Legend (Römisch) Stieft chens Parade (Landl); Potpourri, Temp Tempo (Dostal). 2.0, Time, Weather and Market Prices. 2.15, For Housewives. 2.2 For Children. 2.60, Records of Operett Overtures from Im Reiche des Ind (Lincke); Flotte Bursche (Suppé); TJ Gipsy Barou (Joh. Strauss); Bandite streiche (Suppé), and La Belle Hélèi (Offenbach). 3.35, Talk: Ski-ing Outfit 3.50, Talk. 4.15, Song Recital. 4.55, Ta for Workers. 5.20, A Marionette Play. 5.4 Theatre Review. 5.55, Don Carlos—Ope: (Verdi), relayed from the State Open House. In the interval: Time, Weathe Announcements, and News. 9.30, Snow R port. 9.40, The Wiener Symphoniker, co ducted by Josef Holzer. Announcemen after the Concert.

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—6.0 a.m Time Signal and Christmas Carol. 6.5, Gyn G.20, Records. 6.35, Radio Journal. 6.4 Records. 6.52, For Housewives. 6.55, An nouncements. 10.40, Press Review. 10.5. Time and Fanfare from St. Mary's Church Cracow. 11.5, Records. 11.30, Radi Journal. 11.35, Weather. 11.30, Radi Journal. 11.35, Weather. 11.38, Symphon No. 2 in D (Brahms), on Gramophone R. cords. 2.25 p.m., News. 2.30, Talk on Econd Marie Didur Zaluska (Songs): Foxtrol Merves (Wars); Slow Foxtrot (Aslanowicz) Songs: (a) Tango, Plegaria (Bianco), (b Boston Waltz (Schertzinger); Foxtrol (Sygietynski); Au cliquetis des patins (Gozynski); Songs: (a) Melody (Auhar), (b Tango (Wars); Tango, Adleu (Gorzynski); Notrot, The Furst Sign (Wars); Englis Waltz (Wichiler); Foxtrot, Madelin (Packay); Foxtrot. 3.40, Talk: Goo Humour means Good Health. 3.55, Records 4.5, Talk on Latvian Music. 4.20, Planofort Recital by Puul Schuberts: Variations on: Latvian Theme, Op. 6 (Wihtol); Ballad i B Flat Minor (Kalninsch); Sonata in (Minor (Ore); Prelude in C Sharp Mino (Medins); Valse Miniature in E Flat Mino (Schuberts); Etude in Octaves in G Fla (Schuberts); Etude in Octaves in G Fla (Schuberts); Etude in Octaves in G Fla (Schuberts); Suite campestre (Amadel); Nocturne No. 2 (d'Agrèves); Tenor Songs: (a) Aria from Andrea Chenier (Giordano), (b'Spanish Song, Amapola (Lacalle), (c) Il esi défendu d'aimer (Mikulski); Sevillana Tango Gitana and Granadina (Leoncavallo), 40, Songitans (Padilla); Spanish Song, Princessitz (Padilla); Spanish Dance Music (Contd.).

ZURICH.—See Schweizerischer Landessender

ATHLONE

ATHLONE

(c/s, 413 metres; 60 kW. Relayed by in, 1,382 kc/s, 217 metres; and Cork, kc/s, 224.4 metres.—1.30 p.m., Time, and Records. 2.0, Records. 6.0, For ren. 6.45, News, 7.0, Gardening Talk. 7.30, 7.31, Concert by the Station Orches. 8.0, Mezzo-Soprano Solos by Gertrude inner. 8.15, A Play by Elizabeth Young Company. 8.45, Concert by the Station Orches. 9.0, Baritone Solos by John F. h. 9.15, Piandforte Solos by D. French en. 9.30 to 10.30, Programme by the Greathy Trouble in Paradise; Selection The Maid of the Mountains (Fraser son); Largo (Handel); Les Cloches de Lalo (Rimmer); Maire my Girl (Caset); Last Round Up; The Shadow Waltz; Senfrom The Desert Song (Romberg); aure Tune, Young and Healthy. 10.0, e Music. Can't we meet again; Honey-Ilotel; You ought to see Sally on Sun-Racing Commentary; Trouble in Para-Yvonne; Shanghai Lil; It isn't fair, 1.B.C. Good-night Melody, followed by 10.40, Irish Music. 10.40, Irish Music.

BARCELONA

BARCELONA

1, 861 kc/s, 348.4 metres; 8 kW,—7.15, Radio Journal and Gramophone Music. Chimes, Physical Culture and Gramoe Music. 8.20, Radio Journal and nophone Music. 9.0, Announcements. Chimes and Weather. 12.0 Noon, Prome for Women. 12.45 p.m., Gramoe Music. 1.0, Gramophone Concert. Theatre Notes and Gramophone Concert td.), 2.0, Sextet Concert. In the intertalk. 3.0, Programme for Hospitals, nophone Records. 4.0, Interval. 6.0, Concert: Turkish March from The Ruins (Health March from The Gramophone Records (Cond.), Jenx (Demarct); ide, Op. 28, No. 17 (Chopin); Selection Philemon et Baneis (Gounod); Dance hel); Canzonetta (Hammer); Selection (Carmen (Bizet), 7.0, Request Gramophone Records (Cond.), 8.0, Gramophone Records (Cond.), 8.0, Gramophone (S. 3.0), Educational Programme and s. 9.0, Chimes and Weather, 9.5, Messages to Seamen, 9.10, Concert by Radio Orchestra. Vicente Diez de Teinda s from his own Works, 10.30, Song tal by Antonio Sanchez Soriano (Buri), 11.0, News, 11.10 (approx.), Dance ic, relayed from the Casa Llibre.

BARI

kc/s, 269.8 metres; 20 kW.--6.45 a.m., Mitan Vigentino. 11.30, Quintet Concert. ioon, See Milan Vigentino. 7.0 to 7.15, in Albanian. 7.30 till Close Down, See n Vigentino.

LE. See Schweizerischer Landessender.

BERLIN

BERLIN

TSCHLANDSENDER

(REICHSSEN-), 183.5 kc/s, 1.635 metres; 60 kW.—9.0

News, 9.10, Song, Pianoforte and Violin
al by Nora v. Rautenberg-Garezynska,
Borack and Lothar von Ritterhof. 10.15,
ther. 10.30, Records. 11.0, Weather. 11.5,
rds (contd.): March, Tren deutsch;
z (Delibes); Dances from Aida (Verdi);
ndia (Sibelius); Sailors' Chorus from
Flying Dutchman (Wagner); Prelude
hmaninov); La capricciosa (Ries);
arian Rhapsody No. 1 (Liszt); Hunnn Dance (Brahms); Hoch-und-Beutschter-Marsch. After the Concert, Weather.
Time, 12.45 p.m., News. 1.0, Records.
Por Girls, 2.30, Weather, Exchange, 2.45,
ling of a Scandinavian Christmas Story,
ice Munich. 4.0, Yuletide Festivities—Play
ann von Leers). 4.30, Pianoforte Recital
Luise Greiner: The Waldstein Sonata;
3 (Beethoven); Kinderszen (Schumann).
Poems. 5.5, Radio Report from the Exeno of the East German Provinces. 5.20,
inter's Journey. 5.45, Weather, News.
Transmission for all German Stations,
ed from Breslau. 7.0, To-day's Motto.
Military Band Concert, conducted by
rs: Part 1: Observier-Marsch (Teike);
rn Comedy Overture (Theil); Three
s (Lassen); (a) 1ch wandle unter
ten, (b) 1ch hatte einst ein schömes
rland, (c) Mit deinen blauen Augen;
from Sylvia (Delibes); Waltz, An der
(Joh. Strauss); Part II; Military
thes. In the interval, Topical Talk. 9.0,
s. 9.25, Report: 1933 on the Turf. 9.45,
ther. 10.0, Concert, from Breslau.

BERLIN

BERLIN

(KSTUNDE, 716 kc/s, 419 metres; 1.5

Relayed by Zeesen, DJC, DJA, DJD, and DJE.—9.0 a.m., News. 9.10, Ecoic Report. 10.25, Exchange. 10.30, See burg. In the interval, Weather. 12 Noon, acke Music on Records: Selection from ott; Song from The Cousin from Nore; Selection from Dr Tenor der Herzogin. p.m., See Hamburg. 1.15. News. 1.35, ords: Caprice italien (Tchaikovsky); sish Caprice (Rinsky-Kossikov). 2.0, Exports. 4.0, For Young People. 3.0, See Sherg. 4.0, See Hamburg. 5.0, Discussion Reznicek's Opera, Donna Diann; Erich ber, Julius Kapp and the Composer's ghter at the Microphone. 5.30, The

DECEMBER THE TWENTY-NINTH

Funkstunde informs its Listeners. . . . 5.35, An Evening in the Mountains, 6.0, Transmis-sion for all German Stations, relayed from Breslau, 7.5 to 9.0, See Heilsberg, 9.0, News, 9.30, See Heilsberg.

BERNE.-See Schweizerischer Landessender. BEROMUNSTER. -- See Schweizerischer Landessender.

BODEN.--See Stockholm. BODO.-See Oslo.

BRATISLAVA

BRATISLAVA

1,073 kc/s, 279.5 metres; 14 kW.—10.5 a.m., Records, 10.55, See Prague, 11.0, Agricultural Talk, 11.10, See Prague, 11.35, See Brno. 12.35 p.m., See Prague, 12.45, News in Slovak, German and Hungarian. 12.55, See Prague, 2.50, See Prague, 3.0, See Moravská-Ostrava. 3.55, Sports Notes, 4.5, See Prague, 5.5, Pianoforte Recital by Földesy-Hermanova; Sonata in D (Antonio Soler); Sonata in C minor (Cantalles); Two Spanish Dances (Granados); Prelude in B minor (Caymanowski); Melody (Ruchmaninov); Minuet in G (Suk); Tango (Haba), 5.40, Telegraphy Lesson, 5.55, Hints for Housewives, 6.0, See Prague, 6.10, Educational Talk, 6.25, Recital of Modern Slovak Songs.

BREMEN. - See Hamburg.

BRESLAU

923 kc s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc s, 253.1 metres.—8.0

tra, conducted by Leemans.—1.0 p.m., Le Journal Parlé. 1.10, Concert of Waltzes by the Station Orchestra. 5.0, Concert by the Radio Orchestra, conducted by André: March, Le saint du marin (Harras); A Journey in the Tyrol (Eilenberg); Prière à l'avant matin (De Cennick); Tango (Fischer); Waltz (Rust); Homorous Scenes (Leonard); En Sourdine (Crabbé); The Clock and the Porcelain Figures (Ketchey); Marche funètire d'un Hanneton (Dubois); Music from Cydalise et le Chèvre-pied (Pierné); Escales (Ibert); Hungarian Dances (Brahms). 6.0, Legal Tailk. 6.15, Records. 6.20, Variety Programme: Sketch. 6.45, Pianofore Recital by Marguerite Melin: Gavotte and Variations (Rameau); Romance sans paroles (Marg. Melin); Impromptu in F Minor (Fauré); Jeux Geau (Ravel); Impromptu (Marg. Melin). 7.15, Talk on Aviation. 7.30, Legal and Literary Notes. 8.0, Concert by the Station Orchestra, conducted by Meulemans; Soloist, Mdlle, Lairac (Songs): Overture, Benvennto Cellini (Berlioz); Songs with Orchestra; (a) Air from Circe (Handel), (b) Nocturne (Franck); Three Pieces from The Dammation of Fanst (Berlioz); Ballet music from Troyens à Carthage (Berlioz); Carnaval romain (Berlioz), Jazz Music by Nie Warner's Band. 10.0, Journal Parlé. 10.10, La Brabançome.

BRUSSELS (No. 2)

N.I.R., 868 kc/s, 337.8 metres; 15 kW.—12.0 Noon, Giordano Concert on Gramophone



THE SPOKEN JOURNAL. The staff at Brussels No. 1 photographed at a busy moment while preparing the evening news bulletin.

a.m., Gym for Women. 8.20, Time, News. 10.40, Time, Weather. 11.0, See Munich. 12.15 p.m., See Leipzig. 1.15, Time, Weather. 1.20, Post Office Programme with Records. 1.50, Announcements. 2.20, Book Criticism: Helmuth Brückner (Jakubaschk). 2.30, For Young People. 3.0, See Munich. 5.10, Agricultural Prices and Talk. 5.30, Political Talk. 5.40, Politi

BRNO

BRNO

878 kc/s, 342 metres; 35 kW.- 10.0 a.m., Gramophone Records. 10.55, See Prague. 11.0, Agrienttural Report. 11.10, See Prague. 11.35, Concert by the Station Orehestra, conducted by Bakala. 12.35 p.m., See Prague. 1.0, Market Prices. 2.30, See Prague. 2.40, Talk. 2.50, See Prague. 3.0, See Moravska-Ostrava. 3.55, Talk on Winter Sports. 4.5, See Prague. 5.5, Falk on Art. 5.15, Talk for Workers. 5.25, German Transmission: News, Sports Notes, Talk: Birds in Winter, and Theatre Notes. 6.0, See Prague. 6.25, See Bratislava. 6.50, See Prague. 7.5, The Musical Instruments rebel—Radio Play. 8.0, Musical Programme. 8.15, Concert by the Station Orchestra, conducted by Janoba. Soloists: Synkova and Synck (Songs). Overture, The Piper of Strakonice (Hrimaly): Intermezzo (Sebort): Song (Bendl): Duet from Leila (Bendl): Serenade (Kaàn): Furiant (Malàit): Aria and Duet (Paukner); Czech Dances (Richovsy). 9.0, See Prague.

BRUSSELS (No. 1)

LN.R., 589 kc s, 509.2 metres; 15 kW.—12.0 Noon, Concert by the Small Station Orches-

Records: Acts One and Two of Fedora; Cena della Pasqua from Siberia. 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by Leemans. 5.0, Tchaikovsky Concert by the Small Station Orchestra, conducted by Leemans. 5.0, Tchaikovsky Concert by the Symphony Orchestra, conducted by Arthur Meulemans: Overture, 1812; Allegro con gracia from the Pathetic Symphony; Italian Caprice; Suite from the Nutcracker Ballet. 6.0, Gramophone Concert: Selection from Follow a Star (Yellen); Polka, The Canary and the Frog; Selection from Rigoletto (Verdi); Hofballtänze (Lanner); Quadrille from Orphens in the Underworld (Offenbach). 6.30, Concert by the Small Station Orchestra, conducted by Leemans. 7.30, Wireless Notes. 8.0, Concert by the Radio Orchestra, conducted by André: Sylvan Scenes (Fletcher); Xylophone Solo, Schön Rosmarin (Kreisler); Conte pastoral (Godard); Conte amusant (Godard); Waltz (de Sévérac); Woodland Sketches (MacDowell). 8.30, Kampi uns Matterhorn—Radio Play (Jusbarra), translated by De Muynek. 9.30, Concert by the Symphony Orchestra, conducted by Arthur Meulemans: Chasse fantastique (Guirand); Danse macabre (Saint Sacins); Bourrée fantasque (Chabrier). 10.0, Journal Parlé.

BUCHAREST

BUCHARES I

760 kc's, 394.7 metres; 12 kW.—11.0 a.m.,
Exchange and Gramophone Records. 12.0

Noon, Radio Journal. 12.15 p.m., Gramophone Records. 4.0, Concert by the Station

Orchestra: Overture, William Tell (Rossini);
Roccoc Suite for String Orchestra (Masson);
Waltz, España (Waldtenfel); Selection from

Tosca (Puccini); Romance (Nottara). 5.0,
Radio Journal. 5.15, Orchestral Concert

(contd.): Intermezzo No. 1 from The lewels

of the Madonna (Wolf-Ferrari); Idyll

(Stefanesco); Molly on the Shore (Grainger);

Selection from The Gipsy Baron (Strauss); March (Suk), 6.0, Educational Talk, 6.20, Gramophone Records, 6.45, Talk, 7.0, Sym-phonic Concert by the Philharmonic Orches-tra, conducted by Alessandresco, relayed from the Atheneum, 7.50, Reading, 8.5, Concert (contd.), 8.45, Radio Journal.

BUDAPEST

BUDAPEST

545 kc/s, 550.5 metres; 120 kW. Also relayed on 840 metres from 6.25 p.m. till Close Down.—11.5 a.m., Concert. 12.30 p.m., The Berezi Eacz Cigány Band. 2.30, For Children, 3.0, The Red Cross Movement. 4.0, Talk. 4.30, The Mandits Orchestra. 5.10, Shorthand. 5.40, Concert. 6.10, Political Review. 6.25, Records. 7.10, Dialogue. 7.50, Operetta Concert by the Concert Orchestra. conducted by Polgar. Soloists: Ibolya Darvas and Nikolaus Szedó (Songs.) 9.15, News. 9.35, The Eugen Pertis Cigány Band from the Restaurant Royal.

CASSEL,-See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres; and Skamleback OXY on 31.51 metres.—10.0 a.m., Weather. 10.10, Market Prices. 10.15, Broadcast for Schools. 11.0, Time and Chimes from the Town Hall. 11.5, The Harald Andersen String Ensemble, relayed from the Hotel d'Angleterre. 2.0 p.m., Danish Music by the Radio Orchestra, conducted by Emil Reesen. 2.50, Reading. 3.10 (approx.), Concert (contd.): Oriental March from Aladdin (Agersmap); Suite of Scandinavian Folk Music; Suite, In the Alhambra (Lange-Müller): Danish Rhapsody, Himmerland (Reesen). 4.0, Programme for Children. 4.30, Market Prices. 5.0, Time and Chimes from the Town Hall. 5.5, Song Recifal by Hallander Hellemann, with Commentary. 5.45, Weather. 5.54, Announcements. 6.0, News. 6.15, Time Signal. 6.30, Talk: 1933 Trade. 7.0, Chimes from the Town Hall. 7.2, Household Talk, 7.15, Suite, Aus Holbergs Zeit (Grieg), by the Radio String Orchestra, conducted by Reesen. 7.45, Reading. 8.0, A Microphone Visit to Deumark's Sunaliest Assembly Hall. 8.45, Harpsichord Solos: Prelude, Courante, Sarabande and Gigue from the English Suite No. 2 in A minor (Bach). 9.0, News. 9.15, French Music by the Radio Orchestra, conducted by Emil Reesen: Overture, Le roi d'Ys (Lalo); Extracts from The Nursery Suite (Inghelbrecht); Suite from Levy (Pierna); Rhapsody on Folk Melodies (Gaubert): Carnival from the Roma Suite (Bizet). 10.0, Dance Music, relayed from the National Scala. 11.0, Time and Chimes from the Town Hall.

CORK .- See Athlone. DANZIG.- See Heilsberg. DRESDEN.- See Leipzig.

FECAMP

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—11.0 a.m. to
12 Noon, Programme in English by the L.B.C.
Variety Programme. Part 1: Light Music;
Part II: Dance Music. 12 Noon, Programme
in French. 3.30 p.m. to 6.0 p.m., Programme
in English by the L.B.C. 3.30, Concert for
Bournemonth and Weymouth Listeners: Part
1: Accordion Music; Part II: Dance Music.
4.30, L.B.C. Nursery Corner: Birthday Greetings. 5.0, Concert for Southampton and Winchester Listeners. 6.0, Programme in French.
10.0 till Close Down, Programme in French.
10.0 till Close Down, Programme in English,
by the L.B.C. 10.0, Dance Music by Guy
Lombardo and his Royal Canadians (Elec
trical Transcriptions); Goofus (King); Stay
oni of my Dreams (Washington); Waltzing
in a Dream (Young); Morning, Noon and
Night (Swanström); Vilja's Song from "The
Merry Widow" (Lehâr); Sweetheart Dariin'
(Kahn): I wake up smiling (Ahlert); Don't
hiame me (Fields), 10.30, Light Music;
Parade of the Tin Soldiers (Jessel); It's not
a Secret any more (Blue); Ca e'est Parce
(Padilla); Selection from The Pirates of
Penzance (Sullivan); Wood Nymphs
(Coates); A Life on the Ocean (Binding);
Isn't this a Night for Love (Burton);
March, The Standard of St. George (Alford),
11.0, Talkie Time; Tunes from the Talkies
and Stlows, Signature Tune; Sittin' in the
Dark; How could we be wrong? (Potter);
But for you (Holländer); In a Year, in a
Day (Heymann); Black Moonlight (Coslow);
Signature Tune; Sittin' in the Dark, 11.15,
Concert: Without that certain thing (Nesbitt); It's the Talk of the Town (Symes);
But for you (Holländer); The Last Round-up
(Hill), 11.30, L.B.C. Time Signal, 11.31, Club
CorCorter: Without that certain thing (Nesbitt); It's the Talk of the Town (Symes);
But for you (Holländer); Morning
(Grieg); Liebestraum (Liszt); Black Eyes
(Ferraris); Old Spanish Song (Aubert);
Music of the Spheres (Joh, Strauss), 12.5,
a.m. (Saturday), Late News Bulletin in
English, 12.10 (approx.), Club Concert, Part
II: The Last Round-up (Russell): See me
Dance the Polka; There's a New Day c

Sentimental over you; Everyone loves my Marguerite; Adios, Good-bye. 1.0, 1.8.C. Time Signal, 1.1, Dance Music. 2.0, 1.5.C. Goodnight Melody and Close Down. FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel and Trier, 1,157 kc/s, 259.3 metres.

-9.0 a.m., News. 10.0, Concert. 10.40, Announcements. 11.0, See Langenberg. 12.15 p.m., Time and News. 12.25, News. 12.35, See Stuttgart. 1.40, For Women. 2.30, Weather. 2.40, Time and Economic Notes. 3.0 to 5.35, See Langenberg. 5.35, Talk: Industrial Revival in Hesse. 5.50, News. 6.4, Transmission for all German stations, relayed from Breslau. 7.0, Topical Talk. 7.10, Le domino noir—Opera (Auber), arranged for Radio by Hank Rosbaud. 8.40, Radio Report from an Agricultural College. 9.0, Time and News. 9.22, See Stuttgart. 9.30, News. 9.45 to 11.0, See Langenberg. 11.0, Talk: Fateful meetings of Great Germans.

FREDRIKSSTAD.—See Oslo.

FREDRIKSSTAD .- See Oslo. FREIBURG.—See Stuttgart. GENEVA .- See Radio-Suisse Romande. GENOA .- See Turin. GLEIWITZ.—See Breslau. GOTEBORG.-See Stockholm. GRAZ.—See Vienna. HAMAR.—See Oslo.

HAMBURG

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg and Hanover, 1,313 kc/s, 227.4 metres; and Kiel, 1,292 kc/s, 232.2 metres.—30.a.m., Records. 9.50, News. 10.0, Records. Overtures to 11 Seraglio (Mozart), The Barber of Seville (Rossini), The Hermit's Bell (Mailart), Light Cavalry (Suppé). 10.30 (from Bremen), Concert, conducted by Fredo Niemann, relayed from the Old Rathaus, Florentine March (Fickl); Overture, Semiramis (Rossini); Waltz, Wir sind heute so vergnigt (Meisel); Russian Internezzo (Franke); Introduction to Act 111 and Bridal Chorus from Lohengrin (Wagner); Selection from Preciosa (Weber); Boccaccio Quadrille (Strauss); Germania March (Keil); Mazurka, La Czarine (Ganne); Mussian March (Carl). In the intervals, Programme for Women, Time and News. 12 Noon, Exchange. 12.10 p.m., Weather. 12.20, Light Music. 1.15, News. 1.35, Songs on Records. Frisch gesungen (Silcher); Es wollt' ein Magllein früh anfstehn; Das Wandern ist des Müllers Lust (Zouner); Folk Song, Esritten drei Ritter zum Tore hinans; Heideroslein (Werner); Am Brunnen vor dem Tore (Schubert); Wom Bauer und den Tauben (Taubert); Ewig liche Heimat (Breu). 2.0, Exchange. News. 3.0, See Heilsberg. 4.0, The Station Male Voice Quartet and Women's Choir and Soloists. 5.0, Talk: Reasons for the Decline of Races. 5.30, Records. Fantasia on the Song, Die Warnung (Löhr); Pour un baiser (Tosti); Waltz, Weaner Madl'n (Ziehrer). 5.40, Exchange. 5.50, Weather. 6.0, Transmission for all German Stations. relayed from Breslau. 7.5 to 9.0, See Heilsberg. 9.0, News. 9.30, Concert from Heilsberg.

HANOVER .- See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—10.30 a.m., Sec Hamburg. 12.5 p.m., Records. Part I. Famous Singers. Luctezia Bori: (a) Clave itos (Valverde), (b) Malagnena (Pagans); La Casazza: Aria from La Favorita (Donizetti); Hilde Crevenna: (a) Desdenona's Prayer from Othello (Verdi). (b) Weidenbaum; Galli-Curi: Cantata (Scarlatti). Part II. Caruso Records. Hantise d'amour (Szulc); Ingenisco Requiem (Verdi); Garbaldi Hynn (Mercantini); Cujus animan (Rossini); Two Pieces (Caruso): (a) Alte Zeiten, (b) Serenata. Part III. Spanish Music. Festival at Seville (Albéniz); Overture, The Secret Marriage (Cimarosa); Air from La Vida breve (Falia); In the intervals, News. 1.30, Post Office Programme with Records. 2.0, Exchange. 2.15, For Children. 2.35, For Women. 3.0, The Smail Station Orchestra, conducted by Eugen Wicken. Overture, Raymond (Thomas); Selection from The Queen of Spades (Tchaikovsky); Overture, Der Bettelstudent (Millöcker); Rhapsody in A minor (Dvorák). 4.0, See Hamburg. 5.0, Book Review. 5.15, Agricultural Prices and Ice Report. 5.26, Agricultural Talk. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Breslau. 7.0, News. 7.5, Twenty-Five Years of Popular Melodies —Radio Sequence (Martin Borrmann), with Music by the Station Orchestra, conducted by Brickner. 9.0, News. 9.30 (from Danzig), The Municipal Theatre Orchestra, conducted by Brickner. 9.0, News. 9.30 (from Danzig), The Municipal Theatre Orchestra, conducted by Brickner. 9.0, News. 9.30 (from Danzig); The Municipal Theatre Orchestra, conducted by Brickner. 9.0, News. 9.30 (from Danzig); The Municipal Theatre Orchestra, conducted by Brickner. 9.0, News. 9.30 (from Danzig); The Municipal Theatre Orchestra, Conducted by Errat Kallipke. Overture, Hans Sachs (Lortzing); Barcarolle, Auf Capri (Blon); Ballet Suite (Lehár); Dorfkinder-Walzer (Wallmin); Selection from Suzanna's Secret (Wolf-Ferrari); Caucasian Suite (Ivanov); Overture, Die Weiber von Weinsberg (Conrad).

FRIDAY DEC. 29th

continued

HILVERSUM

HILVERSUM

1,013 kc/s, 296.1 metres; 7 kW. up to 5.40 p.m. and 20 kW. from 5.40 p.m.—7.40 a.m., Programme of the Workers' Radio Society (V.A.R.A.). Records. 9.40, Religious Programme of the Liberal Probestant Radio Society (V.P.R.O.). 9.55 to 11.40, V.A.R.A. Programme. 9.55, Recitations. 10.10, Records. 10.40, Gastronomic Talk. 11.10, Orgau Recital by Johan Jong. 11.40 to 3.40 p.m., Programme of the General Broadcasting Society. 11.40 a.m., Kovacs Lajos and his Orchestra, with Gramophone InterIndes. 1.55 p.m., Records. 2.10, Reading. 2.40, Records. 3.40 till Close Down, V.A.R.A. Programme. 3.40, Records. 5.10, The V.A.R.A. Orchestra contd.). 6.40, Temperance Talk. 7.0, The V.A.R.A. Orchestra (contd.). Extract from Old Dutch Suite (Popper); Piece (Morks-Diepenheek); Song Potponiri (de Groot). 7.40 to 10.40, V.P.R.O. Programme. 7.40, String Quartet in A Minor, Op. 41. No. 1 (Schumann) by the Haydn Quartet. 8.10, Radio Play with Music. 9.25 String Quartet in G Minor, Op. 10 (Debussy) by the Haydn Quartet. 9.55, Religious News. 10.0, News. 10.10, Records. 10.40 till Close Down, V.A.R.A. Programme; Records.

HORBY.-See Stockholm.

HUIZEN

HUIZEN

160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m.
Transmitted from Kootwijk on 50 kW. from
3.40 p.m. Programme of the Catholic Radio
Society (K.R.O.). 7.40 a.m., Records. 8.55,
Interval. 9.40, Records. 11.10, For
Hospitals. 11.40, Police Notes. 11.55, Concert by the K.R.O. Sextet. 12.55 p.m.,
Sextet Concert (contd.): Swedish Songs and
Dances (Pagel); Waltz, Morgenblätter (Joh,
Strauss); Das Blumenmädchen von Neapel
(Fresco); Finale. 1.25, Organ Recital
(contd.). 1.55, Records. 2.40, Violin Recital
by Els Berentzen: Romance (Wilhelmi);
Andante (Tchaikovsky); Hungarian Poem
(Hubay); Canzonetta (Godard); Records.
Rondino (Kreisler); La cinquantaine (Gabriel
Marie); German Dance (Mozart); Aubade
(d'Ambrosio). 3.25, Records. 3.40, Interval. 3.55, Records. 4.10, Violin Sonata
Op. 35 (Pierné). 4.40, Gardening Talk. 5.10,
Radio Report from a Hospital in Arnhem.
6.10, Sonata (Franck). 6.40, Police Notes.
6.55, Records. 7.5, Talk. 7.25, Records.
8.10, News. 8.15, Concert by the K.R.O.
Orchestra, conducted by Geritseu. Soloist:
Hermann Schey (Baritone). 9.5, Records.
9.25, Wolf Recital by Schey (Baritone): Anf
einer Wanderung; Denk es, or Seele! Der
Tambour; Er ist's. 9.40, The K.R.O. Orchestra: Overture in C (Schubert); Hymne an
die Liebe (Reger); Italian Serenade (Wolf).
10.10, News. 10.15, The K.R.O. Orchestra.
10.40, Records. 10.55, The K.R.O. Boys, conducted by Lustenhouwer.
INNSBRUCK.—See Vienna.

INNSBRUCK .- See Vienna. KALUNDBORG.—See Copenhagen. KIEL.-See Hamburg. KLAGENFURT.-See Vienna. KOSICE.-See Prague.

LANGENBERG

LANGENBERG

635 kc/s, 473 metres; 60 kW.—10.10 a.m., Gramophone Records. 10.55, Spensored Programme with Records. 10.55, Weather. 11.0, Gramophone Records. 12.55 p.m., See Frankfurt. 12.25, News. 12.35, See Stuttgart. 2.0, Talk: The Position of Domestic Servants. 2.20, Records, 2.30, Exchange. 2.50, Political Announcements. 3.0, The Station Chamber Choir and Soloists. Violin and Bandonion: March; Women's Choir: Winterlied; Soprano and Pianoforte: Mutterwarnung; Violin, Bandonion and Male Voice Choir: Gesundheit, Herr Nachbar; Bandonion and Violin: Rheimländer; Soprano and Pianoforte: Spatz und Katze; Choir: Winterabend; Soprano and Pianoforte: Das Schneeglöckchen; Es ging ein Mädchen; Bandonion and Violin: Waltz and Kirmeslied; Male Voice Choir: Lüzows wilde Jagd; Soprano, Violin and Pianoforte: Am Sec; Bandonion and Violin: Polka; Eier-Gretel Soprano and Pianoforte: Gute Nacht; Male Voice Choir: Zum Tagesbefehl. 3.45, The Fröhlichle Fünf: Waltz from Das Fürstenkind (Lehár); Gavotte, Rendezvous (Aletter); Extase (Ganne); Zigeunerlied (Boldi); Violin Solo: Sonvenir (Drdla); Fascinata (Murzilli). 4.15, Pianoforte Trio in B flat. Op. 29 (Schubert), by Walter Schneiderhan (Violin). August Schreiber (Cello) and Eghert Grape (Pianoforte). 5.0, English Conversation Lesson. 5.20, Talk on Genealogy. 5.35, Talk: Germanic Beliefs and Customs at Christinas Time. 5.45, Announcements. 6.0, Transmission for all German Stations, relayed from Breslau. 7.0 to 9.20, See Frankfurt. 9.20, See Stuttgart. 9.30, News. 9.40, The Coming Week's Events in West Germany. 9.45, Records.

Band, the Fröhliche Fünf and Soloists. Conductor: Kühn. 11.0, See Frankfurt. 1.20 a.m. (Saturday) (only for Zeesen), The Feast of Fools.

LAUSANNE.-See Radió-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 341 kc/s, 319 metres.— 9.45 a.m., Post Office Programme with Records. 10.40, News. 11.0, Concert from Munich. 12.15 p.m., News, Time. 12.25, Records: Two Movements from Concert of grosso in D (Handel); Sonata in F (Loeillet); Der Hirt auf dem Felsen (Schubert); Adagio from the Violin Concerto in B minor (Vivaldi). 1.0, News. 1.20, Art Review. 1.30, Ernst Wiechert reads from his Book Der Fremde. 1.40, For Young People. 2.0, Mezzo-Soprano Recital by Gertrude Hepp: Three Songs (Werner Schubert): (a) Stilleinsamkeit, (b) Advent, (c) Abend am Meer; Jahreswende (Hohn); Weilmacht (Lauterlein); Zweier Seelen Lied (Müller); An die Kraft (Müller); Four Songs from Lieder aus meinem Garten (Kormann). 2.30, For Women. 2.45, Exchange. 3.0, See Munich. 4.30, Talk. 4.50, Baritone Recital by Max Hartmann: Heliopolis (Schubert); Abendlied (Schumann); Wenn leh mit Menschenund mit Engelszungen redete; Wächterlied auf der Wartburg (H. Wolf); Der Weckraft (Pfitzner). 5.10, Talk: The Querfurt Museum. 5.30, Reading. 5.45, Exchange. Weather, Time. 6.0, Transmission for all German Stations, relayed from Breslau. 7.4, News. 7.10, Humorous Programme. 7.30, The Leipzig Symphony Orchestra, conducted by Weisbach: Anton Rohden (Pianoforte); Romantic Overture, Op. 16 (Thuille); Pianoforte Concerto in A minor, Op. 54 (Schumann); Symphony No. 6 (Ambrosius). 9.0, News and Time. 9.20, News. 9.35, Serenade, relayed from Breslau. 11.0 (approx.), Close Down.

LINZ.-See Vienna.

LUXEMBOURG

LUXEMBOURG

252 &c/s, 1,191 metres; 200 kW. Dutch evening.—7.0 p.m., Gramophone Concert: Marche des petits Soldats de Plomb (Pierné); Symphonic Poem, Le fontane di Roma (Respighi); Suite No. 3 from Tsar Saltan (Rimsky-Korsakov). 7.30, Suite in the Old Style for Violin and Pianeforte (Retich), by Ernest Eichel and Alexandre Zakin. 8.0, Dance Missic. 8.30, Suite from Prometheus (Beethoven). 8.45, Exchange. 8.50, News in French. 9.0, Concert by the Station Orchestra, conducted by Pensis: Overture, Sakuntala (Goldmark); Rhapsody No. 6 (Liszt); Four Short Pieces (Dupuis); Lehār Potpourri (Hruby). 9.45, News in German. 9.55, Song Recital by Mariette Serlé. 10.25, Dance Music by the Radio Jazz Band, conducted by Ferry Jusa. by the R Ferry Jusa.

MADRID

MADRID

ARANJUEZ (EAQ); 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Guitar Recital of Two-Steps. 10.45, Radio Chronicle. 11.0, Musical and Literary Programme for Listeners in the Philippine Islands. 11.45, Light Music. 12.0 Midnight till Close Down, Programme in English by the I.B.C. 12.0 Midnight, Dance Music: Stay on the right side of the road; You're charming; Let's try again; Peter, Peter; Sweetheart Darlin'; Stay ont of my dreams; Dinner at Right; They didn't helieve me; Margie; My Wishing Song; Don't Blame Me; Love is the thing; Blue Prelude; Once I fell in Love; It's time to sing "Sweet Adeline" again; Oh, Peter. 1.0 a.m., I.B.C. Goodnight Melody and Close Down.

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—2.0 p.m., Chines, Time, Weather and Theatre Notes. 2.15 (approx.), (oncert of Popular Music. In the interval, Exchange. 3.50, Radio Journal. 4.0 to 7.0, Interval. 7.0, Chimes, Exchange Announcements and Programme for Women. 8.15, Radio Journal. 8.30 to 9.30, Interval. 9.30, Chimes, Time and Radio Journal. 9.45 (approx.), Violin and Song Recital, in connection with the Music Competition, by Manuel Perez Dias and Jesus Freire (Baritone). Violin Solos: (a) Sarabande (Bach). (b) Variations on a Theme of Corelli (Tartini-Kreisler), (c) Ave Maria (Schubert-Wilhelmi), (d) Tzigane (Ravel), (e) Caprice No. 24 (Paganin-Auer), (f) Aragonesa (Granados-Thiband), (g) Jota Navarra (Sarasate). Baritone Solos: (a) Drinking Song (Moreno Torroba), (c) Song (Sorozabel), (d) La tempestad (Chapi), (e) Prologue, from I Pagliacci (Leoncavallo), (f) Romance from La Traviata (Verdi), (g) Aria from Rigoletto (Verdi), (h) Cavatina from The Barber of Seville (Rossini), 11.45, Radio Journal and Announcements. 12.0 Midnight, Chines and Close Down.

MALMO.-See Stockholm.

MILAN

MILAN

VICENTINO, 662 kc/s, 453.1 metres; 4
Rome is not transmitting for this day
Milan (Vigentino) is giving the chief tr
missions. Relayed by Naples, 941 kc/s,
metres; and 2RO, 11,810 kc/s, 25.4 metre
11.30 a.m., Records. 12 Noon, Orchestral t
cert: Sinfonietta veneziana (Principe); 1
talgia cubana (Vidade); Hungarian Dance
8 (Brahms); Se più non m'ami (Pignacc
Selection from Casa mia (Pietri); Conqu
(Donati); Three Roses (Strecker); ventù (Bixio). 1.0 p.m., Time and
nouncements. 3.0, Anfsteig und Fall
Stadt Mahagonny and Der Jasage—'
Operas (Kurt Weill), relayed from the
Cecilia Academy. 5.0, Market Prices. 5
Annonncements. 5.20, Agricultural Rej
in Spanish, German and French. 5
Religious Address. 5.55 (Naples), Shipi
and Sports Notes. 6.20, Acws in For
Languages. 6.30, Records. 6.50, Giori
Radio. 7.0, Time, Announcements,
Records. 7.5, Records. 7.30, Review. 7
Choral Concert. In the interval, Ilumor
Talk. 8.30 (approx.), Vocal and Orches
Concert; Conductors, Santarelli and Casol
Landa per la natività del Signore (Respigi
Extracts from Suor Angelica (Puccini);
tracts from Mephistopheles (Boito). 1
Giornale Radio.

MORAVSKA-OSTRAVA

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.-5.15 a
Programme from Prague. 8.50, Program;
from Prague. 10.0, Records. 10.55,
Prague. 11.0 Agricultural Talk. 11
See Prague. 1.135, See Brno. 1:
p.m., See Prague. 2.30, See Prague. 2.
Talk: Schools in Czechoslovakia. 2.50,
Prague. 3.0, The Station Orchestra. (
ducted by Plichta: Overture, The 1
Smetana); Suite (Brusselmans); Cz
Humoresque (Roob); Slovak Potpourri (
kacek); Sercnade (Leoncavallo); Pc
(Kricka). 3.55, See Prague. 5.5, Tourist
port, 5.15, See Prague. 6.25, See Bra
lava. 6.50, See Prague.
MOTALA.—See Stockholm.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

MUNICH

716 kc/s, 419 metres; 60-100 kW. Rela; by Augsburg and Kaiserslautern, 536 kc 560 metres; and Nürnberg, 1,256 kc/s, metres.—10.30 a.m., Post Office Program with Records. 10.50, Sec Leipzig. 11.0, C cert, conducted by Brich Kloss. 12 p.m., Sec Leipzig. 12.25, Record Bedonin March (Oscheit): Air fr Das Veilchenmädel (Helmesberge Waltzes (Chopin); Song, Old Heicherg (Jensen); Die Berge, die smeine Heimat (Birkhofer); Nola (Arnd Frideriens-Rex-Marsch (Radeck). 1.0, Leipzig. 1.10, News. 1.20 (from Nürnber Post Office Programme, with Records. 1. For Women. 2.30, Talk: Work in the Si District. 2.50, Weather, Agricultural Not. 30, Concert conducted by Erich Kloss: Seltion from The Maid of Artois (Balf-Minuet and Scherzo (Brahms); Select. from Lohengrin (Wagner); Carnival-Min tures (Kaskel); 'Celio Solo, Ständchen (Sit Minuet (Bolzoni); Kreisler Potpourri (R nicek); Violin and Orchestra: Ron (Mozart); Venetian Serenade, Auf (Lagune (Fucik). 4.30, Talk. 4.50 (fr Nürnberg), Dance Suite on Folk Themes 1 Eight Wind Instruments (Rudolf-Ilerbs 5.10, Journey through Angola (Dr. P. Rohrhach). 5.30, Records. 5.45, Time, A

NAPLES .- See Rome.

NOTODDEN.—See Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed
Fredriksstad, 815 ko/s, 368.1 metres; Hami
522 ko/s, 574.7 metres; Notodden, 671 kc,
447.1 metres; Porsgrund, 662 kc/s, 45:
metres; Rjukan, 671 kc/s, 447.1 metres; Aleiby, LCL, 6,990 kc/s, 42.92 metres.—11.
a.m., Exchange. 11.55, Time. 12.0 Noon
1.0 p.m., Records. In the intervals, Weath
Agricultural Report. and Exchange. 3.2
Concert, relayed from the Britannia HotTrondheim. 4.30, Theatre Talk. 5.0,
Comedy. 6.0, Announcements. 6.30, 'Cel
Recital by Hermann Sandhy: Andante fro
tile 'Cello Concerto (Sandby): Sonata in
(Boccherini): Hungarian Rhapsody (Popper
7.0, Time and Review of the Year. 7.3
Quintet Concert of Christmas Carols. 8.
Reading. 8.30, Agricultural Report an
News. 9.0, Topical Talk. 9.15, Concer
grosso in B for Two Violins, 'Cello, an
Pianoforte (Corelli). 9.45 (approx.), Clo
Down.

OSTERSUND.—See Stockholm.

PALERMO

556 kc;s, 539.5 metres; 3 kW.—12 Noon to p.m., Gram-phone Records. In the intervi-Time and News. 4.30 to 5.30, Gramophone Records. 7.0, Announcements. 7.20, Gram-phone Records. In the interval, Time at News. 7.45, Concert. In the interval, Co-fession before the Microphone. After to Concert, Records. 10.0, Giornale Radio.

PARIS

PARIS

FEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 tres; 13 kW. Time Signals (on 2,650 tres) at 9.26 a.m. and 10.26 p.m. (Preinary and 6-dot Signals).—12.30 p.m., icert relayed from Paris (Ecole Superre), 671 kc/s, 447.1 metres. 1.0, Market ces. 1.15, News. 1.30, Agricultural Talk. Labour Report. 2.0, Exchange and ance Talk. 2.15, Economic Notes. 2.30, rket Prices. 2.45, Poetry. 3.0, News, usement Guide and Aviation Notes. 3.36, Exchange and Market Prices. 3.45, Report. 4.0, Tourist Ret. 4.15, Exchange and Market Prices. 1, Le Journal Parlé. 7.15, Wcather. News. 7.30, Liszt Pianoforte Red by Marie-Antoinette Pradier, with immentary: Les Jeux d'eau à la Villa ste; Sonetto del Petrarca; Valse oubliée; Jagdt; Death of Isolda (Wagner-Liszt). Political Talk. 8.15, Station Symphony hestra, conducted by Flament: Miniature te (Coates); Ariette d'autrefois (Brusselns); Double Bass Solo; Tenerezza (Dee); Prelude, Imelda (Laisné); Violin o: Overture, Les Linottes (Mathé).

PARIS

PARIS

STE PARISIEN, 914 kc/s, 328.2 metres; kW..—7.10 a.m., Chimes and Gramophone cert. In the intervals at 7.30, News. Sponsored Concert. 8.20, News. 8.45, k for Housewives. 12.0 Noon, Financial ws. 12.5 p.m., Song on Gramophone Reds. 12.20, Gramophone Records. 1.5, ancial News. 1.15, Gramophone Records. 1.5, ancial Notes. 1.30, Gramophone ords. 2.0, Financial News. 3.15, ancial Notes and Exchange. 3.45, Finial Notes. 4.50, Financial News. 6.45, ket Prices. 6.52, Talk. 7.0, Gramophone ords. 7.7, Talk on Music. 7.15, Le rnal Parlé. 7.30, Song and Pianoforte ital. 8.0, Arthur—Operetta in Three is (Christiné). In the intervals at 8.20, ancial News. 10.10, News.

PARIS

PARIS

D10-PARIS, Call CFR, 174 kc/s, 1,725

178; 75 kW.—6.45 a.m., Gym. 7.30,
ather and Gym. 7.45, Records. 8.0,
ather and News. 12 Noon, Jewish
k. 12.30 p.m., Records. In the inval. Exchange, News and Weather.
Announcements. 3.45, Exchange. 6.20,
ather, Agricultural Talk and Exnge. 6.45, Report of Social Assurance
ieties. 7.0, Talk: The Post-War Novel.
l, Records: Il n'y a pas de raison
yain); Two Songs from Les Noces de
nnette (Massé); Pan y Toros (Mateo);
airs du Poilu (arr. Salabert); La
nde des flots (Christiné); Air (Hanley);
ection from An American in Paris
yrshwin); Roses d'amour (Sahatier). 7.50,
ws. 8.0, Readings. 8.30, News and Weather.
ly La Traviata—Opera (Verdi). In the

PITTSBURGH

PITTSBURGH

IKA; 980 kc/s, 306 metres; 50 kW. Reed by W8XK on 48.86 metres and 25.27 tres.—12.0 Noon, Musical Clock. 1.0 p.m., rning Devotions, from New York. 1.15, n Hall Trio, from New York. 1.30, Lew ite, Organist, from New York. 2.0, Breakt Club, from New York. 2.30, Style and opping Service. 2.45, News and Minute aners 3.0, Programme to be announced. 5, Clara, Lu 'n' Em, from New York. 3.30, ady's Children, from New York. 3.45, nmy Fuller. 4.0, Music Appreciation ur, from New York. 5.15, Four Aces. 0, News and Market Reports. 5.45, Ernie Holst's Orchestra. 6.0, Farm and Home ur, from New York. 6.30, Ernie Holst's hestra. 7.0, Request Programme. 7.30, NKA Home Forum. 8.0, U.S. Marine Band, m New York. 9.0, betty and Bob, from Work. 9.15, Utility Hall. 9.30, News i Market Report. 9.45, Orchestra, from York. 10.0, Uncle Tom and Betty. 10.15, NKA Kiddies' Klub. 10.30, The Singing dy, from New York. 10.45, Orphan Annie, m New York. 11.0, News and Pat Haley. 15, Sports Notes and Programme Preview. 30, Egizi's Salon Orchestra. 11.45, Lowell omas, from New York.

RSGRUND .- See Oslo.

PRAGUE

PRAGUE

| kc/s, 488.6 metres; 120 kW.—9.10 a.m., chestral Concert: March (Kalser); Song ubin); Selection from Die Puppenfee ayer); Foxtrot (Jezek); Internezzo, Dance the Butterflies (Leopold); Polka (Grossann); Foxtrot (Silver); Melody (King); rich (Fucik), 10.0, Records. 10.55, Agritural Talk, 11.0, See Bratislava. 11.10, cords. 11.20, Weather. 11.25, News. 35, See Brno. 12.35 p.m., Talk for orkers. 12.45, Records. 12.55 to 1.0, Exange and Weather. 2.30, Records. 2.40, lk on Prague. 2.50, Weather and Exange. 3.0, See Moravská-Ostrava. 3.55, ading. 4.5, Concert by the Ondricek artet with Povolny (Clarinet): Clarinet

DEC. 29th FRIDAY

Quintet (Ridky); String Quartet in C. Op. 39 (Boccherini). 5.5, Agricultural Talk. 5.15, Talk for Workers. 5.25, News in German. 5.30, German Transmission: Talk: The Economic Crisis of 1933. 6.0, Time. News and Weather. 6.10, English Conversation Lesson. 6.25, See Bratistava. 6.50, Talk on Economics. 7.5, Recital of Drinking Songs by Kael Schart. 7.30, Symphony Concert by the Czech Philharmonic Orchestra, conducted by Jirak: Pastoral Symphony No. 6, Op. 68 (Beethoven): Eine kleine Nachtmusik (Mozart); Waltz, Die Schönbrunner (Lanner); Polka, Hortensia (Hilmar); Polka (Smetana); Waltz, Frühlingsstümmen (Joh. Strauss). 9.0, Time. News and Sports Notes. 9.15, Russian News.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.;
and Geneva, 395 kc/s, 749.9 metres.—11.40
a.m. (from Geneva), Records. 12 Noon
(from Geneva), Exchange, 12.10 p.m. (from
Geneva), Records. 2.28, Time Signal from
Neuchâtel Observatory. 3.0, See Schweizerischer Landessender. 5.0 (from Geneva).
For Women. 5.30 (from Geneva), Esperanto
Lesson. 5.40 (from Geneva), English Lesson. 6.5 (from Geneva), Bridge Lesson.
6.20 (from Geneva), Records. 6.59, Weather.
7.0 (from Lausanne), Pianoforte Recital
by Lity Merninod: First Movement from
the Sonata (Scarlatti); Sonata in D
(Haydn); Spring Song (Mendelssolm); Au
bord d'une source (Liszt). 7.30 (from Lausanne), Dramatic Programme. 8.0 (from
Lausanne), Cabaret Concert. 9.0, News.
9.10 (from Lausanne), Dance Music.

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW.—11.0 a.m., Weather. 1.15 p.m., Variety Programme. 4.0, Weather. 8.0, Musical Programme. 8.10, Weather. 8.20, Music and Announcements. 8.35, Reading. 9.0, Chimes and News. 9.30, Variety Programme.

RJUKAN.-Sec Oslo. SALZBURG .-- See Vienna.

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by WZXAF on 31.48 metres and by WZX on 19.56 metres.—7.30 p.m., Friday Steeplechase, from New York.

SCHWEIZERISCHER LANDESSENDER

LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW; Basie, 1,229 kc/s, 245.9 metres, -1.0 a.m. (from Basie), Records. 11.29, Time Signal from Neuchâtel Observatory, Weather and News. 11.40 (from Basie), Records (contd.), 12.25 p.m. (from Basie), Time. Weather and Exchange. 12.30 to 2.30, Interval. 2.30 (from Zürich), Records. 2.59, Time Signal from Neuchâtel Observatory. 3.0 (from Zürich), Concert by the Beromünster Orchestra. 3.35, The Stocker Sepps Village Orchestra. 4.10, The Small Beromünster Orchestra. 4.10, The Small Beromünster Orchestra. 3.35, The Stocker Sepps Village Orchestra. 3.35, The Stocker Sepps Village Orchestra. 4.10, The Small Beromünster Orchestra. 20 (from Bürich), For Children. 5.30 (from Berne), Time, Weather and Announcements. 6.20 (from Basie), Popular Programme. 7.30, The Beromünster Orchestra. 8.0, Weather and News. 8.10 (from Basie), Goldgräber (The Basie), Popular Programme. 7.30, The Beromünster Orchestra. 8.0, Weather and News, 8.10 (from Basie), Goldgräber (The Gold Digger)—Play (Rossi). 9.15 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 932 kc/s, 322 metres; Horby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres; Ostersund, 402 kc/s, 746.2 metres and Sundsvall, 554 kc/s, 532 metres.—4.0 p.m., Weather. 4.5, For Children. 4.25, Concert relayed from Maimo, 1,301 kc/s, 230.6 metres: Erklingen zum Tanze die Geigen (Jessel); Selection from Rose Marie (Friml-Stothart); Irish Folk Melody (Grainger): Dance (Anderberg); Foxtrot, Young and Healthy (Warren). 5.0, Reading. 5.30, Accordion Music, relayed from Göteborg. 6.15, News and Weather. 6.30, Song Recital. 7.0, Talk, relayed from Uppsala, 662 kc/s, 453.1 wetres. 7.30, Lisa Tunell (Songs) and Margit Alenius-Theorell (Harpsichord); Une vierge pucelle (le Bègue); Dialogne du premier ton (Clérambault); or dites nous Marie (d'Andrieu); Joseph est hien marié (Balbastre); Bergerettes (arr. Weckerlin); Harpsichord Solos; (a) Nun komm der Heiden Heiland (Zachow), (b) Variations on Lasst uns das Kindelein wiegen (Murschhauser). 8.0, Literary Re-

view. 8.30, Violin Recital by Per Carlsten: Caprice viennois (Kreisler); Ständchen (Schubert-Riman); Guitar (Moszkowski-Sarasate). 9.0, Records.

continued

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—10.30 a.m.,
Orchestral Concert, relayed from BordeauxLafayette, 986 kc/s, 304 metres. 12.0 Noon,
March Records. 12.48 p.m., News. 1.0,
Time and Exchange. 1.5, Records. 4.45,
Literary Talk: Verlaine in Prison, 5.0,
Orchestral Concert, conducted by Roskam:
Selection from The Count of Luxembourg
(Lehár); Waltz, Eternelle ivresse (Ganne);
Pjanoforte Solo: Overture. L'Ambassadrice
(Auber); La Fête du hameau (Gillet); Babillage (Gillet); Slav Rhapsody No. 2 (Friedemann); Selection from Der Lustige Krieg
(Joh. Strauss). 6.0, Trio Music, relayed from
Lille, 1,128.5 kc/s, 265.8 metres. 7.0, Talk in
German. 7.15, Recitations. 7.30, Time and
News. 7.45, Records. 8.0, News in German.
8.30, Les Contes de Perrault—A Fairy Opera
(Fourdrain). In the interval at 9.30 (approx.), News.

STUTTGART

MUHLACKER, 563 kc/s, 533 metres; 100 kW. Relayed by Freiburg, 1,157 kc/s, 259.3 metres and 527 kc/s, (569 metres until January 16, 1934).—Z.50 a.m., Post Office Concert. 9.0, See Frankfurt. 9.10. Organ Regital of and \$27 kc/s, (569 metres until January 16, 1934).—2.50 a.m., Post Office Concert. 9.0, See Frankfurt. 9.10, Organ Recital of Schumann Music by Wilhelm Locks, relayed from the Ufa Palast. 9.30, Records. 10.25, Post Office Concert. 10.55, Weather. 11.0, See Langenberg. 12.15 p.m., See Frankfurt. 12.25, News. 12.35, The Mario Isegio Orchestra from the Hindenburgbau: March, Mein Regiment (Blankenburg); Waltz, Frühlingsstimmen (Joh. Strauss); Overture, Mignon (Thomas); Selection from Die Fledermaus (Joh. Strauss); Violin Solo: Ave Maria (Schubert-Wilhelmy); Serenade (Heykens); Goldilocks (Powell); Selection from Cavalcria rusticana (Mascagni); Japanese Carnival (de Basque). 3.0, See Langenberg. 5.35, Timc. News. 5.45, Talk on Motoring. 6.0, Transmission for all German Stations, relayed from Breslau. 7.0 to 9.20, See Frankfurt. 9.20, Talk: Things you should know. 9.30, News. 9.45, See Langenberg. 11.0, See Frankfurt.

SUNDSVALL .- See Stockholm.

TOULOUSE

TOULOUSE

779 kc/s, 385 metres; 8 kW.—12 Noon, Airs from Operettas. 12.15 p.m., Popular Melodies. 12.30, News and Exchange. 12.45, Request Gramophone Music. 1.0, Announcements. 1.1, Opera Music: Dance of the Sylphs, from The Damnation of Faust (Berlioz); March from Oberon (Weber); Selection from Il Trovatore (Verdi). 1.15, Sound Film Music. 1.30, Light Orchestral Music. 2.0, News and Exchange. 4.15, News and Exchange. 6.0, News. 6.15, Hunting Horn Music. 6.30, Tourist Talk. 6.45, Till Eulenspiegel's Merry Pranks (R. Strauss). 7.0, Medical Talk. 7.15, News and Exchange. 7.30, Music by an Argentine Orchestra. 7.45, Operetta Music: Airs from The Desert Song (Romberg). Encore cinquante centimes (Yvain), The Merry Widow (Leliar) and La Basoche (Messager). 8.0, Concert by the Viennese Orchestra. 8.30, Sound Film Music. 8.45, Instrumental Music: Erotica (Grieg); Ideale (Tosti); Badner Mädln (Konzak); Melody (Weber). 9.0, Opera Music: Overture, The Barber of Seville (Rossini); Aria from La Baneb lanche (Roildieu); Aria from La Baneb (Puccini); Chorus and March from Carmen (Bizet); Prayer from Rigoletto (Verdi); Chorus from Mirella (Gounod). 9.30, Popular Music: Amina (Lincke); Ronde villageoise (Chabrier); Minuet in G (Paderewsky). 9.45, Balalaika Music and Russian Songs. 10.0, Operetta Music. 10.15, North African News and Announcements. 10.30, Military Music. 10.45, Chansonnettes. 11.0, Orchestral Music. Lehar Potpourri (Hruby); Selection from La princess jaune (Saint-Saëns). 11.15, Dance Music. 12 Midnight, News and Announcements. 12.5 a.m. (Saturday), Cabaret Programme. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—6.45 a.m. to 3.45 p.m., See Turin. 4.10 to 7.40, See Turin. 7.40, See Milan Vigentino. 8.20 till Close Down, See Turin.

TRONDHEIM .- See Oslo.

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 903 kc/s, 332.2 metres; and Florence, 598 kc/s, 501.6 metres.—6.45 a.m., Gym. 7.0,

Time and Announcements. 10.15, Orchestral Concert. 11.30, Records. 11.45, Giornale Radio. 12 Noon, Time and Announcements. 12.5 to 1.15 p.m., Programme to be announced. In the interval, Records and Exchange. 3.35, Giornale Radio. 3.45, Programme for Children, 4.10, Chamber Music. 4.55, Weather. 5.0, Announcements. 6.0, Time and News in Foreign Languages. 6.30, Records. 6.50, Announcements. 7.0, Records. 7.30, Announcements. 7.40, See Milan Vigentino. 8.20, Talk. 8.30, Programme to be announced. 9.0, Dance Music. 10.0, Giornale Radio.

VALENCIA

VALENCIA

RADIO-VALENCIA; 1,121 kc/s, 267.6 metres; 0.7 kW.—1.0 a.m. (Saturday) till Close Down, Programme in English by the I.B.C. 1.0, Military Band Music: March from Tannhäuser (Wagner); By the Blue Hawaiian Waters (Ketelbey); Selection from The Three Musketeers (Friml); Valse triste (Sibelius); Christmas Melodies by the Fireside (Forhes); Humoresque (Dvorák); Ciegenlied (Brahms); War March of the Priests (Mendelssohn). 1.30, Instrumental Music: Selection from Carmen (Bizet); Hawaiian Hottl (Traditional); Selection from A Bedtime Story; The Buffoon (Curzon); Waltz, Kilima (Traditional); A Perfect Day (Bond); Sailor's Hornpipe; Manila Moon (Gaston). 2.0, I.B.C. Goodnight Melody and Close Down.

VATICAN CITY

15,120 kc/s, 19.84 metres; (Morning) and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.8 to 10.15 a.m., Religious Information in German. 7.0 to 7.15 p.m., Religious Information in Links German. 7.0 to tion in Italian.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 652 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—10.30 a.m., Concert by the Wiener Symphoniker, conducted by Josef Holzer. 10.55, Weather. 11.0, Coucert (contd.). 12 Noon, Time, News. 12.10 p.m., Records: Karol Szreter: Hungarian Rhapsody No. 12 (Liszt); Josef Manowarda; Gebet und Gesang Weylas (Wolf); Josef Szigeti and Bela Bartok; Hungarian Folk Songs (Bela Bartok); Berta Kiurina: Two Arias from Turandot (Puccini); Alfred Grünfeld: Nocturne in A Flat, Op. 32 (Chopin); Pablo Casals: Berceuse de Jocelyn (Iodard); Enrico Caruso: Aria from Martha (Flotow); Heinrich Schlusnus: Caromio ben (Giordano). 2.0, Time. News, Exchange. 2.15, Gym. 2.25, For Children. 2.50, Pianoforte Concerto in A Minor (Grieg), by Ignaz Friedmann (on Gramophone Records). 3.25, For Women. 3.50, Talk. 4.15, Soprano and Baritone Recital by Clarisse Stuckart and Paul Lorenzi. 4.55, Tourist Talk. 5.10, Talk: The Joys of Winter at Galtür. 5.25, Sports Notes. 5.35, Talk. 6.0, Topical Talk. 6.15, Time and News. 6.25, Talk. 6.55, Dance Music. 8.15, News. 8.30, Concert by the Wiener Kammer Orchestra, conducted by Karl Auderieth; Soloist, Dr. Siegfried Seidner (Oboe). 9.30, Concert by the Wiener Kammer Orchestra, conducted by Karl Auderieth; Soloist, Dr. Siegfried Seidner (Oboe). 9.30, Concert by the Wiener Kammer Orchestra, conducted by Marl Auderieth; Fine steirische Ouvertüre (Stilp); Waltz, Herrgott i tanz halt so gern (Ascher); In Gumpoldskirchen drausst gibt's Weine! (Gehauer); Potpourri. Alles singt mit (Recktenwald); Waltz, Hereinspaziert (Ziehrer); Gallop Reisefleber (Ganglherger). After the Concert, News.

WARSAW

WARSAW

212.5 kc,s, 1,411 metres; 120 kW.—11.38, a.m., Orchestral Concert. 2.25, News. 3.10, Pianoforte Recital by Vera Bezobrazowa: Variations in G (Mozart); Two Pieces (Schubert-Liszt): (a) Du bist die Rult'. (b) Auf dem See; Polonaise in E (Liszt). 3.40, Book Review. 3.55, Records. 4.10, Soprano and Tenor Recital by Dobrowolska-Pawlowska and Umberto Macnez: Tenor Solos, (a) Il mio ben (Paesiello), (b) Interno all idol mio (Cesti), (c) Caro mio hen (Giorana); Soprano Solos: (a) Chanson (Maszyucki), (b) Riktikitawi (Halpern), (c) Fil d'argent (Hernan), (d) Amour et coeur (Niewiadomsky); Tenor Solos: (a) The Spiuner (Respighi), (b) The Wheel (Billi), (c) Perchè (Pennino), (d) Ritorno a Sorriento (Curtius); Soprano Solos: (a) Autumn Song (Sinding), (b) Serenade (Myrberg); Desdemona's Aria from Othello (Rossini). 4.50, Agricultural Notes. 5.0, Talk: Solon, the Athenian Law-Giver. 5.20, Records. 6.0, Announcements. 6.20, Suggestions for Holidays. 6.25, Topical Talk. 6.40, Sports Notes. 6.47, Radio Journal. 7.0, Talk on Music. 7.15, Symphony Concert by the Philharmonic Orchestra, conducted by Pierd-Jajew: Soloist, Szpinalsky (Pianoforte); Symphony No. 4 (Glazunov): Pianoforte Concerto in F Minor (Chopin): Introduction to a Play (Rytel); Selection. Tsar Saltan (Rimsky-Korsakov); Pianoforte Solos. 9.40, Cigány Music. 10.0, News. 10.5, ('igány Music (contd.).

ZURICH.-See Schweizerischer Landessender,

ALGIERS

ALGIERS

825.5 kc, \$, 363.3 metres; 13 kW.—12.30 p.m.,
The Station Orchestra: Selection from The
Thieving Magpie (Rossini); Le toreador
(Adam); L'espace (Waldtenfel). 1.0, News.
1.5, Concert (contd.): Bohemos (Chauvet);
Berceuse (Defosse); Le récit de djalmer
(Février); Phrynette (Filipucci). 7.0, Dance
Music. 7.10, Shipping Notes. 7.15 Weather.
7.20, Songs from Operettas: Les dragons de
Villars (Maillart); Les saltimbanques
(Ganne); Veronique (Messager); Les cent
vièrges (Lecocq). Le jour et la nnit (Lecocq). 7.40, Sports Notes. 7.55, News.
8.0, Time and Lottery Results. 8.10, The
Station Orchestra: Overture, Véronique
(Messager); Selection from Le Roi d'Ys
(Lalo); Waltz, Die Hydropathen (Gnugl).
8.35, News and Records: Two Arias from
Nina Rosa (Romberg). 8.50, Concert
(contd.): Les perses (Leroux); Défile parade
(Lacome). 9.25, News. 9.30, Aecordion
Music. 9.55, News.

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres; and Cork, 1,337 kc/s, 2244 metres.—1.30 p.m., Time. News and Records. 2.0, Records. 6.0, Gramophone Records. 6.45, News. 7.0, Poetry Recital by Lyle Donaghy. 7.15, Gaelic Talk. 7.36, Time. 7.31, The Kilmore Choir. 8.0, Concert by the Station Orchestra. 8.20, Pantomine presented by John MacDonagh and Company, with Orchestral Music. 9.20, Violin Solos by Noreen O'Connor. 9.30 to 10.30, Programme by the I.B.C. (Ireland), Ltd. 9.30, Orchestral Concert: Persian March (Friml); Waltz, Si Petite (Clarey); The Coon among the Chickens (Ives); Second Serenade (Ileykens). 9.45, Russian Music: The Song of the Volga Boatman (arr. Leontiev); Lovely Night (arr. Leontiev); The Red Sarafan (arr. Leontiev); In a Pine Forest (Fomeon). 10.0, Dance Music: Life's so complete; I loved you Wednesday; Bless your heart; Raeing Commentary; Moonlight down in Lover's Lane; Sweep; Symphony of the Breeze; Morning, Noon and Night, 10.30, I.B.C. Goodnight Melody, followed by News. 10.40, Irish Music.

BARCELONA

BARCELONA

EAJ1, 860 kc/s, 348.4 metres; 8 kW.—7.0 p.m., Request Gramophone Records. 7.30, Exchange and Request Records (contd.). 8.0, Gramophone Music. 8.15, Anti-War Talk and Gramophone Music. 9.0, Cathedral Chimes and Weather. 9.6, Announcements, Exchange and Market Prices. 9.10, Educacational Programme. 9.35, Concert by the Station Orchestra: Minuet for String Quartet (Godard); Florentine Serenade (Godard); Song (Godard); Overture. Don Giovanni (Mozart). 10.10, Mai es fa tard, si el cores nove—Comedy in Three Acts (Avelino Artis). 11.0, News. 11.10 (approx.), Comedy (contd.). 1.0 a.m. (Sunday) till Close Down, Programme in English by the I.B.C. 1.0 a.m., Light Music: Selection from A Waltz Dream (O. Straus); Waltz (Lincke); Montana Moon (Freed); Lena (Norton); Cossack Dance (Trad.); Arrogancia andaluza (Bruguera); Selection from Congress Dances (Heymann). 1.30, Dance Music: Have you ever been lonely? Lay your Head oa my Shoulder: Darkness on the Delta; Waltzing along with you; Swingy little thingy; It's the Talk of the Town; There was a poor Musician; Two Tickets for Georgia. 2.0, I.B.C. Good-night Melody and Close Down.

BARI

1,112 kc/s, 259.8 metres; 20 kW.—6.45 to 7.15 a.m., Programme from Rome. 11.30 to 12 Moon, Quintet Concert. Selection from I promessi Sposi (Ponchielli); Torna amor (Grothe); Selection from Paganini (Lehar); Io ti voglio haciare (Pietri); Serenata delle rose (Martinengo); Moseovia (D'Acchiardi). 12 Noon to 3.30 p.m., See Rome. 3.30 to 3.55, Songs for Children. 3.55 to 7.0, See Rome. 7.0 to 7.15. News in Albanian. 7.30 till Close Down. See Rome.

BASLE.—See Schweizerischer Landessender.

BERLIN

BERLIN

DEUTSCHLANDSENDER

(REICHSSENDER), 183.5 ko/s, 1,635 metres; 60 kW.—
9.10 a.m., Gramophone Records, 9.50, For Children. 10.15, Weather. 10.30, For Housewives. 11.0, Weather. 11.5, Gramophone Records: Overture. Enryanthe (Weber): Hymn from Alessaudro Stradella (Flotow): Overture, The Force of Destiny (Verdi); Flower Aria from Carmen (Bizet): Siegfried Idyll (Wagner); Aria from Dom Giovanni (Mozart); Overture, Benvenuto (cellini (Berlioz); Duet from Undine (Lortzing); Ballet Music from The Bartered Bride (Smetana); Aria from Tiefland (d'Albert). 2.0, Handwork. 2.30, Weather. Exchange. 2.45, Week's Review. 3.0, See Leipzig. 4.0, Sports Review. 4.20, The Herbert Frölich Orchestra. 5.0, Poems. 5.5, Humorous Talk on New Year Resolutions; Pestivities. 5.20, Talk. 5.45, Weather, News. 6.0, Transmission for all German Stations: Planoforte Recital by Préderic Lamond and Walter Gieseking: Lamond: Grand Fantasia in C (Schumann); Gieseking: Sonata. Op. 118, No. 2 (Brabms); Romance in F. Op. 118, No. 5 (Brabms);

SATURDA DECEMBER THE THIRTIETH

Gieseking: Intermezzo in C, Op. 119, No. 3 (Brahms). 7.0, To-day's Motto. 7.2 (approx.), Der Schlagbaam (The Barrier)— Radio Play (Bruno Wellenkamp) with Inci-dental Music by Victor (orzilius). 5.0, See Hamburg. 9.0, News. 9.30, Talk: Un-fulfilled New Year Dreams. 9.15, Weather. 10.5, Serenade from Munich. 11.30 (approx.), Close Down.

BERLIN

BERLIN

FUNKSTUNDE, 716 kc/s, 419 metres; 1.5 kW. Relayed by Zeesen DJC, DJA, DJD, DJB and DJE. 9.0 a.m., News. 9.10, Economic Report. 9.30, Records and News. 10.0, Exchange. 10.30, See Heilsberg. In the interval, Weather. 12 Noon, Misiefrom Sound Filans on Records: Song from Das Instige Kleeblatt (Werner-Köllner); Waltz from Kleines Mädel—Grosses Glück (Bölnnelt-Stemmle); Waltz Song from (Fräulein Hoffmanns Erzählungen (Lenx-Hannes); Tango from Du bist wie eine Märchenprinzessin (Mohr-Walter); Air from Es gibt nur eine Liebe (Künncke-dremer); Two-Step from Stern von Valencia (Stauch). 12.20, See Hamburg. 1.15, News. 1.35, Records: Melody (Green); Saxophonitis (Wata); Tango (Lesso-Valerio); Whist-pering (Schonberger-Engel); Vier kleine Worte; Du mein Liebling (Stothart); Foxtrot (Gay). 2.0, Exchange. 2.20, Variety Programme. 3.0, See Heilsberg. 4.0, Der olle Papa Wrangel—Radio Sequence (Hans Schwarz van Berg and Lusa Schultze-Kunstmaun). 4.30, Pianoforte Recital by Herbert Pollack: St. François d'Assise (Liszt); Nocturne No. 3 (Liszt); Three Pieces (Paganini-Liszt): (a) Ebtde in A Minor, (b) Etude in E Flat, (c) Etude in G Sharp Minor. 5.0, Review of the Year. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.5 to 9.0, See Hamburg. BERNE.—See Schweizerischer Landessender.

BERNE,-See Schweizerischer Landessender. Schweizerischer BEROMUNSTER. - See

BODEN,-See Stockholm.

BODO.-See Oslo.

BORDEAUX-LAFAYETTE

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—7.45 a.m.,
News relayed from Paris (Ecole Supérieure),
671 kc/s, 447.1 metres. 10.30 a.m., Concert
relayed from Paris. 12.45 p.m., Time and
Quintet Concert. In the interval, News.
1.50, Exchange. 2.0, Records. 3.0, Concert
relayed from Paris (Ecole Supérieure). 5.0,
Pasdeloup Symphony Concert, relayed from
Paris (Ecole Supérieure). 7.0, Radio
Journal, relayed from Paris (Ecole Supérieurs). 7.55, Sports Talk. 8.0, News, Market Prices, and Lottery Results. 8.5, English Lesson. 8.20, News. 8.30, Records. 9.0,
A Comedy. After the Comedy, Amusement
Guide and Time.

BRATISLAVA

BRATISLAVA

1,073 kc/s, 279.5 metres; 14 kW.—10.5 a.m., see Brno. 10.55, see Prague. 11.35, The Station Orchestra. conducted by Dyk. March (Rehor); Waltz (Strauss); Selection from The Count of Luxembourg (Lehár); Potpourri of Slovak Songs (Piskávek); Polka (Mach); Polka (Math); Polka (Math); Polka (Maty). 12.35 p.m., See Prague. 12.45, News in Slovak, German and Hungarian. 12.55, see Prague. 1.0, Shipping Notes. 2.50, See Prague. 4.16, Marionnette Play. 5.15, Hints for Housewives. 5.40, Records. 5.45, Topical Talk 5.55, Hints for Housewives. 6.0, See Prague. 6.25, See Brno. 7.0, See Prague. 9.15, See Moravska-Ostrava.

BREMEN.—See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—8.0 a.m., For Women. 8.2, Time, News, 9.40, For Children. 10.40, Time, Announcements. 11.0 a.m. to 1.15 p.m., See Leipzig. 1.15, Time, Weather. 1.20, Post Office Programme with Records. 1.50, Agricultural Prices. 2.16, Film Review. 2.30, Topical Talk. 2.40, Programme Announcements for the Coming Week. 3.0 to 5.10, See Leipzig. 5.10, Chimes. 5.16, Programmes to be announced. 5.50, Announcements. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0, See Leipzig. 7.10, See Stuttgart. 9.0, See Leipzig. 9.20, Time, News. 9.35, See Munich.

BRNO

BRNO

878 kc/s, 342 metres; 35 kW.—6.15 a.m.,
Programme from Prague. 8.50, Programme
from Prague. 9.10, See Moravská-Ostrava.
10.0, Records. 10.5, Orchestral Concert.
10.55, See Prague. 11.35, See Bratislava.
12.35 p.m., See Prague. 1.0 Market
Prices. 2.30, Records. 2.40, Tales of Our
Grandmammas. 2.50, See Prague. 4.15, Talk
for Teachers. 4.20, Records. 4.35, See
Prague. 4.50, Records. 5.0, Literary Talk.

5.15, See Prague. 5.25, German Transmissiön: News and Viola d'amor and Planoforte Recital. Concerto (Kontzvindt); Le Cygne (Saint-Saéins); Autumn Night (Wafelgham); Gavotte (Kint). 6.0, See Prague. 6.25, Brass Band Concert. 7.0, See Prague. 7.10, Schubert Violin Recital by Josef Peska. Duct for Violin and Planoforte Op. 162; Rondo brillant Op. 70. 7.30, See Prague. 9.15, See Moravská-Ostrava.

BRUSSELS (No. 1)

BRUSSELS (No. 1)

1.N.R., 590 kc/s, 599 metres; 15 kW.—12

Noon, Gramophone Concert: Selection from The Gold Diggers of 1933; Les échoes d'Alsace (Rucqoy); Waltz Potpourri (Romberg); Addio a Napoli (Cottran); Selection from Princess Charming (Sirmay); Italian Fantasia (Delmas); Selection from Sunny (Kern); Künstlerleben (Joh. Strauss); Selection from Eldorado (Ruthland-Clapham).

1.0 p.m., Le Journal Parlé. 1.10, Popular Music, relayed from the Grand Hotel, Antwerp. 4.45, Talk by the Belgian Delegate to the Disarmament Conference. 5.0, Dance Music, relayed from the Plaza. 6.0, Talk on Liège. 6.5, The Aldershot Searchlight Tattoo (on Records). 6.30, Harpsichord Recital by Rachel Thauvoye); Toccata in G (Scarlatti); La Poule (Rameau); Le coucon (Daquin); Twelve Pieces (Couperin); Fugne in A Minor (Bach). 7.0, Gramophone Music: Kitten on the Keys (Confrey); Little Teddy Bear (Bratton); Waltz, L'espace (Waldtenfel); Da ich ein Kind war (Gretscher); Mnsical Saw Solo: You are my Heart's Delight (Lchár); Selection from Perlmutter (O. Straus); Was wärmein Lied (Gootze); Waltz, A toj (Waldtenfel). 7.30, Science Talk. 8.0, The Land of Smiles—Operetta (Lehár), relayed from Liège, 1,236 kc/s, 242.7 metres. In the first interval, Two Sketches and Records of Scenes from Knock (Jules Romains). Le Journal Parlé in the Second Interval.

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.1.R., 888 ke/s, 337.8 metres; 15 kW.—12

Noon, Orchestral Concert, conducted by Felleman, relayed from the Grand Hotel, Antwerp. 1.0 p.m., Le Journal Parlé. 1.10, Extracts from Lucia di Laminermoor (Donizetti), on Gramophone Records. 5.0, Concert by the Symphony Orchestra, conducted by Jean Kumps; Symphony No. 2 (de Maleingrau); Three Pieces for Clarinet (Stravinsky); Three Pieces for Orchestra (Soudant); Overture, Don Giovanni (Alozart). 6.0, Andante and Finale from the Trio No. 2 (Mendelssohn), on Gramophone Records. 6.15, Reading. 6.30, Gramophone Concert Overture to Czar and Carpenter (Lortzing); The Volga Boatmen (arr. Challapin); Nelection from Hans the Flute Player (Ganne); Room for the Factotum, from The Barber of Seville (Rossini); Der Anamitische Zauberer (Siede); Piece (Geisser); C'est l'amour, from Les Saltimbanques (Ganne); Les deux virtuosses (de Nattes); To-day I Feel so Happy, from Sunshine Susie (Abraham); Internezzo; The Acrobat (Robrecht); Sketch; Dance of the Dervishes (Bendix); Piece (Wolff); Rève de la bergère (Labitzsky); Die Spinnerin (Mendelssohn); Overture, Le Caid (Thomas). 7.30, Agricultural Talk. 8.0, Concert by the Symphony Orchestra, conducted by Jean Kumps: Leonora Overture No. 3 (Beethoven); Concerto for 'Cello and Strings (Bach); Overture, Raymond (Thomas); Three Dances (Grossmann); Humorous Items by Frans Lamoen; Le pas des fleurs (Delibes); Pizzicato, Zabara (Gilson); Claironnerie (Ducasse); Humorous Items by Frans Lamoen; Waltz, The Blue Danube (Joh. Stranss). 10.0, Journal Parlé. 10.10, Concert by Paul Moreau and his Orchestra, relayed from the Seala Taverne, Antwerp.

BUCHAREST

BUCHAREST

760 kc/s, 394.7 metres; 12 kW.—11.0 a.m., Exchange; Gramophone Concert. 12 Noon, Radio Journal. 12.15 p.m., Gramophone Records. 3.15, Educational Programme. 40, Relay of Music from the Bonbonnière Lafayette. 5.0, Radio Journal. 5.15, Concert (contd.). 6.0, Educational Talk. 6.20, Gramophone Records. 6.45, Talk. 7.0, Song Recital by Jean Niculesco-Bassu (Bass). 7.20, Concert by the Station Orchestra: Overture. Princess in the Golden Slippers (Rust); Nut-Cracker Suite (Tchaikovsky). 8.0, Answers to Correspondents. 8.15, Concert (contd.); Selections from Paganini (Lehár); Danse Exotique (Massegni); Grande Polonaise (Svendsen). 8.45, Radio Journal. 9.0, Concert of Romanian Music by the Station Orchestra. conducted by Dinico, relayed from the Erecsvo Restaurant.

BUDAPEST

545 kc/s, 559.5 metrcs; 120 kW. Also relayed on 849 metres.—11.5 a.m., Concert. 12.30 p.m., The Concert Orchesta, conducted by

Fridl. 3.0, For Children. 4.0, Talk 4. Records. 5.0, Letter Box. 5.40, The En Ross Orchestra from the Café New Yor 6.30, Reading. 7.0, Haydn-Radio Play (Bare 8.30, News. 8.50, The Bela Racz Cigá Band, from the Café Baross. 9.45, Conca by the Opera House Orchestra, conducted Ludwig Rajter. Overture (Cimarosa); Suit L'Arlésienne (Bizet); Lyric Pieces (Grieg Hungarian Dances (Bartok); Capriccio (Batykai); Waltz. Viora (Szabados); Hungaria Dances Nos. 5 and 6 (Brahms).

CASSEL .- See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed I Kalundborg, 260 kc/s, 1,153.8 metres; at Skamleback, OXY, on 31.51 metres.—11
a.m., Time and Chines from the Town Hai 11.5, Concert from the Ritz Restaurant, 1.:
p.m., Gramophone Records. 2.0, Moger Hansen's Instrumental Ensemble: Turkis March (Mozart); Waltz, Je t'aime (Waltenfel); Selection from II Tovatore (Verdi Valse caprice (Rubinstein); Pizzicato an Intermezzo (Pierrot); Waltz from Zigeane primas (Kalimán); Songs: Selection fro Tosca (Puecini); Waltz from Novelette Op. 15 (Glazamov); Serenade (Lange-Miller. Potponrri (Kern). 4.0, Reading. 4.30, F. change. 5.0, Time and Chimes from tl Town Hall. 5.2, Part Relay of a Meetin for a Winter Relief Fund for Seamen, fro the Odd Fellow's Hall. 5.15, Talk, 5.4 Weather. 5.54, Announcements. 6.0, New 6.15, Time Signal. 6.30, Talk, 7.0, Tin from the Town Hall. 7.1, Operetta Mus by the Radio Orchestra, conducted the Gröndahl: Overture, La mascotte (Andran) Selection from Les brigands (Offenbach; Couplet and Waltz from La belle Hélèn (Offenbach); Overture, Les cloches de Corn ville (Planquette); Selection from La fille d Madame Angot (Lecoeq); March from De arme Jonathan (Millöcker). 7.59, Songs an Recitations. 8.40, Violin Solos by Christias sen. 9.0, News. 9.15, The Radio Orchestra conducted by Launy Gröndahl: Overtur Le cheval de bronze (Auber); Waltz, fron Nalla (Delibes); The Londonderry Air (ar Grainger); Shepherd's Hey (Grainger) Gavotte and Musette from Baobdil (Moss kowsky); Caprice italien (Telnaikovsky 10.0, Dance Music, relayed from the Wive Restaurant. 11.0, Time and Chinnes, relaye from the Town Hall. 11.2, Dance Musi (contd.). from the (contd.).

CORK.-See Athlone.

DANZIG .- See Heilsberg.

DRESDEN.-See Leipzig.

FECAMP

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—11.0 a.n to 12 Noon, Programme in English by th I.B.C. 11.0, Happy Hour; Part 1: Taug Orchestra; Part 11: Danee Music. 12 Noor Programme in French. 3.30 to 6.0 p.m., Programme in English by the I.B.C. 3.30. Con cert for Tunbridge Wells and Isle of Thane Listeners; Part 1: Orchestral Concert; Par II: Dance Music. 4.30, The I.B.C. Xurser Corner; Birthday Greetings. 5.0, Concert for Dover and Folkestone Listeners; Part I Hawaiian Guitar Band: Honolulm Ba (Earl); Tango des Roses (Scherler) Naughty Hawaii (Carlo); On the beach a Waikki (Trad.); Tiptoe through the Tulip (Dubin); Hawaiian Hotel (Trad.); Song o the Islands (King); On a little Street in Honoluln (Sherman). 5.30, I.B.C. Time Sig nal. 5.31, Concert; Part II: Light Music In the Valley where the Bhebirds sin (Salman); Song. Letting in the Sunshin (Gay); Pianoforte Solo, Selection from The Desert Song (Romberg); The Clatter of the Clogs (Fignn). 5.45, Concert of Dance Music Smoke Rings; Awful Sad; Laughing Waltz A Heart of Stone, 6.0, Programme in French 11.0 till Glose Down, Programme in English by the I.B.C. 11.0, Music Hall and Musical Comedy Memories. 11.15, Concert You're getting to be a habit with me. We're in the money; Thanks; Selection from Waltzes from Vienna. 11.30, I.B.C. Time Signal, 11.31, Concert arranged by the International Broadcasting Company (Ireland). Ltd.: Signature Tune. Come back to Erin, Wiener Blut (Strauss); Siciliana Serenata (Schmalstich); Perdita (Cuvelier); Songs my Mother taught me (Dvorák); I do like to be beside the Neaside (Glover); The Enchanted Forest (Ganglberger); Signature Tune, Come back to Erin, Langhing Waltz, Trie Jolie (Waldtenfel): Songs my Mother taught me (Dvorák); I do like to he beside the Neaside (Glover); The Enchanted Forest (Ganglberger); Signature Tune, Come back to Erin, Lata Survey in Langhing Waltz; The Valcta; You ought to see Sally on Sunday; Weep no more my Baby; Aloha Oe; Adorable; Let's Call it a Day; Mi Amore Exta en el Valle; The Cace in the Window; Old

ature Tune. 2.0, I.B.C. Good-night dy and Close Down.

NSBURG.-See Hamburg.

RENCE.-See Turin.

FRANKFURT

FRANKFURT

7 kc/s, 259.3 metres; 17 kW. Relayed
2aseel and Trier, 1,167 kc/s, 259.3 metres.
) a.m., News. 9.45, Talk arranged by
Post Office. 10.0, Concert. 10.40,
ouncements. 11.0, See Langenberg.
5 p.m., Time and News. 12.25, News.
5 to 2.30, See Langenberg. 2.30, Weather,
Time and Economic Notes. 3.0 to
Nee Langenberg. 5.0, Talk: Frontier
lem's. 5.20, Review of the Week. 6.35,
lying Visit. 5.50, News. 6.0, Transmisfor all German Stations, relayed from
lin (Deutsohlandsender). 7.0, Topical
6. 7.10, See Stuttgart. 9.0, Time and
7s. 9.20, See Stuttgart. 9.30, News.
Concert relayed from Freiburg. 10.0,
nade by the Radio Orchestra, conducted
Rosbaud. 11.0, See Stuttgart.
:DRIKSSTAD.—See Oslo.

:DRIKSSTAD .- See Osto.

:IBURG .- See Stuttgart.

IEVA.-See Radio-Suisse Romande.

IOA .- See Turin.

HWITZ .- See Breslau.

'EBORG .- See Stockholm.

\Z.-See Vienna.

MAR .- See Oslo.

HAMBURG

HAMBURG

kc/s, 372 metres; 1.5 kW. Relayed by men, 1,112 kc/s, 269.8 metres; Flensburg Hanover, 1,319 kc/s, 227.4 metres; and l, 1,292 kc/s, 232.2 metres.—9.0 a.m., Rels. 9.50, a.m., News. 10.0. Sound Film sic on Records. Tango and Waltz Song n Das Lied vom Glück (Engel-Berger); trot from Keine Angst vor Liebe othe-Dehmel); Foxtrot from Die önen Tage von Aranjeuz (Bergmannler); Slow Waltzes from (a) Ich trage 1 Bild stets im Herzen (Knobel-Klesow). Ist mein Mann nicht fabelhaft (Knobelsow); Song, Es gibt nur eine Liebe onneke-Kremser); Waltz from Kleines lel—grosses Glück (Böhnelt-Stemmle); ching Song from Das lustige Kleeblatt znner-Köllner). 10.30, Concert from Melisg. In the intervals, Hints for isewives, Time and Announcements. 12 m, Exchange. 12.10 p.m., Weather. 0, Light Music. 1.15, News. 1.35, Reviso of Heinrich Schlusnus. Aria from lian Vespers (Verdi); Duet from The ce of Destiny (Verdi); Serenade from 1 Giovanni (Mozart); Dem Unendlichen rubert); Es muss cin Wunderbares sein ch); Morgen (R. Strauss); Mahnung rmann). 2.0, Exchange, Announce-tis. 2.50, Ice Report. 3.0, See Meilsg. 4.0 to 5.0, See Berlin (Deutschlandder). 5.0, Review of Year—Books and lanacs. 5.25, Military Programme. 5.40 mm Kiel), Religious Address. 5.50, ather. 6.0, Transmission for all German tions, relayed from Berlin (Deutschlandder). 7.5, Carl Hagenbeck—Radio Picture n Historical Documents (arr. Ludwig owsky), with Music by the Small Station hestra, conducted by Gerhard Maass. 8.0, sical Curiosities. The Station Choir String Quartet. Otto Stadelmaier ngs), Gregor and Maass (Pianoforte) ing Quartet: Polka Variations (Rimsky-sakov-Liadov-Glazunov); Pianoforte ping Veneral Documents (arr. Ludwig owsky), with Music by the Small Station hestra, conducted by Gerhard Maass. 8.0, sical Curiosities. The Station Choir String Quartet (Wagner); Voice and noforte: Kraftliedchen (Wagner); Pianoforte lieben Walzer (Wagner); Voice and Meforte Walzer (Wagner); Voice (Haydn), (h) egelkanons (Mozart), (c) An den Erfinder Metronoms (Beethoven); Stri the Small Sta ht, Close Down.

NOVER.—See Hamburg.

HEILSBERG

HEILSBERG

5 kc/s, 276.5 metres; 60 kW. Relayed by 12ig, 671 kc/s, 447.1 metres.—10.36 a.m., 12ig, 671 kc/s, 447.1 metres.—10.36 a.m., 12iger by the Small Station Orchestra, conted by Eugen Wilcken: Overture, Romeo I Juliet (Bellini); Marien-Walzer (Lan.); Selection from La rondine (Puccini); Jotte rococo (Schmalstich); Fascination trehetti); Selection from Der Tenor der 20gin (Künneke); Czardas No. 9 ichiels); Fascination (Marchetti); Lehár pourri (Geiger). In the interval, Weather. p.m., Time and News. 1.0, News. 1.5, 12iger). Time and News. 1.0, News. 1.5, 12iger). Time and News. 1.0, News. 1.5, 12iger). The Songs almas); Czardas from Der Geist desjewoden (Grossmann); Three Songs alms); (a) O wisst ich doch den Weg uck, (b) Sonntag, (c) Meine Liebe ist n; Caucasian March (Ippolitov-Ivanov); 12iger). Time Gilick bist du allein; 20itan Nights (Zamecnik); Midnight ltz (Zamecnik); None but the Weary att (Tchaikovsky); Waltz, Carrinen Sylva anovici); Selection from The Cunning sant (Fall); Des Jahres letzte Stundehulz). In the interval, News. 1.30, Post

DEC. 30th SATURDAY

Office Programme, with Records. 2.0, Exchange. 2.30, Musical Exercises. 3.0, The Small Station Orchestra, conducted by Eugen Wilcken: Selection from Le cheval de bronze (Auber); Two Songs (Grieg): (a) Ich liebe Dich, (b) Erotik Suite (Mouton); Hallet des parfuns (Popy); Overture, Si jétais roi (Adam). 4.0 to 5.0, See Berlin (Deutschlandsender). 5.0, Traffic Report. 5.5, Programme Announcements for the Coming Week. 5.15, Agricultural Prices. 5.25, East Prussian Press Review. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0, News. 7.10, Programme for Sokliers. 8.10, Concert from Hamburg. 9.0, News. 9.30, See Hamburg.

HILVERSUM

HILVERSUM

1,013 ko/s, 296.1 metres; 7 kW. up to 5.40 p.m., and 20 kW. from 5.40 p.m.,—7.40 to 9.40 a.m., Programme of the Workers' Radio Society (V.A.R.A.) 7.40, Records, 9.40 to 9.55, V.P.R.O., Religious Programme. 9.55 till Close Down, V.A.R.A. Programme. 9.55, Concert by the Small Station Orchestra, conducted by de Groot, v. Cappellen (Recitations), and Records, 11.40, Concert conducted by Wins: Bolek (Leopold); Seid umschlungen, Millionen (Strauss); Piece (Tosti); Russian Dance (Tchiaikovsky); O Fräulein Grethe (Llossas); Warum (Linden); Debreczin (Meisel); Records; El Chiguero (Lucchesi); Tango (Briones); Ideale (Tosti); Scherzo (de Micheli); Les Roses rouges (Delacassé); Adoration (Bianco); Servus, Wien (Dostal); Records; Strauss Potpourri (Weber); Spanish Dance (Sarasaté); Halloh, kleines Fräulcin (Valerio); Ich sing Dir mein Lied (Lehár); Rio Rita (Santeugini), 1.40 p.m., Interval, 1.55, Records, 2.40, Talk, 3.0, Concert, conducted by Horst, 3.25, Film Review, 3.40, Concert (contd.), 4.10, For Children, 5.10, Organ Recital, 5.40, Talk on Literature, 6.0, Records, 6.25, Talk, 6.40, Records, 6.55, Frisian Dramatic Programme, 7.25, Records, 7.40, S.O.S. Messages and News, 7.55, The Year 1815—Programme by the Station Orchestra, conducted by de Groot, and Soloists, 9.10, Talk, 9.25, Concert (contd.), 10.40, Records, 11.40 (approx.), Close Down,

HORBY .- See Stockholm.

HUIZEN

HUIZEN

160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m.
Transmitted from Kootwijk on 50 kW. from
3.40 p.m., Programme of the Workers' Radio
Society (V.A.R.A.). 7.40 a.m., Records,
9.40, Religious Programme of the Liberal Protestant Radio Society (V.P.R.O.). 9.55, Orclestra. Recitation and Records. 11.40, Orchestral Concert: Bolek (Leopold); Seid
umschlungen. Millionen (Strauss); Lungi
(Tosti); Russian Dance (Tchaikovsky); O
Fräulein Grethe (Llossaa); Why (Linden);
Debreczin (Meisel); Records; El Chiguero
(Micheli); Red Roses (Delacassé); Adoration
(Bianco); Potpourri, Servis Wien (Dostal);
Records; Strauss Potpourri (Weber); Spanish Dance (Sarasate); Halloh, kleines Fräulein (Valerio); Ich sing dir mein Lied
(Lehár); Rio Rita (Santeugini). 1.55 p.m.,
Records. 2.40, Talk. 3.0, Orchestral Concert. 3.25, Film Talk. 3.40, Concert (contd.).
4.10, For Children. 5.10, Organ Recital. 5.40,
Literary Talk. 6.0, Records. 6.25, Talk.
6.40, Records. 6.55, Frisian Programme. 7.25,
Records. 7.46, S.O.S. Messages. News and
Announcements. 7.55, The Year 1815—(Oncert by the Station Orchestra, conducted by
de Groot, with M. P. Hesse and Stella
Seemer. 9.10, Talk. 9.25, Concert (contd.).
10.40, Records.

INNSBRUCK .- See Vienna. KALUNDBORG.—See Copenhagen. KIEL.—Sec Hamburg.

KLAGENFURT.-See Vienna.

KOSICE.-See Prague.

LANGENBERG

LANGENBERG

635 kg/s, 473 metres; 60 kW.—10.0 a.m., Records. 10.25, Sponsored Programme with Records. 10.55, Weather. 11.0, The Fröhliche Fünf: Waltz, Red Roscs (Lehár); Violin Solo, Serenade (Beyer); Um das blaue Band (Krome); Saxophone Solo (Kreisel); Was dein roter Mund im Frühling sagt (Bölmelt); Accordion Suite No. 2 (Meyer); Intermezzo, Der verliehte Hampelmann (Mohr); Czardas No. 8 (Michiels). 12.15 p.m., See Frankfurt. 12.25, News. 12.35, Records. 1.30, For Young People, 2.15, See Stuttgart. 2.30, Exchange. 2.45, Talk on Karl Benno von Mechow's New Novel, Vorsoumer. 3.0, The Station Orehestra, conducted by Külm; Soloist, Paul Schmidt ('Cello): 'Cello Concerto (Klughardt); Symphonic Dances (Grieg). 3.45, Chamber Music by Marga Bäuml (Guitar), Alfred Sauerteig (Flute), Robert Grote (Viola da Gamba), and Hans Haas (Harpsichord): Lute and Harpsichord, Sonata (Diabelli); Flute and Harpsichord, Sonata (Frederick the Great); Viola da Gamba and Harpsichord: (a) Chaconne (Couperin), (b) Gavotte (Caix d'Herelois). 4.15, Dance Music on Records. 5.0 to 5.35, See Frankfurt. 5.35,

Fiddle Solos. 5.45, Announcements. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0, See Frankfurt. 7.10, See Stuttgart. 9.0, See Frankfurt. 9.20, See Stuttgart. 9.30, News. 9.45 to 11.0, See Frankfurt. 11.0, Serenade, from Stuttgart.

continued

LAUSANNE.-See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—9.45 a.m., Post Office Programme with Records. 10.40, News. 11.0, The Station Orchestra, conducted by Blumer. Walter Wilhelm (Violin). 12.15 p.m. (from Dresden), The Viennese Donaukinder Schrammel Trio: March, Wiener Kinder (Demnth); Waltz, Lustiges Wien (Meisel); Tango. Vergissmeinnicht (Zander); Song, Die Welt kam ja so schön sein (Götz); German Tango. Edith (Krüger); Viennese Song, Wo trinkt man am ilchsten den Wein (Dietrich): March, Lustig und fidel (Dietrich). 1.0, News. 1.20, Review of Periodicals. 1.40, For Children. 2.15, Week's Revew. 2.30, Agricultural Notes. 2.40, Exchange. 3.0, The Leipzig Symphony Orchestra. conducted by Hilmar Weber. Adine Günther-Kothé (Soprano). Erich Born (Baritone), and Fritz Schadel (Clarinet). Overture in D (Boccherini); Aria from The Seasons (Hayan); Ballet Snite (Rameau); Song from The Golden (Toss (Brüll); Aria from Das Nachtlager von Granada (Kreutzer); Overture, Der Haideschacht (Holstein); Clarinet Solo: Im Norden, im Süden (Bergson); Valse caprice; Soirée de Vienne (Schuhert); Aria from Il re pastore (Mozart); Overture, Undine (Lortzing); Overture, Mignon (Thomas). 4.30, Talk: The Religious Struggle. 4.50, Guitar and Pianoforte Recital by Walter (Götze and Friedbert Sammler: Adagio and Allegretto from the Serenade. Op. 76 (Call); Rondo, Op. 68 (Diabelli); Moderato and Allegretto from the Serenade. Op. 76 (Call); Rondo, Op. 68 (Diabelli); Moderato and Allegretto from the Serenade. Op. 76 (Call); Rondo, Op. 68 (Diabelli); Moderato and Allegretto from Berlin (Deutschlandsender). 7.0, News. 7.10, See Stuttgart. 9.0, News and Time. 8.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0, News. 7.10, See Stuttgart. 9.0, News and Time. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0, News. 7.10, See Stuttgart. 9.0, News and Time. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0, News

LINZ.-See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—11.15 a.m., tramophone Records. 11.45, News. 12.0 Noon, Weather, Records. 5.0 p.m., Records and Road Report. 5.30, Talk 6.0, Talk on Philosophy. 6.30, Foreign Affairs. 7.0, Light Music. 7.30, Vocal Concert. 8.0, Trio Concert of Yugoslav Songs. 8.30, Weather, News. 8.50, Dance Music.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—French Evening. 7.0 p.m., Violin Concerto (Elgar) on Gramophone Records, by Beatrice Harrison and the New Symphony Orchestra, conducted by the Composer. 7.30, Fauré Song Recital by Alice Petfer. 7.55, Film Review. 8.0, French Concert by the Station Orchestra, conducted by Henri Pensis: La jeunesse d'Hercule (Saint-Saëns); Dans le Jardin (Dehussy); La mer est plus belle (Debussy); Voici que le Printemps (Debussy); Suite, Histories (Ibert). In the interval at 8.30, Economic and Social Review. 8.45 (approx.), Exchange. 8.50, News in French. 9.0, Radio Luxembourg Musical Modley, by the Station Orchestra conducted by Pensis, Soloists and Choirs. 9.50, News in German. 10.0, Concert by the Station Orchestra, conducted by Pensis; Waltz, Barcarolle (Waldteufel); Negro Lullaby (Clutsani); Canzone della Sorgente (Amadei): March (Westenberg). 10.30, Dance Music on Gramophone Records.

MADRID

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres; 20 kW.—6.0 to 8.0 p.m., Programme for Listeners in the Canary Islands. Guinea and Europe. 6.0, Light Music. 7.15, Talk. 7.30, Light Music. 8.0 to 10.30, Interval. 10.30, Popular Music. 10.45, Radio Chronicle. 11.0, La Verhena de la Paloma-Musical Comedy (Breton). 11.45, Light Music. 12 Midnight till Close Down, Programme in English by the I.B.C. 12 Midnight, Light Music: Dreams on the Ocean (Gung'l); Viktoria and her Hussar (Abraham); Only a Rose (Friml); But for You (Eyton); Friend o' Mine (Sanderson); Jiniareel (Trad); March of the Musketeers (Friml); Fishers' Hornpipe (Trad.), 12.30 a.m. (Sunday), Light Music: Sing another line (Carson); Black Eyes (Ferraris); Beautiful Nice (Latorre); Happy as the Day is Long (Koehler); Lover's Lane (Miller); Hold your Man (Freed); I've got to pass your house (Miller); Mademoiselle (Nesbit). 1.0, I.B.C. Good-night Melody and Close Down.

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—2.0 p.m., Chimes, Time, Weather and Theatre Notes, 2.15 (approx.), Concert; Two-Step (Demon); Jota froin La Gran Via (Chueca and Valverde); Selection from Coppelia (Delibes); Piece (Ponce); Foxtrot (Caldwell and Tierney); Selection from Robert le Diable (Meyerbeer); Minuet (Paderevsky); Jota (Soutullo); Elegy (Massenet); Prelude to Lohengrin (Wagner); Portugese Nongs (de Veiga); Song (Llaneza); Danze ritual del fuego (Palla). In the interval, Exchange, 3.40, Radio Journal and Flin Review 3.50, News. 4.0 to 7.0. Interval. 7.0, Chimes, Exchange, Topical Talk, Talk and Dance Music. 8.15, English Lesson. 9.30, Chimes, Time and Radio Journal. 8.30 to 9.15, Interval. 9.16, English Lesson. 9.45 (approx.), Relay of an Opera from the Gran Teatro Del Liceo, Barcelona. 11.45, Radio Journal. 12 Midmight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN

MILAN
903 kc/s, 332.2 metres; 50 kW. Relayed by
Genoa, 959 kc/s, 312.8 metres.—11.30 a.m.,
Records. 11.45, Giornale Radio. 12 Noon,
Time and News. 12.5 to 1.15 p.m., Trio Concert. In the interval, Records and Exchange,
3.35, Giornale Radio. 3.45, Programme for
children. 4.0, Talk for Women. 4.10,
Records. Overture, The Secret Marriage
(Cimiarosa); Di là dal mare (Lattuada);
Giovanottin dalle calzette nera (Eattuada);
Tristezza (Tosti); Gondola nera (Rotoli);
Ninna Nanna (Cortesi-Guarino); Guillaresca
(Brancolin-Guarino); Aria from Mephistopheles (Boito); Aria from La Bohême (Puccini); Selection from Semiramide (Rossini).
4.55, Weather. 6.0, Time and News in
Foreign Languages. 6.30, Records. 6.50, Announcements. 7.0, Records. 7.30, Announcements. 7.40, Variety Programme. In the
intervals, Talk and Book Review. 10.0, Giornale Radio.

MORAVSKA-OSTRAVA

MUKAVSKA-USIKAVA

1,137 ko/s, 263.8 metres; 11 kW.—5.15 a.m.,
Programme from Prague. 8.50 a.m., Programme from Prague. 9.10, Village Band
of Kuncicky. 10.0, See Brno. 10.55, See
Prague. 11.35, See Bratislava. 12.35 p.m.,
See Prague. 2.30, See Prague. 4.25,
Reading. 4.35, See Prague. 5.5, Topical
Talk. 5.15, See Prague. 5.25, Records.
6.0, See Prague. 6.25, See Brno. 7.0, See
Prague. 9.15, Variety Programme: Songs,
Instrumental Solos and Orchestral Music.

MOTALA .-- See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

MUNICH

716 kc/s, 419 metres; 60-100 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 239 metres.—10.15 a.m., Time, Announcements. 10.30, Programme arranged by the Post Office, with Records. 11.0 a.m. to 12.15 p.m., See Leipzig. 12.15, Part Relay of a Concert from Leipzig. 12.15, Records. Finlandia (Sibelius); Elegy (Sinding. Lincke); Rustle of Spring (Sinding); Schlaf, du teuerster Knabe mein (Grieg); Song, Mir träumte einst (Grieg); Symphonic Dances No. 3 (Grieg). 1.0, See Leipzig. 1.10, News. 1.25, Talk: The Palatinate. 1.35, Records: Concerto for Organ and Orchestra, Kuckuck und Nachtigall (Handel); Folk Song, es waren zwei Königskinder (Lehmann); Waltz, Mein Lebenslauf ist Lieb' und Lust (Strauss); In einem kühlen Grunde; Waldflieden (Favila); Waltz, Es gibt nur eine Melodie (Egel-Berger) Alt-Badischer Signalmarsch. 2.0, Reading (Engl-schalk). 2.20, Mezzo-Soprano Recital by Johanna Beck, Four Songs (Rupprecht): (a) Elegy, (b) Liebeslied, (c) Verheissung, (d) Herbsthacht; Four Songs (Englert): (a) Rosen und Lilien. (b) Liebesfrühling, (c) Leuznacht. (d) Ein Wunder ist an mir geschehen. 2.40, Announcements; Labour Market Report. 3.0, See Leipzig. 5.10, For Young People. 5.50, Wireless Notes. 6.0, Transmission for all German Stations, relayed from Berlin (Doutschlandsender). 7.0, See Leipzig. 7.10, See Stuttgart. 9.0, See*Leipzig. 9.20, Announcements. 9.35, Serenate by the Small Station Orchestra, conducted by Kloss.

NAPLES.-See Rome.

NOTODDEN.-See Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Porsgrund, 662 kc/s, 453.1 metres; Porsgrund, 662 kc/s, 453.1 metres; Rjukan, 671 kc/s, 447.1 metres; and Jelöy, LCL, 6,990 kc/s, 42.92 metres.—11.10, a.m., Exchange, 11.55, Time, 12 Noon to 1.0 p.m., Records. 1.0, Market Prices. 3.45, Orchestral Concert: March (Fucik); Christmas Suite (Holländer); March of the Tin Soldiers (Jessel); Berceuse (Fjelstad); The Mill in the Black Forest (Michaelis); Petite Suite (Bizet): Gnomenfest (Noack); The Gingerbread Waltz (Humperdinck); The Elves' Ball (Teilman); Piece (Kochmann). 4.45, For Children. 5.15, Norwegian Music. 5.45, Talk on Economics. 6.0, Announcements. 6.30, Quartet in F, Op. 41 (Schumann), relayed from Trondheim, 605 kc/s, 495.8 metres. 7.0, Time. 7.1, Talk. 7.30, A Christmas Ball



.-Old and Modern Dance Music by the Schubert Ensemble. In the intervals, News and Topical Talk.

OSTERSUND,-See Stockholm

PALERMO

PALERMO
556 kc/s, 539.5 metres; 3 kW.—11.45 a.m.,
Giornale Radio. 12.0 to 1.0 p.m., Concert:
March (Lcopoid); Intermezzo, Alba d'amore
(Figarola); Selection from The Dubarry
(Millöker-Mackeben); Foxtrot (Hamud);
Intermezzo, Notturno siciliano (Diogid);
Selection from L'amico Fritz (Mascagni);
Tango, Allor saremo felici (Cantoni); OneStep, Foscarella (Rodi). In the interval,
Time and News. 4.30, Records. 5.0 to 5.30,
For Children. 7.0, Announcements. 7.20,
Records. In the interval, Sports Notes. Time
and News. 7.45, Concert of Opera Music.
conducted by Russo. In the intervals, Talk
and Announcements. 10.0, Giornale Radio.

PARIS

EIFFEL TOWER, CALL FLE, 207.5 kc/s,
1,445.7 metres; 13 kW. Time Signals (on
2.650 metres), at 9.26 a.m. and 10.26 p.m.
(Preliminary and 6-dot Signals). 12.30 p.m.,
Concert relayed from Paris (Ecole Superieura)
671 kc/s, 447.1 metres. 1.0, Market Prices.
1.15, Notes on Museums. 1.30, Agricultural
Talk. 1.45, Labour Report. 2.0, Exchange
and Talk. 2.15, Economic Notes. 2.30,
Market Prices and News. 2.45, Amusement
Guide and Talk for Women. 3.0, Announcements and Aviation Report.
1.5, Market
Prices. 3.30, Exchange. 3.46, Tourist Talk
in Esperanto. 4.0, Tourist Talk and News.
4.15, Exchange and Market Prices.
1.50mrnal Parié. 7.15, Weather. 7.25. News.
7.30, Round the Aether in Eighty Minutes—
Radio Review (Delamare).

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.10 a.m., Fanfare and Records: (Témentine (Max Francy); Alte Kamaraden (Teike); Ballet Music from La Source (Delibes); Tarantella (Wittmann); Titine at School (Herhert); Nichette on the Telephone (Herhert); Melody (Willemetz); Réveillezvous (Lorenzo); Melody (Leslie); Song from the film Chérie (Caslow); Si je n'avais pas fait cela; Selection from Marisha (Cazes). In the intervals, Press Review, Humorous Items and Gastronomic Talk. 12.0 Noon, News. 12.5 p.m., Gramophone Records of Songs by Micheletti: Fantaisie aux divins mensonges (Delibes); C'est le dieu de la jeunesse (Delibes); Cavatina from Faust (Gounod); Aubade from Le roi d'Ys (Lalo); Aria from Tosca (Puccini). 12.20, Sponsored Programme. 12.30, Humorous Programme by Léon Raiter. 1.15, Concert by the Station Orchestra: Overture. Madame Marlhorough (Lanchaume); Chant muptial (Chausson); La Boite à jou-joux (Debussy); Selection from The Gipsy Princess (Kálmán). 2.0, News. 3.15, News. 3.45, News. 6.45, Exchange. 6.52, Theatre Review. 7.0, Two Songs from an operetta (on Gramophone Records). 7.5, Talk: The Event of the Week. 7.16, Journal Parlé. 7.30, Variety Programme. 8.10, Musical Programme. 8.20, News. 8.55, Dance Music. 9.45, Jazz and Dance Music. 11.0, News.

PARIS

PARIS

RADIO-PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—9.30 a.m., Concert by the Conservatoire Concert Society, relayed from the Conservatoire. 12 Noon, Records: Travadja (Messier); Mais quand le cœur dit oni (Sylviano); Argentina (Yatove); Bourrée; On the Volga (arr. Scriabin); Melody (Borcl-Clerc); Valse chaloupée (Dubourg); La forêt qui chante (Charlys); Leila (Dauber); L'homme rouge (Borel-Clerc); On pardonne tout (Gael); Mismax (Knight); Si vous l'aviez compris (Denza); On the Banks of the Missouri (Christiné); Selection from White Horse Inn (Benatzky); 'Ay! Ay! Ay! (Freire); Dandy (Irusia); Dans une petite confiserie (Raymond); Melody (Nacio-Herb-Brown); Air (Haymann); Je vous aime (Sunday and Bousquet); Yon are my Heart's Delight (Lehâr); Si j'aimais (Erwin-Pujol); Chalita (Schertzinger); Sous les ponts (Scotto-Salabert); Pompei (Learsi); A coup de Garcette (Lenoir); Waltz (Loyraux); Place blanche (Mele-Graven); Lullaby of the Leaves (Young); Maurinies maures (Janin); Mutchico (Rodde-Galifer); Les Majas (Sentis). In the interval, Exchange, News and Weather. 3.0 p.m., Programme for Chidren. 3.45, Exchange. 6.20, Weather. Agricultural Talk, and Market Prices. 6.45, Records: Le rêve passe (Helmer-Krier); Stephanie Gavotte (Czibulka); Glow Worm Idyll (Lincke); Scherzo-Waltz (Chabrier); 'Asiatic Rose (Paddy). 7.0, Dialogue. 7.20, Records: Aubade printanière (Lacombe); Pas des écharpes (Chaminade); Gallito (Lote); C'est nous (Messier); Suite funambulesque (Messager); Normandie (Coquillot). 7.45, News. 8.0, Song Recital by Mile. Denise Cam, Paul Weil, Géo, Charley, and Raymond Soupleix. News and Weather in the Intervals.

PITTSBURGH

KDKA, 980 ko/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—12 Noon, Musical Clock. 1.0 p.m., Morning Devotions, from New York. 1.15, Don Hall Trio, from New York. 1.30, Lew White, Organist, from New York. 2.30, Style

DEC. 30th SATURDAY continued

and Shopping Service. 2.45, News and Work-a-day Thoughts. 3.0, Edward Mac-Hugh, from New York. 3.15, KDKA Home Forum. 3.30, Singing Strings, from New York. 4.0, Four Southern Singers, from New York. 4.15, KDKA Kiddies' Klub. 4.45, Spanish Idyils, from New York. 5.0, Piano Classique. 5.15, Four Aces. 5.30, News. 5.35, Farin and Home Hour, from New York. 5.30, Concert Echoes, from New York. 7.0, Concert Echoes, from New York. 8.0, Words and Music, from New York. 8.0, Words and Music, from New York. 8.30, Wealth of Harmony, from New York. 9.0, Danco Masters, from New York. 9.0, Danco Masters, from New York. 10.15, Bobby and Sue—Hielen Irwin. 10.30, A Recree—Bill and Alex. 10.45, Orphan Annie, from New York. 11.0, News and Programme Preview. 11.30, Mary Small, from New York. 11.45, Captain Al Williams, from New York.

PORSGRUND.—See Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—9.10 a.m., See Moravská-Ostrava. 10.0, See Brno. 10.55, Agricultural Talk. 11.0, Records. 11.20, Weather. 11.25, News. 11.35, See Bratislava. 12.35 p.m., Labour Market Report. 12.45, Records. 12.55 to 1.0, Exchange and Weather. 2.55, Records. 3.0, Dance Music-by Dvorsky and his Melody Boys. 3.50, Medical Talk. 4.15, Talk for Workers. 4.25, Records. 4.35, Czech Lesson for Germans. 4.50, Records. 5.5, Agricultural Talk. 5.15, Talk for Workers. 5.25, News in German. 5.30, German Transmission: For Young People. 6.0, Time. News and Weather. 6.10, Talk on the ('zech Language. 6.25, See Brno. 7.0, A Review of the Old Year. 7.10, Jiri Voldan Programme. 7.30, Mr. Pickwick—a Play in Three Acts (Frantisek Langer). after The Posthumous Papers of the Pickwick Club (Dickens). 9.0, Time. News and Sports Notes. 9.15, See Moravská-Ostrava.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS; 743 kc/s, 403 metres; 25 kW.; and Geneva, 395 kc/s, 749.9 metres.—11.40 a.m. (from Geneva), Records. 12 Noon (from Geneva), Exchange. 12.10 p.m. (from Geneva), Exchange. 12.10 p.m. (from Geneva), Records. 2.28, Time Signal from Neuchatel Observatory. 3.0 (from Lugano. 5.0 (from Geneva), Tolk on Films. 6.5 (from Geneva), Talk is Kirghizia. 7.20 (from Geneva), Talk is Kirghizia. 7.20 (from Geneva), Planoforte Recital by Sorel Nitzberg: Chromatic Fautasia and Fugue (Bach); Prelude and Two Etudes (Chopin); Sérénade interrompue (Debussy); Nocturne (Fauré); Rigaudon from Le tombeau de Couperin (Ravel). 7.40 (from Geneva), Interlude by George Verdène. 7.55 (from Geneva), Variety Programme. 9.9, News. 9.10 (from Geneva), Dance Music.

REYK JAVIK

250 kc/s, 1,200 metres; 21 kW.—11.0 a.m.,
Weather. 1.15 p.m., Variety Programme.
4.0, Weather. 7.45, For Children. 8.10,
Weather. 8.20, Music and Announcements.
8.35, Programme to be announced. 9.0,
Chimes and News. 9.30, Rending. 10.0,
Recital by the Radio Trio, followed by
Choral Music (on Gramophoue Records).

RJUKAN .-- See Oslo.

ROME

ROME

Call 1RO; 686 kc/e, 441 metros; 50 kW. Relayed by Naples, 941 kc/s, 319 metros; Milan (Vigentino), 662 kc/s, 453.1 metros from 7.50 p.m.; and 2RO, 11,810 kc/s, 25.4 metros.—11.30 a.m., Records. 12.0 Noon, Orchestral Concert: Foxtrot (Curti); Reminiscences (Angelo); Foxtrot (Mancini); Indian Dance (Donati); Selection from Madame Butterfly (Puccini); Tango (Joh. Strauss-Benatzky); The Coolies of Sumatra (Jessel); Foxtrot (Wachsmann). 3.30 p.m., For Children. 3.55, News. 4.10, Orchestral Concert: Foxtrot (d'Acchiardi); Waltz. Quando sei vicino a me (Mancini); Slav Dance No. 7 (Dvorák); Foxtrot (Doelle); Santo poesit (Cortopassi); Foxtrot, Paradise (d'Anzi); Furlana (Culotta); Foxtrot (Siciliani). 4.55, Weather. 5.0, Wheat Markets. 5.10, News. 5.45 (Naples), Shipping and Sports Notes. 5.50, Morse Lesson. 6.0, News in Foreign Languages. 6.30, Soprano Song Recital: O notte scura (Laudisa); Aria from Linda di Chamonix (Donizetti); Shadow Dance Song from Dinorah (Meyerbeer). 6.50, News. 7.0, Time, Announcements, Records, 7.30, Government Announcements, Records, 7.30, Government Announcements, 7.50, An Opera, Dialogue in the interval.

SALZBURG.-See Vienna.

SCHWEIZERISCHER

LANDESSENDER
BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; Basle, 1,229 kc/s, 244.1 metres; and

Berne, 1,220 kc/s, 245.9 metres.—11.0 a.m. (from Berne), Records. 11.29, Time Signal from Neuchâtel Observatory, Weather, News. 11.40 (from Berne), Records. 12.15 p.m. (from Berne), Song Recital. 12.25 (from Berne), Time, Weather, Exchange. 12.30 (from Berne), Talk: The Week in the Federal Assembly. 12.40 (from Zürich), Request Records. 12.50 (from Zürich), Science Talk. 1.15 (from Zürich), Singing Lesson for Schools. 1.45 (from Zürich), Singing Lesson for Schools. 1.45 (from Zürich), Educational Notes. 2.0 to 2.59, Interval. 2.59, Time Signal from Neuchâtel (biservatory. 3.0 (from Zürich), The Women's Accordion Band. 3.45, Programme, relayed from Lugano. 5.0 (from Berne), Records. 5.30 (from Berne), Political Talk. 5.50 (from Berne), Time, Weather, Announcements. 6.0, (himes from Zürich (hurches. 6.15 (from Berne), Records. 6.20 (from Berne), Talk: Women's Head-dress in Old Switzerland. 6.50 (from Berns), Densethilche Lump—Operetta in Three Acts (Eysler). In the interval, Weather and News, 9.10 (approx.) (from Berne), Dance Music on Records. 10.0 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW.—Relayed by
Boden, 242 kc/s, 1,239.5 metres; Göteborg,
932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257
metres; Motala, 222.5 kc/s, 1,348 metres;
Ostersund, 402 kc/s, 746.2 metres; and Sundsvall, 554 kc/s, 542 metres;—11.45 a.m., Exchange. 11.55, Time. 3.0 p.m., Orchestral Concert. Soloist: Nea Hedberg-Granat (Songs);
March (Henneberg); Plickan kom ifran sin
älsklings möte (Sibelius); Krolls Ballklänge
(Lumbye); Songs (Grieg); (a) Ganle Mor,
(b) Stambogsrim, (c) Med en Vandlilje; Selection from Hausel and Gretel (Humperdinck); Songs (Liljefors): (a) Jungfru Maria,
(b) När det lider mot jul; Romance (Björkander); Eroticon, No. 1 (Sjögren); Tango
from Ball at the Savoy (Abraham). 4.5,
(from Göteborg), Programme for Young
People. 4.35, Records. 5.25, Quartet Concert. 6.15, Weather and News. 6.30, Talk.
7.0 (from Sundsvall). Old Dance Music. 7.30,
Folk Songs. 7.45, Old Dance Music. 8.45,
Weather and News. 9.0, Modern Dance
Music.

STRASBOURG

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—7.0 a.m., (oncert for Listeners in North America. The Station Orchestra, conducted by de Villers, March, Stars and Stripes (Sousa): Sulut d'amour (Elgar): Air (Lully): Aria from Figaro (Mozart); Overture, William Tell (Rossin): Duet from La petite mariée (Lecocq); Prelude and Entr'acte from Cavalleria Rusticana (Mascagni): Duet from La Fille de Madame Angot (Lecucq); Prelude to Le Déluge (Saint-Saëns): Aria from Rose-Marie (Friml); Scèmes alsaciennes (Massenet); Air from The Merry Widow (Lehàr); March, Le Pére la Victoire (Ganne). 10.30, Concert relayed from Marseilles, 950 kc/s, 315 metres. 12.0 Noon, Gramophone Music. 12.45 p.m., News and Time. 1.0, Gramophone Records. 2.0, Legal Talk in German. 2.15, Gramophone Records. 3.0, Talk: French Songs. 4.0, Gramophone Records: Milongas (Williams); Romance (Rubinstein); Serenata (Strelezki): Etude de Concert (Tournier); Prayer (Hasselmans): Pastorale (Scarlatti); L'Egyptienne (Rameau); Cadence (Tartini): Lartelo (Weber); Simple aveu (Thomé); Nocturne from Cocorico (Ganne); Asturias (Albeniz); Etude (Scriabin); Moment musical (Schubert); Miltary March (Schubert); Simple aveu (Thomé); Nocturne from Cocorico (Ganne); Asturias (Albeniz); Etude (Scriabin); Moment musical (Schubert); Miltary March (Schubert), Songer (Schuber

STUTTGART

STUTTGART

MUHLACKER, 563 kc/s, 533 metres; 100 kW.
Relayed by Freiburg, 1,157 kc/s, 259.3 metres.

-7.50 a.m., Post office Concert. 9.0, See
Frankfurt. 9.10, Records. 10.25, Post
Office Concert. 10.55, Weather 11.0, See
Langenberg. 12.15 p.m., See Frankfurt. 12.25,
News. 12.35, See Langenberg. 1.30, See
Langenberg. 2.15, Morse Lesson. 2.30, The
Echo Zither Society: Carmen Silva (Kollmaneck); Intermezzo (Crevetti): VolksliederRanken (Wormsbacher): Julfeier (Kollmaneck); Harlequin (Oscheit); Capriccio
(Spiegelberg); Serenade pathétique (Wormsbacher); Nocturne in F (Spiegelberg);
3.0, See Langenberg. 5.0, See Frankfurt. 5.35, Talk: The Origin of German
Caves. 5.50, Time, Weather. 6.0, Transmission for all German Stations, relayed from
Berlin (Deutschlandsender). 7.0, See Frankfurt. 7.10, The Wicked Spirit, Lumpazi Vagabundus—Radio Pictures with Music, after
Johann Nestroy, arranged for Radio by Fritz
Ganss. 9.0, See Frankfurt. 9.20, Talk:
Things yon should know. . . 9.30, News.
9.45, See Frankfurt. 11.0, Serenade.

SUNDSVALL .- See Stockholm.

TOULOUSE

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—6.45 a.m till 3.45 p.m., See Milan. 4.0 till Close Down See Milan.

TRONDHEIM.—See Oslo.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in Various Languages. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

VIENNA

S80 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,08! kc/s, 283 metres; Klagenfurt, 662 kc/s, 453. motres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—10.31 a.m., Swiss Minsic (on Records). 10.55 a.m. Weather. 11.0 a.m., Concert by the Wienel Symphoniker, conducted by Josef Holzer Cadet March (Sousa); Hella Ouverture (Pau spertl); Arlequin (Dopper); Violin Solo Wiegenlied (Schubert); Waltz, Donauperler (Vollstedt); Zepperl-Polka (Joh. Strauss) Prelude to Eve (Lehar); Fürs Herz und Gemüt (Konizak). 12.0 Noon, Time, News 12.10 p.m., Concert (contd.); March, Aul treue Kameradschaft (Blankenberg); Taran tella (Grünfeld); Faun und Elfenreiger (Kark); Serenade-Pizzicato (Gamne); Dt darfst es nicht glauben (Cieczynski); Inter mezzo, Appalachia (Wichtl); Gavotte, Ells (Hummer); Waltz Potpourri from Her first Ball (Eysler). 2.0, Time, Exchange, Snow Report. 2.10, Italian Lesson. 2.35, Play for (hildren. 3.25, Choral Programme. 4.6 Talk: Geometry. 4.25, Records. 5.30, Topical Talk. 6.0, Concert by the Wiener Symphoniker, conducted by Josef Holzer: Overture, Cagliostro in Wien (Joh. Strauss); Scenes from Die Puppenfee (Bayer); Träumerei (Schumann); Waltz, Traum der Liebe (Fahrhach); Cavatina for Violin and Harp (Moxtler); Characteristic March Intermezzo (Schieder); Selection from The Gipsy Princess (Kaimán). 6.50, Time, Weather. 7.0, The Watchword. 7.5, Verdi Concert by the Wiener Symphoniker, conducted by Kabasta. Soloists: Rose Merker (Soprano) and Koloman v. Pataky (Tenor). 8.45, News. 9.0, Programme to be announced.

WARSAW

WARSAW

212.5 kc/s, 1.411 metres; 120 kW.—6.0 a.m. Time and Sacred Music. 6.5, Gym. 6.20. Records. 6.35, Radio Journal. 6.40, Records. 6.52, For Honsewives. 6.55, Announcements. 10.40, Press Review. 10.50, Talk on Arts. 10.55, Time and Fanfare from St. Mary's Church, Cracow. 11.5, Records. 1.30, Radio Journal. 11.35, Weather. 11.38, Records. 2.25 p.m., News. 2.30, Talk on Economics. 2.40, Records. 2.25, Aviation Report and Anti-Gas Drill. 3.0, Programme for Invalids, relayed from Lwow. 3.40, French Lesson. 3.55, Soloist Concert. Mine. Trampczynska (Contratto) and Oziminski (Violin). Part 1: Violin Solo. Gipsy Suite (Wormser). Part 11: Contratto Songs (Brahms), relayed from Poznan. Part 11: Violin Solos: (a) Prelude and Allegro (Pugnani-Kreisler), (b) Berceuse (Andrzejowski), (c) Ballad (Hubay). (d) Czardas (Hubay). 4.50, Agricultural Report. 5.0, Talk from Cracow. 959 kc/s, 312.8 metres. 5.20, Choral Concert. 6.0, Announcements. 6.5, Miscellaneous Items. 6.25, Christmas Poetry. 6.40, Sports Notes. 6.47, Radio Journal. 7.0, Concert by the Station Orchestra, conducted by Nawrot. Soloist: Jeanne Brochwicz (Songs). March, Under the Star-Spangled Banner (Sousa); Waltz (J. Strauss); Barcarolle (Lincke); Songs; Polish Melodies and Dances (Rubinstein); Overture (Liszt); Songs; Romantic Suite (Armandola). 8.0, Answers to Technical Correspondence. 8.20, Zarembsky Recital by Turczynsky; Polish Suite. Op. 16; Four Etudes: (a) in G, Op. 3, (b) In F Minor, Op. 7, (c) in 6 Minor, Op. 7, (d) in G, Op. 7, 9.0, Dance Music, relayed from the Cabaret Femina. 10.0, Weather and Police Notes. 10.5, Programme from Wilno, 530 kc/s, 566 metres. 11.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender.



RINCIPAL BROADCASTING STATIONS OF EUROPE

Arranged in Order of Wavelength

	kc/s.	kW.	Station.	Tuning Positions.	Metres.	kc/s.	kW.	Station.	Tuning Positions
	155 160	7 8.5	Kaunas (Kovno) (Lithuania)		363.6 360.6	825 832	13 1.5	Algiers (Algeria) Mühlacker (Stuttgart) (Germany) (temporarily	
	167	50	3.40 p.m.) (K.R.O. and N.Č.R.V. programmes.) Lahti (Finland)		355.9	843	50	on low power) London Regional (Brookmans Park)	
Т	174	75	Radio Paris, CFR		359 1	852	7	Graz (Austria). (Relays Vienna)	
-	183.5	60	Berlin (Deutschlandsender) (Germany).		349.6	858	7.6	Barcelona, EAJ1 (Spain)	
			(SW. Sin. DJ.4 on 31.38 m., DJB on 19.73 m., DJC bn 49.83 m., DJD on 25.51 m., DJE on 16.86 m.)		348.8	860	10	Leningrad, RV70 (Russia)	
	193	30	DJE on 16.86 m.) Daventry National		345.2 341.7	869 878	11.5 35	Strasbourg, PTT (France) Brno (Brunn) (Czechoslovakia)	
1	194	7	Daventry National Ankara (Angora) (Turkey)		337.8	888	15	Brussels II Velthem (Belgium). (In Flemish)	
1	202.5		Moscow, RVI (Russia) (SW. Stn. on 25m.)		335	896	5	Cadiz (Spain)	
	207.5 212.5	13 120	Eiffel Tower, FL, Paris Warsaw I (Poland)		334.4	897 903	1.9	Poznan (Poland)	
	217.5	100	Novosibirsk, RV76 I (Russia)		328 2	914	50 60	Milan (Italy). (Relays Turin) Poste Parisien (France)	
-	222.5	30	Motala (Sweden). (Relays Slockholm)		325	923	60	Breslan (Germany) Göteborg (Sweden). (Relays Stockholm)	
	250 250	5	Stamboul (Turkey)		321.9	932	10	Göteborg (Sweden). (Relays Stockholm)	
	252	21 200	Reykjavik (Iceland)		318.8 318.8	941 941	0.25 1.5	Dresden (Germany). (Relays Leipzig) Naples, INA (Italy). (Relays Rome)	
	256	25	Tashkent, RVII (Russia)		315.8	950	1.6	Marseilles, PTT (France)	
	265	30	Kalundborg (Denmark). (Relays Copenhagen)		312.8	959	1.7	Cracow (Poland)	
	$ \begin{array}{c c} 265 \\ 268.5 \end{array} $	15 40	Monte Ceneri (Switzerland). Moscow, Popoff RV58 (Russia)		312.8	959	10	Genoa, IGE (Italy). (Relays Turin).	
	277	60	Oslo (Norway)		309.9 307	968 977	50 0.7	West Regional (Washford Cross)	
	280	35	Tiffis, RV7 (Russia)		307	977	0.75	Zagreb (Yugoslavia)	
	290	36	Kiev, RV9 (Russia)		304	986	13	Bordeaux Lafavette, PTT (France)	 .
	300 320	100 20	Moscow RV49 (Russia). (SW. Stn. on 50 m.) Kharkov, RV4 (Russia)			995	50	North National (Manchester)	
1	350	100	Leningrad (Russia)		298.8 296.1	1004 1013	11 20	Tallinn (Estonia)	•••••
1	357	3	Budapest (Hungary)		200.1	10.0		(V.A.R.A., A.V.R.O. and V.P.R.O.	
	375	50	Sverdlovsk, RV5 (Russia)		293.5	1022	0.7	(V.A.R.A., A.V.R.O. and V.P.R.O. programmes.) Limoges, PTT (France)	
	400 416.6	1.3 20	Geneva (Switzerland). (Relays Sottens) Moscow, RV2 (Experimental) (Russia)				2.6	Kosice (Czechoslovakia)	
	436	1.5	Oulu (Uleaborg) (Finland)		291	1031	13.2	Viipuri (Viborg) (Finland). (Relaus Helsinki)	
	522	0.7	Hamar (Norway) (Relaus Oslo)		288.3		50	Scottish National (Falkirk)	
	522	7	Ljubljana (Yugoslavia)		200.0	1040 1049	0.8	Bournemonth. (Relay Station) Montpellier (France)	· · · · · · •
1	527 528	0.25 2	Freiburg (Relays Muhlacker)			1053	0.7	Lyons (Radio-Lyon) (France)	
	531	16	Wilno (Poland). (Relay Station)		200.0	1058	0.5	German Relays (Berlin, Magdeburg, Stettin)	
	536	1.5	Kaiserslauten and Augsburg (Relay Munich)		283.0	1058	0.5 2	Innsbruck (Austria). (Relays Vienna)	• • • • • •
	545	120	Budapest No. 1 Lakihegy (Hungary)		282.2	1063		Lisbon CT 1AA (Portugal). (Short-wave Station on 31.25 m.)	• • • • • •
	554 556	10 3	Sundsvall (Sweden). (Relays Stockholm) Palermo (Italy)		281.2		0.75	Copenhagen (Denmark)	
	563	1.5	Munich (Germany) (Temp. Low Power)		219.3		13.5	Bratislava (Czechoslovakia)	
	571	15	Riga (Latvia)		210.5		60 7	Heilsberg (Ġermany)	
	580 589	100 15	Vienna (Bisamberg) (Austria) Brussels No. 1, Velthem (Belgium). (In French)		271.5	1105	1.3	Rennes, PTT (France)	
	598	20	Florence, 1FI (Italy) (Relays Turin)		269.8		20	Bari (Italy) (Relays Rome)	
	605	1.2	Tröndelag (Norway)		201.0		0.75	Valencia (Spain)	
	614	120	Prague (Czechoslovakia)		005.9	1199 5	6.25 1.3	Nyireghaza (Hungary). (Relays Budapest) Lille, PTT (France)	
1	625 635	50 60	North Regional (Manchester)		263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)	
	644	15	North Regional (Manchester)		261.5	1147	50	London National and West National	
	653	60	Beromünster (Schweizerischer Landessender)		259.3	1157	17	Frankfurt-aM. (Germany)	· · · · · · ·
	cen		(Switzerland).		257.1	1167	2.3 10	Trier and Cassel. (Relay Frankfurt)	
1	662		San Sebastian, EAJ8 (0.6 kW.); Klagen- furt (0.5 kW.) (Austria) (relays Vienna).		255.1	1176	0.7		
	662	0.25	Agen (France)	3	253.1	1185	5	Gleiwitz (Germany). (Relays Breslay)	
	662 664	4 20	Milan (Vigentino) (Italy). (Relays Rome)		252 249	1193 1205	1 0.8		
	671	0.5	Danzig (Relaus Heilsberg)		247.7	1211	10		
	671	7	Paris Fools Supériours DTT		245.9	1220		Rarne (0.5kW) (Switzerland) (relaus Raram in	
	680	50	Rome, IRO. (SW. Station, 2RO on 25.4 m.)					ster); Eskilstuna (0.2kW.), Säffle (0.4 kW.)	
	689 698	55 2.5	Stockholm, SASA (Sweden)					ster); Eskilstuna (0.2kW.), Säfffe (0.4 kW.) (Sweden) (relays Stockholm); Linz (0.5 kW.) (Austria) (relays Vienna); Turku (Abo) (0.5 kW.) (Finland) (relays Helsinki). Basle (Switzerland). (Relays Beromunster).	
	707	2.5	Madrid, EAJ7 (Union Radio)		244.1	1229	0.5	Basle (Switzerland). (Relays Beromunster)	
	707	100	Moscow, Imini Stalina (Russia)		242.3	1238	1	Belfast (N. Ireland)	
	716	1.5	zeim, z minstalide (derman)		240.6	1247	0.5	Stavanger (Norway)	 .
	720.5 725	5 60			238.9	$1256 \\ 1260$	2 1		
	734	16	Katowitz (Poland)		237.2	1265	3		
	743	25	Sottens (Radio Suisse Romande) (Switzerland)		235.5	1274	0.5	Kristiansand (Norway)	.
	752	25			233.8	1283	1.65	Lodz (Poland). (Relay Station)	• • • • • •
	761 770	12 120	Leinzig (Germany)		232.2 230.6	1292 1301	0.25		
	779	8	Toulouse (Radiophonie du Midi) (France)		227.4	1319		Flensburg, Bremen and Hanover. (Relay	
	779	10	Stalino, RV26 (Russia)			ì	4.5	Hambura)	
	788	16			225.9	1328 1337	10 1		
	797 806	50 1.5	Hamburg (Garmany)		224.4 219.9	1365	1.5	Béziers (France)	
	815	1.0	Carille DATE (Inion Dedic) (4 0 kW)		218.5	1373	0.2	Plymouth	
			Galicia EAJ4 (0.2 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (Clays Lahli); Kharkov, RV20 (10kW) (Duesia)		218.5	1373	0.5	Salzburg (Austria). (Relays Vienna)	• • • • • •
			land) (relays Lahti): Kharkov, RV20 (10kW)		217	1382 1382	1.2		
	815	0.7	(Russia). Fredriksstad (Norway). (Relays Oslo)		217 214.3	1382	0.5 1	Aberdeen	
	818	0.8	Radio, LL, Paris		211.3	1420	1	Newcastle	
	824	1	Bergen (Norway)		200.8	1430	1.25	Magyarovar, Miskole and Pecs (Hungary)	



SHORT-WAVE

(N.B.-Times of Transmission given in parentheses are approximate only and represent G.M.T.)

								<u>.</u>	
Metres.	kc/s.	Call Sign.	Station.	Tuning Positions.	Metres.	kc/s.	Call Sign.	Station.	Tuning Positions.
62.56 58.31	4,795 5.145	VE9BY OK1MPT	London, Ont. (Canada). (Sun. 06.00) Prague (Czechoslovakia). (Tues. and Fri. 19.30)		31.54 31.48 31.38	9,510 9,530 9,560	GSB W2XAF DJA	Empire Broadcasting Schenectady, N.Y. (U.S.A.). (Relays WGY) Zeesen (Germany). (Daily 22.00)	
50.26 50.0	5,970 6,000	HVJ RW59	Vatican State, Rome. (Daily 19.00) Moscow. (Relays Komitern Stn.)		31.35	9,570	WIXAZ	East Springfield, Mass. (U.S.A.). (Relays	
50.0 49.83	6,000 6,020	EAR25 DJC	Barcelona, Radio Club (Spain). (Sat. 20.00) Zecsen (Germany)		31.3	9,580	HBL	Radio Nations, Prangins (Switzerland). (Sat. 22,00-22,45)	
49.67 49.64 49.58	6,040 6,040 6,050	W1XAL W4XB GSA	Boston, Mass. (U.S.A.) Miami Beach, Florida (U.S.A.) Empire Broadcasting		31.29 31.28 31.28	9,585 9,590 9,590	GSC W3XAU VK2ME	Empire Broadcasting Philadelphia, Pa. (U.S.A.). (Relays WCAU) Sydney (Australia). (Sundays)	
49.5	6,060	W3XAU	Philadelphia, Pa. (U.S.A.). (Relays $WCAU$)		31.25	9,598	CTIAA	00,00)	
49.5 49.5	6,060 6,060	VQ7LO W8XAL	Nairobi (Kenya Colony). (Daily 16.30) Mason, Ohio (U.S.A.). (Relays WLW)		31.0	9,675	T14NRH	Heredia (Costa Rica). (Daily 22.00 and 02.00)	•••••
49.43 49.40	6,069 6,075	VE9CS OXY	Vancouver, B.C. (Canada) Skamleback (Denmark). (Relays Copen-		30.0 28.98	10,000 10,350	EAQ LSX	Aranjuez (Spain). (Daily 22.30, Sat. 18.00) Bucnos Aires (Argentina). (Daily 20.30)	
49.34	6,080	W9XAA	hagen) Chicago, Ill. (U.S.A.). (Relays WCLF)		26.83	11,180	CT3AQ	Funchal (Madeira). (Tues. and Thurs. 10.30-12.30)	
49.22 49.2	6,095 6,098	VE9GW ZTJ	Bowmanville, Ont. (Canada). (Daily 20.00) Johannesburg (S. Africa). (Weekdays 09.00)		25.63	11,705	FYA	Pontoise (France). (Colonial Stn. E-W, daily 20.30)	• • • • • • • • • • • • • • • • • • • •
			14.00 [Sat. 14.30] and 17.00, Sun. 13.00 and 16.30.)		25.6 25.57	11,720 11,730	VE9JR PHI	Winnipeg (Canada). (Daily 14.30) Eindhoven (Holland)	
49.18 49.18	6,100 6,100	W3XAL W9XF	Downers Grove, Ill. (U.S.A.)	,	25.53 25.5	11,750 11,760	GSD DJD	Empire Broadcasting Zeesen (Germany)	
49.1 49.02	6,110 $6,120$	VUC W2XE	Calcutta, India. (Daily 13.00) Wayne, N.J. (U.S.A.). (Relays WARC)		25.45 25.4	11,790 11,810	W1XAL 2RO	Boston, Mass. (U.S.A.) Prato Smeraldo, Rome. (16.15-23.30)	
48.86	6,140	W8XK	East Pittsburg, Pa. (U.S.A.). (Rclays KDKA 21.19-06.00)		25.36 25.36	11,830 11,830	W2XE W9XAA	Wayne, N.J. (U.S.A.). (Relays WABC) Chicago, ill. (U.S.A.). (Relays WCFL)	•••••••••••••••••••••••••••••••••••••••
47.97 48.05	$6,250 \\ 6,243$	HJ3ABF HKD	Bogota (Colombia). (Daily 15.00) Barranquilla (Colombia). (Weekdays 23.45)		25.28 25.27	11,865 11,870	GSE W8XK	Entrie Broadcasting (Relays	•••••••••••••••••••••••••••••••••••••••
48.0 47.0	$6,250 \\ 6,382$	CN8MC HC1DR	Casablanea (Morocco). (Relays Rabat) Quito, Ecuador. (Daily 01.00)	1	25.25	11,880	FYA		••••
46.69 45.38	6,425 6,610	W3XL RW72	Bound Brook, N.J. (U.S.A.). (Relays WJZ) Moscow. (Relays Stalin Stn.)		25.0 23.38	12,000 12,830	RNE CNR	Rabat (Morocco). (Sun. 12.30)	
45.0	6,667	FM8KR	Constantine (Algeria). (Mon. and Fri. 22.00)		19.84 19.81	15,120 15,140	HVJ GSF	Umning Broadcasting	
45.0	6,667	TGW	Guatemala City (Central America). (Daily 03.00)		19.73 19.72	15,200 15 210	DJB W8 X K		· · · · · · · · · · · · · · · · · · ·
43.75 43.0	6,8 6 0 6,970	EAR110	Madrid. (Tues, and Sat. 22.30)		19.68	15,244	FYA	Pontoise (France). (Colonial Stn. E-W)	·····
41.7	7,195	VS1AB	Singapore (Malay States). (Sun. and Wed. 15.30)		19.64 19.57	15,270 15,330	W2XE W2XAD	South Schenectady, N.Y. (U.S.A.). (Daily	· · · · · · · · · · · · · · · · · · ·
40.3	7,443	HBQ	Radio Nations, Prangins (Switzerland) (Sun. 22.00-22.45)		16.89	17,760	DJE	20.00) Zeesen (Germany)	***************************************
88.47	7,797	HBP	Radio Nations, Prangins (Switzerland). (Sat. 22.30-23.15)		16.87	17,770 17,780	PHI W3XAL	Eindhoven (Holland) Bound Brook, N.J. (Relays WJZ)	
37.83 87.04	8,936 8,110	CNR HCJB			16.87 16.87	17,780 17,780	W9XAA W9XF	Chicago, Ill. (U.S.A.). (Relays WCFL) Downers Grove, Ill. (U.S.A.)	
83.50 81.58	8,955 9,500	TGX PRBA			16.86 13.97	17,790 21,470	GSG GSH	Empire Broadcasting Empire Broadcasting	
81.55	9,510	VK3ME	Melbourne (Australia). (Wed. and Sat.			21.540	W8XK VE9GW	East Pittsburg. (12.00-19.00)	

PRINCIPAL BROADCASTING STATIONS OF THE WORLD

				(OUTSIDE	EUROI	PE.)			
Metres.	k/cs.	kW.	Station.	Tuning Positions.	Metres.	k/cs.	kW.	Station.	Tuning Positions.
			U.S.A.		411	730	5	5CL, Adelaide, S. Australia	
468.8 450.5	640 660	50 50	KFI, Los Angeles, Calif. (E. C. Anthony Inc.) WEAF, New York (N.B. Co., Inc.)		395 375	760 800	5 5	4QG, Brisbane, Queensland	
447.8 428.6	670 700	5 50	WMAQ, Chicago, Ill. (N.B. Co., Inc.) WLW, Cincinnati, Ohio (Crosley Radio Corp.). (Short Wave Station, W8XAL, 49.5 m.)		240	1230	5	CPX, La Paz (Costoz y hnos)	
422.5 416.7	710 720	50 25	WOR, Newark, N.J. (Bamberger B/e Service)		11	1030	10	CFCN, Calgary, Alta. (W. W. Grant and H. G. Love)	
405.4 394.7	740 760	.5 30	WSB, Atlanta. Ga. (Atlanta Journal Co.) WJZ, New York (N.B. Co., Inc.). (Short- ware Stations, W3XAL, 49.18 m., and W3XL, 46.69 m.)		411	730	. 5	CKAC, Montreal, Quebec (La Presse Publishing Co.)	1
		1	wave Stations, W3XAL, 49.18 m., and W3XL, 46.69 m.)		357	840	5	CKGW, Toronto, Ont. (Gooderham and Worts, Ltd.)	
. 879.7	790	50	Co.). (Short-wave Stations, W2XAD,	1	356	540	5	CKLW, Windsor, Ont. (Essex Broadcasting Corp.)	
879.7	790	7.5	19.57 m., and W2XAF, 31.48 m.) KGO, San Francisco, Calif. (N.B. Co., Inc.)		328	910	5	CKY, Winnipeg, Man. (Manitoba Telephone System) CHINA.	
367.4 361.4	810	5	WC CO, Minneapolis, Minn. (North-Western B/cg., Inc.)	1	440	681	75	XGOA, Nanking DOMINICAN REPUBLIC.	
348.8	830 860	50	KOA, Denver, Colo. (N.B. Co., Inc.) WABC, New York (Atlantic Blog. Corp.).		254	1180	15	HIJK, S. Domingo (Dir. Gen. de P. and T.) FRENCH INDO CHINA	
844.8	870	50	(Short-wave Station, W2XE, 49.02 m.) WENR, Chicago, Ill. (N.B. Co., Inc.). (Short-wave Station, W9XF, 16.87 m.) WCFL, Chicago, Ill. (Federation of Labour).		358	840	12	F3ICD, Saigon (Cie Franco-Indochinois)	
809.3	970	1.5	WCFL, Chicago, Ill. (Federation of Labour). (Short-wave Station, W9XAA, 16.87 m., and		11	845	12	ZBW, Victoria Peak (Govt.)	
306.1	980	50	49.34 m.) KDKA, Pittsburgh, Pa. (Westinghouse Co.).		448 390	670 770	10 10	JFAK, Taihoku	
			(Short-wave Station, W8XK, 13.92 m., 19.72 m., 25.27 m. and 48.86 m.)		380 370	790 810	10 10	JOCK, Kumamoto	
803,0 300.0	990	15 5	WB7, Boston, Mass. (Westinghouse Co.). (Short-wave Station, W1XAZ, 31.35 m.)		353	830 850	10 10 10	JOIK Sapporo JOFK, Hiroshima JOAK, Tokio (Short-wave Station, 25 and	
294.1 285.7	1000 1020 1050	10	WOC, Davenport. Iowa (Central B/cg. Co.) KYW-KFKX, Chicago, Ill. (Westinghouse) KNX, Hollywood, Calif. (Western B/c. Co.)		345	870 1085	10	49.31 m.) JOBK, Osaka	
280.4 275.2	1070	50 50	WTAM, Cleveland, Ohio (N.B. Co., Inc.) KMOX, St. Louis, Mo. (Voice of St. Louis)		400	750	5	MEXICO. XEAN, Ciudad Juarez (Cia. Radiodifusion	
256.4	1170	10	WCAU, Philadelphia, Pa. (Universal B/cg. Co.). (Short-wave Station, W3XAU, 49.5 m.)		330	910	5	Nacional) XEW, Mexico (Cadena Radiodifusion	
243.9 204.1	1230 1470	1 5	KYA, San Francisco, Calif. (Pacific B/c. Co.) KGA, Spokane, Wash. (North-West B/cg.	1	319	940	5	Mexico) XFO-XEFO, Mexico (Partido Nac. Revo-	
			System). ARGENTINE.		311	965	10	lucinario) XEAW, Reynosa (Cia. Internat. Difus. de	
330 291	910 1030	5.5 5	LR2, Florida, Buenos Aires (A. Schroeder) LR9, Florida, Buenos Aires (G. Echaverria)	1	408	735	500	Reynosa S/A.) XER, Villa Acuna (Cia. Radiodifusion de V. Acuna. S/A.)	
423	710	5	LS1 Nuncz, Bucnos Aires (Municipality of B.A.)	1	416.7	720	5	New ZEALAND.	
252 270	1190 1110	5.5 5	LS2. Florida, Buenos Aires (T. Prieto) LS5, Rivadaira, Buenos Aires (R. Diaz)		465	645	12.5	SOUTH AFRICA. ZTJ. Johannesburg (Short-wave Station,	
535.7	560	7.5	AUSTRALIA. 2CO, Corowa, N.S.W		371	808.6	15	49.4 m.) ZTC, Capetown	
492 472	610 635	5 7.5	5CK, Crystal Brook, S. Australia		462	650	5	URUGUAY. CX6, Montevideo (Min. of Public Instruction)	
451 435	665 690	5 5			1 312	960	5	VENEZUELA. YV1BC, Caracas (S/A Almacen)	

NEWS of the WEEK

Current Events in Brief Review

Television in Italy

TESTS with 180-line television are to start shortly at the Rome and Turin broadcasting

Six Million in Sight

WITHIN the next few days British wireless receiving W British wireless receiving licences should reach a total of six million. At the end of November the total was 5,871,750, a net increase of 103,500 over the figures for the previous month.

Proof of the Pudding NEWCASTLE listener has in-

A NEWCASTLE distinct has in-augurated a new system of reception reports. He recently picked up the test signals from the new Budapest station and transferred them to his home re-cording device. He then posted the record to the station authori-ties, to the great delight of the engineers.

New Transmitter for Motala

I^T is announced by the Swedish Postal authorities that an entirely new 150 kW, transmitter is to be erected at Motala to replace the existing 40 kW, long-wave station. The old transmitter will be transferred to another site in Southern Sweden to act as a new regional station.

Presentation to R.S.G.B. President

AT the annual general meeting of the Incorporated Radio Society of Great Britain, to be held on December 29th at 6.15 p.m. at the Institution of Electrical Engineers, a presentation will be made to the retiring president, Mr. H. Bevan Swift. The pre-Mr. H. Bevan Swift. The presentation will be followed by a lecture on "Transmitting Valves for Amateur Needs," by Mr. L. Grinstead.

Low-frequency "Static"

THE new French official decree against electrical interference with broadcast reception has been favourably received by the Press and the manufacturers. It is realised that the new regulations admit of a wide interpretation; for instance, it is felt that it will not be necessary to suppress all radia-tion from electrical apparatus provided that the emanations can be kept below the frequency response of the average loud speaker. However, to keep pace with loudspeaker developments, the Postal Administration will periodically define the frequency band in band in which radiation is prohibited.

The decree emphasises that steps are to be taken to avoid radiation from electrical apparatus whether or not there are any broadcasting receivers in the neighbourhood.

Licences Everywhere WIRELESS pirates have absolutely no excuse in Italy, where radio licences can be obtained not only from the Post Office but from the banks and wireless dealers. Listeners pay 80 lire a year.

Luxembourg at Bay

A CCORDING to the Brussels "Soir," Radio Luxembourg will refuse to surrender to the Lucerne Plan by withdrawing its long wave and giving up two-thirds of its power. The French influences behind the company, it is stated, will triumph as the International Brusselsing, Union ternational Broadcasting Union has no punitive power."

Film Recording at Fécamp

ADIO NORMANDY (Fécamp)
is now broadcasting concerts recorded on film. The recording equipment has been mounted on a equipment has been mounted on a special lorry which tours the principal towns, such as Havre, Rouen, and Dieppe, to "collect" concerts which the station wil! subsequently broadcast. It is stated that the scheme is designed to save land line costs and delays.

Quarter of an Hour

NORWAY has decided that sponsored programme items shall be limited to fifteen minutes a day.

Power Transmission by Wireless?

L IKE the problem of perpetual motion, the question of the wireless transmission of power is wireless transmission of power is an ever-beckoning subject for the radio inventor. It is now reported that the Swedish engineer, Balzar von Platen, of Stockholm, has solved the problem very effec-tively. Unfortunately, no details of the invention are yet available, but leading Scandinavian technicians are stated to have endorsed the merits of the system. A company has been formed to exploit the invention, the President being Count Folke Bernardotte.



"IN TOWN TO-MORROW." Henry Hall, leader of the B.B.C. Dance Orchestra, during a rehearsal last week of the St. Dunstan's Dance Band in preparation for its appearance before the microphone to-morrow evening (Saturday) in the "In Town To-night" series.

Radio in Every School

SPECIAL school sets working on one wavelength only are being built to the order of the Italian Government and the broadcasting authorities. All schools are to be equipped with receivers.

Wireless Over the Sea

THE much lower resistance to 1 the passage of wireless waves which sea water affords, as compared with dry land, was discussed in a paper presented to the Royal Society by Dr. R. L. Smith Rose on December 14th. In the course of a special investigation, experi-mental measurements were made at the National Physical Labora-tory of samples of sea water taken from the English Channel. The general result of the work has been to establish the electrical resistivity

of sea water at a value of about 20 ohms per cubic centimetre. For ordinary moist garden soil the resistance is nearly 500 times as much, and this accounts for the greater absorption experienced when wireless transmission takes place over land.

State Broadcasting: French Fears

ME French Union of Journalists has adopted a hostile attitude to the new Government broad-casting régime. In the Association's official journal it is declared that broadcasting is now "in the stranglehold of the State" and that the stations will very soon lose their individuality, as the professional microphone artists will be replaced by "bureaucrats and employees mechanically mumbling official communiqués and news

telegrams."

We cannot speak for the future, but, so far, the threatened disasters show no signs of taking place.

Male Announcers Preferred

TURKEY prefers male an-nouncers, A recent question-I nonneers, A recent question-naire to decide whether listeners would prefer a male or female an-

for the former out of a total poll of 320. This is a personal triumph for the announcer at the Istambul station, M. Mesut Djemil Bey.

Turin Up to Date

THE work of modernising the old 7-kW. transmitter at Turin, which "feeds" Genoa, Florence, Milan, Bolzano, and Trieste, is completed, and the station now incorporates 100 per cent. modulation, crystal control and push-pull output.

No Aerials, by Request

THE Republic of Turkey is perhaps the only country in the world where foreigners are not permitted to erect outdoor aerials. The Government wishes to take every possible precaution against the installation of transmitting stations. The regulation do apply to Turkish Nationals. The regulation does not

An Adriatic Wonder

ONE of the most remarkable 20-kW. stations in Europe is that at Bari on the Adriatic coast. It is well received in Great Britain, and has been picked up in New Zealand, China, Japan and Vancouver. Bari transmits its own programmes on Mondays, but relays Rome and Naples for the remainder of the week.

Legion of Honour for Amateurs ?

OUR French contemporary, the Journal des 8, is vigorously claiming the Legion of Honour for two famous French amateurs, Léon Déloy and Pierre Louis. Déloy was the first to establish shortwave communication between France and America in 1923, while Louis repeated this success some weeks later.

The Anti-Interference War

THE Secretary of the Newcastle-upon-Tyne Radio Society asks us to correct the impression given by a recent paragraph that the Society was asking for legislation pro-hibiting the supply of electric current to any premises where plant is installed that causes electrical interference to wireless reception. The Society referred to in the note was that at Newcastle, Co. Limerick.

More Money for U.S. **Broadcasters**

"SONG plugging," the disparagement of commercial competitors and the broadcasting of information concerning lot-teries, are among the objectionable features in American broadcasting which are being definitely banned by the new National Recovery Code. The radio pay roll is to be increased, says our Washington correspondent, and should be 3 per cent, above that of the peak year, 1931. The estimated increase in employment in broadcasting will

be about 765 persons.

Most of the pay roll increase will be among broadcasting engineers, of whom 1,900 are now employed. The operators' pay scale ranges from 40 dollars down to 20 dollars per week, depending upon the class and size of station.

BROADCAST BREVITIES

By Our Special Correspondent

Rival to Broadcasting House

THE skating rink in Delaware Road, Maida Vale, promises to be a much more serious rival to Broadcasting House than the Waterloo Bridge "warehouse" studio which it displaces. Among the amenities of this new-old building will be a restaurant and a retiring lounge.

Vast Acreage

As the first "sleuth" to prowl around the premises in August last—my exclusive story was "pinched" by the National newspapers who saw copies of the "W.W." at 12.1 a.m. on the day of publication—I saw enough to satisfy me that the B.B.C. could, if it wished, transform this vast covered-in acreage into something really worthy of the Corporation's resources.

That " Telephone Box " Feeling

It is impossible to imagine overcrowding of artistes and instruments at Maida Vale, and this in itself will be a welcome relief after the cooped-up conditions at head-quarters.

Some artistes have confessed that the studios give them the feeling of being imprisoned in a telephone box.

Henry Hall for Maida Vale

None will welcome the change more than Henry Hall and the B.B.C. Dance Band, who will shortly be staking their claims in Delaware Road.

It is quite likely that listeners will be invited to come and dance in the skating rink, so that the band will get that added zest which comes so much more easily when playing to the dancing couples.

Brave Engineers

The acoustics of the place, too, are quite good. The engineers have already conducted some interesting tests in this connection and several of them have risked their

necks in climbing ladders to inspect the roof.

Let us think of their courage in days to come when we are sitting at our ease and listening to the pattering feet of four or five hundred Step-Sisters.

Mr. Pewter

THE mysterious "Mr. Pewter" is, of course, none other than Mr. A. P. Herbert, the famous Punch hymorist.

bert, the famous *Punch* humorist.

"Mr. Pewter" is coming to the B.B.C. microphone shortly to give a series of talks on matters touching the interests of his feminine hearers. For their sakes he wishes to solve the problems of the day.

Good luck to you, Mr. Pewter.

The "D.G." in Ireland

SIR JOHN REITH took a flying visit last week to Belfast. No sensational inferences are to be drawn from this visit as it was purely a matter of routine.

The Director-General likes to "look up" all the B.B.C. stations from time to time, and I am pleased to think that he gives due notice of each impending visit!

Spiritualism in the Studio

THE B.B.C. will venture into a new field with the new series of talks to be introduced by Mr. Gerald Heard on January 5th.

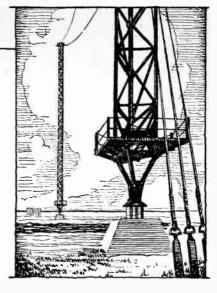
The title of the series. "Peeps into the Unknown," suggests the line which the speakers will take. I understand that subjects discussed will include telepathy, dreams, ghosts and survival after death.

Haunted Houses

On January 19th Mr. Theodore Besterman, of the Society of Fsychical Research, will tell "How Psychical Research



NOW OR NEVER! A tense moment during the amusing crook play, "Whistling in the Dark," at the Comedy Theatre. Richard Bird and Billie Riccardo, as the hero and heroine respectively, find a new use for the wireless set.



is Done." Other speakers in the series will be Lord Charles Hope on "Physical Mediumship"; Professor Seligman on "Primitive Practices and Ideas"; Dame Ethel Lyttelton on "Dreams and Pre-Vision"; Sir Ernest Bennett discussing "Ghosts and Haunted Houses," and Sir Oliver Lodge on "Do We Survive?"

Wireless on the Stage

A BROADCAST receiver is used to good dramatic effect as a stage "property" in the play "Whistling in the Dark," now appearing at the Comedy Theatre.

9999

As a climax, the resourceful hero, imprisoned by gangsters, uses the loud speaker as a substitute for the disconnected telephone instrument to summon help—which, in the best traditions of the stage, arrives in the very nick of time!

Artistic Licence?

After such a happy ending, it would be ungracious to say that technical possibilities have been stretched very nearly to breaking point; I would prefer to call it fair artistic licence, while refusing to believe that we have exhausted all the thrills obtainable by legitimate means from the broadcast receiver.

Wireless "effects" are skilfully arranged by Alexander Black, on whose activities much of the success of the play depends.

Is the Orchestra Overworked?

THIRTY-FIVE hours a week. This is the amount of time the performer in the B.B.C. orchestra is bound by his contract to serve the Corporation. The figure is interesting in view of the recent rumours that the orchestra is overworked and in need of an understudy.

How They Work

Actually, no member of the orchestra ever plays for thirty-five hours in one week—even during the hectic "Prom" period, when six rehearsals of three hours a day consume eighteen hours and the actual performance time is no more than twelve hours.

What the Accountant Thinks

However, I learn that the question of a second orchestra is being seriously considered—by Mr. Lockhead, the B.B.C. accountant! Can the B.B.C. afford another National Orchestra? And is it really necessary?

This Week's Set Review

Thermo Superjet Three

An Ambitious Design to Provide Mains Performance Where No Electric Light Supply is Available

≺HE applicability of mains-driven receivers to A.C. and D.C. mains only has for long been an admitted weakness of the type. Statistics have been brought forward to show that for every householder who is connected to A.C. or D.C. there are several who are not, and who are in consequence deprived of being able to make effective use of mains-driven sets, even if they have bought them. Our enterprising radio industry has fulfilled the expectations we have so often exclusively expressed in these pages, and the Thermo Superjet Three brings the benefits hitherto enjoyed by A.C. and D.C. consumers to the millions who are connected to gas mains

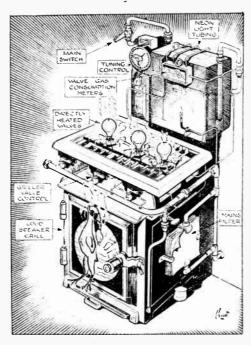
It might be supposed that the designer would impose severe limitations on himself in undertaking a task of this nature; but in the instance of the present receiver he has contrived to introduce a number of important advantages, which will no doubt lead to many all-electric homes being piped for gas at an early date.

The valves are all of the gas-filled type, and have a slope of 5 milliamps per therm. They are directly heated—and so, for the matter of that, is the whole receiver—being provided with incandescent burners at the base. As usual, these are fitted with bypasses, the by-pass condensers having a capacity of 0.005 cu. ft. A pilot light is also fitted, which serves the dual purpose of illuminating the tuning scale and casting a subdued but quite adequate radiance over the whole room. A variety of artistic shades can be obtained to suit most of the less usual decorative schemes.

The power pack consists of a gas-ring and multiple thermo-couple assembly, and this should be lit well in advance of any desired programme. A gasmeter, operating on the push-pull principle, is a feature of special interest to the more technical enthusiasts. The increased consumption when political talks are being broadcast can be readily observed.

The thoroughness with which the design

has been carried out may be gauged from the fact that the wiring is done entirely with gas-filled tubes of the type used for illuminated advertisements, and the different circuits can be identified with the utmost ease by the colour-code that has been standardised by the R.M.A. The



Domestic utility has been the keynote of the designer's effort in producing this revolutionary instrument.

location of any fault can thus be seen at a glance, which greatly simplifies servicing. Though this might seem to render skilled servicemen unnecessary, the manufacturers have made assurance doubly sure by equipping selected plumbers in each district throughout the country with a complete kit of tools for dealing with any fault. It is understood, also, that gas inspectors have been instructed to encourage the use of

FEATURES. Type.—General purpose receiver for gas mains only, incorporating almost everything. Circuit.—Variable-mew gas-filled valves coupled by neon-tubes. No rectifier needed. Controls.—(1) On-off tap, with shilling-in-the-slot orifice. (2) Roast-orboil switch. (3) Automatic smell control. Rent.—2 114d. per quarter. Makers.—The Gas Bright & Choke Co., Ltd.

these receivers by making themselves as helpful as possible, and are to be provided with portable wavemeters and calibration charts. It is also understood that a small gas-producer plant is shortly to be marketed for the benefit of those who are not yet piped.

The difficulties so common in soldered connections, due to dry joints, have been entirely overcome; and in fact wiped joints are used throughout. A mains filter has also been incorporated, consisting of six stages of blotting paper connected in series, with the object of removing every trace of moisture introduced by the mains, and so reducing the damping of the tuned circuits.

An Unusual Cabinet

The cabinet is made of cast iron about 215 inches thick, and is artistically finished in dull black, which has the additional merit of aiding the dissipation of the considerable amount of heat that is given off. This heat would hitherto have been considered a disadvantage, but in this model it has ingeniously been made possible to roast a joint or poultry during reception of the hotter types of dance music by hanging them on a hook provided in front of the loud speaker grille. This gives rise to occasional frying noises, which are not really serious however.

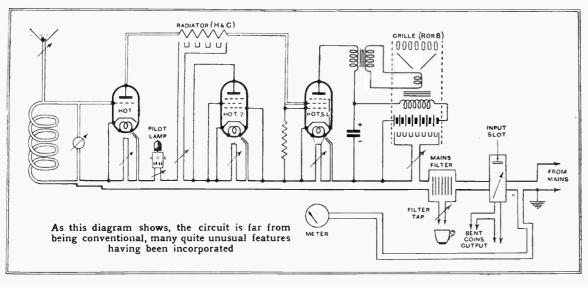
The controls consist of a main on-off tap, with shilling-in-the-slot input circuit, a roast-or-boil switch, and an automatic smell control. Until the taps are turned on, the smell is barely perceptible with the nose two yards from the loud speaker.

An example of the extraordinary attention to detail is the variable-mew valve to prevent mice from nesting in the gasmeter. As cats are not favoured in

Germany, sets exported to that country make use, instead, of the well-known Barkhausen effect.

It should be mentioned that six yards of flexible hose are included with each receiver, which should therefore be of some use, even in the most unfavourable localities.

The set was tested on an indoor aerial five miles from the Gas Bright and Choke Co.'s works, at first on a lighting circuit. As there were symptoms of low tension, the connection was transferred to a higher pressure supply by displacing the gas cooker. Because the Model No. EL rendered the cooker redundant, no harm resulted.



Thermo Superjet Three—

Apart from a good deal of hiss, reception was at first rather poor: but after investigating the fault with the aid of a pocket cigarette-lighter, the whole affair blew up with a loud report, followed by a complete fade-out. The test had therefore to be abandoned at this point, but there is no difficulty in declaring the performance to be outstanding in every direction. The power output was more than adequate for domestic purposes, and the programme was of definite entertainment value to listeners situated at a considerable distance. Reproduction was well forward, with strongly marked transients. It is true that there was a certain amount of break-through, together with side-band cutting, but these were not noticed at the time.

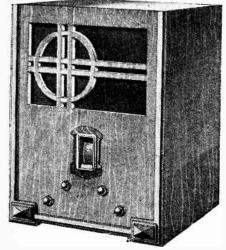
We have hesitated in the past to apply the adjective sensational to any receiver that has passed through our hands, but as the one at present being reviewed nearly passed through our face as well it would be hypercritical to withhold that description any longer.

Note.-As our usual set reviewer is on his Christmas holidays, the feature is supplied this week by our contributor, Mr. M. G. Scroggie. We therefore ask the indulgence of our readers in the event of any errors having been included.

AMATEUR CABINET MAKING

Wood for Home Constructors

ATTENTION is now being focused on the subject of radio cabinet design, both from the functional and artistic aspects. Amateur woodworking contrasts strongly with receiver construction, and introduces an element of variety; those who feel impelled to exercise their abilities by making not only the set but the container as well will be interested to know that, in the issue of Hobbies for November 18th, the building of an up-to-date cabinet in Spanish chestnut was fully described. A supplementary design chart is issued, copies still being available from the address given

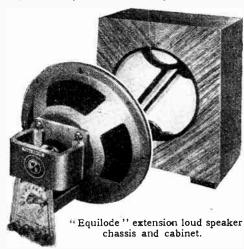


"Hobbies" cabinet for home construction.

The cabinet measures approximately 15in. wide, 19in. high, and 101in. deep; it is consequently large enough for most modern sets. A parcel containing all the necessary wood is obtainable for 11s. 3d. from Hobbies, Ltd., Dereham, Norfolk.

"EQUILODE" LOUD-SPEAKER

FOLLOWING up the success of the "Microlode" unit the Whiteley Electrical Radio Co., Ltd., Radio Works, Mansfield, Notts, have now produced a new model working on the same principle and specially adapted for use as an extension loud speaker It is fitted with a variable ratio transformer adjustable by means of a single switch arm.



An off position is provided so that the extension unit alone may be cut off if desired. The unit is suitable for use with sets requiring either a high impedance or low impedance load on the extension terminals. may also be used with certain sets, including a Class "B" output stage. The type number is PM5X. It is available in chassis form at £1 13s. 6d., or in a compact cabinet of modern design at £2 8s. 6d.

Photo-electric Cell Applications, by R. C. Walker and T. M. C. Lance, pp. 193, figs. iii. (Pitman, 1933. Price 8s. 6d.)

THIS book, which is largely based on developments carried out by the research laboratories of the General Electric Co., at Wembley, is an expansion of a series of articles which have appeared from time to time in the Wireless World. The alkali metal photo-electric cell is now obtainable in a standard bulb similar to a receiving valve, and when used in conjunction with a thyratron forms a compact mains-operated unit capable of handling power up to 20 kilowatts with an input signal of only I microwatt.

The variety of applications of such a lightsensitive relay is surprisingly great. The authors take us through various fields of industry and give clear descriptions and circuit diagrams of the layout which is suitable for each particular problem. In order to meet the high standard of performance required for commercial work the unit is invariably arranged to give warning if any failure should occur in the circuit.

It is in the advertising domain that the public is most familiar with photo-electric devices. Window displays are arranged to go into action by light reflected from a hand held up to an indicated part of a shop win-Water flows from a spout when a dow. cup is held in position. Light is thrown on a book as soon as it is opened by a reader. Road signs light up at night by mechanism operated by motor car headlights.

In the section of talking films a very complete account is given of the part played by the photo-cell in reproduction from the sound track. It is shown how the new cæsium-on-silver cells obviate troubles due to frequency distortion and to hum caused by lamps flickering at double the frequency of the supply mains.

Smoke is detected by its effect in reducing the illumination of a cell arranged in a balanced circuit. In Pullman cars this device controls the ventilating system and only pure air is admitted. Cells can be made sensitive to various spectral regions, and the freedom of choice thus obtainable is used, for example, in television transmitters. Here a blue scanning light is used since potassium cells are most sensitive and the eye least sensitive to this colour.

Many other applications are given in the book, which contains sufficient detailed information to enable the experimenter to construct devices for almost any purpose where a beam of light can be made to act as a signal. R. T. B.

EVERYMAN A.C. SUPER (See pages 472.4 of this Issue) LIST OF PARTS

After the particular make of component used in the original model, suitable alternative products are given in some instances.

1 R.F. Super Radiopak, 110 kc/s British Radiophone 1 Bulb, 6 volts, 0.15 amp. Bulgin 615 2 I.F. Transformers, 110 kc/s Varley "Nicore" BP,42

1 Bulb, 6 volts, 0.15 amp.
2 I.F. Transformers, 110 kc's Varley "Nicore" BP.42 (Colvern.)
1 Screened H.F. choke, Ch1 (R.I. Wearlte.)
2 Fixed condensers, 2 mfds., 200v., D.C. working C7, C8 T.C.C. 50
3 Fixed condensers, 0.1 mfd., tubular, C5, C6, C9 T.C.C. 50
1 Fixed condenser, 0.005 mfd., C13 T.C.C. Type "M" Fixed condenser, 0.01 mfd., C15 T.C.C. Type "M" T.C.C. Type T.C.C. Type T.C.C. Type T.C.

4 Fixed condensers, others. T.C.C. Type * M **
(Dubilier, Peak, Telsen.)

1 Electrolytic condenser, 50 mfds., C16
2 Electrolytic condensers, 4 mfds., C18, C20
T.C.C. 802

2 Electrolytic condensers, 8 mfds., C14, C17, C19
T.C.C. 802

2 Metallised resistances, 1 megohm 1 watt R13, 2 Metallised resistances, 2 megohns 1 watt R1, R2

Dubilier

Dubilier

Dubilier

(Erie, Graham-Farish, Claude Lyons, Seradex, Watmel.)

1 Tapered volume control, 250,000 clms R15
Rothermel Type 1-010-004

(Erie, Graham-Farisa, S....

1 Tapered volume control, 250,000 comes

(Magnum.)

1 Plain brown knob

1 Potentiometer, 5,000 chins R9

(Haynes Radio, Claude Lyons.)

1 Smoothing choke, 10 henrys Ch2
(Buigin, Ferranti, Heayberd, Rich & Bundy.)

1 Mains Transformer, Primary, 200 to 250 volts, 50 cycles; secondaries, 3000-300 volts, 75 mA., 4 volts, 2.5 amps., centre-tapped; 4 volts, 4/5 amp. centre-tapped.

Rich & Bundy Type No. 233

(Challis, Heayberd, Savage, Sound Sales, Vortexion.)

5 Valve holders, 5-pin W.B. Reversed Terminal Type (Bulgin, Clix.)

1 Westector

Westinghouse W.26

Bulgin S.80

1 Westector
1 On-off Toggle switch S1 Bulgin S.au
(Claude Lyous.)
1 Double-pole double-throw switch S2 Bulgin S.98
British Radio Gramophone Co.
(Bulgin.)

terminals, A., E., pick-up (2)
Retting-Lee B 3

(Bulgin.)
4 Ebonite shrouded terminals, A., E., pick-up (2)
Belling-Lee "B"
Harbros

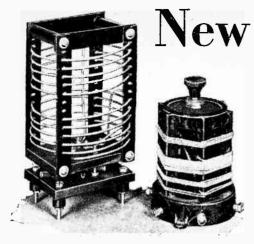
1 Length of Screened Sleeving
1 Loud spasker with pentode output former and 2.500 ohms field
Cabinets for set and speaker (C.A.C.)
1 Plymax baseboard, 10¼in. × 16in. × 3in.
202, No. 20 tinned copper wire, aluminium, 12 lengths Systoflex, wood, etc.
Screws:-Harbros output trans-Rola F.6/P.2,500

12 lengths Systones, which was seen as a length of the systones, which was seen as a length of the systones.

4 Jim. No. 4 R/hd. 4 Jim. No. 4 R/hd. 6 Jim. No. 4 R/hd. 2 Jim. No. 4 R/hd. All with nuts and washers.

12 lin. No. 4BA R/hd with metal thread and nuts and washers.

Valves:—2 Ferranti VPT4. 1 Ferranti VHT4. 1 Osram or Marconi MPT4 (Catkin). 1 Osram or Marconi MU12.



Scientific Supply Stores new dual-range, and plug-in type, short-wave coils.

SCIENTIFIC NEW SHORT-WAVE COILS

THE Scientific Supply Stores (Wireless), Ltd., 126, Newington Causeway, London, S.E.1, have introduced two new shortwave coils, one of which is of particular interest, as it is wound with Litz wire. The other model is, also, somewhat unconventional, for it is mainly air spaced and constructed from heavy gauge turned copper wire supported on a skeleton former,

The Litz-wound coil is a dual-range type wound on a 21in, moulded former, with separate windings for aerial, grid, and reaction circuits. Tested in an orthodox det.-L.F. set fitted with a screen grid detector valve, exceptionally good results were obtained. As in all short-wave receivers of this type, sensitivity depends largely upon reaction, and the most marked feature of this coil is the case and smoothness with which reaction is obtained over the whole range. Owing to its high efficiency, this is achieved without any considerable change in the reaction condenser capacity between minimum and maximum settings of the tuning condenser, provided the acrial loading is kept small. Using a 0.00015 mfd, tuning condenser and 0.0003 mfd. reaction condenser, the two wavebands covered were 13.5 to 33.3 metres and 31 to 68.8 metres respectively.

It is extremely difficult to differentiate between the performance of the two coils, as the larger air-spaced model was also much above the average. Reaction, however, was not quite so constant, and greater use had to be made of the reaction condenser to maintain the set just on the threshold of oscillation. No doubt this could be improved by a tighter coupling between grid

and anode coils.

The range covered by this model was 12.1 to 30 metres, using a series aerial condenser of 0.0001 mfd., the circuit otherwise being the same as for the first coil. It is fitted with a six-pin base, and we understand a second coil will shortly be available to extend the range.

The dual-range model costs 6s. 6d., and the single-range type 4s, 6d. Its baseboard mount costs is, 6d.

TUNGSRAM UNIVERSAL VALVES

I N the Tungsram range of valves is a series of indirectly heated types that can be used on either A.C. or D.C. supplies, the customary arrangement being to dispense with the usual filament winding on the transformer and join the heaters in series, using a limiting resistance to drop the surplus volts.

New Apparatus Reviewed

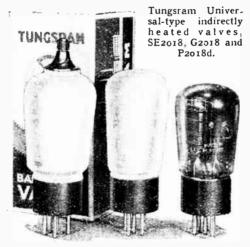
Latest Products of the Manufacturers

They take 0.18 amp, each and the majority require 20 volts across the heater; of the remainder two are rated at 40 volts each, and one at 10 volts. In all there are 15 different types: three are H.F. pentodes, two variable-mu S.G. valves, one screengrid model, three are triodes with one power output valve, two are pentodes and one is a Class "B" type. There are two mains rectifiers and a single-diode-tetrode, so that every type is represented.

Only a few samples could be tested, but these suffice to show that the stated characteristics are well maintained in the production models. The G2018, a general purpose triode, gave on test a mutual conductance of 3.1 mA./V. as compared with the maker's rating of 3.5 mA. /V-, while its amplification factor was 26.9, the rated value being 25. This brought the A.C. resistance to 8,600 ohms. The glass bulb is metallised

and its price is 10s, 6d.

A screen grid valve, the \$2018, was next tested; this is not a variable-mu type but operates normally with a grid bias of 1.5 volts. With 200 volts on the anode and 100 volts on the screen and a grid bias of -1.5 volts, its mutual conductance was 1.6 mA. /V. and its amplification factor 480. As its rated values are 1.2 mA./Volt and 400 amplification, respectively, the specimen tested was even better than normal. With the stated operating voltages, the anode current is 7.2 mA, and the screen current 1.5 mA.



Finally the characteristics of the variablemu SE2018 valve were investigated, its mutual conductance and amplification factor being measured with different values of grid bias. These are given in the table for a

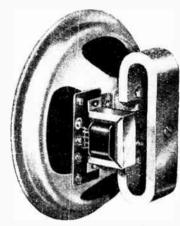
Valve.	Grid Bias Volts.	Amplifi- tion Factor.	Mutual conduc- tance mA volt.	A.C. Resis- tance (Ohms).
Tungsram	- 2	310	1.55	200,000
Type SE	4	270	1.08	250,000
2018	- 6	245	0.77	320,000
	- 8	230	0,57	400,000
	12	208	0.33	630,000
	16	195	0.2	960,000
-	20	186 、	0.12	1,500,000
	- 24	180	0.06	3,000,000

maintained anode potential of 200 volts and 100 volts on the screen.

According to the makers' figures its mutual conductance should change from 1.4 mA./V. with -2 volts grid bias to 0.03 mA./V. with -40 volts. The average anode current with minimum grid bias is 10 mA, and the screen current 2.1 mA. price of this valve is 14s. 6d, and the makers are Tungsram Electric Lamp Works (Great Britain), Ltd., 72, Oxford Street, London,

MAGNAVOX TYPE 252 LOUD **SPEAKER**

THIS is the "Senior" model of the permanent magnet series and is fitted with a oin, diaphragm and a composite magnet system in which the centre pole is of cobalt alloy and the remainder of the magnetic



Magnavox Type 252 "Senior" permanent magnet loud speaker with dust cover removed.

circuit of chromium alloy. The chassis is neatly finished in grey cellulose cuamel and is of rigid construction. A universal transformer gives a range of load impedances from 3,000 to 19,000 ohms and is also fitted with terminals for Class "B" and other types of push-pull output stages.

The efficiency of the unit is comparable with that of a standard energised model and the useful frequency response extends from 75 to 8,000 cycles. The principal bass resonance occurs at 90 cycles, but it it is well supported by a group of subsidiary resonances of slightly lower frequency, with the result that coloration is not noticeable. The middle register is uniform and the highnote response is excellent, being maintained to a much higher point than usual yet without undue emphasis of sibilants. The general balance on music is full-bodied without lacking clarity, and we have no hesitation in recommending the unit for its good all-round performance.

The speaker is enclosed in a dustproof bag with an ornamental silk front, and the price is 3 guineas. The makers are The Benjamin Electric, Ltd., Tariff Road, Tottenham, London, N.17.

Next Week's Set Review: R.G.D. RADIO-GRAMOPHONE Model 1201 A.C.

Readers' **Problems**

Double Diode Pentode

 $A^{\,\,\mathrm{USER}\,\,\mathrm{of}\,\,\mathrm{the}\,\,\mathrm{New}\,\,\mathrm{Monodial}\,\,\mathrm{receiver}\,\,\mathrm{has}}$ noticed that, although the anode current of the DD/Pen second detector is reduced considerably on tuning in a strong signal (according to expectations), there is actually a slight rise in current when a weak transmission is being received. It is asked whether this effect is in any way abnormal.

It is unusual to find that anode current rises slightly when tuned to a feeble signal, or to the "fringe" of a strong one—which amounts to the same thing. The rise in current may be ascribed to the grid current characteristics of the valve, but anode current should fall when the set is tuned to a signal strong enough to put the A.V.C. system into action.

Niceties of Ganging

THAT divine discontent which marks the true wireless amateur has clearly prompted a query regarding alignment of ganged circuits in a fairly conventional three-valve receiver, of which the sections concerned are reproduced in simplified form in Fig. 1.

Almost everyone knows that, for really accurate ganging, everything must be matched and symmetrical in each one of the tuned circuits; inductance values of all the coils must be identical, each section of the tuning condenser must have the same capacity at all angular settings. the value of stray capacity across each circuit must be the same, or provision must be

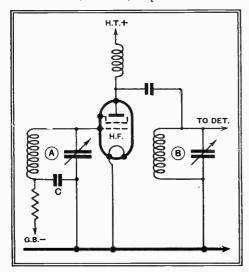


Fig. 1.—Circuits A and B are not entirely symmetrical; the first includes a by-pass condenser C, which may impair ganging unless certain precautions are observed.

made for making it so artificially by means of trimmers. The present problem deals with another disturbing factor-the by-pass condenser in grid decoupling circuits.

Unless a by-pass condenser of the same capacity be included in all the tuned circuits, it is clear that the possibility of misalignment is introduced; the present question is concerned with the fact that the H.F. grid circuit of our querist's receiver includes a by-pass condenser, while the band-pass input circuit and the H.F. intervalve coupling do not. We are asked to say whether the addition of a "padding" condenser in each of the other circuits is likely to improve alignment.

THESE columns are reserved for the publication of matter of general interest arising out of problems submitted by our readers Readers requiring an individual reply to their technical questions by post are referred to "The Wireless World" Information Bureau, of which brief particulars, with the fee charged, are to be found at the foot of this page.

Briefly, it may be stated that, provided the by-pass condenser be of very high capacity in relation to the tuning condenser, it is most unlikely that it will upset ganging. A capacity of o.i mfd.—a standard value in H.F. circuits—is 200 times larger than that of the tuning condenser, and so should have a negligible effect when compared with the inevitable discrepancies elsewhere.

A grid by-pass condenser of considerably lower capacity, however, might conceivably upset the relative tuning of the circuit in which it is included. It should be made quite clear that the disturbing effect of the condenser becomes more marked as wavelength is increased, and so its effect cannot in any way be balanced out by adjustment of the trimming condenser.

A final point: an inductive condenser is clearly undesirable in the position in question, for the reason that its inductance will be additive to that of the coil, and so will

cause mis-matching.

A Non-radiating Receiver

CORRESPONDENT, obviously blessed with a commendably strong sense of his obligations towards his neighbours, enquires whether the New Monodial receiver is likely to cause interference through radiation. He has previously used straight" sets, and has heard that a superheterodyne may annoy other listeners.

Admittedly, some superheterodynes, that shall be nameless, radiate almost as strongly as they receive! But most modern sets are reasonably free from blame, and the New Monodial in particular should never give trouble on this score. Not only is there a stage of H.F. amplification, but also the tetrode portions of the frequency changer valve are interposed between the oscillator and the aerial. This amounts to very much the same thing as the interposition of two H.F. stages, which would normally prevent any possibility of radiation. Further, the questions of layout and wiring were specially studied with a view to preventing any accidental transference of energy to the aerial circuit.

The Wireless World INFORMATION BUREAU

THE service is intended primarily for readers meeting with difficulties in the construction, adjustment, operation, or maintenance of wireless receivers described in *The Wireless World*, or those of commercial design which from time to time are reviewed in the pages of The Wireless World. Every endeavour will be made to deal with queries on all wireless matters, provided that they are of such a nature that they can be dealt with satisfactorily in a letter.

Communications should be addressed to The Wireless World Information Bureau, Dorset House, Stamford Street, London, S.E.1, and must be accompanied by a remittance of 5s. to cover the cost of the service. The enquirer's name and address should be written in block letters at the top of all communications,

Non-amplifying H.F. Stage

A READER has found by experience that the H.F. stage of his receiver is rendered completely ineffective by disconnecting the anode decoupling condenser. Contrary to expectations, disconnection does not produce instability, but merely seems to have the effect of "reducing H.F. amplification to practically zero.'

The effect is quite different from that encountered in any other circuit of the receiver-or in any other receiver-where the experiment has been tried, and we are asked to suggest a reason.

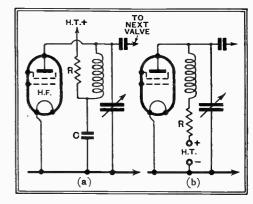


Fig 2.—By disconnecting condenser C, the resistance R is placed in series with the tuned-anode circuit, as shown in diagram (b).

It seems fairly certain that tuned-anode H.F. coupling is used in the set, and that matters are arranged in the conventional way, as in Fig. 2 (a). As a result of disconnecting the by-pass condenser C, through which the tuned circuit is normally completed, oscillations are diverted through the decoupling resistance R, and also the various resistances and impedances of the H.T. wiring and battery (or eliminator). Fig. 2 (b) represents the circuit under these conditions. As R is likely to have a value of about 1,000 ohms, it is understandable that the circuit will be so heavily damped that the stage can no longer amplify.

Patchy Instability

IT has often been suggested that when making initial adjustments or tracing certain types of fault, it is a good plan to put the A.V.C. system temporarily out of action. We repeat this advice for the benefit of a correspondent whose newly constructed "2-H.F." receiver is giving trouble. It is complained that the background, when not tuned to a transmission, is excessively noisy, and that many of the signs of instability are present, although the manifestations of uncontrollable self-oscillation are not the same as in a set without automatic control.

From further information given to us we think that there can be no doubt that the set actually is lacking in stability over a large section of the wavebands which it covers. Instability cannot, however, show itself in the ordinary way, because the H.F. valve grids are, under certain conditions, biased well back by A.V.C. action.

It is therefore recommended that the control circuits should be disconnected, and that our correspondents should concentrate on stabilising the H.F. circuits before proceeding farther.

Extract from "Wireless World."

a choice of seventeen ratios is available for single output valves and four ratios for push-pull stages requiring a centre tap. The change both in volume and quality, on varying the step-down ratio, is most marked, and the load can be rapidly adjusted to give the best results. Tested with the load adjusted to the calculated value, the efficiency was found to be exceptionally good for a permanent-magnet unit. Above 100 cycles it was equal to that of our standard 10 in. energised unit. The PM4A is also remarkable for the excellent response at the extreme top. Between 7,000 and 9,000 cycles it has a better output than any small commercial unit so far tested."

A user writes:

"I wonder how many listeners realise (as I did when trying out the 'Microlode' pointer) how much volume is wasted when the speaker is not correctly matched to the output valve?"



'Microlode' Model PM6 32'

Dept. W, Radio Works, Mansfield, Notts. Sole Agents in I.F.S.: Kelly and Shiel, Ltd., 47 Fleet St., Dublin.

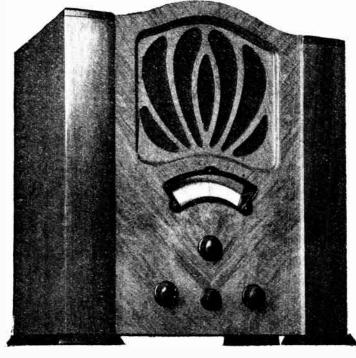


'Microlode' Model PM4A

Whiteley Electrical Radio Co. Ltd., Sole Agents in Scotland: Radiovision Ltd., 233 St. Vincent St., Glasgow.

Class B give perfect matching. The Mans-

field magnet gives greater sensitivity.



MAIN FEATURES

3 watts undistorted output. Automatic volume compensation. Progressive tone control. Double band-pass tuning. Electrostatic screening. Electro-dynamic moving coil speaker. Write now for full details.

High praise for this new all-pentode superhet!

Extract from "The Wireless World," Dec. 15th.

"The design shows several departures from conventional practice, and a highly creditable performance has been attained in relation to the comparative simplicity of the circuit design.

On test, we found the set unusually free from background noise. This is accounted for by the use of an electrostatic screen . . . a feature we should like to see more widely adopted.

The makers are to be congratulated on the loud speaker reproduction, which has an unusually spacious quality, particularly in the bass. Individual instruments in the orchestra stand out clearly, and the general effect is not unlike that associated with dual unit loud speakers.

PRICE

The cabinet is well finished, and is imposing in appearance, as it should be in a set giving

so high a standard of volume and quality."

MB

FOX INDUSTRIAL LTD., 15-17, King Street, St. James', S.W.1.

MISCELLANEOUS **ADVERTISEMEN**

THE CHARGE FOR ADVERTISEMENTS in these columns is

12 words or less, 3 - and 3d, for every additional word.

Each paragraph is charged separately and name and address must be counted.

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ADVERTISEMENTS for these columns are accepted up to FIRST POST on MONDAY MORNING (previous to date of issue: at the Head Offices of "The Wireless World,") Dorset House, Stamford Street, London, S.E.I, or on SATURDAY MORNING at the Branch Offices, 19, Hertford Street, Coventry; Guildhall Buildings, Navigation Street, Birmingham, 2, 260, Deansgale, Manchester, 3; 28n, Renfield Street, Glasgow, C.2.

Advertisements that arrive too late for a particular issue will automatically be inserted in the following issue unless accompanied by instructions to the contrary. All advertisements in this section must be strictly prepaid.

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Postal Orders and Cheques sent in payment for advertisements should be made & Co. payable to ILIFFE & SONS Ltd.. and crossed untraceable if lost in transit should not be sent as

All letters relating to advertisaments should quote the number which is printed at the end of each advertisement and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or rinters' errors, although every care is taken to avoid printers' mistakes.

IMPORTANT NOTICE.

Owing to the Christmas Holidays, the nextissue of "THE WIRELESS WORLD" (dated December 29th) is closin; for pressearlier than usual.

In accordance with the Notice that appeared last week, the latest date upon which Miscellaneous Advertisements could be accepted for the above issue was FIRST POST, FRIDAY, December 22nd.

RECEIVERS AND AMPLIFIERS, ETC.

MURPHY B5, makers' guarantee; what offers?— Fletcher, Barrington Lodge, Chigwell Row, Essex. [4289

TRADERS, send for catalogue, 6d. stamps: mains receivers, all the best makes.—Perseus Radio, Burton-Trent. (0407)

£7/15.-Mains radio S.G. det. and Pen., 200-250 A.C. Rola M.C., in superh futuristic cab; listed £13,13, c.o.d., carriage paid.

£7.10.—Combined A.C. D.C. S.G. det. and Peu., 100-250 volt, Rola M.C. in latest modern horizontal oblong walnut cale, straight line dial in metres, etc., e.od., carriage paid.—Kay, 167 City Rd. 1.C.1. [4320]

G.E.C. 5v. Superhet A.C. Radiogram, bankrupt st packed; list £26 5. £16 (deposit system).—Part lars, 151, Wellingborough Rd., Northampton.

PUSH-PULL D.C. Amplifiers, with 2 P.P.3 425's in out-put, complete with 500v, line booster, brand new; £14, carriage paid.—Ward, 2nd Floor 45, Farringdon 8t., £420.

D.C. Monodial Superlict, all specifici components and valves, "Magnavox" Magna dual speakers, jerfect, owner now on A.C.; £18.-Radio Supplies, Deardengate, Hastingden. [4298]

QUALITY Receiver for Sale, 6-watt output, in hand-some mahogany cabinet on special stand, guaranteed perfect condition and quality reproduction; what offers?—Phone: Beckenham 1939 Box 8913, c. o. The Wirdess World.

M'orld. [4297]

A RMSTRONG Latest 4v. Chassis, now incorporates 3. Pentodes, 3 tuned circuits, full band-pass square peak tinning, 2½-watts undistorted output, massive layer wound mains transformer, ideal for making high quality radiogram; 84 ·, with valves 118/.

A RMSTRONG 1931 Universal 4v. Chassis, incorporating 3 tuned circuits, 9 kilocycles separation, practically superneterodyne performance, full vision tuning, combined switching, 1½ watts output; 75 ·, with valves 114/·; both models infly guaranteed; 7 days trial; demonstration any time. Phone: Gulliver 3105. Armstrong Co., 100, King's Rd., N.W.1

AMPLIFIERS.—2stage transformer, coupled push-pull output, on 22 in pre-sed steel chassis, cadminin plated and cellulose plated, 4 Marconi valves, 16 watts anode dissipation, with provision for 200 volt-50 milliamps H.T., and 4-volt 6 amp heater current for radio unit if used; ideal for demonstration or P.A. wock; original price 30 guineas, my price £8, carriage paid; cash with order, -1, Eastwood, 8 and Eugeneer, 70, Pitfield 81, Old St., N.1.



EVERYMAN A.C. SUPER

KIT ⁴⁴A⁷⁵ of First Specified Parts, including ready-drilled and assimbled Plymax Glassis, and Westector W.26, less or 12 Monthly Payments of £1-5-9. KIT "A" Author's Kil Cash or C.O.D. Carriage

Kit 66 B 99 As for Kit "A" but with specified valves only. CASH or C.O.D. £ 18-8-6 or Deposit \$3-8-6 and 11 Monthly Payments of \$21-10-0.

KIT "C" As for Kit and PETO - SCOTT TWIN DE LUXE CABINET.
Cuch or C.O.D. \$20-13-6
or Deposit \$4-13-6 and 11
Monthly Payments of £1-12-0.

TWIN DE LUXE CABINET

- EXCLUSIVELY SPECIFIED -

Two Cabinets in one, since the top loudspeaker portion and lottom set section are entirely separated, being so designed that they are each complete in themselves, yet placing the speaker portion on top of the set section, gives you immediately an extremely attractive table consolette.

Complete as illustrated A F /

Complete, as illustrated 45/-Carr, and Packing 2 6 extra-Or Easiway, deposit $\bf 8$ - and $\bf 11$ monthly payments of $\bf 4_{c}$.

Loudspeaker section 25/-

PLYMAX CHASSIS as used by the Author. Ready drifted 11/6 and assembled.

A.V.C. STRAIGHT 4

RECEIVER KIT
Author's Kit of FIRST SPECIFIED PARTS for Receiver Unit
including Metal Chassis, less valves, cabinet and speaker.
Cash or C.O.D. £12-15-6
Carriage Paid. Or 12 monthly payments of £1-3-6.

POWER UNIT KIT. Author's Kit of FIRST SPECI-FIED PARTS, excluding valve Cash of C.O.D. Carriage Paid. Or 12 monthly payments of 12 3.

COMPLETE KIT

Comprising Receiver and Power Units of FIRST SPECIFED PARTS complete with all specified valves, and baker's S.P.D. Black Come Speaker, but Less cabinet. Or Benealt 26-8-0 and balance in I monthly payments of \$2.8-0.

Cash or C.O.D.

NEW MONODIAL

KII 'A.'—Author's Kit of First Specified Paris for RECEIVER PORTION ONLY, including Peto-Scott assembled and drilled Plymax Chassis, Panel, less cabinet and valves.

POWER UNIT KIT Author's Kit of FIRST SPEC-IFIED PARTS for POWER UNIT ONLY but with Ply-may Chassis and Valves, Cash £9.0.0

Cash or C.O.D. Carriage Paid.

£11-12 or Deposit £1.12.0 and 11 monthly payments of 20-

COMPLETE KIT comprising complete SET and POWER UNIT PORTIONS with specified valves. Cash or C.O.D. Carriage Paid. \$27.18.6 or £5 18.6 Deposit and 11 monthly payments of £2.4.0.

VORTEXION TRANSFORMERS FOR A.V.C. THREE in stock, IMMEDIATE DELIVERY CASH—C.O.D.—H.P.,
FOREIGN ORDERS. We have a special department for Overseas orders. Despatch by return is made in most cases. To expedite delivery customers should send full cash with order including sufficient for postage. All orders carefully executed and expertly packed by special export stuff.

PETO-SCOTT CO. LTD.
77, CITY ROAD, LONDON, E.C.1.
West End Showrooms: 62, High Holborn, London, W.C.1.

NUMBERED ADDRESSES.

NUMBERED ADDRESSES.

For the convenience of private advertisers, letters may be addressed to numbers at "The Wireless World "Office. When this is desired, the sum of 6d, to defray the cost of registration and to cover postage on replies must be added to the advertisement charge, which must include the words Box 000, c/o "The Wireless World." All replies should be addressed to the Box number shown in the advertisement, c o "The Wireless World." Dorset House, Stanford Street, London, S.E.t. Readers who rebly to Box No. advertisements are tearned against sending reauthance through the post except in registered earledpes; it will such eases the use of the Deposit System is recommended, and the envelope should be clearly market "Deposit Department."

DEPOSIT SYSTEM.

Readers who hesitate to send money to a lyertisers in these columns may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Wireless World," both parties are advised of its receipt.

are advised of its receipt.

The time allowed for decision is three days, counting from receipt of goods, after which period, if buyer decides not to retain goods, they note be returned to sender. If a sale is effected, buyer instructs us to remit amount to selber, but if not selber instructs us to return amount to depositor. Carriage is paid by the buyer, but in the event of no sale, and subject to there being no different arrangement between buyer and selber, each pays carriage one way. The selber takes the risk of loss of damage in transit, for which we take no responsibility. For all transactions up to £to, a deposit fee of 1/1-is charged; on transactions over £to and under £55, the fee is £6; over £50, 5/-, All deposit matters are dealt with at Dorset House, Stamford Street, London, S.E.I., and cheques and money orders should be made payable to lliffe & Sons Limited.

SPECIAL NOTE.—Readers who reply to advertise-

SPECIAL NOTE.—Readers who reply to advertise-ments and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Adver-tisers often receive so many enquiries that it is quite impossible to reply to each one by post. When sending remittances direct to an advertiser, stamp for return should also be included for use in the event of the application proving unsuccessful.

ACCUMULATORS-BATTERIES.

100 Accumulator Chargers, 19 amp., 2-6v., incorpor ating Westinghouse re-tiffer, complete in ventilated case, with mains flex; 13-11; postage 6d.; 1 amp., 21 --- Arden Agency, Wollaston, Wellinghorough, [409]

MAINS EQUIPMENT.

TRADERS,--Get all requirements (catalogue 6d.),--Perseus Radio, Burton-on-Trent, [0408]

 $\mathbf{H}^{ ext{OYNES}}$ Transformers and Chokes the Best Obtainable, perfect insulation, regulation and reliability.

HOYNE'S Transformers, used by many well known set manufacturers after testing all others.

HOYNE'S Transformers, fitted with tapped and screened primaries. filaments all centre tapped, stout cast aluminium clamps and clearly marked Bakelite terminal strips are fitted to all models.

HOYNE'S Components are Guaranteed for One Year; built to your own specification at very competitive

HOYNE'S Components.-The components you will eventually use, start right; a dud cannot pass the Hoyne test.

 $H_{4v.,\ 2.5a.,\ 4v.\ 5.6a.,\ 18/r.\ post\ 1/3;\ elloke,\ 26ll.,\ 120\ m.a.,\ 140\ olims,\ 9/6,\ post\ 9d.}$

HOYNE'S A.V.C. Three, 275-0-275v. 60-70 m.a., v4. 25a 4v. 4a., 12,6, post 1/-; choke, 30 henry 50 m.a., 7,6, post 6d.

HOYNE'S New Monodial Transformer, 425 0-425v, 120 m.a., 4v, 3a., 4v, 1a., 4v, 1a., 4v, 6a., 24/2, post 1/3; weight 10lb.; 10 henry choke, 6/2, post 6d.; 20 henry choke 7/6, post 6d.

HOYNES-250-0-250v. 60 a.m., 4v. 1-2a., 4v 2 4a., 10 ., post 9d.; with extra 4v. 1 2a. winding.

 $\mathbf{H}^{\text{OYNE'S}}$ Ferrocart Model.—350.0-350v. 60.70 m.a., 4v. 2-3a., 4v. 2-4a., 12,6, post 1/·; with extra 4v. 1-2a. win ling. 13/6, post 1/-.

 $\mathbf{H}_{4v,\ 1a.,\ 4v,\ 1a.,\ 18/\cdot,\ post\ 1/3.}^{\rm OYNE'S,-350\cdot0\cdot350v,\ 120\ m.a.,\ 4v.\ 2\cdot3a.,\ 4v.\ 4\cdot6a.,}$

 ${
m H}^{
m OYNES,-500:450\cdot0\cdot450\cdot500v.~140~m.a.,~4v.~2\cdot4a.,~4v}_{
m 4\cdot6a.,~4v.~2a.,~4v.~2a.;~27,6,~post~1/3};$ weight 111b.

HOYNE'S.-0-110-135v. 90 m.a., suitable for H.T. 6 or 7, 7/6, post 9d.; with 4v. 2-4a, winding, 9,6, post

 $\mathbf{H}^{0\text{YNES},-200\text{v.}}_{11.7\text{.}\,8;\ 13.6,\ \text{post}\ 1/\text{.}}$ dv. 2-4a., 4v. 1-2a., for

H OYNE'S Chokes, very generous cores, cotton interminal betweek, fitted with cast aluminium clamps and terminal strips: 5011., 60 m.a., 900 ohns, 6/6, post 9d.; 5011., 120 m.a., 400 ohns 8/6 post 1/.

 ${
m H}^{
m OYNE'S}$ Chargers and Eliminators to your Specifications; keenest prices.

 $H^{\rm OYNES}$ Line Transformers (auto-wound) tapped $_{\rm 0.100-110-200-220\cdot240v.,~60}$ watt, 8/6, post 9d.; 120 watt, 10%, post 1/5.

M. J. HOYNE, Offices and Works, 8a, Gladstone Rd., Wimbledon, S.W.19 Tel.: Liberty 2303. [4115

Mains Equipment.-Contd.

VORTEXION Lead Again.

VORTEXION A.C./34, used by author in construction of A.V.C. Three, as illustrated; 18/.

VORTEXION.—Please note brown lead omitted in blue print, is screened primary connection and should be earthed to chassis.

VORTEXION, Wimbledon, for 99.9% reliable trans-

I F You Haven't Tried Them Yet Ask Someone Who Has, or call and inspect complimentary letters.

VORTEXION.—New Monodial transformer, 200-250, 50 cycles, 425-0-425, 120 m.a., 4v. C.T. 3a., 4v. C.T. 1a., 4v. C.T. 6a., screen primary, open type, 20/-; shrouded, 22/-; super shrouded, 26/-; weight 14th, carriage 2/ extra; 10 henry choke, 5/6, post 9d.; 20 henry shoulded. carriage 2/ henry, 8, 6.

VORTEXION for A.V.C. Straight Four, 200-250 input, 450.0-450v, 120 m.a., 4v. 2.5a. C.T., 4v 5.6a. C.T., with screened primary, shrouded in cast alternation to prevent hum, super model 10 volt primary taps; 30.

VORTEXION 26h, 120 m.a, Choke, 140 ohms, in die cast shrouding to match; 12,6.

 $\begin{array}{c} V_{\rm ORTEXION.-5\cdot watt-Monodial-A.V.C.\ model,\ 400\ 0-400,\ 120\ m.a.,\ 4v.\ 6a.,\ 4v.\ 3^{1} \text{-a.,\ 4v.\ 2a.,\ 4v.\ 1a.,} \\ \text{super screened,\ } 20/\text{-};\ \text{sl,rouded,\ } 24/\text{-}. \end{array}$

A LL Secondaries Centre Tapped.

VORTEXION.- 250 0 250 60 m.a., 4v. 1 to 2a., 4v. 2 to 4a., open type, 10/6: shrouded, 12/6; post 9d.

f V ORTEXION Transformers tested with 2,000 velts between windings.

VORTEXION.-Ferrocart III, 350 0 350, 60 m.a., 4v. 2.5, C.T., 4v. 3.5, C.T.; open type 13/6, shronded 16/-; post 9d

 $\begin{array}{c} V^{\rm TREXION.-Super \ model} \ \ {\rm for} \ \ H.T.8 \ \ {\rm or} \ \ 9 \ \ {\rm or} \ \ 10, \ 4v. \\ 1 \ \ {\rm to} \ \ 2, \ \ 4v \ \ 2 \ \ {\rm to} \ \ 4; \ \ {\rm open} \ \ \ {\rm type} \ \ 14/6, \ \ {\rm shrouded} \ \ 16/6; \\ {\rm post} \ \ 1/\cdot. \end{array}$

VORTEXION.- 350 0 350, 120 m.a., 4v, 2 to 5a., 4v, 2 to 4a., 4v 2.5a.; open type 14 6, shronded 16/6. VORTEXION.-400 or 450 or 500v., 120 m.a., 4v. 2 to 5, 4v. 2 to 5, 4v. 2.5a.; open type 19/-, shronded 23/-.

VORTEXION. 400 or 450 or 500, 150 ma., 4v. 4a., 4v. 2, 4v. 2, eore size $2^{1}_{4} < \log_{10} n$, a superboloby 2% regulation, $25/\varepsilon$; shrouded with terminals, test terminals, $30/\varepsilon$; open type $26/\varepsilon$; post 1/3.

VORTEXION Auto Transformers to B.E.S.A. Specifica-tion, 100, 110, or 120v. to 200, 220 or 240 volts, 60 watts, 9/-, post 9d.; 120 watts, shrouded 12/6, open 1)pc 10/6, post 1/-; 200 watts, open 14/6, shrouded 16, 6, nost 1/-; 2,000 watts, £4/10.

VORTEXION 600-watt Transformers; £4/10, carriage

 $V^{\rm ORTEXION}$ 30h, at 60 m.a. Chokes, 5/6; 40h, at 60 m.a., 8/6; 30h, at 150 m.a., 200 ohnus, 10/6 open type, 12/6 shrouldd.

VORTEXION Transformers Made to Your Specification; pince according to wattage, by, filaments same price unless wattage grossly exceeded; special quotations by return.

VORTEXICN (8. A. BROWN), 182, The Broadway, Wimbledon, S.W.19 Tel.: Liberty 2814. [4189]

SERADEX Mains Equipment, new list now ready.

CERADEX Variable Resistances for Television, etc., type II.A., 150 chms, as specified for "Practical Mechanics Telediscovisor," also televisors described in "Amateur Wireless," and "Television"; 9/11, post paid; new illustrated leaflet just issued.

CERADEX Battery Chargers; models from £2/12 6; send for lists; a better job at a lower price.

CERADEX Filter Condensers, new list available shortly; type B, 400v, working, non-inductive, 0.5 mfd., 1 4; 1.0 mfd., 1/6; 1×1 mfd., 2/6; 2 mfd., 2/3; 4 mfd., 4/5; 4×4 mfd., 7/3.

A DVERTISEMENT of Trevor Pepper, 575. Mose Rd., Birmingham, 12.

TANTALUM for A.C. Chargers, H.T. and L.T.-Black-well's Metallurgical Works, Ltd., Garston, Liverpool, [3448]

A.C. Charging Plant (new), output 40 volts 6 amperes: listed £18/18, accept £8.—Jersey, Cumnor Hill, Oxford. [4131

"DULCI" Unused D.C. Eliminators, 25 milliamps output, 13/-; Westinghouse rectifiers, H.T.6, H.T.7, H.T.8, 10/-; H.T.10, 11/3; T.C.C. 8 mf, electrolytes, 3 9; B.T.H. pick-up tone arms, 3/-; post paid, each with order or e.o.d. Ward, 2nd Floor, 45, Farringdon St., E.C. (new address).

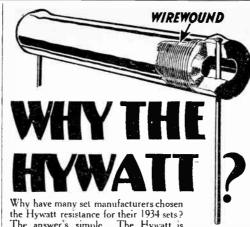
CABINETS.

RADIO GRAM Cabinets; fully illustrated list free; remarked le values, Gilbert, Cabinet Maker, Swindom,

RADIOGRAM Cabinets, manufacturers' clearance, Brunswick (Model 70), 45 :; (Model 90), 70 :; Z. t.-vox (Model A.G.), 50/-; new, clean goods, -H. L. Smith and Co., Ltd., 289, Edgware Rd., London, W.2. [4313]

DYNAMOS, ETC.

E.D.C. Converter, 200 watts, 240 D.C. A.C.; reasonal offer accepted, Blakes Wharves, Stevenage Rd., S.W.



the Hywatt resistance for their 1934 sets? The answer's simple. The Hywatt is The answer's simple. the most advanced resistance on the market: because-

- 1. The element is wire. This means
 (a) Much Closer tolerance than in
 the carbon type.
 (b) Fixed resistance value unchangeable in operation.
 2. Each turn is insulated. This makes
 it suitable for high voltages, and it
 will rot break down.
- Moisture proof and noiseless due to welding of lead wire.

Please write for folder, telling you all about the Hywatt, to-

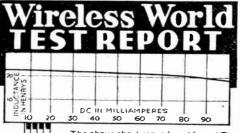
Watmel Wireless Co. Ltd., Imperial Works, High Street, Edgware, London. Telephone: Edgware 0323.



Made in all values

from 50,000



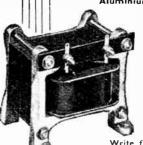


The above chart reproduced from "The Wireless World" Test Report, emphasises the remarkably Constant Inductance of Sound Sales' Chokes.

SOUND SALES 10hy CHOKE designer's first choice

" EVERYMAN A.C. SUPER'

Also Mains Transformer as specified.
Aluminium clamp £2.



This is the Sound Sales famous 10hy Choke as also specified and used in all models of the "MONODIAL"

Sound Sales

products also used by leading TELE-VISIONcompanies and well-known experimenters.

Write for Lists "W" etc. -Mains Transformers - Chokes - Sound Speakers - Sound Unit (Class B), etc.

the Experts Specified by SALES SOUND SOUND SALES LTD. Tremlett Grove.
Highgate, London, N.19

GRAMOPHONES, PICK-UPS, ETC.

COLLARO Radio-gran Unit, motor lick-up, volume control, perfect condition, changing to automatic; £3.—Holmdene, Poole Rd. Bournemouth. [4295]

LOUD-SPEAKERS.

POR Speakers Refer to Last Week's Advertisement.— K.C. Radio Electric, 14, Handel St., Lendon, W.C. [4325]

FOR Speakers Refer to Last Week's Advertisement,— H.D. Radic Electrical Service, 9, Kingly St., London W.1.

TRADERS.-Loud speakers of all kinds, with your other requirements; catalogue 6d.-Perseus Radio, Burtonon-Trent

on-Trent.

R POCH. - Annual sale of surplus loudspeakers of all kinds, also sets, amplifiers and useful parts of every description; great bargams; lists on application.—Epoch Radio, Exmouth House, Exmouth 8t., E.C.1. [4294]

description; great bargains; lists on application.—Enoch Radio, Exmouth House. Exmouth 8t., E.C.1. [4294] 30 / -!!!—B.F.H. R.K. moving coil speakers, 6in, cone, new and unused, guaranteed; these speakers are the type as used in cineria sound equipment, suitable for public address work; weight 30lb., and vastly superior to the cheap speakers now on the market, 100 volts, 150 volts, and 200 volts D.C. [27] / 6!!!—6.volt B.C. speakers, as above; £2/7/6 speakers as above for 100.250 volts A.C., complete with field rectifier.

B.T.H. Transformer, brand new, ratios 1-1, 2-1, 20-1, and 30-1 microphone; 7/- cach.

M.AGNAVON D.C.144, 2.500 and 6.500 ohms, 17/6; carriage paid, cash with order or co.d.—Ward, 2nd Floor, 45, Farringdon 8t., E.C. (New address). [4201] R.ADIO AGENCIES Offer New Set Manufacturers' Surgius; all goods carriage paid, cash with order, or co.d. Moving coil speakers, Magnavox X core, 7/in, cones, 100-190 D.C., 2.500 ohms (40-76 m.a.), or 190-280 D.C., 6.500 ohms (29-43 m.a.), at 18/· each, Seniors, 9/in, cones, same voltages, at 25/· (U.S.A.); Rola's 7/in, cones (list 35), at 18/·; Seniors, 9in, cones, list 47/6 at 25/·, in following voltages; 2,000, 2,500, 6,500 ohms; on all speakers state if power or pentode transformer, all incorporate humburkers: also few duals, Class: "B" and permanent magnets.—Radio Agencies, No. 37 Albemarde St., London, W.1.

PICTURE RECEIVER APPARATUS.

TELEVISION Constructor's Guide, 1,3, illustrated treatalogue free. Augel Television, 16. Highbury 14296

VALVES.

L PTON Leads Again!—Bargains in Lissen, Tungsran, Triotron, Dario, valves.—H.210, H.L.210, L.G.210, H.R.210, 3-3; P.220, P.215, Z.D.2, 4-3.—Epton, 93, New Rd., Chingford, E.4.

A MERICAN Valves!—Brand new R.C.A. and Arcturus, 2248, 2478, 2558, 1518, 10/6; 2278, 2458, 2808, 7/6; cash with order, or co.d.—Norman Michel, 51, 81, Matthew's Parade, Northampton, [4318]

A 1.1. Types of Brand New American Valves in Stock, first class makes, guaranteed; 247, 235, 224, 244, 236, 18, 19, 15, 222, 238, 46, 59, 89, 24.7, 12/-: 80, 45, 226, 227, 8/-, 250, 281, 210, 17/6; post paid, cash with order or co.d.—Ward, 2nd Floor, 45, Parringdon St., E.C. (new address).

address). [4200]
CPECIAI, Offer.-Valves by world-famous Continental manufacturers, fully guaranteed, screen grid, variable mu screen grid, ligh magnification screen grid, low magnification screen grid, ligh magnification screen grid, low magnification screen grid, light magnification screen grid, light magnification screen grid, light magnification screen grid, light had been grid, light screen grid, light magnification screen grid, variable magnification screen grid, low magnification s

COMPONENTS, ETC., FOR SALE.

DREMIER SUPPLY STORES Offer the Following Set Manufacturers Surphis New Goods at a Fraction of the Original Cost, all goods guaranteed perfect, carriage paid over 5, under 5/- postage 6d, extra (Ireland, car-riage forward).

riage forward).

LUMIYATOR Kits, including transformer, choke, we sistances and diagram, 120v. 20 ma., 20/-; trickle charger 8/- extra; 150v. 30 milliamps, with 4v. 24, amps. C.T., L.T., 36/-; 20v. 100 milliamps, with 4v. 3-5 amps. C.T., L.T., 36/-; 20v. 100 milliamps, with 4v. 3-5 amps. C.T., L.T., 36/-; 20v. 100 milliamps, with 4v. 3-5 amps. C.T., L.T., 37/-6; 150v. 50 milliamps, with 4v. 3-5 amps. C.T., L.T., 37/-6; 150v. 50 milliamps. 27/-6.

with 4v. 3-5 amps. C.T., L.T., 50/-; 200v. 100 miniamps, with 4v. 3-5 amps. C.T., L.T., 49/6; 300v. 60 milliamps. 277/6.

T.C.C. Condensers, 750v. working. 2 mf., 3/6; 4 mf. 6/s. 4 mf. 450v. working 4 s. 250v. working 1 mf. 1/3, 2 mf. 1-9, 4 mf. 2/6; aqueous electrolytic, 440v. working, 4 mf. 19, 4 mf. 2/6; aqueous electrolytic, 440v. working, 4 mf. 19, 4 mf. 3/6.

A.L. the Following Lines 6d, each or 5/- per dozen; 4-dozen; 4-doze

table. Offer. Microphones by prominent manufacturer, high sensitivity, uniform response, complete with stand, transformer and battery; listed £3/15, our price 18/6.

(This advertisement continued on next page.)

NEW YEAR RESOLUTIONS

are supposed to be made to be broken

> If you wish to turn over a new leaf, being tired of

Boomy Bass, or No Bass at all. Shrill "Top," or No "Top" at all.

Odd Spots of Resonance. Distortion Inherent in your Speaker. Lack of Enjoyment of your Radio. General Fed-upness.

BUY A HARTLEY-TURNER

You will not be able to break that resolution, as the undistorted reproduction of our speaker IRRESISTABLE.

We are giving you a week's notice so that you can start the New Year well.

D.C. Model - 7 Gns.

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"New Notes in Radio," 11d., and worth it.

HARTLEYTURNER RADIO LTD.

Thornbury Rd., Isleworth, MIDDLESEX

Telephone: Hounslow 1854.



THEIR COLOURS

These Resistors are made from a special compound that is guaranteed for ever. Cannot disintegrate. Constant resistance. Silent in operation. In the unlikely event of any Resistor not giving full satisfaction, we will replace it willingly, or refund purchase price, without any time limit.

TRADEENQUIRIES INVITED A set of Resistors for any advertised Constructor's Kit sent post free by return for 8d per Resistor; or sample Resistor of any value sent for 8d post free together with COLOUR CHART.



Cne Hundred Resistance Values from 50 ohms to 2 megohms. Each one a separate Colour Combination.

SCIENTIFIC DEVELOPMENT Co. 55-57, Guildhall Street, PRESTON. Tel.: 4364.



Components, etc., for Sale.—Contd.

(This advertisement continued from previous page.)

PREMIER British Made Meters, meving iron, flush mounting, accurate; 6-15, 0-50, 0-100, 0-250 milliamps, 0-1, 0-5 amps,, all at 6...

PROOND Condensers, 2-gang, sum shielded, 2/6; wire wound potentiometers, 15,000 chars, 1/6.

PECIAL Offer of Mains Transcorners, manufactured by Philips, input 110-115v, cr 200-250v, output 180-0-180 volts, 40 m.a., 4v, 1a., and 4v, 3a., 4/6; 200-0-200v, 4v, 1a., 4v, 3a., 4/6.

ALL Premier Guaranteed Mains Transformers have engraver terminal strips with terminal connections, input 200-250 volts, 40-100 cycles, all windings paper interleaved.

A gracer terminal strips with terminal connections, input 200-256 volts, 40-100 cycles, all windings paper interleaved.

PREMIER H.T.8 Transformers, 250v. 60 m.a., rectified, with 4v. 351., C.T., L.T., and screen primary, 15/-; with Westinghouse rectifier, 25/-.

PREMIER H.T.9 Transformer, 300v. 100 m.a., rectified, with 4v. 351. C.T., L.T., and screened primary, 15/-; with Westinghouse rectifier, 26.-.

PREMIER H.T.10 Transformer, 200v. 100 m.a., rectified, with 4v. 355. C.T., L.T., and screened primary, 15/-; with Westinghouse rectifier, 26.-.

DOUBLE Spring Motors, made by Garrard, play five sides of 10in. record, complete with turntable and all fittings; 17/6.

SPECIAL Offer. Accumulator chargers, ipput 200-250v, 3.C. to charge 22 and 4-volt accumulators at 1-2 amp.; owing to the high efficiency of the silver oxide rectifier employed charger may be used during bradcast; 9/6 each, 500,000 ohms, 2/- each; ditto, were wound, 200 ohms and 400 ohms, 1/-.

A FEW More Only, -Western Electric 4211E's and 4211B's, 15/-; 4212's, 4.3; callers only.

WESTERN ELECTRIC Mains Transformers: 500-0.

203 annis, 4.: 1 amp., C.T., 4v. 1 amp., C.T., 19. 6.

RELIABLE Canned Coils with circuit; accurately matched; dual range; 3/- per coil.

PREMIER L.T. Supply Units, consisting of Premier transformer and Westinghouse rectifier, inputs 200-250 A.C., output 8v. 1/2 amp., 13 6; 8v. 1 amp., 17/6; 15v. i amp., 19/-; 6v. 2 amp., 27/6; 30v. 1a., 37 6.

PREMIER Mains Transformers, output 250-0-250 volts, on.a., 8/6.

PREMIER Mains Transformers, output 250-0-250 volts, on.a., 8/6.

m.a. 8/6.

PREMIER Mains Transformers, output 250-0-250 velts, 60 m.a., 4v. 3-5a, 4v. 2-3a., 4v. 1-2a. (all C.T.), with screened primary, 15/.

PREMIER Mains Transformers, output 350-0-350 velts, 90 m.a. 4v. 3-5a, 4v. 2-3a., 4v. 1-2a. (all C.T.), with screened primary, 15/.

PREMIER Mains Transformers, output 400-0-400 volts, 100 m.a., 4v. 4-5a., 4v. 2-3a., with screened primary, 15/.

PREMIER Mains Transformers, output 400-0-400 volts, 15/2, 100 m.a., 4v. 4.5a., 4v. 2.3a., with screened primary, 15/2.

PREMIER Auto Transformers, 100-110/200-250 volts or vice versa, 60-watt, 7/9; 100-watt, 10/2.

SPECIAL Offer of Manufacturers' Type Transformers, any input, output 250-0-250 volts, 60 m.a., 4v. 1a., 4v. 3a., thoth C.T.), 8/6; 11.T.8 transformer, with 4v. 3.4a. (C.T.), 8/6; vith rectifier, 18/6.

MAGNAVOX D.C.144, 2.500 ohms, 17/6; D.C.154, 2.500 ohms, 17/6; D.C.154, 2.500 ohms, 37/6; all complete with humbucking coils; please state whether power or pentode required; A.C. conversion kt for above types, 10/2; Magnavox P.M. 7in, cone, 18/6.

BUIGIN 3 amp. Mains Switch, 1/2; lover switches, 2, 3 or of milliamps, 4v. 1-2 amps, 4v. 2-3 amps., 8 6.

GRAMPION P.M. Loud-speakers, 9in, cone, handles 4 watts, 18/6.

GRAMPION M.C. Loud-speakers, 2,500 ohm feld, 9in, cone, handles 6 watts, 21...

I.M.V. Condenser Blocks, 4-44×1×0.5, 250v. working, 3/6; ditto, 400v. working, 5 6.

Elliot First-grade Moving Coil Meters, 0-30, 0-50, 0-100, 0-150 milliamps, projecting types, 15/2 each; 0-100, 150 milliamps, hush types, 17/6 each; D.T.H. Induction Type (A.C. only) Electric Gramophone Motors, 100-250v.; 30/2 complete.

APILION Moving Coil Speakers, type E.M.644, dual fields, 2,500 and 5,000 ohms [100 and 200v.), with output transformer, 12/6; A.C. conversion kit for this speaker, 10/2 extra.

WESTERN E.LECTRIC Condensers, 250v, working, 1 mfd, 1/2, 1/2. C.C. condensers, 250v. working, 6/11; 4×4×1, 6/2. SPECIAL Offer of Wire Wound Resistances, -4 watts any value up to 10,000 ohms, 1/2; 8 watts, any value 1 6×4×2×2×2 mid., 375v. working, 6/11; 4×4×1, 6 · .

SPECIAL Offer of Wire Wound Resistances.—4 watts any value up to 10,000 ohms, 1 · ; 8 watts, any value up to 15,000 ohms, 1 · ; 15 watts, any value up to 10,000 ohms, 2/; 25 watts, any value up to 50,000 ohms, 2/; 25 watts, any value up to 50,000 ohms, 3/6.

PREMIER SUPPLY STORES, 20-22. High St. Clapham, S.W.4. Macaulay 2188. Clased 1 o'clock Wednesdays, open to 9 o'clock Saturdays. Nearest Station, Clapham North Underground.

PREMIER.

MAINS RADIO'S Exclusive Guaranteed Surplus, as new, carriage paid, or call.

ERIE Half-watt Resistors, colcur coded, 4½d., 2½ half dozen; one-watt colour coded resistors, 5½d., 2 6 half dozen; all sizes, your selection.

T.C.C. Condensers, 1 mfd., 250v. working, 1½; 0.01 and 0.1 tubular, 350v. working, 6d.; Class B driver transformer and choke, 9/6, matched pair.

DERMANENT Magnet Sinchair M.C.s, new, boxed, 7in. cone, 20/6; ditto, energised, 16/6; Clix 4 and 5-pin chasis v.-holders, 1/6 half dozen.

CENTRALAB 10.000 and 15.000 Potentiometers, with mains switch, 1/11; 100.000, no switch, 1/3

THREEGANG 0.0005 Trimmers, drum drive, 4, 11; De Forest 432 S.G. valves, 2; complete suit ase portable cases, 3/11.

cases, 3/11.

CTERLING Block Condensers, 250v. working, 4×4×1×

1×1×1×1×1×1 mid., 3/11; ten 0.1 mids, 2/7; Polymet,
0.0001, 0.001, 0.002, fixed, 1/- half dozen.—Mains Radio
Development Co., 4-6, Muswell Hill Rd., London, N.6.
[4273]

I-WATT Carbon Resistances, 500 ohms to ¼ megohm, 114d., 1/- dozen, plus postage; special for quantities.-54, Herne Illil Rd., S.E.24. [4230]

"W.W. Battery Three" Chassis and Components, half list price; Ferranti A.F.5, 18'6; O.P.M.1c, 14 ., -51, Bemsted Rd., Walthamstow, E.17. [4317



Literature and prices on request.

& Cables Ltd., St. Chad's Place, EE4. Gray's Irn Rd., London, W.C.1

FEL-ECTRIC-A.C. ELIMINATORS

From 39 6 120 v. 12m a. UNEQUALLED "Class B" Amplifier Unit 23 -.

DUALITY SATISFACTION

ASK YOUR DEALER.

FEL-ECTRIC RADIO, Garden St., SHEFFIELD. Sheffield 20795



(PROPRIETORS : OLIVER PELL CONTROL, LTD.)

TRANSFORMER AND CHOKE STAMPINGS, INSTRUMENT AND RESISTANCE WIRES.

Lists Free

LUMEN ELECTRIC CO. 9, SCARISBRICK AVE., LITHERLAND, LIVERPOOL, 21

RADIO

Send for 16 page Catalogue of Modern Designs, post free.

From 10 = each.

STENIBAC LTD. (W.W.), Islington, London, N.1.



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POSTLETHWAITE Bros. KINVER, STOURBRIDGE





The weekly journal for all who keep Canaries, British Hybrids or Foreign Pet Birds.

EVERY FRIDAY 2d.

Specimen copy of recent issue tree on request from The Publisher (W.W.), Dorset House Stamford St., hondon S.R.,



HERE'S THE 1934 HANDBOOK

New blueprints and circuit diagrams for the construction of

Mains Units, Battery Chargers and Units for energising low voltage M.C. speakers. Helpful hints and technical data for those interested in mains working. Complete details of the wide range of Mains Units, Class B' Units, Transformers, Battery Chargers, Amplifiers and Condensers manufactured by Heayberd—the Mains Specialists! All completely revised and up to date.

P	OST NOW	
Lenclose 3d, in stamps wide range of Heayber	for 35pp, book l Mains Produc	let describing the ls,
		ock letters please.)
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Address		
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10, FINSBURY STREET, LONDON, E.C.2

What about January?

When the wave lengths are changed will your set still be up-to-date? It is typical of the foresight in H.S.P. sets, that they will remain unaffected, and will incur their owners in neither trouble nor expense.

$H \cdot S \cdot P$ RADIOGRAM

AUTO RECORD **CHANGER**

The only British Instrument of its kind at the price.

All mains...A.C. or D.C... fitted Garrard Auto Re-cord Changer playing eight tunes ... circuit eight tunes ... circuit comprises I H.F. Screened Grid Stage, power pentode detector, special pentode and 25 output and indirectly heated rectifier.



Please send me FREE literature

Address WRITE IN PENCH

WIRELESS

Langford Works WESTON-SUPER-MARE

Components, etc., for Sale,-Contd.

 \mathbf{R}

SELECTED Parts for Sale, as new; c.o.d. or "Wire-less World" deposit system, which we recommend if in doubt as to the splendid value offered; we take risk of damage in transit to our customers; goods tested for uaranteed.

FERRANTI A.C. Speaker for 200-250v. A.C., listed £9/10, £4/10; pair Magnavox 144 dual speakers, 2,500 ohm each, £2 pair; Westinghouse H.T.7, 9-4; H.T.8, 9-6; H.T.9 10/6; Blue Spot, class B.P.M., listed 32, 6, 20-.

FERRANTI Bandpass Unit Complete 45 -: Seradex mains transformer, 500v., etc., 25 -: Savage 500v., 20 -: Vortexien 450v., 20 -: Stronded Gambrell J. Novetone, for medium resistance P.U., 30, ! Pelar drum dials, 2,9; Ferranti pertable type volumeter, 1,000 ohm per., 10-50-250v., 45 -:

I.M.V., 5 6; I.C.C. 0.01 mica, type M, 1.-; Telsen new 0.05 mica, 2.3

J.B. Universal log, 0.0005 variable, 3 6 each; pair Colvern 4(2R coils, 4/6; valve rectifier, complete, 150v. 50 m.a., for field energiser, 15 : B.T.H. Golden disc induction motor, perfect, £2.

L. POCH 20c speaker, new, 25,-; R.I. Q.P.P. transformer and clicke second-hand, 19 -; Varley impedance matching transformer, 7 6, for Figh re-istance speakers. PECIAL Offer of Ryall's 4v. 3 amp. C.T. Filament Transformers, input 200, 250v., 6 9 each to clear; Ryall's 4 mf., 250v. working 3 6; all guaranteed 12 months. RAHOPHONE Disc Drives, new, with large escutcheon plate complete, fit \(^1_{\text{off}}\) in, spindle, read 0-100 from left to right; 5 6, post free.

SPECIAL offer of 3v. and Rectifier (valve) Chassis, from Vagerphone, all guaranteed, new, and very well made, thassis only: 50 -; with valves 80 -.

D. Vall, S. RAMED Offer Reliable Resistances, suitable.

cosequence, an guaranteen, new, and very well made, thassis only; 50 · with valves 80 ·.

RYALL'S (RADIO Offer Reliable Resistance's suitable for all sets where a 1-wait resistance is specified, in values 100, 250, 500, 1,000, 2,000, 5000, 10,000, 15,000, 20,000 25,000, 30,000, 40,000, 50,000, 75,000, 100,000, 15,000, 250,000, 15,000, 2-mega, all values state 1 in ohms, 64, cach; also 2-3-wait type, 1,000 10,000, 9d.

EDISON RELL 10,000 Eureka, wire wound, with helders, 1 : Lahson Bell 0,0005 universal log all metal condensets, 1 6, new

SPECIAL Offer of Pye 20h, Chokes, 40 m.a., 130 m.a., maximum D.C, resistance 300 ohms, in brown crystaline finish, new unused, Pye 32h, chokes, D.C, resistance 756 ohms, 36 fo.a., 80 m.a. maximum, ditto, 4 6 cach, 16st free.

DYALL'S RADIO, 33, Chancery Lane, London, W Co.

DHONE: Clistold 5001.

PEN All Day Phursday, closed 8 durday.

24. Mildmay Grove, London, N.1.

OUTHERN RADIO'S Wireless Bargains.—Set manufacturers' guaranteed surplus.

VARIABLE Condensers.—Lotus 2-gang 0.0005 complete with dial, knob, escutcheon, 8-6; tuffy screened with tenniors, and boxed; Laugs Dyblock single variable condensers, 0.0005, complete with dial, escutcheon, etc., 4-9 (list 9-6); Hydra blees condensers, new, 16 initial, 2-2+8+2+1+1, 1,000 volt test, 7+ cach; 4 infd., 2-6; 2 infd., 1-9; 1 infd., 1-; Helliesens 8 initial, electrolytic, 3-cach; block condensers, 1,500 volt, with terminals, 10 infd. (2+2+2+2+2+1+1), 8/5; 20 infd. (2+2+2+2+2+2+2+2+2+1+1+1+1), 12-9.

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UNIKNOBS, Polar 2-gang, Lew, brown, 9 -, with cover 10 6: Polar disc drive, complete with Polar No. 4, 0.0005; listed 9 -, 4/6 the two.

RADIOPHONE 100,000 ohm pots, 2 -; R. & A. type output transformers, 18-23-32-1, 5 -; Paxolin formers, 1in., 8d.

T.C.C. Condenser Blocks, 250v. working, 4×4 mfd., 3/6; H.M.V. 4×4, 3/-; T.C.C. 4×4+1+1×12, 4/6; H.M.V., 3/6; T.C.C. 0.01 mica, type M. 1/-; Telsen new 0.05 mica, 2/3

RYALL'S RADIO, 33, Chancery Lane, London, W.C.2 (nearest Tube Chancery Lane; bus 67 passes door, or train to Sevoy St.). Holborn 3529. Open Saturday afternoon. Close 7 p.m., Thursdays 1 o'clock, Saturday

M H.DMAY RADIO EXCHANGE Offers the Following, sound and periect, SPECIAL Offer, 6 only,—5-valve A.C. mains chassis, complete with the following valves: 2 A.C. Var. Mu.'s, A.C. screen grid as a detector Pentode output, and a D.W.3 rectifier, suitable for use with 2.500 ohms speaker;

a D.W.3 tertifier, suitable for use with 2.500 ohms speaker; net price C6.

MARCON1 Speaker Magnets (only), weighs 14lb., 15 ::
MARCON1 Speaker Magnets (only), weighs 14lb., 15 ::
MARCON1 Speaker Magnets (only), weighs 14lb., 15 ::
ARCON1 Speaker Magnets (only), weighs 14lb., 15 ::
Ferranti A.F.4, 8; A.F.3, 11 :: A.F.6, 17 :: A.F.5c, 19 :: A.F.5c, 20 ::
D.P.M.2c, 12 6; O.P.M.3c, 12 6.
WESTON, Type 301, 0-100 volt, 17 6: pair Varley intermediate coils, 12 6; Radiopax superhet, model, 37 6; pair Colverdyus, 12 6; Varley, Nicore I. 9; Varley Nicore II. 6 6; Wearite and Lowcos superhet coils, 4 6 cach; Radiophone 4-gang condensers, fully screened, 16 :: pair Colvern K.B.L.C. and one K.G.R., 17 :: ditto, mounted on "Wireless World" chassis, 19 :: pair K.B.L.C., also pair K.G.C., 20 :; Lewoss B.P.F. 6, 7 :: T.O.S. G., 5 6; pair R. 1, Q.P.P. transformers, 15 :.

PEAKERS. Permanent magnet speakers, 7in, cone, 28—3 PEAKERS. Permanent magnet speakers, 7in, cone, 28—6, third 49/61; D.C. 1 aims energised, 2,500 to 6,500 ohms, complete with lumbticking coils and transformers, 16 6 (list 39 6); Magnavox D.C. moving coil speakers, latest type, "154," all voltages, 17 6 each; G.E.C. Stork speakers, complete in magnificent cabinet, 19 6 (list of 25 1); Ormonde speakers, complete in cabinets, 16—(listed 25 1); Blue Spet, 100U, 13, 6 (list 39 6).

READY RADIO "303" A Kits, complete with cabinet, M.C. speaker, less valves, £2 5; with 3 Mulland valves (P.M.IL.F., P.M.2D.X., P.M.2), £3, 5 (list 59 17 6).

R EADY RADIO Meteor "A" 3-valve Seigen Grid Kit, complete with cabinet, M.C. speaker, less valves, 23/7 6; with 3 Mullard valves (P.M.12A., P.M.2D.X., P.M.2A.), \$4 10 (list £8 7-6).

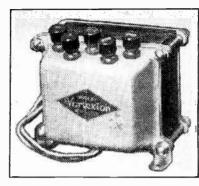
R EADY RADIO S.T.400 Kits, as specified by Scott Tag-gart; £2 19,6 each (list £4 17 6).

(This advertisement continued on next page.)

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MAINS CHCKES & **TRANSFORMERS**

of Superlative Quality



for the

EVERYMA A.C. SUPER

SMOCTHING CHOKE for this 10 henrys

A.V.C. STRAIGHT 4

SUPER MODEL MAINS TRANSFORMER. Exactly as specified by the Designer, Fully shrouded

SPECIAL POWER SMOOTHING CHOKE for this receiver. Details as specified

A.V.C. THREE

VORTEXION A.C. 34 MAINS TRANSFORMER. Specified by the Designer, 275-0-275 v. at 60 m.a. 4 v. 4 a. and 4 v. 2.5 a. Screened primary, shrouded as illustrated.....

SPECIAL POWER SMOOTHING CHOKE for this receiver, 30 henrys 50 III.st.

Every Transformer is massively built of best quality material. Varnished paper interleaving's subjected to 2,000 volts test between windings, ensures an exceptionally large safety factor.

All Transformers and Chokes for Wireless World Receivers are guaranteed to be exactly to designer's specification.

VORTEXION WILL NEVER LET YOU DOWN.

For complete range of Mains Transformers and Chokes see under Miscellaneous Advertisements.

182. THE BROADWAY, WIMBLEDON, S.W.19.

'Phone: Liberty 2814.

Components, etc., for Sale,-Contd.

(This advertisement continued from previous page.)

B.T.H. Senior Pick-ups, 1934 model, with volume control, 28/6 cach (list 37 6); H.M.V. volume controls, 1.6 cach (list 12 6); Blue Spot puck-ups, with volume control, Model No. 38 (listed 63 -), 26/- cach; Radiophone volume controls, with switch, 3-cach (list 10.6); Amplion loud-speaker units, 2/3 (list 12,6).

RECEIVERS.—Burgoyne 3-valve transportable, complete wit 1 3 Cossor valves, batteries and accumulator, 43 2 6; betest Class B 3 Burgoyne, complete with 3 valves, batteries, accumulator, moving coil speaker, in latest oblong cabinet, £5 5, new, in original cartens.

MISCELLANEOUS Bargains.

DUBILIER 4 mfd. Condensers (2±1±1), 1,000 volt test, 2 9 each; 4.5 mfd., 1,000 volt test (2.25±2.25), 3 - each; mains switches, 3 amps. 250 volt, 8d. each, 7 6 dozen; Lumophon D.C. mains energised moving coil speakers, 6,500 ohms, with terminals, 11/6 each (1:sted 39-6); Phro All-in-One radiometers, latest bakelite cased, 9.3 each (1:st-12-6); Ferr-cart coils, G1, G2, and G3, 32 per set; 8.T.4.500 coils, 5 6 per pair; Edison plug-in-inductance coils, all values from 20 upwards, contretapped, 3d. each, 7-6 per dozen, assorted values; metal chassis, ready bored for 5 or 4 valves, 11in, 91cin, 31cin, 1-6 each, 1.T., 2v., at 6 amps., 4 volts at 4 amps., 200-250 volts, 11-6 each.

A LL Goods Guaranteed and Sent Carriage paid.

BRANCHES at 271-275, High Rd., Willesden Green, N.W.10, and at 46, Lisle St., W.C.2; please s.nd all post orders to 323, Euston Rd., N.W.1.

SOUTHERN RADIO, 323, Euston Rd., London, N.W.1 (near Warren St. Tube). 'Phone: Museum 6324

METERS Moving Coil, Weston 301; 10 m.a. and up-wards, 22 6; Galvos 30-0-30, 27 6.

NEW British Made, 1 m.a., 27 6; 250 volts (1.000 w. per volt), 32 6; Turners 20 m.a. upwards, 17 6; thermo ammeters, 1.5a, 22 6; French 3-range, 3 m.a., 6v., 240v., 22 6; 2-tange, 2 m.a., 240v., 20 -; German 2 m.a., 55 -; 2.000 volts 32 6; resented makers, 25 m.a. and upwards 10/6; lab-ratory apparatus in stock; meter repairs a speciality. The Victa Electrical Co., 47, High St., Battersea, S.W.11. Phone; Batt. 0780.

GILBERT INDUSTRIES, Ltd., 519, London Rd., West-cliff-on-Sea Essex. Phone: 492071 Southend.

WE are disjosing of the whole of the imported stock of the famous "Hydra" (Hydrawerk) condensers at fraction of the original cost.

 $\mathbf{E}^{ ext{VERY Condenser}}$ is New and Perfect! See display advert. December 1, page 15

0.1 mfd., 250-500, 6d.; C.1 mfd., 400-1,000, 9d.; 1 mfd., 250-500, 9d.; 1 mfd., 400-1,000, 1/3; 1 mfd., 500-1,500, 1 9; 2 mfd., 400-1,000, 1/3; 1 mfd., 500-1,000, 1/3; 2 mfd., 300-700, 1 6; 2 mfd., 400-1,000, 1 9; 2 mfd., 500-1,500, 2 6; 2 mfd., 500-2,000, 4 ; 4 mfd., 250-500, 2/2; 4 mfd., 300-700, 2 6; 4 mfd., 400-1,000, 3/-; 4 mfd., 500-1,500, 3/6

SET Manufacturers' Surplus,-Hellesens' 8 mfd. electrolytics, fluid type, 435v. working, very limited quantity; 3 6.

A SPECIAL Offer of the Famous R.S.350 Transformer, 750-0-350 at 85 m.a., 4v. 4 to 6 amp. C.T., 4v. 2 amp. rect. (D.W.3): 2.600 of these have been sold by us in the last 18 months, and we guarantee them out and out! At 10.6 each.

INTER-VALVE Transformers — "Lewcos," L.F.T.6.A, ratio 6:1, 5 6; L.F.T.4, ratio 4-1, 4/6.

BAND-PASS Units—Lewcos Band-pass filter dual ceil, 210-550 m., and 1.000-2,000 nl., 7/6; Duo Amsto 2.gang condensers, trimmers, complete disc drive, escutheon, knob, etc., 6 6.

L EWCOS All-wave H.F. Chokes.—A "pukka" job, fully screened; listed 6 6 and offered at 3/6.

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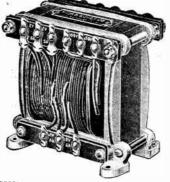
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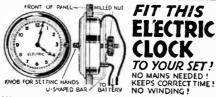
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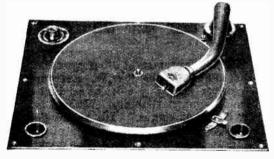
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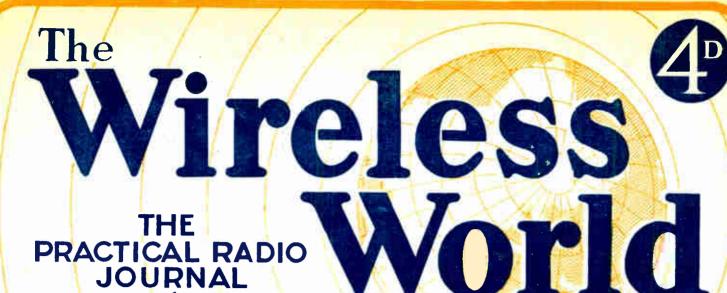
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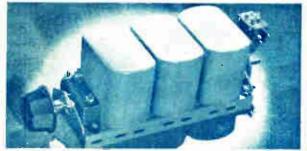
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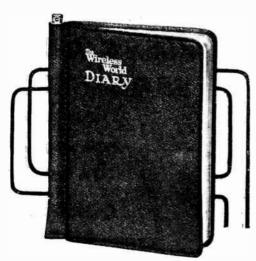
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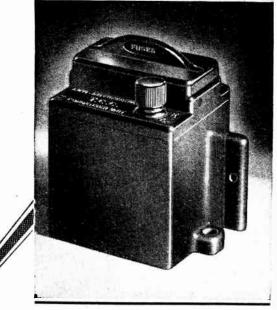
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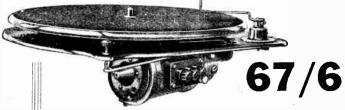
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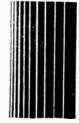
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As many of the circuits and apparatus described in these pages are covered by patents, readers are advised, before making use of them, to satisfy themselves that they would not be infringing patents.

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EDITORIAL COMMENT

Interference

France Takes Action

ET another European country has taken official action to bring about a reduction in electrical interference with broadcast reception, and so makes it all the more imperative that we in this country should make haste to follow suit. In France a Decree has been issued, under the date of December 1st, which makes manufacturers, sellers, and installers of apparatus responsible if interference with reception is caused. The Minister of Posts, Telegraphs and Telephones is to be advised by a specially appointed body as to the measures which should be adopted to suppress the interference, and this body is also to recommend when the amount of interference caused is insufficient to be regarded as a nuisance or where the cost of suppressing the interference would be out of proportion to the importance of the apparatus concerned.

France has certainly gone about the task of suppressing interference on rather different lines from our own. Here it would seem that the procedure will be, first to decide what reasonable action can be taken to suppress interference, and then to consider the framing of legislation to meet the requirements.

the new Decree is to make it an offence to cause interference and to throw the responsibility on to the producers of the electrical plant itself. allowed under this exceptions Decree will be as a result of recommendations by the body of experts

In France the immediate effect of

appointed to advise the French Post Office.

There is, perhaps, a tendency here to approach the matter over-cautiously, and in some quarters we believe it is even considered possible that inter-

ference could be abolished, or substantially reduced, without recourse to legislation. As we have pointed out, however, on previous occasions, legislation alone can ensure that the suppression of inferference takes place in an orderly fashion and by means which will operate with fairness to all parties concerned. Any voluntary agreement amongst electrical apparatus manufacturers to make their products interference free would act most unfairly unless legislation were introduced to make this voluntary agreement a compulsory one on every manufacturer.

Anti-propaganda Efforts

Attempt to End an Abuse of Broadcasting

THE Paris Institute of Intellectual Co-operation is considering the possibility of approaching various governments with the idea of calling an international convention to prohibit the broadcasting of radio propaganda of such a character as to endanger the good relations between various nations of Europe.

The extreme desirability of some agreement which would bring an end to propaganda of this nature has been felt for some considerable time, and the longer such forms of propaganda are indulged in the more difficult will it become to agree upon a common policy to end it. Broadcasting has already been responsible for a good deal of friction due to this cause, and it is highly desirable that it should be discontinued. If it is permitted to go on there can only be one effective means of countering it, and this would be for every nation to retaliate by similar means whenever propaganda offensive to their interests was broadcast. The result might indeed be disastrous.

The Wireless World

Everyman A.C. Super

Building and Adjusting the New Four-valve Superheterodyne

By W. T. COCKING

THE principles underlying the design of the new superheterodyne were described in last week's issue of *The Wireless World*, and it remains to deal with the construction and initial adjustments and to give some notes upon the performance to be expected. There is little in the actual building which calls for comment, since the aluminiumcovered chassis is obtainable with the large holes ready drilled, and the same applies to the cabinet. The positions of the various components will be clear from the drawings which accompany this article. and the order in which they are assembled is unimportant. All fixing screws should be made thoroughly tight, not merely for the sake of rigidity, but because some of them are used for earth connections to the chassis. Resistances, small condensers, and the Westectors are, of course, supported by their connections.

The wiring will be found quite straightforward, and it is recommended that tinned copper wire be used and run in insulating sleeving. As far as possible the general run of wiring of the original set should be retained, for deviations in the positions of leads will often have as untoward an effect as alterations in the layout of components. Indeed, in these days of screen coils and condensers, the wiring is usually the more important.

The Cabinet

It will have been observed that the cabinet work specified for this receiver is in two parts, one for containing the receiver and the other for housing the loud speaker. Although the chief advantage of this arrangement is one of practical convenience in being able to use the set and speaker in different rooms, it is not without some technical significance, It is a common experience that when speaker and receiver are both included in the same cabinet acoustic reaction to the valves or variable condenser may cause howling or a bass resonance. In order to avoid this the receiver chassis is often mounted on sponge rubber, but this sometimes leads to mechanical difficulties in the construction. With the two unit arrangement adopted for this receiver, there is considerably less chance of acoustic reaction, even when the speaker case is standing directly upon the receiver cabinet, but if it should occur it is a very simple matter to remove

THE new fourvalve superheterodyne
is capable of an outstandingly high
performance judged from all points of
view, and it undoubtedly forms an
ideal type of receiver for all-round

(Concluded from page 474 of
last week's issue)

THE new fourvalve superheterodyne
is capable of an outstandingly high
performance judged from all points of
view, and it undoubtedly forms an
ideal type of receiver for all-round

it by placing a sheet of sponge rubber between the two.

purposes. In this article the con-

struction is dealt with and details are

given of the best ganging procedure

together with operating notes and a

description of the performance of

the set.

Since the speaker field is used for smoothing, four extension wires are necessary if the speaker be used at any distance from the receiver. It might be thought that this would introduce a serious risk of hum, but it has been the writer's experience that this is not so, and he has successfully employed leads up to 5oft. in length with this arrangement. Much depends upon circumstances, however, and there is undoubtedly a possibility of hum pick-up in these leads.

The initial adjustments required are only to the ganging of the signal frequency circuits and to the trimming of the L.F. transformers. The latter should be tackled first, and the best procedure is to tune in a station and then loosen the L.F. couplings as far as possible without losing it altogether. Each I.F. trimmer should then be adjusted for maximum signal strength. If the station selected is a strong one, difficulty may be found in accurately determining the optimum trimmer settings owing to the action of A.V.C. in smoothing out the variations in volume. The difficulty may be overcome in several ways—a weaker station may be selected, the switch SI may be opened and the volume reduced to a whisper by adjusting R9, or a milliammeter

or voltmeter may be used as a tuning indictator. This last is undoubtedly the best, and a milliammeter should be connected in circuit at the point "X" on the circuit diagram; a low range voltmeter may be used as an alternative, and in this case it should be connected across the bias resistance R8. Whichever be used, the meter will read a maximum with no signal, and its reading will decrease whenever a signal strong enough to operate A.V.C. is tuned in. Trimming, therefore, should be carried out for a minimum reading on the meter. When satisfied with the adjustments, the two couplings should be varied for maximum sensitivity, as indicated either by loudest signals or a minimum reading on the meter.

Ganging

The I.F. circuits are now in resonance with one another and the couplings are adjusted for maximum sensitivity, but it is not yet known whether the circuits as a whole are peaked at the correct frequency of 110 kc/s. The next step, therefore, is to make a rough adjustment of the preselector trimmers. A station on as low a wavelength as possible should be tuned in, and the two preselector trimmers (the back and middle gang condenser sections) adjusted for maximum audible response or minimum current on the meter. Even although the ganging may not be accurate, it should now be possible to receive stations over the whole of the medium waveband, but second channel whistles may be evident.

It is with the aid of these that the intermediate frequency is checked, for a strong whistle should be found at this stage when a station working on a frequency

Everyman A.C. Super-

220 kc/s lower than that of the local is tuned in. Under the present arrangement of stations, this means that a whistle should be found on North Regional due to second channel interference from London Regional when the set is operated at a short distance from the latter station. Should the whistle occur at some other point it is a sign that the intermediate frequency has been adjusted to the wrong value and it should be appropriately altered until it is correct. If the whistle falls on a higher wavelength (lower frequency) station, the intermediate frequency chosen is too high, and all the I.F. trimmers should be screwed up somewhat.

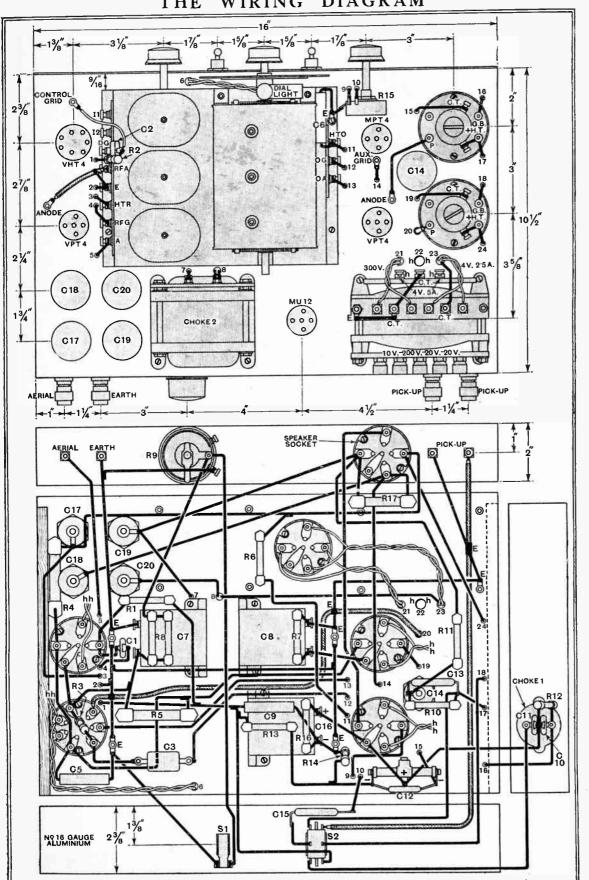
When the correct frequency has been found in this manner, the I.F. circuits should be trimmed accurately in the way already described, and they will then ra-

quire no further adjustments, save perhaps to the couplings. In some locations, where there is no local station to produce a second channel whistle, the choice of the correct intermediate frequency is not so easy, and it is fortunate, therefore, that it is then not so important. In this case, the only method of checking the frequency which is possible in the absence of a calibrated oscillator is through the accuracy of ganging of the preselector and oscillator circuits. These should next receive attention, therefore.

As explained already, a wavelength station low should be selected upon which to carry out the adjustments. This station should preferably be working below 250 metres and it should not be one subject to fading. Having tuned it in accurately, adjust each preselector trimmer for maxiresponse niiim without touching the oscillator trimmer (front section of the gang condenser). Should it be found that either of the preselector trimmers must be fully unscrewed or fully screwed home, the oscillator trimmer must be slightly altered in the opposite direction and the station retuned by the tuning control. This should be repeated until a definite optimum setting for each preselector trimmer is secured. No difficulty is likely to be encountered except in the case of the aerial trinmer (rear section of the condenser); here it might be found that the trimmer has always to be at minimum. This is only likely when the aerial has an unusually high capacity to earth, and the remedy is either to alter the aerial or to insert a condenser in series with the aerial lead to the set. Such a condenser should have a capacity of the order of 0.0002/0.0005 mfd.; normally, or course, it will be unnecessary.

When accurate ganging has thus been obtained at a low wavelength, a station on a higher wavelength around

DIAGRAM THE WIRING



The components and all wiring connections are easily identified in this diagram.

Everyman A.C. Super-

500 metres should be tuned in. At this wavelength the preselector trimmers must not be touched, and only the oscillator trimmer must be adjusted. Since the setting of this trimmer controls the dial settings, the trimmer must be adjusted with one hand while the other alters the tuning control so that the station is not lost. At first, try increasing the capacity of the oscillator trimmer, at the same time reducing the dial setting so that the station remains in tune; if signal strength increases, as indicated aurally or by the meter, continue until the optimum combination of settings is found. If signal strength is reduced, however, proceed in the other direction; that is, reduce the capacity of the trimmer while increasing the dial reading.

When this has been done, return to the low wavelength station, and readjust the two preselector trimmers for maximum response. The ganging should now hold quite well over the whole of the medium waveband, but if the greatest accuracy is required the whole process should be repeated. If it should be found that the ganging does not hold, it is a sign, in the absence of a defect in the receiver, that the I.F. circuits are adjusted to the wrong frequency, and it is through this that the correct frequency is found in cases where the set is used too far from a local station for the second channel whistle to occur.

The I.F. Circuits

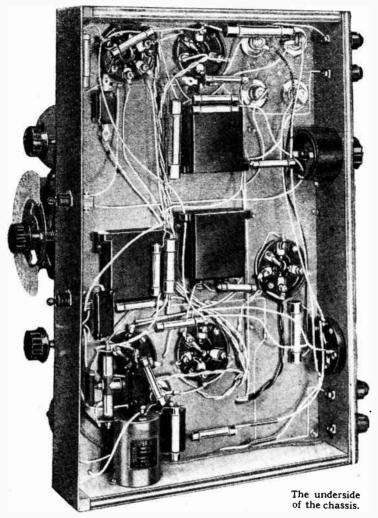
If it be found that after every adjustment at a low wavelength the oscillator trimmer has to be increased for accurate ganging at a high wavelength, it is a sign that the I.F. circuits are adjusted to too The I.F. trimmers, high a frequency. therefore, should be increased. accurate medium wave ganging has been secured, the long waveband should receive attention, and the ganging here is extremely easy, for the only adjustment required is to the padding condenser C4, which can be reached through a hole in the front of the Radiopak. A station such as Huizen or Radio Paris should be tuned in, and the padding condenser adjusted while rocking the gang condenser backwards and forwards over a few degrees until the optimum combination of settings. The procedure is the same as that for ganging at 500 metres, save that the padding condenser is adjusted instead of the oscillator trimmer.

The only adjustments remaining are to the I.F. couplings, and these are normally made for the best quality of reproduction. The adjacent channel selectivity is also controlled by the couplings, and it should be remembered that, in general, the looser the coupling the higher the selectivity, the lower the sensitivity, and the poorer the quality. This does not apply exactly, however, for optimum settings for quality can usually be found, and it is recommended that these be adopted.

A certain amount of sideband cutting in these circuits is to be welcomed, for it is used to compensate for the tendency of the pentode to over-accentuate the A full-size blue print of the wiring diagram is available from the Publisher, Dorset House, Stamford Street, London, S.E.1. Price 1s. 6d. post free.

upper register. Put in another way, the pentode provides automatic tone correction for sideband cutting. This effect is absent on gramophone, however, so the by-pass condenser in the L.F. coupling is given a sufficiently high value to maintain the correct frequency response.

No adjustments are necessary on the gramophone side, and the manual volume control is operative on both radio and gramophone. Care should be taken, how-



ever, to keep the pick-up leads well away from the speaker connections, otherwise a high-pitched howl may occur. In order to avoid any possibility of this trouble, it is a wise plan to screen the pick-up connections. Since the I.F. valve is used as a low frequency amplifier for reproducing gramophone records, the tendency for a break-through of radio on gramophone is greater than usual. It may be completely avoided, however, by operating

the set on gramophone with the switch S_I open and the resistance R₉ set to a high value.

The adjustments necessary before the best operation can be secured are not difficult to carry out in practice, but no attempt

should be made to hurry the process of ganging, and it will be found best to proceed methodically, satisfying oneself that each adjustment is satisfactory before going on to the next.

The receiver has been tested in the heart of London and it gave a very good account of itself. The sensitivity proved adequate for the reception of a number of Continental stations, such as Langenberg, Brussels, Fécamp, Huizen, Zeesen and Paris at full loud speaker strength in daylight, while after dark dozens of stations were available. Although stations immediately adjacent in wavelength to the local could not be secured, those

spaced from it by more than about 15 kc/s could be received free from interference, showing that the selectivity is of a sufficiently high order to satisfy most requirements.

The quality of reproduction proved very satisfying and of sufficiently high order for real musical entertainment. volume obtainable was great enough for all but the very largest rooms, and hum was completely absent. A.V.C. proved to have a wide range of control and would hold down the local stations to the level of Continental strong transmissions, while removing many of the effects of fading from the latter. For local reception, however, it is advised that the switch SI be opened and R9 adjusted to a suitable value in order to avoid any possibility of distortion due to overloading of one

of the early valves. Since the sensitivity rises between stations, background may be loud while tuning. To overcome this, tuning should be carried out with SI open and R9 adjusted to a convenient value, but when the station has been tuned in, SI should be closed in order to secure the maximum immunity from fading.

A specimen receiver built to the specification described in this article is available for inspection by readers at 116, Fleet Street, E.C.4.

VOLTAGES AND CURRENTS

Туре.	Anode Volts.	Screen Volts.	Grid Bias.	Anode Current.	Screen Current,
H.F.: V.P.T.4 .	. 200	100	- 2.9	5.0	3 mA.
F.C.: V.H.T.4, Tet	. 200	100	2.9	3.2	2.5
Osc	. 150			2.7	
I.F.: V.P.T.4	. 200	100	4.3	5.0	2.9
Out.: M.P.T.4	. 250	263	13	40.0	8.5

Practical **HINTS AND**

I T is common practice to wire the heater circuits of A.C. valves with twisted flex wires. The reason for this is that the leads are in this way rendered more or less non-inductive, and so the possibility of transferring unwanted A.C. potentials to other

"Go" and
"Return"
Wires.

circuits is largely avoided. Incidentally, it may be pointed out that there is no especial virtue in

twisted leads; it would be just as satisfactory if the two wires were laid side-by-side.

This principle of running "go" and

"return" leads side-by-side in pairs may sometimes be applied elsewhere in a receiver with advantage; at any rate, it may help to minimise hum, or even to prevent actual instability which might otherwise be caused by long connecting leads. For instance, the addition of a milliammeter in the anode circuit of a detector valve will, it is well known, occasionally cause uncontrollable self-oscillation, especially if the instrument be wired with long straggling leads which are allowed to pass close to apparatus associated with preceding tuned circuits. It is therefore safest to wire a testing meter with twisted flex or twin flat-laid wires in the manner indicated diagramatically in Fig. 2 (a).

In considering this diagram, it will be realised that any H.F. energy flowing through the milliammeter is an unwanted "by-product" which has escaped the filtering effect of the H.F. choke, etc. Therefore it follows that any losses in the twisted leads are of no account. But, even in H.F. circuits where losses do

AIDS TO BETTER RECEPTION

are both screened, but perforce are mounted some distance apart. If this circuit were wired as suggested in diagram (c), the possibility of interaction between it and neighbouring circuits would be greatly reduced. At the same time, losses and self-capacity might be increased slightly, but not seriously, if bare wires were employed for the connections.

In addition to its uses for testing condensers in the manner recently described in these columns, the neon lamp makes a satisfactory continuity indicator for testing through resistances of quite high value (fixed or variable); as well as

the windings of chokes, transformers, etc.

Neon Test etc

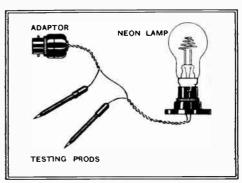
An ordinary Osglim lamp, which is easily be arranged as a tester in

obtained, may be arranged as a tester in the manner shown in the accompanying illustration. The source of voltage may be the mains, the H.T. supply unit, or even an H.T. battery when voltage is sufficiently high. It will be observed that the neon lamp, when connected across the component under test, glows with varying brilliancy and area, depending on the value of resistance in circuit; with a little experience one can make a fairly accurate estimate of the actual resistance value.

When connected in series with the source of A.C. voltage, the simple neon

city value. The absence of glow indicates, of course, an internal disconnection or excessively low capacity, while full glow on a supposedly low capacity would indicate a short-circuit.

TIPS



A neon lamp passes a low current, and can be used with safety as a continuity indicator for many purposes.

THE general rule which says "the more controlled stages the better" is a good one to observe when planning any receiver with automatic volume control. For instance, when dealing with a superheterodyne, one might even go to the

Over-control

length of fitting a second I.F. stage merely in order to get good A.V.C., and not because the extra

valve is necessary from the point of view of amplification. Similarly, straight sets with two H.F. stages always lend themselves much better to A.V.C than do those with one.

Over-control, which would result in a weak signal being received at greater volume than a strong one, can hardly take place normally except in certain circumstances when a controlled double-diode pentode is employed.

WHEN a background of hum is evident only when the set is being used for gramophone reproduction, it generally means that electrostatic pick-up is taking place in the detector grid circuit. A re-arrangement of the components is

Radiogramophones and Hum indicated, and especial care should be taken to reduce the impedance of the grid circuit as much as pos-

sible. This means in practice that the volume control potentiometer should have the lowest possible resistance consistent with good reproduction.

Particular care should be taken to see that the radio-gramophone change-over switch and volume control are mounted as far as possible from mains components and any leads carrying mains current. It is always worth while mounting the volume control potentiometer as close as possible to the valve with which it works.

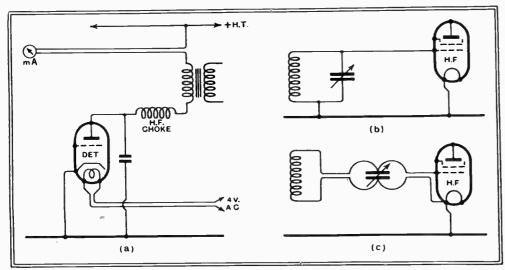


Fig. 2.—Illustrating the uses of non-inductive wiring, in which the field surrounding each wire is neutralised by the flow of current in the other.

matter, it is sometimes worth remembering the possibilities of non-inductive wiring, especially when an unconventional layout of components must be adopted. Take as an example the simple circuit shown in diagram (b), and imagine that the tuning condenser and tuning coil indicator shown will serve as a condenser tester. On making contact with the test "prods" across a condenser, the lamp will glow with a brilliancy depending upon the capacity: as when dealing with resistances, the user soon acquires the knack of making a rough guess as to the capa-

Single Coil Tuning

Iron-cored Coils for the Simple Detector Set

BY taking advantage of recent developments in coil design, a very satisfactory performance may now be obtained from the simplest possible type of receiver having but one tuned circuit. Much practical information is given on the use of iron-cored tuning coils in this type of set.

0:0002 mfd

OR quite a considerable time since the ether has been disturbed by the Battle of the Giants," it has been generally believed that the singletuned circuit is totally inadequate as a means of selecting stations. This is true enough where small screened air-cored coils are concerned, but it may not be realised that some of the new iron-cored coils can be relied upon to give quite a good account of themselves, provided that

ward many times in this journal, and if profit is taken in the form of selectivity a detector set can be built in which station separation will be immensely superior to that obtained in receivers built, say, a year ago, whilst signal strength will meet most requirements.

There are several single iron-cored aerial coils available, designed for use in special circuits, and as an excellent example we may take the Ferrocart F5 coil, connec-

-mm

tions for which are given in Fig. I. The maximum selectivity for this type of circuit has been obtained by reducing both aerial and detector damping to a minimum.

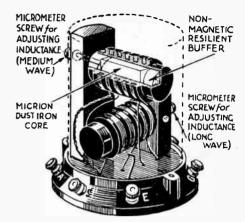
When the whole of the tuned circuit is connected to the grid of a three-electrode detector valve, the damping will be equivalent to a shunt resistance of the order of

20,000 ohms on medium waves, and it is absolutely necessary, if advantage is to be taken of the high efficiency of the coil, to reduce this as much as possible. Accordingly, a step-

down ratio of 3 to I (as shown in Fig. 1) from the tuned circuit to the valve is used, corresponding to a 9 to 1 impedance ratio, or an effective load some 180,000 This will ohms. not have a great effect on the tuned circuit as far as selectivity is concerned.

One of the most difficult things to avoid with a single tuned circuit is break-through o f medium waves at the lower end of the long-wave. This is generally due to

the long-wave aerial winding and the aerial capacity resonating within the medium band. A satisfactory way of eliminating



Construction of R.I. Micrion coil.

this trouble is to raise the fundamental wavelength of the aerial by the use of a high-inductance aperiodic winding. This expedient is adopted in the F5 coil, in which a 1,200 microhenry winding is included between terminals 5 and 2.

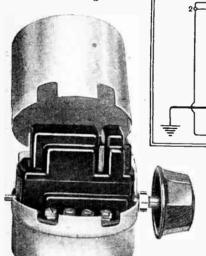
Novel Coupling System

To maintain a selective input, however, this winding must not be too closely coupled to the long-wave tuned coil. Loose coupling a coil of so many turns is no easy matter with a magnetic core, and recourse has been made by the manufacturers to an air-cored bobbin in the base of the coil carrying L1 and L2 tightly coupled together, but not linked magnetically to the iron-cored windings. By this means the requisite small mutual inductance is effected.

On the medium waves an alternative

Fig. 1.-Suggested input circuit for a selective detector set using Ferrocart F5 coil.

(Pelow) The special Colvern F5 coil for aerial tuning.



they are not called upon to function under the shadow of a powerful station.

Happily, we do not all live under a shadow, and there are large areas in which a modest detector set with a single ironcore tuning circuit will be capable of providing uninterrupted entertainment from quite a large number of the more powerful transmissions. In various parts of Sussex, Surrey, and other home counties, for instance, the writer has obtained entirely satisfying results from a set built on the lines indicated. There is the advantage also that no ganging is required-a process which often baffles the beginner to whom these notes are intended to appeal.

The great benefits conferred by coils with dust cores have already been put for-

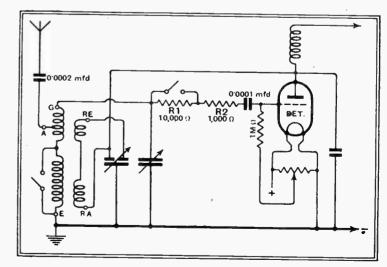


Fig. 2.—Circuit for the R.I. Micrion coil. The grid resistances RI and R2 act in conjunction with the grid filament capacity to differentiate between two frequencies and thus break-through is minimised.

Single Coil Tuning-

aerial coupling is provided, but, to avoid a multiplicity of windings and the neces-

Fig. 3.—The Varley BP30 coil with H.F. choke in aerial circuit to prevent break-through on long waves. A screen grid detector is recommended.

sity of making several tapping points in the Litz coil, the same inductance L₃ is used for both aerial coupling and reaction.

Detector sets embodying the F5 coil have been tested at a distance of twelve miles from Brookmans Park, and it has been found possible to separate the two transmissions easily and to obtain quite good reception of one or two stations of intermediate wavelength. The magnification of the coil, when undamped by aerial

and detector, reaches the excellent figure of 220 at 550 kc., and 155 at 1,000 kc. An acknowledgment is due to the Colvern laboratories for information supplied on design data.

A great deal of work on selective detector circuits has been carried out by R.I. with their Micrion coils, and a recommended circuit is given in Fig. 2. The two series grid resistances RI and R2 are both included for longwave reception, but RI is short-circuited by a switch (actuated autematically by the

waveband change-over mechanism) when receiving transmissions on the medium waves.

Alternative Grid Resistances

These resistances are virtually in series with the grid-filament capacity of the valve, and values may be chosen that ensure a regulated limitation of H.F. input to the grid on each waveband. As a result, grid current damping is reduced, and, although the H.F. input to the grid is also reduced, a decided improvement in selectivity is observed with little reduction of

signal strength. Furthermore, reaction control is rendered more gradual.

The higher value of resistance included

for long-wave reception readily permits differentiation between signals proper to this band and the higher frequencies at which break - through is liable to occur. This is, of course, due to the relatively lower reactance of the grid filament capacity at the breakthrough frequency. The makers of the Micrion coil recommend that the grid should be returned to the slider of a potentiometer, as shown in the diagram, or, alternatively, a pair of

grid leaks may be used simultaneously, one being returned to the positive L.T. lead and the other to negative L.T.

Another iron-cored coil which has been designed to give satisfactory selectivity when used in a reacting detector circuit is the Varley Nicore B.P.30. Here the circuit arrangement allows a happy compromise between selectivity and signal strength, but it is strongly recommended that a screen-grid detector be used to

avoid excessive input damping. The circuit is given in Fig. 3, from which it will be seen that an H.F. choke is included in the aerial circuit to prevent break-through on the long waves. This should be short-circuited when receiving the medium waves.

The Wearite I.C.6 coil for detector sets is an example of a well-designed component devoid of "frills." There is no screening can, and the waveband switch is not built into the base. As a result, the coil can be marketed at the

modest figure of 5s. Its performance was found to be quite up to the standard set by other similar iron-cored coils and break-through on the long waves was hardly noticeable, which can be attributed to a system of winding giving ultra-low capacity to the core.

Varley Nicore

aerial coil.

There is a new Igranic coil ("Igranicor" type A) available in which only one iron core is used for both the long and short wavebands, this somewhat unconventional scheme being rendered possible by the use of parallel windings. A screen-grid detector is desirable with this coil, and the

makers recommend that the anode should be connected directly to the screening grid through a high resistance of 0.25 megohm. As the voltage of the signal increases, so the negative bias becomes greater, and the anode and screen currents together are reduced. At the same time the voltage on the screen will tend to rise, and there will be a compensating effect.

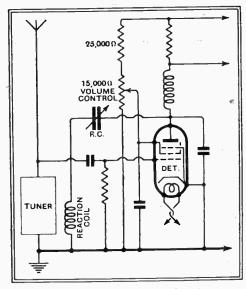
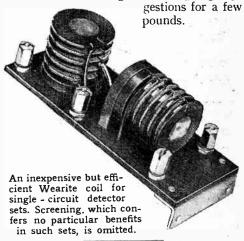


Fig. 4.—Probably the most efficient detector valve for use with single iron-cored coils in the screened H.F. pentode. The volume control can consist of a potentiometer to alter screen volts.

Probably the most efficient detector valve to use with these various iron-cored coils is the screened H.F. pentode, which should be employed in a power-grid circuit (see Fig. 4).

For those whose pockets will not allow the purchase of a more ambitious modern receiver, satisfactory detector sets can be constructed according to the foregoing sug-



Kinematography and Sound Recording

MR. W. E. L. DAY, better known to his wireless and kinematography as Will Day, is preparing an encyclopædic work dealing with the technical development of the cinema—from the earliest cave drawings to the Ombres Chinois, or shadow pictures of 5000 B.C., and thence to modern sound films. This valuable historical record is being published by subscription, and those interested are invited to apply for details to the author at 15, Cholmeley Park, Highgate, London, N.6.

Twelve Months of Progress

Commercial Wireless Achievements in 1933

By Lt.-Col. CHETWODE CRAWLEY, M.I.E.E.

RADIO telephony, rather than telegraphy, has won the laurels in commercial wireless during 1933. This article outlines the salient features of a year rich in wireless history.

THE present year has seen the introduction of some of the international regulations agreed to by the Conference held at Madrid in the autumn of last year, and also those laid down by the Merchant Shipping Act of 1932, which was based on the Convention for the Safety of Life at Sea, signed in London in 1929. Officially, the Madrid regulations are not binding until next year, but it is customary to conform in advance to as many of the new regulations of these international conventions as is practicable. The new regulations of the Madrid Convention already introduced have consisted for the most part of variations in signalling procedure. As regards the Safety Convention, all the important requirements have been in force for many years in British ships, and the new ones which it was necessary to introduce this year only concerned the inspection of ships' installations, hours of wireless watch, and the qualifications of operating personnel. This Safety Convention makes it compulsory for passenger ships of 5,000 tons gross and upwards to be fitted with D.F. apparatus, but this important regulation does not come into force internationally until 1935. It will, however, make little difference in this country, as few of our ships in this class are not already fitted with D.F. apparatus.

quirements definite working waves were laid down for each of the coast wireless stations in Europe, and a few broadcasting stations were allowed to come into the band reserved for ship-shore work, as it was hoped that no serious interference would result from these particular stations. As readers of *The Wireless World* already



The two-way Marconi beam aerial at the Grimsby beam station for direct working with Australia.

munication, but nothing else could be expected, telegraphy having been well established for many years before telephony entered the field.

In January, the service with Egypt was extended by wire to Assuan at a tariff of £3 12s. for three minutes, the service to Rio de Janeiro was

extended by wire to other cities in Brazil at a tariff of £6, the wire service to Nice was extended by wireless to Corsica, and a wireless service was opened between Rome and Oslo.

An Amateur Precedent

In March, the wire circuit to Berlin was extended by wireless to the Philippine Islands, with a tariff of £6 12s., and in April the wireless service to Cairo was extended by wire to cities in Palestine.

The outstanding advance, however, in the progress of wireless telephony during the year was the opening of the direct service with India on May 1st, and, while congratulating ourselves on the attainment of this important Imperial link on a commercial basis, it is interesting to recall that eight years ago the well-known British wireless amateur, Mr. Gerald Marcuse,

(Above) The Marconi telephone transmitter installed on the Dover lifeboat of the Royal National Lifeboat Institution. The vessel, the fastest of its kind in the world, has been specially designed for use in aeroplane disasters at sea.

(Left) The Post Office coast station at Land's End, showing the main (5kW) and emergency (1½ kW)

There was also, as a legacy from Madrid, an international conference of European powers held at Lucerne in May and June to adjust broadcasting waves in Europe. To meet the broadcasting re-

know, this "Lucerne Plan" is to come into force on January 15th next.

As has been the case for the last few years, telephony has provided the most striking advances in commercial com-

Twelve Months of Progress-

maintained two-way communication for many months with an Air Force station in India. The tariff for India, as in the case of the other Empire services, is £6 for three minutes.

This Anglo-Indian channel has completed the main links of the Empire's wireless telephone service, and it may be of interest to glance back at the steps of this great network of Imperial communication. The Australia channel was opened on April 30th, 1930, New Zealand on July 23rd, 1931, South Africa on February 1st, 1932, Egypt on June 22nd, 1932, Canada (which was previously worked via New York) on July 11th, 1932, and India on May 1st, 1933.

In India the terminal is at Bombay, the transmitting station being at Kirkee, and the receiving station at Dhond. The service was rapidly extended to various large cities in India. In England, as for all other overseas telephone services, the terminal is at the Post Office International Telephone Exchange in London, the transmitting station being at Rugby and the receiving station at Baldock.

The New Centre

On May 4th an interesting ceremony took place when the Lord Mayor of London opened, and the Prince of Wales visited, the new premises, Faraday Building, for housing this exchange. From this and its sister building close by in Carter Lane, wire and wireless telephone channels radiate to places all over the world, as well as to a number of passenger liners on the North Atlantic.

channels which converge on London can be linked up with one another and with the telephone system of Europe, and as the whole system has been built up in only seven years, there is little wonder that for the last few years, as we have already said, telephony has provided the most striking advances in wireless communication.

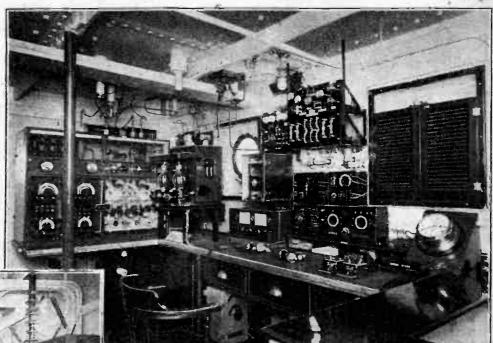
In June, the wireless service to North America was extended by wire and wireless to Costa Rica, Guatemala, Nicaragua, the Republic of Panama and the Canal Zone, at a tariff of £7 16s.

In July, the Buenos Aires channel was extended to Peru at a tariff of £7 7s., and a service was opened between France and Columbia at a tariff of £11 5s.

During the latter half of the year, with the exception of extensions to the India channel, there have been no important telephone services opened, at any rate so

In the fishing fleets the possibility of communicating by wireless between ships, and between ships and the shore, without having to carry trained operators has come as a great boon, and there is little doubt that telephony will be much more widely adopted in other small craft in the near future. Up to the present, so far as the ship-shore communication is con-cerned, it has been possible to telephone messages only between the ships and the coast stations, but arrangements are now being tested by which it is hoped that subscribers in the ports close to the coast stations will be able to converse direct through the stations with the ships, if within fifty, or perhaps a hundred, miles range.

In the case of the telephone channel to the large liners, which is a luxury service, there are elaborate arrangements by which the ships can be connected up to sub-



The wireless cabin of the Orient liner Orontes, fitted with Marconi long and short wave transmitters and receivers.

far as this country is concerned.

In addition to

In addition to these advances in long range telephony there has been considerable progress during the year in the telephone service of small ships. In 1932 the eleven coast wireless stations situated round Great Britain, and

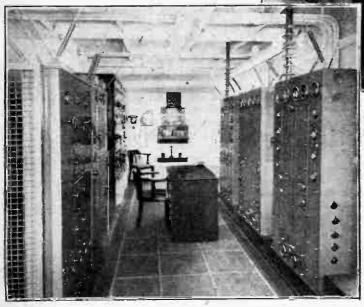
used for telegraph traffic with ships and in connection with the safety of life at sea, were fitted with telephone sets suitable for communication with small craft, such as fishing and coasting vessels. Some 330 British fishing vessels, but only a few coasters, have already been installed with telephone apparatus.

scribers nearly anywhere in the world, but these arrangements are very expensive and would be out of the question financially for the telephone service of small craft. Indeed, in the present dearth of wealthy passengers this service is quite unattractive, apart from its technical subtleties.

Telephone services between small ships and subscribers on shore are being tried, too, in other countries, but the great difficulty is to make such a service a commercial success, and in this country anything in the nature of a Government subsidy produces little enthusiasm.

Telegraphy

There were few striking developments during the year in long range wireless telegraphy. The world is well supplied with long range telegraph circuits, both by cable and wireless, and in present finan-



The Marconi Company's wireless telephone transmitting equipment on the Empress of Britain.

This wireless exchange may be said to have been founded in January, 1927, when the first transatlantic channel was opened. There are now four of these channels to the United States of America; channels to the Argentine and Brazil, the Empire channels mentioned above, and the ships' channel. All these telephone

Wireless World

Twelve Months of Progress-

cial conditions there is little call for expansion. In January, services were opened between India and Japan, and between England and Columbia. In July, a service was opened between England and Venezuela, and in November between England and Turkey to replace

the wire circuit. All these services are on short waves, and are worked in this country by the Imperial and International Communications Company.

In ships, technical development of apparatus continued to advance, as was apparent in the latest types of installation shown by the various companies at the Shipping Exhibition held in London last September. At this exhibition the Post

Office arranged that visitors could send radiotelegrams to ships in any part of the world free of charge, and it was enlightening to see so many people at the exhibition who, in those circumstances, remembered their friends at sea.

The installation of short wave installations in ships for long range working is progressing, and the number of ships capable of using short waves will soon be up to 170, which is about the number of those capable of using long waves. It is not, however, a great number when one remembers that there are more than 3,200 British ships fitted for safety purposes with short range apparatus.

The technical development of apparatus in large ships has certainly been very marked during the last few years; for instance, a large liner will now have four transmitters, one medium wave C.W. for 1,875-3,000-metre band, one medium wave I.C.W. for 600-800-metre band, one short wave C.W. for 18-36-metre band. and one short wave telephony on four spot waves. This outfit, with the receivers, will require eight aerials and, in addition, there will be a broadcast receiving aerial and a D.F. receiving aerial, ten in all, arrangements being made so that simultaneous transmission and reception can be carried out on several waves.

Air Services

As air routes continue to multiply so does the provision of wireless apparatus for air ports and aircraft, it being fully recognised that wireless communication and wireless directional apparatus are essential for the safe and regular working of air services. On the African route, short wave communication is carried out on Marconi apparatus up to ranges of 2,000 miles. A fixed aerial is available for short wave working, and this aerial can be switched on for telegraphy or telephony immediately on winding in the

trailing aerial. In this manner messages can still be sent when the aeroplane is landing. A small attachment to the receiver provides a directional arrangement which allows of homing to ground wireless stations along the route up to ranges of over 200 miles.

The wireless station at the Manchester



Radio telegrams could be sent free of charge to ships at sea at this Post Office stand at the Olympia Shipping Exhibition in September last.

Airport, the first to be erected at a municipal airport in this country, has been in operation since May 1st. It is capable of providing aircraft in the Midlands and North-West across the Irish Sea with com-

munication by telegraphy or telephony, meteorological broadcasts, and directional services, on the same lines as are provided by Croydon for aircraft on the Continental routes.

The Air Ministry opened a micro-ray beam service across the Channel in October between Lympne aerodrome in Kent and St. Inglevert in France on a wave of 17.5 centimetres, the apparatus being supplied by Standard Wireless and Cables, Ltd. It can be used for telephony or telegraphy, teleprinters being provided for the latter.

The first service in the world on these very short waves below a metre was opened as a result of the work of Marchese Marconi on February 2nd. It was conducted between Vatican City and Castel Gandolfo, a distance of 20 miles. The service was by telephony and the wave was 60 centimetres.

Marchese Marconi has continued to carry out experiments in signalling with these very short waves of below a metre during the year, and has obtained signals up to as great a range as 250 kilometres. It would have been said a couple of years ago that such a range with waves of that length could not possibly be obtained, and it is refreshing to find that practical results in wireless can even yet have an occasional dig at theoretical decisions.

DISTANT RECEPTION NOTES

Stations That Have Not Grown "Tired"

R ADIO-PARIS, which has been silent except at odd times for ten days, will have resumed its transmissions again before these notes appear in print. On its reappearance it will be a full-blown PTT station and will probably assume its new name Emetteur National Français, though I expect that most of us will continue to call it Radio-Paris as before.

Other stations that will be at work again are Munich and Stuttgart, both of which will be using their new plants rated at 100 kilowatts. Munich will work on 419 metres and Stuttgart on 533 metres.

The new Berlin station, also rated at 100 kilowatts, will be in full blast on 360.5 metres. One fears that not a few listeners using rather unselective sets may have suffered from interference with the London Regional's programmes over the Christmas holidays.

The references in a recent issue of *The Wireless World* to the point I raised some time ago about "fatigue" in transmitting stations were most interesting. One correspondent confirms my own conclusions, namely, that some kind of electrolysis takes place in the soil in which the earth plates of transmitters are buried. The only other possible causes would seem to be deterioration of the insulating material in the units of the transmitting plant.

If actual changes in the nature of the soil do take place it seems that they occur only under certain conditions. Though one can name a dozen or more important transmitters whose signals have shown a remarkable decline in their field strength, it would be easier to find a still greater number which after several years are as good as ever they

were. There are also one or two which seem to have improved with age!

Conditions for long-distance reception are ideal at the time of writing. There are no atmospherics, fading is almost non-existent, though in previous years it has often been rather severe, particularly on the lower wavelengths, round about Christmas time. One notices, too, much less interference from spark signals both near the top and towards the bottom of the medium waveband. There are certain heterodynes, but most of them are of the occasional kind and no important station is very seriously affected.

Even Huizen has now been free from interference for several days. Heterodynes have been noticed on different nights on Beronunster, Belgrade, the Poste Parisien, Turin and Trieste.

Long-wave reception, which was rather poor a week or two ago, is now definitely good again. The pick of the stations are Huizen (when not interfered with, of course), Zeesen, Warsaw, Luxembourg and Oslo.

On the medium waveband stations coming in at good strength are to be found all round the dial with a sensitive and selective modern set. The best selection is perhaps Vienna, Brussels No. 1 and No. 2, Prague, Langenberg, Lyons Doua, Rome, Stockholm, Toulouse, Leipzig, Strasbourg, the Poste Parisien, Breslau, Bordeaux Lafayette, Hilversum, Heilsberg, Turin, Toulouse PTT, Trieste, Nürnberg, Fécamp, and Lille PTT.

D. Exer.

Page 497 follows after the Programme Supplement.



OREIGN

ALGIERS

ALGIERS

824 kc/s, 364 metres; 13 kW.—11.30 a.m., Dance Refrains. 12 Noon, Popular Russian Songs. 12.30 p.m., Concert by the Station Orchestra. Mozart Potpourri (Hahn); Waltz (Pétras); Selection from Thais (Massenet). 1.0, News. 1.5, Concert (contd.): Selection from Isoline (Messager); Nocturne (Pierné); Two Dances (Pinck). 6.0, Records: Waltz. Très Jolie (Waldteufel); Kaiserwalzer (Joh. Strauss). 6.15, Songs. 6.30, Dance Music. 6.45, Sketches (Bach and Lavrene). 7.0, Accordion Solos. 7.30, Arias from Marouf (Raband), Prince Igor (Borodin), Samson and Delilah (Saint. Saëns). L'attaque du moulin (Bruneau). 7.55, News. 8.0, Tinc. 8.2, Sports Noles. 8.15, Dance Music. 8.25, Concert by the Augmented Station Orchestra, conducted by Defosse: Spanish Comedy Overture (Keler Bela); Selection from 1 Pagliacci (Leoncavaflo); Selection from The Blue Mazurka (Lehâr). 8.50, News. 8.55, Records: Aria from The Mastersingers (Wagner). 9.5, Concert (contd.): Träume (Wagner). 9.30, News. 9.35, Concert (contd.): Träume (Wagner). 9.30, News. 9.35, Concert (contd.): Bouton d'or (Pierné); Suite funambulesque (Messager). 9.55, News.

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres; and Gork, 1,337 kc/s, 224.4 metres.—1.0 to 4.0 p.m., Programme by the I.B.C. (freland), Ltd. 1.0, Dance Music: It isn't Fair; Carolina Lullaby; Blue Roses; I couldn't tell them what to do; Sweethearts of Sweet Sixteen; I can't Remember; Longing; I want to ring Bells. 1.30, Dance Music: This Time it's Love; Street of Dreams; Ojos Verdes; I'm now Prepared to Tell the World it's You. 1.45, Light Music: Sizilietta (von Blon); Night and Day (Porter); Song, Come out Vienna (Herbert Straus); Selection from Bitter Sweet (Coward). 2.0, Dance Music: We'll all go Riding on Rainbow; Shadows on the Swanee; Yvonne; Symphony of the Breeze; It's the Talk of the Town; When Autumn Comes Around; Waltzing alone with You; The Wedding of Mr. Mickey Monse. 2.30, Orchestral Concert: Overture, Figaro (Mozart); Liebeslied (Kreisler); Slav Dances (Dvorák); Ponpée valsante (Poldini); Ballet Egyptien (Luigini); Violin Solo, The Pibroch (Gonlesen); Over the Waves (Rosas); Ballet Music From Naila (Delibes). 3.0, Tony Reddin and his Radiolians. Signature Tune: The Gold Diggers Song; Selection from Chu Chin Chow (Norton); We all go Riding on a Rainbow (Woods); Serenata (Toselli); I was Born about 4,000 years ago; Egypt (Wallace); By a Rippling Stream; Chant of the Jungle; Selection from The Lilae Domino (Cuvillier); Old Time Tunes; Narcissus (Nevin); Oh, to be a Girl like Nina (Abraham); Spanish Medley: (a) Piesta, (b) Flame of Desire, (c) Lady of Spain; Selection from Wonder Bar (Katscher); Maire my Girl (Moore); Signature Tune: Let's Call it a Day, 8.30, Station Orchestra. 9.0, A Mystery Play (E. F. Benson) by Mary Sheridan and Co. 9.45, Station Orchestra. 10.0, Sports News. 10.15, Contralto Solos by Mathghambna. 10.45, Relay of Irish Dance Music from the Mansion House, Dublin, 11.45, Chimes from Cobh Cathedral. 12.15 a.m. (Monday), Close Down.

BARCELONA

EAJ1, 861 kc/s, 348.4 metres; 8 kW.—2.0 p.m., Sextet Concert. 3.0, Programme for Hospitals. 4.0 to 5.30, Interval. 5.30, Agricultural Talk in Catalan, and Records. 6.0, The Radio Orchestra: March, Horse Guards (Gilsourt); Waltz (Rust): Intermezzo (d'Ambrosio); Reverie (Staub-Ourdine). 6.30, Part Relay of an Opera from the Gran

DECEMBER THE THIRTY-FIRST

eatro del Liceo. 9.0, Records. 10.4 esson. 11.0 (approx.), Close Down. 10.45, Chess

BASLE.-See Schweizerischer Landessender.

BELGRADE

698 kc/s, 429.7 metres; 2.8 kW.—10.0 a.m., Records. 10.20, Tides. 10.30, Talk. 10.59. Time and Chimes. 11.5, Yugoslav Müsic. 12 Noon, Records. 12.30 p.m., News. Time. 2.0, The Station Orchestra and Mme. Ninkovic. 3.20, Talk. 3.45, Songs. 4.15, Dance Music con Records. 5.0, Sacred Music. 6.0, Records. 6.30, Violin Recital 7.0, Talk. 7.30, Sheherazade (Rimsky-Korsakov). 8.15, Recital by Milan Phier. 8.45, Records. 9.0, Time, News, Dance Music from the Jockey Chib. 9.45, Talk. 10.0 (ill Close Down, Caharet, relayed from various Restaurants. 2.0 a.m. (Monday), Close Down.

BERLIN

DEUTSCHLANDSENDER (REICHSSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—
5.15 a.m., Gym. 5.30, Today's Motto. 5.35,
Harbour Concert, from Hamburg. 7.0, Agricultural Programme. 7.55, Chimes and Sacred
Music. 9.5, Weather. 10.0, Talk on Art.
10.16, Weather. 10.30, Records of Village
Music. 11.0, Concert. 11.55, Time. 12 Noon,
Concert. 1.0 p.m., For Young People. 2.0,
Favourite Melodies of the Year. 3.10,
Georg Stammler recites. 3.25, New Year
Service from the University Church, Kiel.
4.40, Records of Chamber Music. 5.0,
Crazy Radio—Twenty-four Hours' Programme in Sixty Minntes. 6.0, The Station
Orchestra, conducted by Dr. Hellmuth Thierfelder. 7.0, Your Fate in the Coffee Cup—
Variety. 8.0, New Year's Programme. 9.30,
News. 9.45, Weather. 10.0, Variety. 10.40,
Dentschlandsender greets the New Year.
11.0, Dancing-in the New Year. 1.15 a.m.
(Monday), Dance Music, from Berlin (Funkstunde). 2.0, Close Hown.

BERLIN

FUNKSTUNDE, 832 kc/s, 360.5 metres; 100 kW. Relayed by Zeesen, DJG, DJA, DJD, DJB, and DJE.—9.5 a.m., Weather. 10.0 a.m., Reading, 11.5, Concert, from Hamburg. 1.0 p.m., Ballads. 1.20, For Children. 1.30, Talk: On the Trail of Wild Indians in Bolivia. 1.55, Play for Young People. 2.30, Talk: With Children in a Museum. 2.45, Sports Notes. 3.0, See Heilsberg. 4.0, Records. 4.50, Das Abentener der Neujahrsmacht—a New Year's Play (Heinrich Borges). 5.30, Chamber Music: Pianoforte Trio in D, No. 6 (Haydn); Divertissement in D, No. 3, for two Violins and Cello (Leopold Mozart): Variations for Clarinet and Pianoforte on a Theme from Silvana (Weber); Ecossaises, Op. 18 (Schubert); Quartet in F for Oboe, Violin, Viola, and Cello (Mozart). 6.30, Topical Talk. 6.50, Sports Notes. 7.0, Announcements. 7.5 to 11.0, Berlin (Funkstunde) and Hamburg Exchange Programme. Variety. Operetta, Light Music, and Sketches, followed by relay from the liner Milwaukee. 11.0, Dance Music. 2.0 a.m. (Monday), Close Down.

BERNE. - See Schweizerischer Landessender. Schweizerischer REROMUNSTER. - See Landessender

BODEN.-See Stockholm. BODO.-See Oslo.

BRATISLAVA

1,076 kc/s, 279.5 metres; 14 kW.—3.0 p.m., See Moravska-Ostrava. 4.0. Divine Service Relay. 5.0, Cabaret Programme, relayed from Kosice, 1,022 kc/s, 233 metres. 6.0, See Prague. 8.15, Operetta Music by the Station Orchestra, conducted by Dyk. 9.15, See Prague. 10.0, See Brno. 11.0 till Close Down, See Prague. 12 Midnight, Close Down.

BREMEN.—See Hamburg.

BRESLAU

PRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc s, 253.1 metres.—9.0 a.m., Reading of Poetns. 9.10, Reading (Hoffmann). 9.50 to 11.0, See Leipzig. 11.0, See Munich. 12 Noon, The Station Orchestra, conducted by Rischka: Overture, Le Maçon (Auber); Selection from Tosca (Puccini); Snite, At the Circus (Armandola); Waltz, Gold and Silver (Lehár); In a Persian Market (Katelbey); Selection from Der Bettelstndent (Milöcker). 1.0 p.m., News and Records of Cabaret. 2.0, Talk: Astronomy for 1934. 2.15, Talk: The Year in the Country Sayings. 2.30, For Children. 3.0, See Munich. 5.0, Upper Silesia at Work Again—a Radio Review for 1933. 5.40, New Year's Eve Dance Music, by the Station Orchestra, 7.0, Is Joahn werd ausgeblossa—a Silesian New Year's Play (Schenke). 7.40, See Leipzig, 9.10 to 10.55, See Munich. 11.0, Wind Band from the Rathaus; Nun danket alle Gott; Lobe den Herrn; Kin' feste Burg ist unser Gott; Vom Himmel hoch da komm ich her; Wach auf, du deutsches Land! 11.30, Variety—Breslau, Leipzig, and Munich Inter-Relay. 2.0 a.m. (Monday), Close Down.

BRNO

BRING

878 kc/s, 342 metres; 35 kW.—5.45 a.m., See Prague. 7.30, Accordion Solos by J. Kopecky: March (Oscheit); Waltz from The Gipsy Baron (Strauss); Melody (Balling); Mazurka (Dolezai); I knew a Pretty Maiden (Tichy). 8.0, Religious Programme, relayed from Kosice, 1,022 kc/s, 293 metres. 8.15, See Prague. 8.45, New Year's Talk for Workers. 9.0, See Moravska-Ostrava. 9.30, See Prague. 12.30 p.m., Rural Programme. 3.0, See Moravska-Ostrava. 4.30, See Prague. 8.15, See Bratislava. 9.15, See Prague. 10.0, A New Year's Cabaret. 11.0, See Prague. 12 Midnight, Close Down.

BRUSSELS (No. 1)

I.N.R., 589 kc/s, 509.2 metres; 15 kW.—9.45 a.m., Announcements. 10.0, Records. 11.0, The Small Station Orchestra, conducted by Leemans. 12.0 Noon, Mickey's Club Jazz Attraction, conducted by Langlois, 1.10 p.m., Le Journal Parlé. 1.10, The Station Orchestra, conducted by Kumps. Soloist: Mme. De Cary. 1.30, Talk. 1.40, The Station Orchestra (contd.). 5.0, The Station Orchestra, conducted by Franz André. Soloist:

Mile. Flour (Harp), 5.30, Orchestral Concert. In the interval, Football results. 6.30, Selection from The Bird Fancier (Zeller) on Gramophone Records. 6.40, For Children. 7.0, Records: Selection (Schubert-Berté); Humoresque (Dvorák); Melody (Rubinstein). 7.15, Religious Talk. 7.30, Music Notes. 8.0, The Station Orchestra, conducted by André, and soloists. 9.0, Radio Potpourri by the Station Orchestra and Soloists. 10.0, Le Journal Parlé. 10.10, Robert de Kers and his Cabaret Kings, relayed from the Century Hotel, Antwerp. 11.0, Max Alexys Orchestra from l'Ancienne Belgique. 12.0, Programme from the Century Hotel (contd.). 1.0 a.m., Close Down.

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.1.R., 888 ko/s, 337.8 metres; 15 kW.—Progratame in Flemish. 10.0 a.m., The Small Station Orchestra, conducted by Pierre Leemans. Soloist: Adam (Glarinet). Overture, Patrie (Bizet); Adam (Glarinet). Overture, Patrie (Bizet); Adam (Glarinet) overture, Patrie (Bizet); Adam (Glarinet) overture, Patrie (Bizet); Adam (Glarinet) and String Quintet (Wagner); Selection from Boris Godunov (Mussorgsky); Records (Schubert); (a) Die Nacht, (b) Der Tanz; Petite Smite (Olsen); Hornpipe (O'Neill). 11.0, Records: Barcarolle No. 6 (Fauré); Ballad, Op. 19 (Fauré); Extract from the Unfinished Symphony (Schubert); Psalm; Italian Symphony (Mendelssohn). 12 Noon, The Station Symphony Orchestra, conducted by Kumps: Suite pittoresque (Massenet); Screnade for Clarinet and Orchestra (Pieraé); Extract from Sylvia (Delibes); Musiquette (Poot): Egyptian March (Strauss); Spring Song (Mendelssohn); Wiener Blut (Joh. Strauss); Military March No. I (Schubert). 1.0 p.m., Le Journal Parié. 1.10, Dance Music by Mickey's Club Jazz Attraction. 5.0, Dance Music, relayed from the Hotel Atlanta. In an interval, Sports Results. 6.15, The Small Station Orchestra, conducted by Leemans: Connedy Overture (Kéler-Béla); Waltz, Nachtschwäriner (Ziehrer); Fortissimo (Kálmán); The Niggers' Patrol (Lotter); Two Italian Songs (Volpatti; Airs from Nuit de Réveillon (Moretti). 7.15, Religious Address. 7.30, Le Journal Parié. 7.55, Music Review. 8.0, The Land of Smiles—Operetta (Lchár), relayed from the Royal Flemish Opera House, Antwerp, In the intervals, Humorous Itens; Le Journal Parié; Records. 11.0, See Brussels No. 1. 12 Midnight, See Brussels No. 1. 10 a.m. (Monday), Close Down.

BUCHAREST

BUCHARES I

760 kc/s, 394.7 metres; 12 kW.—9.45 a.m.,
sacred Music. 10.0, Symphony Music (on
Gramoptone Records). 11.0, Records. 12
Noon, Radio Journal, 12.15 p.m., Light Music
(on Gramoptone Records). 3.0, Country
Programme. 4.0, Station Orchestra, conducted by Rogalski, 5.0, Radio Journal.
5.15, Station Orchestra, conducted by Rogalski, 5.0, Edio Journal.
6.20, Records. 6.45, Talk. 7.0, Light Music on
Two Pianofortes by Sibiceanu—Koffer. 7.30,
Talk. 7.45, The Gruia (Dissur). 8.15, Dance
Records. 8.45, Radio Journal. 9.0, Popular
Rumanian Music by the Station Orchestra.

BUDAPEST

545 kc/s, 550.5 metres; 120 kW. Also relayed on 840 metres from 6.30 p.m. till Close Down. - 8.15 a.m., News. 9.0, Service from the Coronation Church. 10.15, Service. 11.25, Concert by the Opera House Orchestra, conducted by Fridl. 1.0 p.m., Records. 2.0, Agricultural Talk. 2.45, The Eugen Pertis Uigány Orchestra. 3.30, For Schools. 4.35, Poems. 5.10, Tarogato Recital. 6.45, Talk. 6.30, Die Fledermans—Operetta in Three Acts (Joh. Strauss), from the Royal Hungarian Opera House. News in the intervals. 9.30, New Year's Eve Programme. 1.0 a.m. (Monday), Close Down.

CASSEL,-See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc/s, 281 metres; 9.75 kW. Relayed by Kalimdborg, 250 kc/s, 1,153.8 metres; and Skamlebaek, 0XY, 31.51 metres.—11.0 a.m., Chines. 11.2, Instrumental Concert: March russe (Ganne); Overture, Berlin wie es weint und lacht (Couradi); Waltz L'étoile du nord (Waldteufel); Selection from La Boheine (Puccini); Prelude (Danning); Waltz (Brahms); Songs; Selection from Maskarade (Nielsen); Valse (Rubinstein); Tango (Andersen); Alexandra March (Paulsen). 1.0 p.m., Records. 1.30, Children. 2.0, The Radio Orchestra, conducted by Launy Gröndahl: Overture, Rodelinda (Handel); Four Pieces from the Suite for Strings (Purcell); Minnet and Pinale from the London Symphony (Haydn); Overture, The Barber of Seville (Rossini); Selection from A Midsummer Night's Dream (Mendelssolm); Pianoforte Solos: (a) Fantasia in C (Mozart), (b) Sonata in D Minor, (e) Sonata in D (Searlatti), (d) Rigaudon (Raff); Overture, Haermachdene paa Helgeland (Emil Hartmann); Two Norwegkin Dances (Grieg); Valse triste (Sibelius); Selection from H Trovatore (Verdi); Prelude to Wayland the Smith (Henriques). 4.0, Divine Service Relay. 5.20, Talk: The Siannese and Chinese in Bangkok. 5.50, Weather. 6.0, News. 6.15, Time. 6.30, Talk (from the Esbjerg Studio). 7.0, Chimes. 7.2, The Station Orchestra, conducted by Launy Gröudahl. 7.30. Reading (Hans Christian Anderseu). 7.50, Lumbye Concert by the Station Orchestra, conducted by Launy Gröudahl. 7.30. Reading (Hans Christian Anderseu). 7.50, Lumbye Concert by the Station Orchestra, conducted by Launy Gröudahl. 7.30. Reading (Hans Christian Anderseu). 7.50, Lumbye Concert by the Station Orchestra, conducted by Launy Gröudahl. 7.30. Reading (Hans Christian Anderseu). 7.50, Lumbye Concert by the Station Orchestra, conducted by Launy Gröudahl. 7.30. Reading (Hans Christian Anderseu). 7.50, Lumbye Concert by the Station Orchestra, conducted by Launy Gröudahl. 7.30. Reading (Hans Christian Anderseu). 7.50, Lumbye Concert by the Station Orchestra, conducted by Launy Gröudahl. 7.30. Reading (Hans Christian

CORK .- Sec Athlone.

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—8.0 a.m., Programme from Warsaw. 8.54, Programme Announcements. 9.0, Divine Service, relayed from Lwów. 10.57, Time Signal and Fanfare from St. Mary's Church, Programme Announcements and Weather Report. 1.15, See Warsaw. 1.0 p.m., Agricultural Talk. 1.15, News and Records. 2.0, Medical Talk. 2.20, See Warsaw. 5.40, Records and Miscellaneous Items. 6.15, Talk. 6.30, See Warsaw. 6.45, News. 6.50, See Warsaw. 8.15, Variety Programme, relayed from Lwów, 788 kc/s, 381 metres. 9.15, See Warsaw. 11.5, New Year's Eve Programme. gramme

DANZIG.-See Heilsberg.

DRESDEN .- See Leipzig.

FECAMP

I,328 kc/s, 225.9 metres; 10 kW.—8.45 a.m. to 12 Noon, Programme in English by the I.B.C. 8.45 a.m., Orchestral Coneert. 9.30, Military Band Music. 10.0, Dance Music. 11.0 to 12 Noon, Concert; Part I, Orchestral Concert; Part II: Organ Recital. 12 Noon to 2.0 p.m., Programme in French. 2.0 to 7.30, Programme in English by the I.B.C. 2.0, Rakoczy March (Berlioz); Lily of Laguna (Stuart); Morning, from Peer Gynt Suite (Grieg); Concert Waltz in D (Glazunov); Violin Nolo, Ilymn to the Sun (Rhinsky-Korsakov); Selection, II Trovatore (Verdi); When Day is Done (de Sylva); Music of the Spheres (Strauss). 2.30, Orchestral Concert: Selection, The White Horse Inn (Stolz); Rosenkavalier Waltz (R. Strauss); Song, This lovely Rose (Sievier); By the Sleepy Lagoon (Coates); Violin Nolo, Valse Bluette (Drigo); The Song of the Nightingale (Ailbout); Song, Night brings me to you (Lockton); The Musical Clock of Madaine Pompadour (Noack); 3.0, Opera Music: Grand March, from Alda (Verdi); Noftly awakes my heart, from Samson and Delilah (Saint-Saëns); Anvil Chorus, from I Trovatore (Verdi); Oue Fine Day, from Madame Butterfly (Puccini); Barearolle, from Tales of Hoffmann (Offenbach); Your Tiny Hand is frozen, from La Bohème (Puccini); Pilgrim's Chorus, from I Annhaüser (Wagner); Harlequin's Serenade, from I Pagliaeci (Leoncavallo). 3.30, Light Music. 40, Tango Orchestra: Te fuiste, ja, ja; Corazon; Little Lady; Maman, yo quiero un novio? 4.15, The I.B.C. Nursery Corner Birthday Grectings. 5.0, Sea Shanties: Blow the man Down; The Merchant Ship; Rio Grande; Shenandoah; \$1.50 a day. 5.15, Orchestral Concert. 5.30, Mandoline Band: In Old Seville (Ege); Tesoro Mio (Becucci); La Czarine (Ganne); Napolitana (Hay). 5.45, Dance Music: Without That Certain Thing; If I Had Someone to Love; If You'll Say Yes, Cherie; About This Time Next Weck. 6.0, Light Music: Organ Solo, Fifty Years of Song; Part I: Song, Old Folks at Home; Sketch, Iliecups; Orchestral, Good Company Medicy; Monologue,

DEC. 31st SUNDAY

The Preparatory School, the Public School and the 'Varsity; Organ Solo, Fifty Years of Song; Part II: Orchestral, Memories of Mayfair; Orchestral, Shake and Let us be Friends. 7-0, Orchestral Concert: Grieg Sclection (arr. Irbach); Scherzo, from A Midsummer Night's Dream (Mendelssohn); In a Country Lane (Coates); Violin Solo, Le Cygne (Saint-Saëns); Minuet. from Petite Suite (Debussy); Valse des Fleurs (Tchaikovsky); March, from Sylvia, Ballet (Delibes); Bacchanale, from The Scasons (Glazonov). 7-30 to 9.0, Programme in French. 9.0 to 11.30, Programme in English by the I.B.C. 9.0, Special New Year All-Star Variety Programme. 9.30, Choral Sclections. 10.0, Accordion Band Music. 10.30, Dance Music. 11.0, I.B.C. Members' Request Hour. 11.30, I.B.C. Time Signal. 11.31 to 12.30 a.m. (Monday), Programme in French. 12.30 to 4.0, Programme in English by the I.B.C. 12.30, Auld Lang Sync. 12.35, I.B.C. Late News Bulletin. 12.40 (approx.). Scottish Dances: Medley of Strathspeys; Highland Schottische; Eightsome Reel: Petronella; Medley of Scottish Reels. 1.0, I.B.C. Signal. 1.1, Variety Concert. 1.30, Hawaiian Band Music. 2.0, Dance Music. 3.0, Some Old Dance Favourites: The Clouds will soon roll by; We've got the Moon and Sixpence; Alice Blue Gown; The Old Man of the Mountain; Love is the sweetest Thing; I want to be happy; To-day I feel so happy; Lullaby of the Leaves; It's the Giri; Sleepy Valley; Sweet and Lovely; Trees; Smile, darn ya, smile; Mona Lisa;

HEILSBERG

continued

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—10.35 a.m., The New Danzig Interval Signal, followed by Records. 11.0, The Königsberg Opera Ilouse Orchestra, conducted by Brückner: Overture, Die Felsenmilhle (Reissiger); Melody (Liszt); Invitation to the Dance (Weber); Selection from La Bohéme (Puccini); German Dances (Schubert); Serenade in F (Dvorak); Waltz, Wiener Bürger (Ziehrer); Overture, Le Roi d'Vvetot (Adam); March, Freiheitsjubel (Blankenburg). In the interval: Talk on the Exhibition of Art in the Königsberg Castle. 1,0 p.m., Talk on Chess. 1.30, Programme for Young People. 2.0, Songs and Violin Music. 3.0, The Small Station Orchestra, conducted by Eugen Wileken: Overtüre, Turandot (Weber); Selection from Mignon (Thomas); Russian Melodies (Fetras); Selection from Eva (Lehár); Overture, Gasparone (Milőcker). 4.0, New Year's Eve Service from the Church at Cranz. 5.0, Concert of Scandinavian Music: Four Songs: (a) Das erste Begegnen (Grieg), (b) Unter Rosen (Grieg), (c) Dreams (Sinding), (d) Song (Sinding); Four Songs. 5.50, Talk in Dialect. 6.10, A Review of 1933 (on Records). 7.5, Berlin-Hamburg Exchange Programme—See Berlin. 10.30, The Königsberg Wind Instrument Quartet: Bis hierher hat mich Gott gebracht (Dezius); Des Jahres letzte Stunde (Schulz); In stiller Nacht (arr. Brahms); Das alte Jahr



THE GRAND ORCHESTRA, conducted by M. Meulemans, which broadcasts big symphonic works from both the Brussels transmitters.

Ali Baba's Camel; Ich Liebe Dieh, my Dear. 4.0, I.B.C. Goodnight Melody and Close Down.

FLENSBURG .-- See Hamburg.

FLORENCE.-See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel and Trier, 1,157 kc/s, 259.3 metres.

-8.30 a.m., Music and Reading. 9.0, Talk on Pavlova. 9.20, Talk: The History of Falconry. 9.45, Choral Music. 10.20, Sec Leipzig. 11.0 to 12.15 p.m., Sec Stuttgart. 12.15 p.m., Records of Dance Music. 1.20, The Passing of the Old Year in the Country—a Radio Sequence, Talk and Dialogue. 2.0, Programme for Children. 3.0, Sec Langenberg. 5.0, Talk: The Heavens in January. 5.25, Variety. 6.0, Rending (Kurt Faber). 6.15, The Best Song Hits of 1933. 6.35, Reading. 6.45, The Frankfurt Station's Work during 1933. 7.0, Wild West Variety Programme—Part 1. 9.0, Time: News. 9.30, Local News. 9.45, Variety—Part 11. 11.0, Reading (Jean Paul Richter). 11.30, Programme from Langenberg. 1.0 a.m. (Monday), Close Down.

FREDRIKSSTAD.-Sec Oslo. FREIBURG .- See Stuttgart.

GENEVA.-See Radio-Suisse Romande.

GENOA.-See Turin.

GLEIWITZ.—See Breslau.

GOTEBORG.-See Stockholm. GRAZ.-Sec Vienna.

HAMAR.-See Oslo.

HANOVER.—See Hamburg.

vergaugen ist (arr. Erk); Nun sich das Jahr vollendet hat (arr. Krieger); Die Neujahrs-glocken (Albrecht). 10.50, Greetings. 11.0 (approx.), See Berlin (Funkstunde). 2.0 a.m. (Monday), Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—8.40 to 11.40 a.m., Programme of the Workers' Radio Society (V.A.R.A.). 8.40, Football News. 8.43, Horticultural Talk. 9.10, The V.A.R.A. Orchestra, conducted by H. de Groot. 9.40, Address. 10.0, The V.A.R.A. Orchestra (contd.). 10.40, Recitations. 11.10, The V.A.R.A. Orchestra (contd.). 11.40 a.m. to 4.40 p.m., Programme of the General Broadcasting Society A.V.R.O. 11.40, Time. 11.41, Records. 12.40 p.m., Light Music by Kovaes Lajos and his Orchestra 1.40, Book Review. 2.10, Beethoven Concert by the Wireless Orchestra, conducted by Nico Treep. Soloist: Arthur Rubinstein (Pianoforte). Overture, Egmont; Pianoforte Concerto in G. Op. 4. 2.55, Records. 3.10, Concert (contd.): Symphony No. 2 in D. 3.40, Records. 4.25, News. 4.40 till 8.10, V.A.R.A. Programme. 4.40, Organ Recital by Steyn: Overture, Zampa (Hérold); Girlie (Wayne): In a Chinese Temple Garden (Ketelbey); Peter (Nelson); Ein Lied geht um die Welt (May); Viennese Potpourri (Hruby). 5.10, For Children. 5.40, The V.A.R.A. Orchestra, conducted by de Groot; and De Elierefluiters, conducted by Horst. 6.40, Liberal Protestant Radio Society (V.P.R.O.). Religious Programme. 8.10 p.m. to 12.10 a.m. (Monday), A.V.R.O. Programme. 8.10, 1933 Revue, with Commentary by Guus Weitzel. 10.10, Kovaes Lajos and his Orchestra. 11.10, Records. 11.25, New Year Speech by De Geer, followed by

Hymn. 11.40, Time. 11.41, Address by W. Vogt, and New Year Greetings from those at Sea. 12.10 to 12.30 a.m. (Monday), Interval. 12.30 a.m., New Year Programme, with Music by the V.A.R.A. Orchestra. conducted by Il. de Groot. 1.40 (approx.), Close Down.

HORBY.-See Stockholm.

HUIZEN

HUIZEN

160 kc/s, 1,875 metres; 7 kW until 3.40 p.m.; Transmitted from Kootwijk on 50 kW. from 3.40 p.m.—7.10 a.m., Religious Programme of the Catholic Radio Society (K.R.O.). 9.10 to 11.55, Programme of the Christian Radio Society (N.C.R.V.). 9.10, Records of Sacrel Music. 9.30, Divine Service from a Churchi at Groningue, followed by Sacred Music. 11.55 to 4.40 p.m., K.R.O. Programme. 11.55, The K.R.O Orchestra, conducted by Marius van 't Woud. San Lorenzo (de Silva); Overture, Berlin, wie es weint und lacht (Conradi); Eysler Potpourri (Hruby); Meditation from Thais (Massenet); Hofhalltänze (Lanner): Granada (Garcia). 12.40 p.m., Talk: New Year's Eve. 1.0, Concert (contd.). Overture, Si J'étais roi (Adam); Selection, A Life for the Czar (Glinka-Fetras); The Blue Pavilion (Armandola); Slav Rhapsody No. 2 (Friedemann); Selection, The Queen of Sheba (Gounod); The Skaters Waltz (Waldteufel). 1.50, Literary Talk. 2.10, Sacred Music by the Bei Canto Choir, Aidress by the Archbishop of Utreeht and Talks. 3.10, The Bel Canto Choir, conducted by Vranken. In the interval; Records, 4.10, Por Invalids. 4.40 to 7.25, N.C.R.V. Programme. 4.40, Divine Service, relayed from the Oosterkerk. The Hague. 6.10, Talk. 6.20, Choral Concert, conducted by Blom. Soloist: Laan (Organ). 7.25 till Close Down, K.R.O. Programme. 7.25, Football Results. 7.30, Talk. 7.55, The K.R.O. Orchestra, conducted by van 't Woud. 8.40, News. 6.45, Variety Programme by Louis Davids. 10.25, De Bruiloft van Kloris en Roosje — Variety Programme by Louis Davids, the K.R.O. Boys, and De Hoorspelers. 11.35, New Year Greetings. 11.55, Ne

INNSBRUCK.—See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—12.30 p.m., Amusement Guide and Variety Items. 1.0, News. 1.15, Sketch. 2.0, Protestant Service. 8.0, Amusement Guide and Sports Notes. 9.0, News. 9.15, Radio Concert. 10.0, Request Programme. 10.30 to 1.0 a.m. (Monday), Programme by the I.B.C. 10.30, Gramphone Concert: George Gershwin Medley: Song, Mighty Lak a Rose (Nevin); Military Band. King Cotton March (Sousa); Song, Roehdale Hounds ((liffe); Pianoforte Solo with Celeste Accompaniment. The Fairies Gavotte (Kolm); Sketch, Jerry in the Army. The Crime Sheet; Song, Are we to Part like this? (Collins); Balalaika Orchestra, Shining Moon (Traditional). 11.0, Organ Recital. 11.30, Novelty Orchestra. 12 Midnight, Dance Music. 1.0 a.m. (Monday), I.B.C. Goodnight Melody and Close Down.

KALUNDBORG.—See Copenhagen.

KIEL.-See Hamburg.

KLAGENFURT.-See Vienna.

KOSICE.-See Prague.

LANGENBERG

LANGENBERG

635 kc/s, 473 metres; 60 kW.—9.10 a.m., Records: String Quartet in G, Op. 77, No. 1 (Haydn); String Quartet in C (Mozart). 10.10, Talk on the Wagner's Overture to The Mastersingers. 10.30, Pianoforte Recital: Pantasia in F Minor (Chopin); Polonaise in E Flat (Chopin); L'ile joyeuse (Debussy). 11.0, See Stuttgart. 12.15 p.m., The Station Chamber Orchestra, conducted by Wilhelm Keiper: Turkish March (Mozart); Waltz, Märchen aus Alt-Wien (Ziehrer); Overture, Der Vampyr (Marschner); Selection (rom Le Postillon de Longiumeau (Adam); Three Pieces (Debussy): (a) Jumbo's Lullaby, (b) The Snow is dancing, (c) Doctur Gradus ad Parnassum. 1.45, Talk: The New Year in Custom and Legend. 2.0, See Frankfurt. 3.0, Concert by the Fröhliche Fünf and the Station Chamber Orchestra, conducted by Brener: The Fröhliche Fünf; (a) Selection from The Nuremberg Doll (Adam), (b) Swabian Folk Music (Esterl), (c) Notte di Stelle (Micheli). The Orchestra: Three Pieces (Trunk): (a) Ein altes Lied, (b) Rosmarin, (c) Es fiel ein Reif. The Fröhliche Fünf: (a) Castiliana (Salter), (b) Piecola Serenata (Becce), (c) Two Alsatian Feasant Dances (Merkling). The Orchestra: Two Pieces (Schumann): (a) Das Hochlandmärchen, (b) Zahnweh! Suite for Accordion (Meyer). The Fröhliche Fünf: (a) Sehönau mcin Paradies (Kutschera), (b) Mia cara danza (Michell), (e) Künstlergruss (Strauss). 4.30, New Year's Music and Address. 5.0, Talk: A Review of Events in West. Germany during the Past

fear. 6.0 p.m., Humorous Programme with Musical Interludes. 6.45, Sports Notes. 0, Wild West Variety. 9.0, See Frankfurt. 15, Local News. 9.30, New Year's Cabaret. 0.15, See Stuttgart. 10.45, Talk: Old Year-Yew Year, 11.10, Webcome to the New Year! The Orchestra, the Dance Band, the Tobhiche Fünf and Soloists. 1.0 a.m. [Monday), Close Down.

_AUSANNE.-See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

170 kc/s, 389,6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—10.20 a.m., Choral Concert. 11.0, See Munich. 12 Noon, See Breslau. 1.0 p.m., Programme Notes. 1.20, Theodor Blumer Music by the Gewandhans Wind Instrument Quintet with the Composer at the Pianoforte: Kinderspiel. 2009.—Quintet for Flute, Oboe, Clarinet, Bassoon and Horn, Op. 61; Sextet for Flute, Oboe, Clarinet, Bassoon, Horn and Pianoforte, Op. 45. 2.0, Talk: Germanic Month Names. 2-10, Reading. 2.20, Records—Review of the Month. 3.0, See Munich. 5.0, Reading. 5.30, Liszt Etudes for Pianoforte: Broica in E Flat; Ricordanza in A Flat; Mazeppa in D Minor. 6.0, Das grosse Wandern—a Radio Sequence (Kurt Eggers). 7.0, See Breslau. 7.40, New Year's Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer: Overture, Donna Diana (Reznieck); Selection from the Suite, Faschingsbilder (Nicodé); Overture, Susanna's Secret (Wolf-Ferrari); Waltz, Sorgenbrecher (Joh. Strauss); Selection from Die Fledermans (Joh. Strauss); Overture, The Merry Wives of Windsor (Nicolai); Karnevalepisode, Op. 22 (Blumer); España (Chabrier); Two Marches from Wiener Frauen (Lehár). 9.30, See Munich, 10.55, The Last of the Old Year—a Review of the Past Year and a Glance at the Puture. 11.30 (approx.), Variety—Breslau, Leipzig and Munich Inter-Relay. 2.0 a.m. (Monday), Close Down.

LINZ.-See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.— 6.45 a.m., Agricultural Talk. 7.15, News. 7.30, Gym. 8.0, Religious Address. 8.30, Sacred Music. 9.0, Talk on Hygiene. 9.30, Orchestral Concert with Songs. 10.15, Orchestral Concert of Yugoslav Music. 11.0, Time and Records. 3.30 p.m., An dovic). on Records. 5.0, Military Music. 6.0, Variety Programme. 7.0, Orchestral Concert 8.15. Records. 3.30 p.m., An Operetta (11)ai-dovic), on Records. 5.0, Military Music. 6.0, Variety Programme. 7.0, Orchestral Concert. 7.45, Vocal Quartet Concert. 8.15, Musical Imitations. 8.45, News, Records. 9.30, Guitar Solos. 10.0, Records. 10.30, New Year Songs.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW,—8.0 p.m.,
The Station Orchestra, conducted by Henri
Pensis; Overture, Sakınıtala (Goldmark);
Violin Concerto in D (Mozart), 8.50, News
in French. 9.0, Coheert by the Station
Orchestra: Overture, Fra Diavolo (Auber);
Selection from La Bohéme (Puccini); Selection from Carmen (Bizel), 9.30, English
Dance Music, 9.45, News in German, 9.55,
Gramophone Records Concert: Selection
The Czarevitch (Lehár); Selection from
Paganini (Lehár), 10.30, Song Recital by
Jenny Jungbauer. 10.45, The Station Orchestra: Overture, Orpheus in the Underworld (Offenbach); Selection from The
Merry Willow (Lehár); Selection from The
Merry Willow (Lehár); Selection from The
Merry Willow (Lehár); Selection from The
Traviata (Verdi); March (Ganne). 11.15,
Dance Music by the Radio Jazz Band,
conducted by Ferry Jusa.

LWOW

788 kc/s, 381 metres; 16 kW.—8.0 a.m., Programme from Warsaw. 9.0, bivine Service. 10.40, Programme from Warsaw. 10.57, Time Signal and Fantare from St. Mary's Church, Craeow. 11.5, Programme Announcement. 11.15, See Warsaw. 1.25 p.m., Records and News. 2.0, See Warsaw. 6.0, Literary Talk. 6.10, Announcements. 6.30, See Warsaw. 6.45, Programme Announcement. 6.50, See Warsaw. 8.15, Humorous Programme. 9.15, See Warsaw. 11.5, Transmission for all Polish Stations.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 15 kW.—
7.45 a.m., Weather and News. 8.45, Mathematical Lesson, 9.0, German Lesson, 9.20, English Lesson, 9.40, Esperanto Lesson, 10.0, Talk on Science, 10.10, Economic Notes, 10.30 (approx.) till Close Down, Programme relayed from Paris Ecole Superieure, 671 kc/s, 447.1 metres.

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Programme relayed from Madrid, (EAJ7). After the relay, Variety Programme. 12 Midnight till Close Down,

SUNDAY DEC. 31st

Programme by the International Broad-casting Company, 12 Midnight, Dance Music, 12,30 p.m., Concert of Light Music, 1.0 1.B.C. Good-night Melody and Close Down.

MADRID

PMADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Announcements, Dance Music. 8.30 to 9.30, Interval. 9.30, Chimes, Time, Science Talk. 9.45 (approx.), Dance Music. In the intervals, Flamenco Songs. 12 Midnight, Chimes. 1.0 a.m. (Monday) till Close Down, Programme in English by the I.B.C. 1.0, Dance Music. 1.30, Dance Music. 2.0, I.B.C. Good-night Melody and Close Down,

MALMO.-See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

1,137 ke/s, 263.8 metres; 11 kW.—8.15 a.m., Military Band Concert of Czechosłowak Marches. 9.0, Light Music by the Station Orchestra. 9.30, See Prague. 3.0 pm., The Station Orchestra, conducted by Plichta. Literary Programme in the interval. 4.30, See Prague. 8.15, See Bratislava. 9.15, See Prague. 10.0, See Brno. 11.0, See Prague. 12 Midnight (approx.), Close Down.

MOTALA .- Sec Stockholm.

MUHLACKER.—See Stuttgart.

OSLO

continued

OSLO

277 kc/s, 1,083 metres; 60 kW.—Relayed by Fredriksstad, 815 kc s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; and Rjukan, 671 kc/s, 447.1 metres; and Rjukan, 671 kc/s, 447.1 metres; and Belöy. LCL.—9.15 a.m., News. 9.30., Divine Service from Bodó. 1.30, Memorial Service from the Crematorium. 4.0, For Children. 5.0, Choral and Organ Recital from Aalesund. Chorad (Walther); Fingue in C Minor for Organ (Bach); Gott im Himmelreich (Decius); Air (Palestrina); Heilig, Heilig (Schubert); Air (Sollein). Hertege Fader (Flenming); Air (Sollein). Hertege Fader (Flenming); Air (Sollein). 110; Raleids (Sollein). Light Music and Chamber Music. 11.0, Ringing in the New Year.

OSTERSUND.—See Stockholm.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—12.30 p.m. (oncert by Jean Ibos and his Orchestra, Parlez moi d'anona (Lenoir); Selection from An Pays du soleil (Seatto); Selection from Congress Dances (Heymann); Selection from Nina Rosa (Romberg); Selection from White Horse Inn (Benatzky); Selection from The Land of Smiles (Lehár), 1.0, News. 1.15,

THE DANUBE AT NIGHT. An impressive view of Budapest, which has recently featured in the Broadcasting news on account of the opening of the new 120-kW. transmitter.

MUNICH

MUNICH

719 kc/s, 419 metres; 100 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres, and Nürnberg. 1,256 kc/s, 239 metres.—9.0 a.m., Catholic Service. 9.45, Chimes. 9.50, Programme from Leipzig. 10.15, Organ Recital. 11.0, Orchestral Concert, Emilie Zanki (Soprano): Andante from the Surprise Symphony (Haydin); Romance (Dyorák); Chromatie Gallop (Liszt); Egyptian Dance (Bizet); Song from Eva (Lehár); Song from Der Walzerkrieg (Launer-Strauss); Perpetuum mobile (Ehrenberg); Swabian Rhapsody (Kämpfert); Clog Dance (Lortzing); Potpourri, Wolgageister (Leuschner); Spanish Dance (Werther). 12 Noon, See Breslau. 1.0 p.m., Time, Weather and Announcements. 1.10, Agricultural Talk, 1.30, Records. 2.30, For Children. 3.0, Vocal and Instrumental Concert: Overture, Jean de Paris (Boieldien); Elegie and Serchade (Rachmaninov); Polonaise and Rondo (Weber); Lug ins Land—a Musical Sequence in German Diadects; Modern Dance Suite (Lautenschläger); Caprice, Regen (May); Phanton Brigade (Myddleton). 5.0 (from Nürnberg), Talk: Old German Near Year Customs. 5.20, Extracts from the 1933 Radio Programme—A Sequence on Records. 6.0, Pietures of the Wood Industry in the Bavarian Forests. 6.45, Weather. 7.0, See Breslau. 7.40, See Leipzig. 9.10, A New Year's Message. 9.30, Variety—Breslau-Leipzig and Munich Inter-Relay. 2.0 a.m. (Monday) (approx.), Close Down. NAPLES.—See Rome. NOTODDEN.—See Oslo.

NAPLES .- Sec Rome. NOTODDEN.—See Oslo. Concert (cont.), Song from Frasquita (Lehar); Rose of France (Romberg); Selection from Deux sons de fleurs (Benatzky); Sipetite (Claret); The Old Castle (Mireille); Lying in the Hay (Mireille); Tell me Tonight (Spoliansky); 5.45, Le Journal Parlé, 7.15, Weather, 7.25, News, 7.30, Records, Selection from La Bohème (Puccini); Selection from La Princesse jaune (Saintsaëns); Minuet from Le Bourgeois Gentilhonme (Lully); Selection from Ciboulette (Hahn); Venice (Zacharias); Pinsonnette and Pinsonnet (Saint-Servan); Echoes du vallon (Dorin); Le Parisien (Dorin); Monte Cristo (Kotlar); Fairy on the Clock (Myets); The Skaters' Waltz (Waldtenfel); Tell me To-night (Spoliansky); Adien, Adien (Stolz); Selection from Die Fledermans (Joh, Strauss); March, Dupleix (Prudhomme), 9.0 (approx.), Close Down.

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres;
69 kW.—10.0 a.m., Records. 10.10, News.
10.30, Records of Opera Music. 10.45, Records. 11.0, Popular Music on Records. 11.30, Concert. 12.15 p.m., Sound Film Extracts.
12.45, News. 12.50, Half-an-Hour of Fantasy by Paul Weil. 1.25, Recitations by André Gaudelette. 1.30, Records. 2.15, The England v. Anstralian Rugby Match from the Pershing Stadium. 5.0 to 6.45, Programme in English by the l.B.C. 6.0, Dance Music: Hand in Hand; Yon ought to see Sally on Sunday; Laughing Waltz; From me to you. 6.15, Memories of Musical Shows; Selection from Bitter Sweet (Coward); A Bachelor gay, from The Maid of the Muantains

(Fraser Simson); Let me like a Soldier fall, from Maritana (Wallace); Air from A Waltz Dream (O. Straus); Tell me I'm forgiven, from Wonder Bar (Katscher); Waltz, from The Student Prince (Romberg); Indian Love Call, from Rose Marie (Frimi); Selection. The Merry Widow (Lehár). 6.45, Roman Catholic Review. 7.15, Le Journal Parlé. 7.20, Sports Notes, 7.30, Extracts from Robinson Crusoe (on Records), 8.10, Hundorous Programme by Max Régnier and his Company. 8.55, Enervée—sketch (de Férnady-Loiscau). 9.40, Bourles et Chansons de Romandie (Jacques Dalcroze). 11.0, Coleert. 12 Midnight, Dance Music on Records. 2.0 a.m. (Monday), Close Down.

PARIS

PARIS

RADIO PARIS, Cali CFR, 174 kc/s, 1,725 metres; 75 kW.—12 Noon, Religious Talk by R. P. Lhande. 12.20 p.m., Sacred Concert. 12.30, Bilboquet as a Turner. 12.45, Records. 1.0, Concert. 3.0, For Children. 4.0, Le droit aux Etrennes—Comedy (Courteline). 4.30, Records. 5.30, Radio Paris Guignol by Biboquet and his Company. 6.15, The Poussigne Orchestra. 8.0, Drôle d'Epoque—Revue by Dorm and Colline. 8.30, News. 8.45, Programme by Moriss with (fiscle Parry. 9.15, News. 9.30, Music Hall, conducted by Maurice André. 10.0, See Budapest. 10.30, Music Hall (contd.). 12 Midnight, New Year Greetings, followed by Dance Music. 2.0 a.m. (Monday), Close Down.

PITTSBURGH

KDKA, 986 ke/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres, and 25.27 metres. 2.0 p.m., Children's Hour, from New York. 3.0, Southland Sketches, from New York. 3.30, Sanovar Serenade, from New York. 3.45, First Presbyterian Church. 5.15, Baby Rose Marie. 5.30, Radio City Concert. from New York. 6.30, Old Songs of the Church. 6.45, The Elegy. 7.0, Bar-X Ranch, from New York. 7.30, Grenadier Guards Band, from New York. 8.30, Variety Programme, from New York. 8.30, International Tit-Bits, from New York. 9.0, Railroad Adventures, from New York. 9.0, Cadillae Symphony, from New York. 11.0, Cadillae Symphony, from New York. 12 Midnight, Vincent Lopez Orchestra, from New York. 12.30 a.m. (Monday), Joe Penner, from New York. PORSGRUND.—See Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—5.45 a.m.,
Gym. and Music. 6.30, The Municipal Orchestra, relayed from Karishad: Choral; Overture, The Magic Flute (Mozart); Selection
from Boris Godunov (Mussorgsky); Introduction and Ballet from Adda (Verdi); Flower
Waltz, from The Nutcracker Suite (Tchaikovsky); Melody (Potuzuik), 7.30, Records,
8.0, Religious Programme, relayed from
Kosice, 1,022 kc/s, 293 metres. 8.15, Volin
Recital by Ervina Brokesova: Quasi biolita
(Reiser); Sérénade melancolique (Tchaikovsky); Love Song (Suk-Kocian); Caprice
(Benda). 8.45, Talk for Workers. 9.5,
Song Cycle, Les Nuits d'été (Berlioz), by
Marie Pixova (Contralto). 9.30, Reading,
10.0, Quartet Concert: Pianoforte Quartet in
E Flat (Beethoven); Divertissement for
String Trio, Op. 28 (Jirak). 11.0, Chimes. 11.5,
News. 11.15, Orchestral Concert. 12.30 p.m.,
Agricultural Programme. 1.0 to 1.10, News.
3.0, See Moravská-Ostrava. 4.30, Talk on
Stonehenge. 4.45, Records. 5.0, German
Trausmission: Programme to be announced.
6.0, News. 6.5, Le Postillon de Longjumeau—
Opera (Adam). 8.0, Time. 8.1, Reading.
8.15, See Bratislava. 9.15, News. 9.30,
Felony and Punishment—Comedy in One Act
(Michail Zoscenko). 10.0, See Brno. 11.0, A
Radio Journey through Europe. 11.30, Records. 12 Midnight, Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Geneva, 400 kc/s, 749.9 metres.—8.55 a.m. (from Geneva), Chimes. 9.0 (from Geneva), Protestant Service. 10.0 (from Geneva), Divine Service from St. Peter's Church, 10.40 (from Geneva), Records. 11.0 (from Lausanne), Records. 11.30, News, Weather. 11.40 (from Lausanne), Records. 2.0 p.m. (from Lausanne), The Dukton and Pesenti Orchestras, from the Splendid Hotel. 5.0 (from Lausanne), The Small Station Orchestra, conducted by Moser. 6.0 (from Lausanne), Talk: Thoughts for the End of the Year, 7.0 (from Geneva), Carillon Recital. 7.5 (from Geneva), The Radio-Suisse Romande Orchestra, conducted by Echenard, 7.55, Poetry for the End of the Year. 8.10 (from Geneva). The Radio-Suisse Romande Orchestra, 8.50, Talk. 9.0, News, Weather. 9.10 (from Lausanne), The Small Radio Lausanne Orchestra, conducted by Moser, 10.0 (from Lausanne), Humorous Talk, 10.10 (from Lausanne), Resolutions for the New Year's Resolutions. 11.15, Review of the Year, 11.50 (from Lausanne), Dance Music; The Dukton and the Pesenti Bands, from the Splendid Hotel. 1.0 a.m. (Monday), Close Down.



REYK JAVIK

250 kc/s, 1,200 metres; 21 kW.—11.40 a.m., Weather. 12 Noon, Diving Service. 1.0 p.m. (approx.), Programme to be announced.

RIGA

571 kc/s, 525.3 metres; 15 kW.—6.30 p.m., Divine Service. 8.10, Weather. 8.15, Await-ing the New Year—Revue (Feldmanis). 9.20, Recital of Latvian Songs. 9.45, A New Year's Greeting From the Latvian President. 10.15 to 1.0 a.m., Dance Music, Relays from Foreign Stations.

RJUKAN.-See Oslo. SALZBURG.—See Vienna.

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres, and by W2XAD on 19.56 metres.
7.0 p.m., Gene Arnold and the Commodores, from New York.
7.30, Looking over the Week, John B. Kennedy, from New York.
7.45, Genus of Melody, from New York.
8.0, Wayne King's Orchestra, from New York.
8.30, Musical Programme, from New York.
12.45 a.m. (Monday), Variety Programme, Wendell Hall, from New York.

SCHWEIZERISCHER LANDESSENDER

LANDESSENDER
BEROMUNSTER, 653 kc/s, 459 metres; 60
kW.; Basle, 1,229 kc/s, 244.1 metres; and
Berne, 1,220 kc/s, 244.1 metres; and
Berne, 1,220 kc/s, 245.9 metres.—9.0 a.m.
(Basle), Protestant Service. 9.45 (Basle), Concert. 10.30 (Basle), Hermann Schneider
reads from his Works. 11.0 (Basle), Records. 11.30, Time, News. 11.40 (Zürich),
Operetta Music. 12.30 p.m. (Basle), Rural
Programme. 1.0 (Basle), Emmy Braun
(Yodeller) and the Born Ländler Orchestra. 2.0 (Basle), Programme from
the Municipal Theatre. 5.0 (Basle), Programme to be announced. 6.0 (Basle),
Time, Sports Results. 6.5 (Basle), Records.
6.30 (Basle), New Year Programme. 7.0, The
Station Orchestra. 8.30 (Basle), Opening of
the New Relay Station at Federalingen.
8.50, News. 9.0 (Basle), Cabaret Programme.
9.30, Records. 10.45 (Basle), Carillon Music.
11.0, New Year Chimes, Greetings and Short
Address. 11.30 (Basle), Dance Music on Records. 12 Midnight, Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 932

SUNDAY DEC. 31st

continued

kc/s, 322 metres; Hörby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres; Ostersund, 409 kc/s, 746.2 metres; and Sandsvall, 554 kc/s, 542 metres; and Sandsvall, 554 kc/s, 542 metres; -10.0 a.m., Divine Scrvice. 11.45, Weather. 1.0 p.m., Chamber Concert, conducted by Tobias Wilhelmi: Pieces (Björkander): (a; Praehadium, (b) Lento, (c) Caprice; Adagio from the Violin Concerto in E (Bach); Two Waltzes Op. 54 (Dvorák); Suite, Aus Holbergs Zeit (Grieg). 2.0, Reading. 2.30, Song Recital by Karin and Niels Juel: Goling to lay down my Burden; Stand still Jordan; Going to sing all along the Way; Unele Ned; Chiquita; Serranilla; Johnny comes down to Hilo; Kempton Races; Sailor Song; Ancora Bar 3.0, Play for Children. 3.55, Weather. 4.0, Evensong. 5.15, Records. 6.15, Weather. 6.25, Cabaret Programme, relayed from Göteborg. 7.30. The Radio Orchestra, conducted by Grevillius, Soloist: Swt Svanholm (Songs); March (Halvorsen); The Three Holy Kings (Sögren); Ballad, King Heimer and Aslög (Söderman); Song from Arnijot (Peterson-Berger); Reading; Rhapsody (Brundin); Lullaby (Aulin); Humoresque (Aulin); Potpourri (Zimmer). 9.0, Dance Music. 10.0, Records. 10.30, New Year Programme: Sonatine in G Minor for Violin and Pianoforte (Schubert); Largo from the Pianoforte Trio No. 2 (Beethoven). 11.0 (ap-Pianoforte (Schubert); Largo from the Pianoforte Trio No. 2 (Beethoven). 11.0 (approx.), Close Down.

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—9.30 a.m., Orchestral Concert, conducted by Maurice de Villers. 10.45, Protestant Service in German. 11.30, Catholic Service. 12 Noon, Records. 12.45 p.m., News. 1.0, Time. 1.1, Records of Popular Music. 2.0, Agricultural Talk. 2.15, Records. 2.30, Records of Caruso. 4.30, The Pasdeloup Concert Society from the Theatre des Champs-Elysées, Paris. 6.45, Medical Talk in German. 7.0, Sports Talk. 7.15, Records. 7.30, Time and News, 7.45, Records. 8.0, Press Review in German and News. 8.30, Concert. Part I—L'échanson du roi d'Yvetot—One-Act Operetta (Mathé). Part II—Orchestral Concert, conducted by Roskam. In the interval, News. 10.30, Dance Music, relayed from the Savoy.

STUTTGART

MUHLACKER, 563 kc/s, 533 metres; 100 kW. Relayed by Freiburg, 1,157 kc/s, 259.3 metres; and 527 kc/s, 570 metres (until Janu-

ary 16, 1931.—9.45 a.m., Selection from Tristan and Isolda (Wagner), on Records, 10.30 a.m., Pianoforte Music: Three Posthumous Pianoforte Pieces (Schubert): Toccata in C Op. 7 (Schumann). 11.0, A Potpourri by the Station Orchestra. 12 Noon, Topical Talk, 12.15 p.m., Records of a New Year's Potpourri. 1.15, Talk on the Skilled Trades, 1.30, For Young People. 2.30, Spain in Song and Dance—Records. 3.0 to 5.0, See Langenberg. 5.0, Im schwäbischen Albdorf um Weihnachten 1816—Radio Play (Schneider). 5.30, Four Impromptus Op. 90 and 132 (Schubert), played by Homann (Pianoforte). 6.0, Sports Notes. 6.15, The End of the Year—Literary and Musical Programme. 7.0, Wild West Variety Programme. 9.0, See Frankfurt, 9.15, Local News. 9.30, See Langenberg. 10.15, The Station Orchestra, conducted by Ferdinand Drost: Overture, An mein deutschesx Land (Zilcher); Siegfried Idyll (Wagner). 10.45, Heil, dem Führer—Talk, 11.10, See Langenberg. 1.0 a.m. (Monday), Close Down. (Wagner). 10.45, Hei 11.10, See Langenberg. Close Down.

SUNDSVALL.-See Stockholm

TOULOUSE

TOULOUSE

779 kc/s, 385 metres; 8 kW.—11.0 a.m., Dance Refrains. 11.30, Orchestral Music. 12 Noon, Popular Melodies. 12.30 p.m., Catholic Service. 12.45, Operetta Music. 1.0, Announcements. 1.5, Music by a Viennese Orchestra. 1.45, Protestant Service. 2.0, Sound Film Music. 2.15, Agricultural Talk. 2.30, Opera Music. 3.0, Two Symphonic Poems (Respighi). 3.30, Operetta Music. 4.0, Opera Music. 4.30, Chansonnettes. 4.45, Argentine Orchestra. 5.0, Thé dansant. 5.45, Sound Film Music. 6.0, News. 6.15, Military Music. 6.30, Chansonnettes. 6.45, Instrumental Music. 7.0, Opera Arias. 7.15, News. 7.30, 'Cello Recital. 7.45, Light Music. 8.15, Viennese Orchestra. 8.30, Opera Music. 8.45, Orchestral Music. 9.0, Extracts from Hérodiade—Opera (Massenet). 8.45, Hunting Horn Music. 10.0, Popular Music. 10.15, News and Announcements. 10.30, Military Music. 11.15, Argentine Orchestra. 11.30, Sound Film Music. 11.45, Hawailan Guitary Music. 12 Midnight, News, Weather and Announcements. 12.5 a.m. (Monday), Chansonnettes. 12.5 a.m. (Monday), Chansonnettes. Eve Programme of Dance Music. 2.0 (approx.), Close Down.

TRONDHEIM.-See Oslo.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relays by Graz, 852 kc/s, 352.1 metres; Innsbruc 1,058 kc/s, 283 metres; Klagenfurt, 622 kc/453.1 metres; Klagenfurt, 622 kc/453.1 metres; Linz, 1,220 kc/s, 245,9 metres and Salzburg, 1,373 kc/s, 218.5 metres.—7 a.m., Reveille; Time; Weather. 7.5, R cords. 8.20, Gym. 8.40, Practical Hint 9.30, Organ Recital by Hellmuth Millne 9.30, Reading. 9.50, Soprano Song Recit by Hanna Schwarz. 10.20, Religious Addres 11.0, The Wiener Symphoniker, conducte by Holzer. 1.35 p.m., Time; Announce ments. 1.40, Agricultural Talk. 2.5, Boo Review. 2.30, Chamber Music. 3.30, Ligh Music. 4.0, Records. 5.30, Recitation 6.0, Soloist Programme. 6.40, Time; Sport Notes; Announcements. 8.30, New Year Programmin. 5.50, Vent du soi—One-Act Operetta (Offenbach). 8.14 Announcements. 8.30, New Year Programmin. 1.5, The Wiener Symphoniker, conducte by Josef Holzer. 1.0 a.m. (Monday (approx.), Close Down.

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.15 a.m. Chopin Concert by the Philharmonic Orchestra, conducted by Oziminski. Soloist: Mme Jaroszewicz (Pianoforte). In the interval Talk. 1.15 Market Prices. 1.25, Records. 2.0, For Young People. 3.0, For Children. 3.30, Records. 3.45, Reading. 4.0, For Women. 4.15 Polish Concert by the Municipal Chora Society. Popular Songs; Pastorales am Christmas Carols; Upper Silesian Songs. In the interval, News. 5.0, Dramatie Programme. 5.40, Records. 6.0, Pragraume Announcements. 6.5, Miscellaneous Notes 6.30, For Children. 6.45, Talk on Art. 6.50, The Station Orchestra, conducted by Nawrot. Soloist: Mankiewicz (Songs). 7.50, Radic Journal. 8.0, Topical Talk. 8.15, Variety Programme, relayed from Lwów, 788 kc/s, 381 metres. 9.15, Sports Notes. 9.25, Dance Music. 10.0, News. 10.5, Dance Music. 10.50, Programme to be announced. 11.5, New Year's Eve Programme.

ZAGREB

ZAUKEB

977 kc/s, 307 metres; 0.75 kW.—9.0 a.m.,
Mass relayed from St. Mark's Church. 11.0,
Light Music on Gramophone Records. 4.0
p.m., Dance Music by the Telleman-Pacola
Orchestra. 5.0, New Year's Eve Service
relayed from St. Mark's Church. 6.45, Announcements. 7.15, Clarinet Recital by
Simun Zamola. 7.45, Radio Play. 8.45, Song
Recital by Jullia Grill. 9.15, Radio Play.
9.45, Dance Music. 11.0, New Year Greetings
and Dance Music. 11.30 (approx.), Close
Down.

ZURICH.—See Schweizerischer Landessender.



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ALGIERS

ALGIERS

825.5 kc/s, 363.3 metres; 13 kW.—12.30 p.m., Records. 1.0, News. 1.5, Records. 6.0, Eastern Music. 7.0, Exchange. 7.10, Shipping Notes. 7.15, Weather. 7.20, Songs: Tiger Rag (La Rocca); Nobody's Sweetheart (Kahn). 7.25, Lottery Results. 7.40, Agricultural Talk. 7.55, News. 8.0, Time. 8.2, Songs: Wha'd ja do to me? When 1 Take my Sugar to Tea; Bugle Call Rag; The Old Man of the Mountain. 8.10, Dance Music. 8.40, Concert by the Augmented Station Orchestra, conducted by Defosse: Overture, Sigurd (Reyer); Waltz (Kálmán); Dause macabre (Saint-Saēne). 9.10, News. 9.15, Records. 9.25, Concert (contd.): Selection from Madame Butterly (Puccini); March from Tannhäuser (Wagner). 9.55, News.

ATHLONE

ATHLONE

725 kc/s. 413 metres; 60 kW.—Relayed by Dublin, 1,382 kc/s, 217 metres; and Cork, 1,337 kc/s, 2244 metres.—6.0 p.m., For Children. 6.45, News. 7.0, Orchestral Concert of Irish Music. 7.15, Gaelic (hoir. 7.35, Traditional Fiddle Recital. 7.50, Choir. 8.10, Station Orchestra. 8.30, Choir. 9.0, Irish Dance Music. 9.15, Choir. 9.30 to 10.30, Programme by the I.B.C. (Ireland), Ltd. 9.30, Light Music. Ninon (Moretti); Lorentina Waltz (arr. Macari); Nina (Paolita); Nightfail (Harold). 9.45, Pianoforte Recital by Fred Stone. 10.0, Concert: I Want to Ring Bells; Adorable; The School Song; Racing Commentary; There's no Harm in Hoping; By a Waterfail; The Last Round Up; My Moonlight Madonna. 10.30, I.B.C. Good-night Melody, followed by Time. Weather and News. 10.40, Ceilidhe Band. 11.0, Close Down.

BARCELONA

BARCELONA

EAJI, 861 kc s, 348.4 metres; 8 kW.—2.0 p.m.,
Sextet Concert. Waltz from Der Rosenkavalier (R. Strauss); En los jardines de Murcia (Turina); Ecos de la Parranda (Granados); Danzas Montañesas (Gorostiaga);
Selection, Pan y toros (Barbieri); Two Step
(Jarque and Garces). 3.0, For Hospitals.
4.0 to 6.30, interval. 5.30, Records. 6.0,
The Radio Orchestra. Bohemian March
(Chauvet); Serenade (Mannfred); Mimi en
Marquise (de Sévérac); Selection from Las
golondrinas (Usandizaga). 6.30, Part relay
of an Opera from the Gran Teatro del Liceo.
9.0, Records. 12 Midnight (approx.), Close
Down.

BASLE.—See Sahwaizarisahar landascander

BASLE.—See Schweizerischer Landessender.

BELGRADE

BELGKADE

98 kc/s, 429.7 metres; 2.8 kW.—10.0 a.m.,
Announcements; Records. 10.20, Tides;
Records. 10.59, Time; Chimes. 11.5, The
Station Orchestra. 11.35, Exchange; The
Station Orchestra. 12.30 p.m., News; Time.
3.0, For Children. 3.30, The Station Orchestra. 12.30 p.m., News; Time.
3.0, For Children. 3.30, The Station Orchestra and Mme. Alcksandrovic (Songs).
7.30, An Opera relayed from the National Theatre. in an interval, Time and News.

BERLIN

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.-5.15 a.m., Gym. 5.30, Today's Motto. 5.35, Harhour Concert, relayed from Hamburg. 7.15, Records. 7.55, See Berlin (Funkstunde). 9.5, Weather from Berlin (Funkstunde). 10.0, New Year Message to German Youth from Baldur von Schirach. 10.15, Weather. 10.30, See Leipzig. 11.0, For Women. 11.15, See Berlin (Funkstunde). 1.0 p.m., For Children. 1.45, Variety (on Records). 2.5, Records. 3.0, Programme from Frankfurt. 4.50, My Wish for the New Year—Representatives of every Class speak. 5.30 to 5.45, Talk. 4.0, Lincke Concert, conducted by Bruno Fritz. 7.10, Guido Thielscher goes mountaineering—Farce (Werner Hintz). 8.0, Lincke (Concert (contd.). 9.0, News. 9.45, Weather. 10.0, Dance Music. 11.30 (approx.), Close Down.

BERLIN

BERLIN

FUNKSTUNDE, 832 kc/s, 360.5 metres; 100 kW. Relayed by Zeesen, DJC, DJA, DJD, DJB, and DJE.—7.55 a.m., Chimes from the Potsdam Garrison Church, followed by Sacred Music and Chimes from Berlin Cathedral, 9.5, Weather, 10.0 to 10.15, Sec Deutschlandsender. 10.30, See Leipzig. 11.0, The Station Orchestra and Choir, a Vocal Quartet and Soloists. 1.0 p.m., Winter, Faith and Doubt—Discussion with Illustrations. 1.20, Talk for Women. 1.30, Zwingli's Dream—Play (Reinacher). 2.10, Talk. 2.30, The most Perilous Moment of my Life—Hans Bertram, the Australian Flyer, Dr. Ernst Sorge, the Arctic Explorer, and Hermann Fryberg, the African Explorer, 3.0 to 5.0, See Heilsberg. 5.0, Letters Past and Present—Reading. 5.30, The Fehse String Quartet. Tag und Nacht (Peterka); String Quartet in A, Op. 41, No. 3 (Schumann). 6.30, Topical Talk. 6.50, Sports Notes. 7.0, Announcements. 7.5, The Station Orchestra, conducted by Heinzekarl Weigel, Charles Kullmann (Tenor), and Gertrud Baumann (Soprano). Overture, A Night in Venice (Joh. Strauss); Soprano Solos: (a) Aria from A Night in Venice (Joh. Strauss); Soprano Solos: (a) Aria from A Night in Venice (Joh. Strauss); Soprano Solos: (a) Song from The Mikado (Sullivan), (b) Song from The Mikado (Sullivan), (b) Song from The Gleener); Duet from Der Opern-

JANUARY THE FIRST

ball (Heuberger); Overture, Ulculus (Meyer-Helmund); Song and Duet from Der Bettelstudent (Millöcker); Waltz from Gipsy Love (Lehár); Tenor Solos: (a) Song from Paganini (Lehár), (b) Song from the Czarevitch (Lehár); Selection from Boccaccio (Suppé); Duet from The Bird Fancier (Zeller). 9.0, News. 9.30, Dance Music from the Moka Efti. 11.0 (approx.), Close Down.

BERNE.-See Schweizerischer Landessender. BEROMUNSTER. — See Schweizerischer Landessender.

BODEN.-See Stockholm.

BODO -- See Oslo.

BRATISLAVA

BRATISLAVA

1,073 kc/s, 279.5 metrea; 11 kW.—12.30 p.m., see Prague. 12.50 Weather Report. 3.0, see Brno. 4.30, Reading. 4.45, The Station Orchestra conducted by Dyk; Selection from Dalibor (Smetana); Suite, In the Country (Scassoia); Solon Waltz (Marsik); Grieg Potpourri (Urbach). 5.0, See Prague. 7.45, Recital of Slovak Folk Songs by Arnold Plögl, relayed from the Slovak National Theatre. 8.5, See Prague. 9.30, Records. 10.0 (approx.), Close Down.

BREMEN.—Nee Mamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—5.35 a.m., Harbour Concert from Hamburg. 7.15, Records. 8.15, Chimes. 8.30, Service. 9.35, Talk. 9.50, Programme to be announced. 10.15 a.m. to 1.0 p.m., See Leipig. 1.0 p.m., News. 1.10, Talk. 1.30, Talk: Almanacs for 1934. 1.40, Reading. 2.0, Records of Cabaret. 3.0, The Station Orchestra. conducted by Rischka. Hungarian Comedy Overture (Keler-Bela); Selection from Lakmé (Delibes); Andalusian Serenade (Eilenberg); Waltz, Die Flotten (Lanner); Piazza del Popolo (Juel-Prederisken); Internezzo from Naila (Delibes); March, Feurig Blut (Wiedermann); Overture. Im Reiche des Indra (Lincke); Potpourri, Alte Wiener Volksmusik (Komzak); Laura Waltz (Millöcker); Reminiscences of Johann Strauss Fétras); Potpourri (Bernards). 5.0, Military Band (Concert. Reveille on the Choral, Nun danket alte Gott (Golde); March (Lindennann); Stahl und Eisen (Lincke); Parpade March, Heil Hitler (Rusch); March, Treu vereint (Linack); March, Mein Regiment, mein Heimatland (Blume); Rheinieder-Marsch (Frantzen); March, Königsgrenadiere (Teichert); March, Einig Volk (Fredemann); Jungmannen-Marsch (Weinhold); March, Telefunken (Evert); March, Leonhardt); Defiliermarsch (Frantzen); Regimental March; Schmidt-Köthen); March Potpourri, Alte deutsche Treue; Regimental March; Soldier Marchs (Kluge-Ulrich); Helencn-Marsch (Piefke); Potpourri of Marches (Blankenburg); Schlesische Triumph (Ulrich); Hie guet Brandenburg allewege (Henrion). 6.30, Sports Notes. 7.0, See Munich. 9.0, See Leipzig. 9.20, Local News. 9.35 to 12 Midnight, See Leipzig. 12 Midnight, Close Down.

BRNO

BRINU

878 kc/s, 342 metres; 35 kW.—11.15 a.m., See Moravská-Ostrava. 12.30 to 12.50 p.m., See Prague. 3.0 p.m., Variety Programme. 4.30, See Prague. 5.0, German Transmission: Cabaret Programme. 6.0, See Prague. 7.45, See Bratislava. 8.5, See Prague. 10.0 (approx.), Close Down.

BRUSSELS (No. 1)

1.N.R., 589 kc/s, 599.2 metres; 15 kW.—
10.0 a.m., Records: Funiculi, funicula (Denza); Potpourri of Belgian Music (Ackermans); Au dessert, chaeun sa romance (Chepfer); Charleston (Wiener); Selection from Les Saltimbanques (Ganne); Dancing Butterfly (Golden); Core ingrato (Cardillo); Pour rire en société (Baeh and Laverne); The Woman in the Shoe (Brown); Selection from The Three Musketeers (Friml); Berceuse de Jocelyn (Godard); Selection from The Song of the Drum (Ellis). 11.0 a.m., Concert by Mickey's Club Jazz Attraction. conducted by Langlois. 12.0 Noon, Concert by the Small Station Orchestra, conducted by Leemans: Marche jubilaire (de Boeck); Viennese Waltz Suite (Gilson); Ode à Terpsichore (De Taeye); Selection from Hérodiade (Massenet); Violin Solo: Zephyr (Hubay); Judex (Gounod); In the Mystic Land of Egypt (Ketelbey); Foxtot (Gensler); Potpourri (Eysler). 1.0 p.m., Le Journal Parlé. 1.10, Orchestral Concert. 5.0, The Station Orchestra, conducted

by Walpot: One-step, Binche (Grillaert);
Birthday Greetings (Ketelbey); The Skaters'
Waltz (Waldteufel); Overture, Les Diamants
de la couronne (Anber); Anbade (Denisty);
Selection from Ta bouche (Yvain); A Wedding Day on Troldhaugen (Grieg). 6.0,
Humorous Records. 6.15, Records: Wiener
Leben (Joh. Strauss); Foxtrot, Dancing
Butterfiy (Young); Tango, Aquallas locuras
(Maida); Foxtrot, Moths around the Candle
Flame (Randal); Slow Foxtrot, Down a Caroline Lane (Parish); Waltz, Little Spanish
Villa by the Sea (Burns); Foxtrot, Bye, bye
Blues (Bennett); One-step, Welsh Medley
(Debroy-Somers); Foxtrot, Swing it (Carter);
Rumba, Negra (Consentida); Foxtrot, Six
Bells Stampede (Carter); One-step, Irish
Mcdley (Debroy-Somers); Rumba, Flor de
Cuba (Gregory and Conyers). 7.30, Le
Le Journal Parlé. 8.0, Concert by the Station
Orchestra, conducted by Walpot. Soloista;
René Durand (Tenor), and Steurs (Accordion). March, Quand Madelon (Bouquet and
Robert). 8.5, Jour de l'an—Play in One
Act (Gustave Libeau). 8.45, Concert
(condd.). Overture, Les Saitimbanques
(Ganne); Waltz, The Blue Danube (Joh.
Strauss); Tenor Solos from Pagainin (Lehár); Accordion Solos; Walloon Suite
(Wangermée); Stolz Potpourri (Dostal);
Jungle Drums (Ketelbey); Padilla Potpourri
(Salabert); One-step (Heymanu). 10.0, Le
Journal Parlé. 10.10, Dance Music, relayed
from the St. Saviour Palais de Danse.

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.1.R., 888 kc/s, 337.8 metres; 15 kW.—Programme in Flemish.—10.0 a.m., Dance Music by Mickey's Club Jazz Attraction. 11.0, Records. 12 Noon. Records. 1.0 p.m., Le Journal Parlé. 1.10, The Small Station Orchestra. conducted by Leemans. 5.0. The Station Symphony Orchestra, conducted by Meulemans. Overture, A Night in Granada (Kreutzer); Selection from The Girl of the Golden West (Puccini); Rhapsody, Piet Hein (Van Anrooy); Ballet russe (Luigini); Waltz, Laura (Millöcker). 5.45, For Children. 5.30, Lehar Concert by the Small Station Orchestra, conducted by Leemans. Selection from The Count of Luxembourg; Waltz from The Merry Widow; Selection from The Dance of the Dragonflies; Waltz from Gipsy Love; Selection from Paganini; Waltz from Eva. 7.15, Talk: The New Year. 7.30, Theatre Review. 8.0, The Station Symphony Orchestra, conducted by Meulemans. Librado-Marche (Alpaerts); Feestklanken (Verheyden). 8.10, Recitations. 8.20, The Station Symphony Orchestra (Lacome); Novelettes, Op. 58 (Gade); Suite of Viennese Waltzes (Gilson). 8.45, The Man of the Street speaks on the New Year. 9.0, The Station Symphony Orchestra (contd.). Selection from Le Roi malgré hi (Chabrier); Fantasia, Kamarinskaya (Glinka). 9.15, Recitations. 9.25, The Station Symphony Orchestra (contd.). Selection from Le Roi malgré hi (Chabrier); Fantasia, Kamarinskaya (Glinka). 9.15, Recitations. 9.25, The Station Symphony Orchestra (contd.). Selection from Le Roi malgré hi (Chabrier); Fantasia, Kamarinskaya (Glinka). 9.15, Recitations. 9.25, The Station Symphony Orchestra (contd.). Selection from Le Roi malgré hi (Chabrier); Fantasia, Kamarinskaya (Glinka). 9.15, Recitations. 9.25, The Station Symphony Orchestra (contd.). Selection from Le Roi malgré hi (Chabrier); Fantasia, Kamarinskaya (Glinka). 9.15, Recitations. 9.25, The Station Symphony Orchestra (contd.). Selection from Le Roi malgré hi (Chabrier); Fantasia, Kamarinskaya (Glinka). 9.15, Recitations. 9.25, The

BUCHAREST

760 kc/s, 394.7 metres; 12 kW.—11.0 a.m., Records. 12 Noon, Radio Journal. 12.15 p.m., Light Music (on Gramophone Records). 4.0, Dance Music. 5.0, Radio Journal. 5.15, Dance Music. 6.0, Educational Talk. 6.20, Records. 6.45, Talk. 7.0, Two One-Act Operas: Les Noces de Jeannette (Massé) and The Magic Flute (Mozart), followed by Radio Journal. 9.0, Light Music, relayed from the Cina Restaurant.

BUDAPEST

BUDAPES 1

846 kc/s, 550.5 metres; 120 kW. Also relayed on 840 metres from 7.0 p.m.—8.0 a.m., Service. 9.0, Roman Catholic Service. 10.30, News. 11.0, Chimes. 11.20, Orchestral Concert. Radio Chronicle in the Interval. 1.0 p.m., Concert by the Lajos Kiss Cigany Band. 2.15, For Young People. 2.45, Orchestral Concert. 4.10, Christmas Carols by the Budapest Seminary Choir. 5.0, Talk. Band. 2.15, For Young People. 2.45, Orchestral Concert. 4.10, Christmas Carols by
the Budapest Seminary Choir. 5.0, Talk.
5.30, Records. 6.0, Records. 7.0, Prince
Bob.—Operetta in Three Acts (Eugen
Huszka). 9.0, News. 9.15, The Alexander
Farkas Ciginy Band from the Café Bodo.
10.15, Dance
Britannia.

CASSEL.-See Frankfurt.

COPENHAGEN

1,067 ko/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres; and Skamleback, OXY, 31.51 metres.—7.0 a.m., Gym. for Women. 7.15, Gym. 7.30, Sacred Music. 9.0, Divine Service from the Elias Church. 10.30, Weather. 10.40, News. 11.0, Town Itall Chimes. 11.2, Concert: March (Mozart); Waltz (Waldteufel); Selection from La Traviata (Verdi); Valse (Rubinstein); Pizzicato (Pierrot); Waitz, Gipsy Princess (Kalman); Danish Songs

with Lute accompaniment; Selection from Tosca (Puccini); Waltz (Glazunov); Serenade from Renaissance (Lauge-Müller); Musical Comedy Selections (Kern). 1.0 p.m., Records. 1.30, Reading. 1.50, Talk for the Housewife. 3.0, Concert from the Wivex Restaurant. 4.0, Divine Service from the Holmen Church. 5.20, Talk. 5.50, Weather. 6.0, News. 5.15, Time. 5.30, Talk. 7.0, Chimes. 7.2, Barn i Kirke—Farce in Four Acts (Peter Sörensen). 9.0, News. 9.10, Records of Schubert Songs: Das Mädchens Klage; Am Meer; Die Forelle; Seligkeit; Rastlose Liebe. 9.25, Opera Music by the Radio Orchestra, conducted by Emil Reesen: Overture, Mignon (Thomas); Intermezzo from Cavalleria rusticana (Mascagni); Selection from Carmen (Bizet); Polonaise from Eugene Onegin (Tchaikovsky). 10.0, Dance Music from the National Scala. 11.0, Town Hall Chimes. 11.38 (approx.), Close Down.

CORK.-See Athlone.

CRACOW

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—8.0 a.m., See Warsaw. 8.54, Programme Announcements. 9.0, Divine Service, Sacred Music and Records, relayed from Poznan, 897 kc/s, 334.4 metres. 10.57, Time Signal and Fanfare from St. Mary's Church, Programme Announcements and Weather Report. 11.15, See Warsaw. 1.0 p.m., Agricultural Talk. 1.15, Light Music on Gramophone Records. 2.0, Talk. 2.20, See Warsaw. 3.0, Programme for Children, relayed from Łwów. 3.40, Records. 3.45, See Warsaw. 4.15, A Silesian Wedding--Programme of Dance and Songs, relayed from Katowice, 734 kc/s, 408 metres. 5.0, See Warsaw. 6.0, Programme Announcements. 6.5, Miscellaneous Items. 6.15, Book Review. 6.30, Records. 6.40, News. 6.45, See Warsaw. 11.0 (approx.), Close Down.

DANZIG.—See Heilsberg.

DANZIG .- See Heilsberg.

DRESDEN.-See Leipzig.

FECAMP

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—11.0 a.m. to 12.0 Noon, Programme in English by the I.B.C. Part I, Military Band Music. 11.30 a.m., Part II, Dance Music: Thanks; Goodnight little Girl of my Dreams; The Monkey on a String; We'll all go riding on a Rainbow; Caminito del Taller; Did my Heart beat?; This is Romance; Little Miss Muffet; Signature Tune. 12.0 Noon, Programme in French. 3.30 p.m. to 5.0, Programme in English by the I.B.C. Concert for Chichester and Bognor Listeners. 3.30, Part 1, Instrumental Solos. 4.0, Concert, Part II, 4.30, The I.B.C. Nursery Corner: Birthday Greetings. 5.0, Concert for Hastings and Eastbourne Listeners. The Waltz that made You Mine; Senorita; Yip-I-addy-I-ay (Cobb); C'est un petit Nid (Eblinger); The Whistling Waltz (Reeves). 6.0, Programme in French. 10.0, Dance Music: Signature Tune, The Bells of Normandy; There's a new Day Conini; The Man on the Flying Trapezc; It's the Taik of the Town; We'll all go riding on a Rainbow; Night and Day; The Cage in the Window; Hand in Hand; Signature Tune. 10.30, Organ Recital. A Life on the Ocean (Binding); Song, Throw open wide your Window (Calson); The Organ Grinder (Stept); My Wishing Song (Burke); Song, Come out, Vicnna (Strauss); The Parade of the Tin Soldiers (Jessel); Reminiscences of Gilbert and Sullivan. 11.0, Talkie Time Tunes from the Talkies and Shows: Signature Tune, Sittin' in the Dark; My Lucky Day; Let ne give ny Happiness to You; I Lic.
Time Signal. 11.30, Programme in English by the I.B.C. (Ireland), Ltd.; Signature Tune, Come back to Erin; The Policeman's Holiday (Ewing); The Belle of New York (Kerker); Ca. cest Paris (Padilin) Valse Triste (Sibclius); Stars and Stripes March (Sousa); Ribbon Dance (Traditional); Tip-perary (Judge Williams); Signature Tune, Come back to Erin. 12.5 a.m. (Tuesday), I.B.C. Late News Bulletin. 12.10 (Approx.), I.B.C. Choodnight Medody and Close loves my Marguerite; A One-Horse Town; Old Man Blues; When You're over Sity; See me dance the Polka; Sweet Dreams, Pretty Lady; Thanks; My Wild Oa FLENSBURG.—See Hamburg.

FLORENCE.—Sec Turin.

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. 'Relayed by Cassel and Trier, 1,157 kc/s, 259.3 metres.— 10.0 a.m., Josef Friedrich Perkönig talks about his Book Mensch wie du und ich.

JAN. 1st MONDAY

10.15, Baritone Recital of New Year Songs by Paul Losse. 10.45, Radio Report of a Competition from the Black Forest. 11.0 See Stuttgart. 12 Noon, Programme to be announced. 12.15 p.m., Records. 1.30, Variety Programme. 2.30, Records. Potpourri, Kirckweih in Oberbayern Ein Edelweiss am Hut! Gstanzeln: In der Bierhall gehts histig zu; Ländlicher Humor; Mein Schatz vom Tegernsee; Die Dorfmusik; Watschen-Pluttler; Auf der Alm da gibts koa Sünd. 3.30, The Station Orchestra, conducted by Merten with Soloists. Jubelouvertüre (Flotow); Folk Songs; Overture Fantasia (Salvetti); Suite, Jenx d'enfants (Bizet); New Year Poenis; Zither Music; Ballet Music from Undine (Lortning); New Year Poenis; Ferne Heinat (Diens); Folk Songs; Guitar Music; Waltz, Die Romantiker (Lanner). 5.0, Reading of Poenis (Helmuth Wiedenbrüg). 5.10, Reading (Spunda). 5.30, Humorous Programme. 6.0, Talk: The Rhine-Main Country. 6.25, Talk: Veterans of 1870. 6.50, Sports Notes. 7.0, See Langenberg. 9.0, Time, News. 9.20, See Stuttgart. 9.30, News. 9.45 to 11.0, See Stuttgart. 11.0, Serenade from Langenberg.

FREDRIKSSTAD.-See Oslo FREIBURG .- See Stuttgart. GENEVA .- See Radio-Suisse Romande, GENOA .- See Turin. GLEIWITZ .- See Breslau. GOTEBORG,—See Stockholm. GRAZ.-See Vienna. HAMAR.-Sec Oslo. HANOVER.-See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—10.5 a.m., Weather. 10.35, Talk. 11.0, See Berlin (Funkstunde). 1.0 p.m., Talk: The Tasks of the Dramatic Critic. 1.25, Sports Notes. 1.35, Talk on the Centenary of the German Customs Union. 1.45, Records: Dachstein Marsch; Waltz (Strauss); Luna Walzer (Lincke); Flower Song (Lanner); Song from The Gipsy Baron (Joh. Strauss); Song from The Gipsy Baron (Joh. Strauss); Song from Der Verschwender (Kreutzer); Wenn man ausseinander geht (Engel-Berger); Jetzt ist die welt so schön (Kotszalski): The Wedding off the Painted Doll (Brown); Ich lahfür dich 'nen Blumentopf bestellt (Bootz); Frauenherz (Joh. Strauss). 2.35, Reading in Dialect. 3.0, The Small Station Orchestra, conducted by Wilcken: Overture, Hamlet (E. Bach); Marionette (Liadov); Eine Spieldose (Liadov); Potpourri, Eisblumen (Leuschner); Fantasia on Russian Folk Themes (Glinka); Selection from Der lustige Krieg (Strauss); Overture, The Nuremberg Doll (Adam). 4.0, Light Music by the Small Station Orchestra, conducted by Wilcken. 5.0, Violin Recital by Clementine von Hermann: Cradle Song (Juon); Bohemian Folk Song (Drdia); Swedish Melody (Wilhelmy); Serenade (Galkine); Air varié No. 2 (Bériot); Spanish Dances (Seybold). 5.35 (from Danzig), Reading of Legends. 6.0, The Königsberg Bandonion Club: Kaiserjäger Marsch (Albrecht); Liebfranen-Gavotte (Wilhelm); Die kleine Patrouille (Siede); March, Vater Rhein (Pörschmann). 6.35, Reading of Tales. 6.55, Sports Notes. 7.5, See Berlin (Funkstunde). 11.0 (approx.), Close Down.

HILVERSUM

HILVERSUM

(Announced HUIZEN), 1,013 kc/s. 296.1 metres; 7 kW, up to 5.40 p.m., and 20 kW, from 5.40 p.m. 8.10 to 9.10 a.m., Religious Programme of the Catholic Radio Society (K.R.O.). 9.10 till Close Down, Programme of the Christian Radio Society (N.C.R.V.). 9.10, Records. 9.30, Divine Service relayed from st. Jacob's Church, The Hague. After the Service, Records. 12.10 p.m., Organ Recital by Jan Zwart. 1.40, Recitations. 2.10, Military Band Concert, conducted by Van den Glas: March, Kolonel Rooseboom (Van den Glas); Overture, To the Story of the Lovely Mclusina (Mendelssolin); Sonnenhyume (Richter); Melody (Boher); Kerstnacht, op Zee (Maydn); March, Hail den Siegern (Blankenburg); Piece (Rogister); La Victoire (Dupuis); Finale. 3.40, The Wognummers Choir, conducted by Saal. Soloist: Bockel (Organ). Organ Solo: Prelude and Choral, Nun danket alle Gott (Bach); Hodie Christus natus est (Sweelinck); Organ Solos: (a) Chaconne (Pachelbel), (b) O Bone Jesu (Ingegneri), (c) Adorannus (Rossell), (d) Chaconne (Buxtehude); Exultate Deo (Scarlatti); Psalm No. 121 (de Lange); Organ Solo: Choral No. 3 (César Franck); Psalm No. 150 (César Franck). 5.10, Records. 5.40, Organ Recital by Bouwmeester. 6.25, Records. 6.40, The Bael (Choir and Orchestra of the Bethlehem Church, The Hague. Soloists: Mme. de Vink-Verschoor (Soprano). Schouwman (Tenor), Middendorp (Oloc). Grootegoed (Vioilin), Amersfoort (Vioilin), Keulemans (Organ) and Schellevis (Organ). New Year Cantata No. 171 (Bach); O Gottes Stadt (Buxtehude); Wer nur den lieben Gott lässt walten (Bach); Concerto in G minor, Op. 4, No. 1 (Handel). 8.10, Records. 8.40, The Small N.C.R.V. Orchestra, conducted by van de Hurk: Two Psalms; Two Chants; Door bet luchtruim heen; Onze Omroep met den Bijbel; Cost West, thuis best (Tetterode); Holland ze zeggen (Abramsz); Records; Fest-

Ouvertüre (Leutner); Die Welt im Lied (Intrator); Die Post im Walde (Schäffer). 9.40, News. 9.50, The Small N.C.R.V. Orchestra (contd.): Hungarian Rhapsody No. 2 (Liszt); Wienerblut (Joh. Strauss); Selection, Giroffe Giroffa (Lecceq); Selection, La Traviata trauss); Selection, Gnone-Selection, La Traviata ecords, 11.10 (approx.), Giroffa (Lccccq); Selectic (Verdi), 10.40, Records. (Verdi), 10 Close Down,

HORBY.-See Stockholm.

HUIZEN

HORBY.—See Stockholm.

HUIZEN

(Announced HILVERSUM), 160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m. Transmitted from Kootwijk, 50 kW., trom 3.40 p.m.—Programme of the General Broadcasting Society (A.V.R.O.). 7.40 a.m., Time and Records. 9.40, Time and Divine Service. 9.55, Sacred Music: Records. 10.0, Records. 10.10, The Wireless Octet Overture, Euristeo (Illasse); Minuet in E Flat (Boccherini); Adagio (Marcello); German Dances (Schnbert); Hungarian Rhapsody No. 6 (Liszt); Selection from Adrienne Lecouvreur (Cilea); Records; Overture, Eine Nacht in Venedig (Joh. Strauss); Waitz. Hofballtänze (Joh. Strauss); Steirische Humoresken (Spary); Die Welt kann ja so schön sein (Goetz); Diesen Kuss der ganzen Welt (Zichrer); Folk Song (Komzak); Fairy Tale (Komzak); Selection from Mariska (Lehár). 11.55, The Royal Military Band, conducted by Captain Walther Boer; Two Marches from The Bartered Bride (Smetana); Overture, Marco Spada (Auher); Waltz, Künstlerleben (Joh. Strauss); Selection from The Gipsy Princess (Kälmän-Ischpold); New Year Address by the Director, Wilfem Vogt; Overture, Pique Danne (Suppe); Die Wachtparade kommt (Eilenberg); Ballet Music from Faust (Gounod-Godfrey); March of the Dutch Grenadiers. 1.40 p.m., Harpsichord Recital by Wanda Landowska, with Gramophone Interludes. 2.40, Violin Recital by Nicholas Roth: Allegro (Sammartini); Ave Maria (Schubert-Wilhelmiji); Gloriette (Cerné); Song Without Words (Kuula); Variations on a Theme of Corelli (Tartini-Kreisler). In the interval, Dramatie Programme. 3.40, Organ and Song Recital by Pierre Palla and Henk Biskil (Tenor). 4.30, Sports Notes. 4.40, Records. In the interval, Bramatie Programme. 3.40, Organ and Song Recital by Pierre Palla and Henk Biskil (Tenor). 4.30, Sports Notes. 4.40, Records. In the interval, Bramatie Programme. 3.40, Organ and Song Recital by Pierre Palla and Henk Biskil (Tenor). 4.30, Sports Notes. 4.40, Records. In the interval, Bramatie Programme. 3.40, Organ and Song Recital by Pierre Palla and Henk Biskil (Tenor). 4.30, Sports Notes. 4

INNSBRUCK,-See Vienna. KALUNDBORG.—See Copenhagen. KIEL.-See Hamburg, KLAGENFURT.-See Vienna. KOSICE .- See Prague,

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—12.30 p.m., Amusement Gnide and Variety Itens. 1.0, News. 1.15, Radio Concert. 8.0, Amusement Guide, News and Exchange. 8.10, Sports Notes. 8.20, Radio Concert and Read-ing. 9.0, Weather and News. 9.15, Le Feu du Voisin—Play (Francis de Croisset). 10.39, Concert.

LANGENBERG

LANGENBERG

635 kc/s, 473 metres; 60 kW.—5.35 a.m.,
Harbour Concert from Hamburg. 7.15,
Programme from Frankfurt. 7.20, Weather.
7.25, See Stuttgart. 8.30, See Frankfurt. 9.10, German Psalms. 9.25, Songs
on Records. 10.0, See Berlin (Deutschlandsender). 10.15, New Year Community Singing. 10.30, A Bach Cantata. 11.0 a.m. to 1.30
p.m., See Stuttgart. 1.30, See Frankfurt. 2.30, Chamber Music, Martha Schlechtriem (Soprano), Peter Busbach (Viola), and
Walter Wielsch (Pianoforte). Viola and
Pianoforte Duets: Two Märchenbilder (Schumann); Songs: (a) Mariä Wiegenlied (Reger),
(b) Der Zeisig (Wittrich), (c) Er ist gekommen (Franz). 2.45, Talk: Winter in Westphalia.
3.0, Programme from Frankfurt. 5.0, Reading.
5.30, Old German Folk Songs and Dances.
6.0, The January Calendar (Heinz Kohlhass). 6.25, Records. Lotte Lehmann: Aria
from Figaro (Mozart); Vergebliches Ständchen (Brahms); Wiegenlied (Weher); Aria
from Die toten Augen (d'Albert); Ständchen
(R. Strauss); S' Zuschaun (Bohm). 6.45,

Sports Report. 7.0, The Station Orchestra and Choir. Kläre Hansen (Soprano), Erna Servos-Schott (Contralto), Friedrich Engels (Tenor), Josef Rodens (Baritone), and Willy Schneider (Bass). Part I-Mozart: Overture, Figaro; Baritone Solo, Serenade from Don Giovanni; Tenor Solo, Aria from The Magie Flute; Bass Solo, Aria from The Magie Flute. Part II-Weber: Entr'acte from Der Freischütz; Soprano Solo, Eil, edler Held, from Oberon; Choir: Wir winden dir den Jungfernkranz, from Der Freischütz. Part III-Beethoven: Overture, Fidelio; Chorus from Fidelio. Part IV-Lortzing. Flotow, and Nicolai: Overture, Czar and Carpenter (Lortzing); Tenor Solo, Aria from Martha (Flotow); Soprano and Contralto Duet from The Merry Wives of Windsor (Nicolai). Part V-Verdi: Overture, The Force of Destiny; Tenor Solo, Aria from Rigoletto; Baritone solo, Aria from A Masked Ball. Part VI-Bizet. Baritone and Choir: Toreador's Song from Carmen; Entr'acte and Ballet Music from Carmen. Part VII-Puccini: Extract from Madane Butterfly. Part VIII-Wagner: Overture, Tannhäuser; Soprano Solo, Aria from Tannhäuser; Chorus from The Flying Dutchman; Tenor Solo, Walter's Prize Song from The Mastersingers. 9.0, See Frankfurt. 9.20, See Stuttgart. 1.10, Records: Overture, Extract from The Mastersingers. 9.30, News. 9.45 to 11.0, See Stuttgart. 11.0, Records: Overture, Emmont (Beethoven); Quartet from Fidelio (Beethoven); Guartet from Fidelio (Beethoven); Rapsody in B minor, Op. 79, No. 1 (Brahms); Two Songs (Brahms): (a) Minnelied, (b) Ständehen; Adagio from the Violin Concerto in D (Brahms); Overture, Tannhäuser (Wagner); March from The Fusigh to the Gods (Wagner); Airs from Oberon (Weber); Overture. Euryanthe (Weber); Recitative and Aria from Ariadne auf Naxos (R. Strauss). 1.0 a.m. (Tuesday), Close Down.

LAUSANNE.—See Radio-Suisse Romando.

continued

LAUSANNE.-See Radio-Suisse Romando.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.
5.35 a.m., Harbour Concert from Munich.
10.0, See Berlin (Deutschlandsender).
10.15, Introductory Talk to the Transmission. 10.30, Herr Gott, dich lohen wir Cantata (Bach).
The Leibzig Symphony Orchestra: Academic Munich, see Berlin (Deutschlandsender). 10.15, Introductory Talk to the following Transmission. 10.30, Herr Gott, dich loben wir Cantata (Bach). 11.0, Wind Instrument Music. 12 Noon, The Leipzig Symphony Orchestra: Academic Festival Overture (Brahms); Selection from Hansel and Gretel (Humperdinek); Kaiserwalzer (Joh. Strauss); Mephistowalzer (Liszt). 1.0 p.m., For Children. 1.15, The Thüringia Boys' Choir: Singet dem Herrin (Schütz); Motet. Op. 110 No. 3 (Brahms); Old Madrigals; German Folk Songs. 2.5, Talk: The Vear in Country Sayings; Reading (Chamisso). 2.20, Humorous Records. 3.0, See Breslau. 5.0, Ulrich Zwingli Progrumne. 5.15, Talk: The German Zollvercin. 5.35, Records of Cabarct. 6.30, Reading. 7.0, See Munich. 9.0, News. 9.20, Local News. 9.35, Serenade by the Leipzig Symphony Orchestra, conducted by Hilmar Weber. 10.35, Dance Music. 12 Midnight, Close Down.

LINZ.-Sce Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—3.0 p.m.,
Dramatic Programme, 3.30, The Bartered
Bride—Opera (Smetana), on Records, 7.30,
Relay of an Opera from Belgrade, 698 kc/s,
429.7 metres. In an interval, News.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—7.0 p.m., Gramophone Concert: Overture. The Caliph of Bagdad (Boieldien); Selection from Manon (Massenet); Lehar Potpourri (Geiger); Selection from The Geisha (Jones); Black Bottom (Henderson); Ol' Man River (arr. Hammerstein and Kern); La valse Accordéon (Chagnon); Japanese Lantern Dance (Yoshitomo); Waltz, Künstlerleben (Joh. Strauss); Selection from The Desert Song (Romberg); Waltz, Grisante Folie (Raiter and Teck); March, Le Régiment de Sambre et Meuse. 8.10, Concert by the Station Orchestra, conducted by Henri Pensis: Overture, Hamlet (E. Bach); Confidence (Rasse); Ballet Music from Frau Luna (Lineke); Suite pour mes petits amis (Pierné); The Blue Danube (Joh. Strauss). 8.50, News in French. 9.0, Czech Concert by the Station Orchestra. conducted by Henri Pensis: Cello Concert (bovorak); Suite No. 1 (Janacek). 9.45, News in German. 9.55, Concert by the Station Orchestra: Geburtstagsständehen (Lineke); Roses of Picardy (Haydu-Wood); Berceuse (Godard); Weidding March from Feramors (Rubinstein). 10.20, Dance Music on Gramophone Records.

LYONS

LA DCUA, 644 kc s, 465.8 metres; 15 kW.— 7.45 a.m. till Close Down, Programme re-layed from Paris Ecole Supérieure, 671 kc/s, 447.1 metres, News.

MADRID

MADRID

ARANJUEZ, EAQ, 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Spanish Two-Steps. 10.45, Radio Chronicle. 1.10, Catalan Programme. 12.0 Midnight till Close Down, Programme in English by the 1.B.C. 12.0 Midnight, Light Music: The Clock is Playing (Pierre); Hungarian Dance No. 6 (Brahms); Song, Down in the Valley (Harrington); Minuet (Boccherini); Aloma (Bowers); Song, Come out Vienna (Herbert); Snacks in Bars (Egerer). 12.30 a.m. (Tuesday), Hawaiian Music: Hawaiian Love (Gaston); The Rosary (Nevin); On a Little Street in Honolulu (Sherman); Hawaiian Hotel (Traditional); Julien (Donata); Hawaiian Sunset (Vandershoot); All through the Night (York); Aloha Oe (Lilioukalani). 1.0, 1.B.C. Goodnight Melody and Close Down.

MADRID

MADRID

EAJ7, 707 kc's, 424.3 metres; 2 kW.—2.0, p.m., Chimes, Time, Weather, Theatre Notes, 2.15 (approx.), Popular Concert. 3.55 Announcements. 4.0 to 7.0, Interval. 7.0, Chimes, Exchange, Topical Talk. 7.15 (approx.), Song and Guitar Recital. Songs: (a) Elegy (Massenet), (b) El hombre es fumador (Bonzato); Borella; Two Arias from Carmen (Bizet); Popular Spanish Songs (Falla): (a) El Paño moruno y Seguidilla murciana, (b) Jota, (c) Polo y Nana, (d) Canción y asturiana; Guitar Solos: (a) Etude (Sors), (b) Bolero (Coste), (c) Minuet (de Viseo), (d) Pavane (Tárrega), (e) Granada (Albeniz), (f) Cádiz (Albéniz), (g) Jota aragonesa (Areas), (h) March (Sors). 8.15, Radio Journal. 8.30 (approx.), Close Down. MALMO.—See Stockholm.

MALMO.-See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—11.15 a.m., The Station Orchestra, conducted by Plichta, 12.30 p.m., See Prague. 3.0, See Brno. 4.30, See Prague. 7.45, See Bratislava. 8.5, See Prague. 9.30, Records. 10.0 (approx.), Close Down.

MOTALA .- See Stockholm.

MUHLACKER.-See Stuftgart.

MUNICH

MUNICH

716 kc/s, 419 metres; 60-100 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 239 metres —9.45 a.m., Chimes. 10.0, See Berlin (Deutschlandsender). 10.15 to 1.0 p.m., See Leipzig. 1.0, Time, Weather and Programme Announcements. 1.10 (from Nürnberg), Readmetres; and Nürnberg, 1,256 kc/s, 550 ing (Emil Reuer). 1.30, Records. Overture, Moorning, Noon and Night (Suppé); Three Sonatas (Scarlatti); Slav Dances, Nos. 3 and 8 (Dvorak); Wedding Music (Jensen); Two Songs from Liselott (Künneke); Blumenlied (Langer): Selection from Im Reiche des Indra (Lincke); Selection from Gasparone (Millöcker). 2.10, Talk: The Centenary of the Austro-German Customs Union. 2.30, Talk: The Young Generation. 3.0, See Breslau. 5.0, Der Jogl vom Wegscheidhof—a Play in Four Acts (Löwinger). 6.50, Weather, Sports Notes. 7.0, Concert by the Station Orchestra, conducted by Winter, and Soloists. Overture, Alceste (Gluck); Aria from Orpheus and Eurydiee (Gluck); Slav Dance from Iphigenia (Gluck); Aria from Don Giovanni (Mozart); Aria from Undine (Lortzing); Aria from Czar and Carpenter (Lortzing); Spanish Dance from Tammen (Bizet); Spanish Dance from Temen (Bizet); Spanish Dance from Temen (Bizet); Spanish Dance from Tementer (Lortzing), Ose Leipzig, 9.20 (approx.), Local News, 9.35 to 12 Midnight, See Leipzig, 12 Midnight, See Leipzi

NAPLES .-- See Rome.

NOTODDEN.-Sec Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; and Rjukan, 671 kc/s, 447.1 metres; and Jelöy, LCL.—9.0 a.m. News. 9.10 (approx.), Carillon. 9.30, Divine Service from St. Saviour's Church. 4.0 p.m., Cafe Concert; Soloists: Kramer-Johansen (Saxophone) and Nielsen (Violin): Festival Polonaise (Svendsen): Valse Caprice (Nordraak); Norwegian Rhapsody No. 2 Svendsen); Saxophone Solo: Skumring (Kramer-Johansen); Melody (Johansen); Romanes for Violin (Svendsen); Melody (Kleven); Melody (Grieg); Viennese Festival Procession (Per Reidarson). 5.0, Recitation. 5.25, Norwegian Song Recital by Conrad Arnesen, relayed from Bergen, 824 kc s, 364 metres. 6.15, News. 6.30, Chamber Musie by the Philhamonie Quartet; Soloist Mme. Ingeborg Sandvik Kristensen (Soprano);

Marieulieder (Zilcher); Orientale (Glazunov).
1.0, Time. 7.2, His Majesty Awaits—
Tomedy in Three Acts (Rydquist). 8.15,
The Station Orchestra, conducted by
Kramm; Soloist: Henry Alf (Norwegian
Songs). 8.40, Nows, 9.0, Topical Talk.
9.15, Greetings to Norwegians Abroad. 10.0,
Dance Music on Records. 11.0 (approx.),
Close Down. 7.0, 1.... Comedy in a Station Dance Music Close Down.

OSTERSUND.-See Stockholm.

PARIS

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—12.30 p.m., Concert, relayed from Paris (Ecole Supérieure), 671 kc/s, 447.1 metres. 5.45, Le Journal Parlé. 7.15, Weather. 7.25, News. 7.30, Ballet Music by the Station Orchestra, conducted by Edouard Flament: Dances, Le Cid (Massenet); Dance of the Hours, from La Gioconda (Ponchielli). 8.0, News. 8.15, Ballet Music (contd.): Divertissement from Rosiane (Flament); Selection from Les Fantoccini (Lecocq); Divertissement from Miarka (Rabaud); Ballet égyptien (Luigini). 9.0 (approx.), Close Down.

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—10.0 a.m., News; Gastronomic Talk, 10.15 a.m., Records: Potpourri, Dividenden (Morena); Aubade (Livschakov); Serenade (Grunfeld). 10.30 a.m., Records. 11.0, Records 11.30, Operetta Music on Records: Selection from Phi-Phi (Christine); Kaduhce (Yvain). 11.45, Records. 12.5 p.m., The Station Orchestra: Overture, Euryanthe (Weber); Torch Dance of the Brides of Kashmir (Rubinstein); Beau Soir (Debussy); Chaconne (Durand); Tarantella for Flute, Clarinet and Planoforte (Saint-Saëns); Bird Songs at Eventide (Coates); Selection from Le Chemineau (Leroux); Persian Dance (Guiraud) 12.30, Sponsored Programme. 12.40, Concert (contd.). 2.30, The France v Germany Rughy Match, from the Parc des Princes. 6.45, Records. 6.52, Medical Talk, 7.30, Hot Jazz on Records. 8.10, Popular Music. 9.0, Florestan I, Prince de Monaco—Operetta (Heymann). 11.45, News.

PARIS

PARIS

RADIO-PARIS, Call GFR, 174 kc/s, 1,725
metres; 75 kW.—12 Noon, Records: Old
Montmartre (Fourdrain); Belle-Belle
(Mateo); Four Sougs; Conchita (Mateo);
Dizzy Dan (Mac Knight); Songs from Les
cloches de Corneville (Planquette); The
Drum Major's Daughter (Offenbach);
Madame l'Archiduc (Offenbach); Mannequins (Szule); Sidonie Panache (Szule);
Waltz (Waldteufel); Autour du moulin
(Feret); Arlequin et Colombine (Lacôme);
Escamillo (Goldberg); Songs: Two Songs
(Stolz); Pagan Love Song (Nacio-HerbBrown); Song: Les Lilias (Doelle);
Accordion Solos: (a) De Piepus an Palais
d'Anglior (Marceau), (b) Riveglio di Napoli
(Van Caillie), (c) Frimoussette (Marceau),
(d) Miss Columbia (Marceau); Songs; Foxtrot (Messier). 2.0 (approx.), The France
v. Germany Rugby Match, from the Parc
des Princes
4.0, Literary and Dramatic
Programme. Poems: L'été de la St, Martin
Comedy (Meilhac and Halevy); Les jurons
de Cadillac—Comedy (Pierre Berton). 6.0,
Mayantha Orchestra. 8.0, Music and Literature of the Sixteenth, Seventeenth and
Eighteenth Centuries, Omsic and Literature of the Sixteenth, Seventeenth and
Eighteenth Centuries, Omsic and Literature of the Sixteenth, Seventeenth and
Eighteenth Centuries, Of Quinton), Regina
Patorni-Casadessus (Viola d'Amore),
Marius): (asadessus (Quinton), Regina
Patorni-Casadessus (Gongs): Le jardin des
amours (Monret); Poems; La chasse (Lorenziti); Songs; Quinton Solos: (a) Concerto
(Somis) (h) Minuetto (Leclair), (c) Rondo
(Sacchini): Poems; Short Symphony
(Marias): Harpsichord Solos: (a) Prelude
and Fugue (Bach), (b) Sonata (Searlatt),
(c) Tie-Tie-Choc (Couperin); Songs;
Divertissement for Viola d'amore (Cimarosa): Les Récréations de la campagne (Clément). In the interval, News, Weather,
Press Review. osa), ment). In Review.

PITTSBURGH

PITTSBURGH

ADKA, 980 kc/s, 306 metres; 50 kW. Reayed by W8XK on 48.86 metres and 25.27 metres.—12.0 Noon, Musical Clock. 1.0 p.m., Morning Devotions, from New York. 1.15, Don Hall Trio, from New York. 1.30, Lew White, Organist, from New York. 1.45, Popular Programme. 2.0, Breakfast Club, from New York. 2.45, Minute Manuers. 3.0, Programme to be announced. 3.15, Clara, Lu 'n' Em, from New York. 3.45, Irma Glen, Organist, from New York. 3.45, Irma Glen, Organist, from New York. 4.15, Sammy Fuller. 4.30, Rhythm Ramblers, from New York. 4.45, Ella Graubart. 5.0, Gene Amold, from New York. 5.15, Wendell Hall, from New York. 5.30, Programme to be announced. 5.45, Ernie Holst's Orchestra. 7.0, Musical Originalities, from New York. 7.30, KDKA Home Forum. 8.0, Radio Guild, from New York. 9.0, Betty and Bob, from New York. 9.15, Tea Time Tunes. 9.30, Programme to be announced. 9.45, Words and Music, from New York. 10.0, Babe Ruth Presents 10.15, KDKA Kiddies'

JAN. 1st MONDAY

continued

Klub. 10.30, The Singing Lady, from New York. 10.45, Orphan Annie, from New York. 11.0, Pat Halcy. 11.15, Sports Notes, Programme Preview. 11.30, KDKA Salon Orchestra. 11.45, Lowell Thomas, from New York. 12 Midnight, Amos 'n' Andy, from New York. 12.15 a.m. (Tuesday), Baby Rose Marie, from New York. 12.30, Potash and Perlinutter, from New York. 12.45, Frances Alda, from New York.

PORSGRUND.—See Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—11.0 a.m.,
Chimes. 11.5, News. 11.15, See MoravskåOstrava. 12.30 to 12.50 p.m., Agricultural
Talk. 3.0, See Brno. 4.30, Travel Talk.
4.45, Records. 5.0, German Transmission:
Programme to be annonneed. 6.0, News.
6.5, Overture, The Bartered Bride (Smetana),
by the Station Orchestra. 6.15, New Year's
Greeting to Listeners, by Dr. Ladislav
Sourek, President of the Czcchoslovak Broadcasting Company. 6.25, Talk: New Year's
Greetings of Ancient Times and Musical
Programme. 6.40, The Station Orchestra,
conducted by Parik: Slav Rhapsody in D,
Op. 22 (Dvorák); Symphonic Poem, My
Youth. Op. 44 (Foerster). 7.30, Reading.
7.45, See Bratislava. 8.5, The Wood Fairy—
a Play in Three Acts (Josef Kajetan Tyl),
with Incidental Music by Anatol Provaznik.
9.15, News. 9.30, News in German. 9.45,
Records. 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Geneva, 400 kc/s, 749.9 metres.—No Trans-

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW.—11.40 a.m., Weather. 12 Noon, Divine Service. 1.0 p.m. (approx.), Programme to be announced.

RIGA

571 kc/s, 525.3 metres; 15 kW.—5.30 p.m., Los Cloches de Corneville —Operetta in Three Acts (Planquette). During the intervals: News, Weather. 8.40. Records. 9.0 to 10.0, Dance Music. 10.0 (approx.), Close Down.

RJUKAN.-See Oslo.

SALZBURG.—See Vienna.

SAN SEBASTIAN

SAN SEBASTIAN

662 kc/s, 453.1 metres; 0.6 kW.—1.0 a.m.
(Tuesday) till Close Down, Programme in
English by the I.B.C. 1.0, Instrumental
Music: Volante March (Alexander); The
Minstrel Boy; The Irish Washerwoman;
Jovial Jasper (Green); The Deep Blue Sea
(Brewer); Hot Scotch (Peterson); Fashionette (King); Four Little Blackberries;
Waltz, Au revoir (Cuvelier). 1.30, Tangos;
Will you dauce through Life with me;
Secrets; Solitario; Spanish Sweetheart;
Nunca; Once I fell in Love; There was a
poor Musician; Flor de Cuba. 2.0, I.B.C.
Goodnight Melody and Close Down.

SCHENECTADY

WCY, 799 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAD on 19.56 metres.—7.30 p.m., Revolving Stage, from New York. 8.16, Soloist, from New York 12.45 a.m. (Tuesday), The Goldbergs, from New York.

SCHWEIZERISCHER

LANDESSENDER

SOTTENS.-See Radio-Suisse Romande

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239-5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres; Ostersund, 409 kc/s, 746.2 metres; and Sundsvall, 554 kc/s, 542 metres.—1.00 a.m., Divine Service. 11.45, Weather. 1.0 p.m., Military

Band Concert, conducted by Bror Lundström.

2.0, Reading. 2.30, Songs to the Lute, by Per Nordström. 3.0, For Children. 3.30, Records. 4.30, Talk on the 6.30 p.m. Transmission. 5.0, Evensong. 6.30, Perseus and the Monster—Drama in Four Acts (Hedberg).

8.0, Orchestral Concert, conducted by Nils Grevillius. Soloist: Carl Achatz (Flute). Overture, Bervenuto Cellini (Berlioz); The Flute of Pan (Moquet); Suite, Jenx d'enfants (Bizet).

8.45, Weathers. 9.0, Concert (contd.): Spanish Legend (Rust); Overture. Die schöne Galathee (Suppé); Selection from The Merry Wives of Windsor (Nicolai); Delirien-Walzer (Jos. Strauss); My Lady Brocade, for Celeste and Strings (Ketelhey); Scènes bohemiennes (Massenet). 10.0 (approx.), Close Down.

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—9.15 a.m.,
Protestant Service. 10.0, Roman Catholic
Service. 10.30, Orchestral Concert, conducted
by Maurice de Villers. 12 Noon, Records.
Prelude in C sharp minor (Rachmaninov);
Orchestral Concert, conducted by Maurice
de Villers: Overture, The Barber of Seville
(Rossini); Selection from Danon Lescaut
(Puccini); Suite No. 2 from L'Arlesienne
(Bizet); Dance of the Waves, from Lerley
(Catalini); Ballet Music from Lakmé
(Delibes); Czardas (Grossmann); Norwegian
Rhapsody (Svendsen); March, Pomp and
Circumstance. 12.45 p.m., News. 1.0, Time,
1.1, Records: Prelude in C Sharp Minor
(Rachmaninov); Prelude to Werther (Massenet); Two Pieces (Kreisler): (a) Tambourin
chinois, (b) Caprice viennois; Campanella
(Paganini.Liszt); Stacatto Etnde (Rubinstein); Aria from Boris Godunov (Mussorgsky); Two Airs from Mephistopheles
(Boito); Two Hungarian Fantasias (Liszt).
3.0, Tosca—Opera (Puccini), by the Cast of
the Scala, Milan (on Records). 5.0, Concert
conducted by Roskarn. March (Pelloud);
Minuet from Orpheus and Enrydice (Gluck);
Gavotte from Armide (Gluck); Overture,
Haydée (Auber): Selection from Galathée
(Massé); En relisant vos lettres (MassonKiek); Le matin (Chaminade); Le chant du
Nord (Chaminade); Cantilène amoureuse
(Fauchy); Selection from Ketty Boxeur
(Gabaroche). 6.0, Liberary Talk: Lindovie
Halóvy, 6.15, Review of the Week in German.
6.30, Records. 7.30, Time and News. 7.45,
Records. 8.10, Lottery Results. 8.30, Concert
conducted by de Villers. Soloist: Mme.
Barth-Bach (Soprano). The Surprise Symphony (Haydn); Diane et Actéon, Cantata
for Soprano and Planoforte (Rameau); Concerto grosso (Handel); Soprano and Flute:
The Nightingale's Song (Handel); Symphonic
Poen, Hébé (Pierné); Papillon (Saint-Saëns);
Soprano Solo, A la musique (RenaudSimonetti): Noël d'enfant (Marc-Delmas);
Soprano Solo; Selection from Monsieur de
Pourceauguac (Bastide). In the interval,
News.

STUTTGART

News.

STUTTGART

MUHLACKER, 563 kc/s, 533 metres; 100 kW. Relayed by Freiburg, 1,157 kc/s, 259.3 metres, and 527 kc/s, 570 metres (until January 16, 1934).—9.0 to 9.5 a.m., New Year's Greeting, sung by Eugen Tyssen. 10.0, See Berlin (Deutschlandsender). 10.15, Records. 10.30, See Leipzig. 11.0, The Station Orchestra, conducted by Otto Seyfert: March and Air gai from the Ballet Suite (Gluck-Mottl); Largo and Halleinjah (Handel); Overture. The Barber of Bagdad (Cornelius); Prelude to the Third Act and Dauce of the Apprentices, from The Mastersingers (Wagner); Procession from Lohengrin (Wagner); Kaisermarsch (Wagner). 12 Noon, Records: Fest-Reveille (Golde); Frohsinn Marsch (Hauschild); Dance (Dellihes); Was ist Wein?—Sonnenschein (Walter); Quadrille, from Die Fleulermaus (Joh. Strauss); Auf meiner Lieblingsharmonlka (Dietrich); Unter dem Grillenhanner (Lindemann); Tinken, das ist das beste (Lindemann); Pique As (Pörschmann); Potpourri (Böhme, Kernhach and Flessburg); New Year's Polka; Von einem Glas kann man nicht lustig sein (Dölle and Felinau): Hacketäuer Marsch (Beez); Wer gibt die mächste Lage (Frais and Amberg); Programme of Old Dances. 1.30 p.m., See Frankfurt. 2.30, Swabian Music, with Humorous Interludes. 3.0, See Frankfurt. 5.0, Dialogue on Hope. 5.20, Wind Instrument Music: King Charles March (Unrath); March, Gruss an Billingen (Kiby); Mussiann-Marsch (Carl); March. Siegestrophäen (Friedemann); March, Old Heidelberg (Buchwald); March Jung-Deutschland (Rehfeld); March, Hohenzollern-Ruhm (Unrath); Badenweiler Marsch (Efrist); Lore, des Försters Töchterlein (Kutch), 5.10, Sports Notes. 6.30, New Year Programme of Literature and Music. 7.0, See Langenberg. 9.0, See Frankfurt. 9.20, Topical Talk. 9.30, Local News. 745, Light Music on Gramophone Records. 10.0, What do we want for the New Year?—Programme by the Station Orchestra, conducted by Gustav Görich. 1.1.0, See Langenberg. 1.0 a.m. (Tuesday), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

TOULOUSE

779 ke/s, 385 metres; 8 kW.—11.0 a.m., Dance Refrains. 11.30, Orchestral Music. 1.45, Opera Music. 12 Noon, Hawaiian Guitar. 12.15 p.m., Viennese Orchestra. 12.30, Chansonnettes. 12.45, Military Music. 1.0, Announcements. 1.5, Light Music. 1.15, Operetta Music. 1.30, Extracts from Sound Films. 1.45, Orchestral Pieces. 2.0, Popular Melodies. 2.15, Instrumental Solos. 2.30, Chamber Orchestra. 2.45, Extracts from Sound Films. 3.0, Orchestral Concert. 3.30, Channonnettes. 3.45, Orchestral Pieces. 4.15, Opera Music. 4.45, Argentine Orchestra. 2.415, Opera Music. 4.45, Argentine Orchestra. 5.0, Thé dansant. 5.45, Operetta Music. 6.0, News. 6.15, Military Music. 6.30, Spanish Songs. 6.45, Viennese Orchestra. 7.15, News. 7.30, Hawaiian Guitar. 7.45, Bal musette. 8.15, Orchestral Music. 8.40, Concert Version, Mignon—Opera (Thomas). 9.30, Extracts from Sound Films and Chamber Music. 10.0, Recitations, 10.15, News. 10.30, Operata Music: Songs from The Merry Widow (Lehár); The daughter of the Regimest (Donizetti), and Yes (Yvain). 10.45, Opera Music. 10.50, Tourist Talk. 11.0, Russian Songs and Balalaika Music. 11.15, Dance Music. 12 Midnight, News and Announcements. 12.5 a.m. (Tuesday), Chansonnettes. 12.15, Military Music. 12.30 (approx.), Close Down.

TRONDHEIM.-See Oslo.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning); and 5,959 kc/s, 50.26 metres (Evening); 10 kW.—10.0 a.m., Religious Information in Italian 7.0 p.m., Religious Information in Italian.

VIENNA

VIENNA

586 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1.058 kc/s, 283 metres; Klagenfurt, 652 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—9.0 a.m., The Vienna Trumpet Choir, conducted by Franz Burkhart. 9.30, Reading (Hans Andersen). 9.50, Violin Recital by Georg Steiner. 10.20, Talk: New Year in Old Vienna. 10.50, Orchestral Concert, conducted by Rudolf Nilius. Soloist: Hertha Gröger (Pianoforte). 1.0 p.m., The Wiener Symphoniker. 2.0, Time, Announcements. 2.5, Chamber Music by the Gottesmann Quartet. 3.5, Talk: Songs of the New Year. 3.35, Wind Instrument Concert, conducted by Eduard Pfleger. 5.0, Talk: Heinrich Herz. 5.10, Talk: A Visit to Grillparzers' House. 5.40, Die Winterraise—Song Cycle (Schubert) by Hans Duhan (Baritone). 6.40, Time, Announcements. 6.50, Operetta Programme by the Wiener Symphoniker. Maria Reining (Soprano). Igo Guttmann (Tenor). 8.30, News. 8.45, Talk: Winter Sports. 9.0, Concert Relay. WARSAW

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—8.0 a.m., Time and Sacred Song. 8.5, Gymnastics. 8.20, Light Music on Gramophone Records. 8.35, Radio Journal. 8.40, Popular Music on Gramophone Records. 8.35, Radio Journal. 8.40, Popular Music on Gramophone Records. 8.35, Programme for Housewives. 8.54, Programme Announcements. 9.5, Divine Service. Sacred Music, and Records from Poznan, 897 kc/s, 334.4 metres. 10.57, Time and Fanfare from St. Mary's Church. Cracow. 11.5, Programme Announcements. 11.10, Weather Report. 11.15, The Philharmonic Orchestra; Soloists: Hoszowska (Mezzo-Soprano), Robowska (Pianoforte), and Umberto Macnez (Tenor); Pianoforte Ltudes by Wieniawski, Swiczynski, Pachulski. Wielhorski, Zarembski, Szymanowski, and Chopin: Tenor Solos: (a) O amore, from L'amico Fritz (Mascagni), (b) Aria from Carmen (Bizet); Mezzo-Soprano Songs; Tenor Solos: (a) Sehza Nisciuno (de Curtis), (b) Melody (de Curtis); Le canto til grillo (Billi); Mezzo-Soprano Songs; Prelude on a Christmas Carol Theme; Mountain Fantasia (Joteyko); Oberek (Brzezinski); Mazurka (Padercwsky); Cracovienne (Niewiadomski); Polonaise (Michalowski). 1.0 p.m., Agricultural Talk. 1.15, Records. 20, Agricultural Dialogue. 2.20, Concert by the Wind Instrument Society. 3.0, Programme for Children, relayed from Lwów, 788 kc/s (381 metres). 3.30, Records by Paderewsky. 3.45, Humorous Recitations. 4.0, Talk. 4.15, "A Silesian Wedding"—Programme of Dances and Songs, relayed from Katowice, 734 kc/s (408 metres). 5.0, Dramatic Programme. 5.40, Tenor Recital. 6.5, Announcements. 6.40, Talk on Art. 6.45, Reading. 7.0, Szymanowski Concert by the Symphony Orchestra, conducted by Fitcherg; Soloist, Korwin-Szymanowski Concert by the Symphony Fitcherg: Soloist, Notes. 9.15, Dance Music. 10.0, News. 10.5, Dance Music.

ZAGREB

AAGKEB
977 kc/s, 307 metres; 0.75 kW.—9.0 to 10.0
a.m., Mass, relayed from St. Mark's Church.
11.0 to 12 Noon, Gramophone Concert. 4.0
to 5.30, Trio Concert. 6.15, Book Review.
6.30, Announcements. 7.0, Educational Talk.
7.20, Introductory Talk to the following transmission. 7.30, An Opera, relayed from Belgrade 698 kc/s, 429.7 metres. In the intervals: News, Weather and Programme Announcements.
7.11BIGH — See Schweizerlenber Landescander.

ZURICH.-See Schweizerischer Landessender.



ALGIERS

ALGIERS

825.5 kc/s, 363.3 metres; 13 kW.—12.30 p.m.,
Concert by the Station Orchestra. 1.0, News.
1.5, Concert (contd.). 6.0, Accordion Music.
6.15, Saxophone Solos. 7.0, Exchange. 7.10,
Shipping. 7.15, Weather. 7.20, Songs from
Sound Films. 7.30, Lottery Results. 7.45,
Records. 7.55, News. 8.0, Time. 8.2, Sonata
for Violin and Pianoforte No. 3 (Viardot).
8.40, News. 8.45, Reading. 9.0, Concert of
Eastern Music. 9.30, News. 9.35, Concert
(contd.). 9.55, News.

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres; and Cork, 1,337 kc/s, 222.4 metres.—1.30 p.m., Time, Exchange, Weather and Records. 2.0, Records. 6.0, For Children. 6.45, News. 7.0, Gaelic Talk, 7.15, Poetry Recital by M. Pitchford. 7.30, Time Signal. 7.31 Light Variety Numbers by the Station Orchestra. 8.0, Variety (Nono Bros.). 8.25, Light Soprano Solos by Margery Hogan. 8.35, Concert by the Station Orchestra. 9.0, Baritone Solos by Philip Godfrey. 9.15, Traditional Fiddle by O'Higgins. 9.30 to 10.30, Programme by the I.B.C. (Ireland), Ltd. 9.30, Light Music: Signature Tune, Choo, Choo; Down South (Myddleton); Rose Dreams (Shannon); Chanson (Friml); Snacks in Bars (Egerer); Signature Tune, Choo, Choo. 9.45, Dance Music: Dear Stranger; If I had Someone to Love; Night Owl; Love in the Moonlight. 10.0, Dance Music: Bless your Heart; Longing; Trouble in Paradise; Racing Commentary; Shuffle off to Buffalo; 'Tain't; Lay your head on my Shoulder; Laughing Waltz. 10.30, I.B.C. Goodnight Melody, followed by News. 10.40, The Colmcille Ceilidhe Band. 11.0, Close Down.

BARCELONA

BARCELONA

EAJ1, 861 kc/s, 348.4 metres; 8 kW.—
7.15 a.m., Radio Journal and Records. 8.0, Chimes, Gymnastics and Records. 8.20, Radio Journal and Records. 9.0, News. 11.0, Cathedral Chimes, Weather. 12 Noon, For Women. 12.45 p.m., Records. 1.0, Records. 1.30, Theatre Notes and Records. 2.0, Announcements. Film Review and Sextet Concert: Selection from The Circus Princess (Kálmán); Spanish Dance No. 12 (Granados); Melody (Vila); Mallorca (Albeniz); Fandanguillo (Romero); Selection from Luisa Fernanda (Torroba). After the Concert. Exchange. 3.0, For Hospitals. 4.0 to 6.0, Interval. 6.0, Trio Concert. March (Pitcik); Selection from Mirella (Gonnod); Minuet from the Sonata No. 11, Op. 22 (Becthoven); Cello Solo, Reveric (Vallaury); Bolero (Moskowsky); Pastoral (Wenisch); Selection from The Prophet (Meyerbeer). 7.0, Records. 7.15, Talk on Hygiene. 7.30, Exclauge and Talk in Catalan. 8.0, Records. 8.15, Football Results. 8.30, Educational Programme and News. 9.0, Cathedral Chimes, Weather, Messages to Seamen. 9.5, News. Exchange. 9.10, The Radio Orchestra. 10.0, Soprano Song Recital of Tuscan Songs. 10.40, Quartet in G Minor (Mozart), followed by Dance Music from the Casa Llibre. 11.0, News. 11.5 (approx.), Dance Music Relay (contd.). 12 Midnight (approx.), Close Down. News, 11 (contd.). Down,

BASLE.-See Schweizerischer Landessendor.

BELGRADE

BELGRADE

88 kc/s, 429.7 metres; 2.8 kV.—10.0 a.m.,
Announcements. 10.5 (approx.), The Radio
Orchestra. 10.20, Weather. 10.25 (approx.),
The Radio Orchestra. 10.59, Time and
Chimes. 11.5, The Radio Orchestra. 11.35,
Exchange, Records. 12.30 p.m., News, Time.
3.0, Song Recital by Carevic. 3.30, Records.
4.0, Talk. 5.55, Time, Announcements. 6.0,
Planoforte Recital by Mira Mokranjac. 6.40,
Talk. 7.10, Yugoslav Song Recital by Stanoje
Jankovic. 7.40, The Radio Quartet. 8.10,
Radio Play. 8.30, Songs with Orchestra. 9.5,
Time, News. 9.15 (approx.), The Radio Orchestra. chestra.

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHSSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—
9.0 a.m., News. 9.10, Records, 9.50, For Children. 10.15, Weather. 10.30, For Women. 10.45, Talk: Seascape Painting, 11.0, Weather; Records: Hebe deine Augen auf; Sonata in E (Cornelli); Andante from the Unfinished Symphony (Schubert); Overture, Idomeneo (Mozart); Entry of the Guests, Tannhäuser (Wagner); Polonaise No. 2 (Liszt). Widmung (Schumann); Saite in A (Vivaldi); Minuct in G (Beethoven); Weather. 11.55, Time. 12.45 p.m., News. 1.0, Records; Die Rose stand im Tau (Schumann); Ständehen (R. Strauss); Folk Song, Trennung; Das Herz am Rhein (Hill-Dippel); Folk Song, Feierabend; Das Wandern ist des Müllers Lust (Zöllner); Aria. The Magic Flute (Mozart); Aria, Der Rosenkavalier (R. Strauss); Aria (Weber); Nun eilt herbei (Nicolai); Mag der Himmel Euch vergeben (Flotow); Preis Dir und Dank (Gracher); Star of Eve, Tannhäuser (Wagner). 2.0 to 2.30, For Wonicn. 2.30, Weather, Exchange. 2.45, Talk: 3.0, See Breslau. 4.0, Talk: The Rights of Youth. 4.20, Movement from Violin Concerto in E Minor (Mendelssohn) by Grete Eweler with pianoforte accompani-

JANUARY THE SECOND

ment. 4.40, Dialogue on Modern Greece; Greek and German Folk Songs; Introductory Talk by the Greek Ambassador. 5.0, Poetry. 5.5, "Von den heiligen zwölf Nächten zum Dreikönigstag" (Albert Schweitzer). 5.25, News. 5.45, Weather. News. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, Talk: Freedom of Thought in Germany. 7.10, Poems (Schlösser). 7.20, See Breslau. Economic Review in the interval. 8.10, See Breslau. 9.0, Weather, News. 9.45, Weather. 10.0 to 11.0, See Leipzig. 11.0 (approx.), Close Down.

BERLIN

BERLIN

FUNKSTUNDE, 832 kc/s, 360.5 metres; 100 kW. Relayed by Zeesen, DJC, DJA, DJD, DJB and DJE.—5.15 a.m., Gym. 5.30, Today's Motto, Weather. 5.35 to 7, See Heilsberg. In an interval, News. 7.15, Gym. 7.30, Records. 8.0, Records. 8.30, For Women. 9.0, Weather. News. 9.10, Exchange. 10.25, Exchange. 10.30, The Small Station Orchestra, conducted by Willy Steiner. Overture. Flotte Bursche (Suppé); Down Sonth (Myddleton); Liebeslegende (Becce); Waltz (Waldteufel); Marquis und Marquise (Godard); Cardas (Monti); Serenata (Tarengli); In der Taverne (Nicodé); Waltz Künstlerleben (Strauss); Invano (Amadei); Melody (Gillet); Love's Dream after the Ball (Cziohika); Selection from The Geisha (Jones). In the interval: Agricultural Talk. 12.0 Noon, Records: Das Echo (Schubert); Nach sind die Tage der Rosen (Baumgartner); Zur Drossel sprach der Fink (d'Albert); Grüss mir das blonde Kind am Phein (Heiser); Wenn ich einmal der Herrgott wär' (Binder). 12.20 p.m., Concert from Hamburg. 1.15, Weather, News. 1.35, Records: Overture, Donna Diana (Reznicek); Two Songs from Friedemann Bach (Graener); Rigandon from The Flute of Sanssouci (Graener); Duet, from Act. I of Arabella (R. Strauss). 2.0, Exchange. 2.15, Symphonic Dances (Grieg), on Records. 3.0, See Heilsberg. 4.0, Village Music from Hamburg. 5.0, Pianoforte Concerto, Op. 11 (Chopin), by Johannes Strauss and the Station Orchestra, conducted by Otto Frickhoeffer. 5.35, The Funkstunde informs its Listeners . 5.40, Regal Talk. 6.0, Transmission for all German Stations: Das Ewige Jahr—Programme arranged by Alfred Meyer, with Music by Karl Knauer, by the Station Orchestra, conducted by the Composer. 7.5, Leaves from the Diary of an Old Man; Concert and Readings, relayed from Hamburg. 9.0, Weather, News. 9.30, Talk. 9.40, Old and New Dances from Hamburg. 11.0 (approx.). Close Down.

BERNE.-See Schweizerischer Landessender. BEROMUNSTER. — See Schweizerischer Landessender.

BODEN.-See Stockholm.

BODO.-See Oslo.

BRATISLAVA

BKAIISLAVA
1,073 kc/s, 279.5 metres; 14 kW.—4.15 p.m.,
Violin Recital by Simon. 4.35, Educational
Programme. 4.50, Concert by a String Trio:
String Trio in A minor, Op. 77 (Reger);
String Quartet, Op. 10 (Folprecht). 5.40,
Morse Lesson. 5.55, For Housewives. 6.0,
See Prague. 8.10, See Moravska-Ostrava. 9.0,
See Prague. 10.0 (approx.), Close Down.

BREMEN.-See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—5.30 a.m., See Munich. 6.15, See Leipzig. 8.20, Time, Weather, News. 10.25, Agricultural Talk. 10.40, Time, Weather. 10.50, See Leipzig. 11.0, See Munich. 12.15 p.m., See Leipzig. 11.0, See Munich. 12.15 p.m., See Leipzig. 12.25, Records. 1.0, See Leipzig. 1.10, Time, Weather. 1.15, Records. 1.50, Exchange. 2.10, Talk. 2.30, For Children. 3.0, Military Band Concert, conducted by Hosemann: March (Blankenburg); Waltz. Rosen aus dem Süden (Strauss); Selection from Carmen (Bizet); Puppen-Mennett (v. Blon); Two Picces (Greig): (a) Ich liebe dich. (b) Erotil. Selection from Der Rastelbinder (Lehár); Zigenner-Ständchen (Mecke); Hungarian Rhapsody (Reindel); Waltz (E. Strauss); Two Marches (Lübbert). 4.30 to 5.10, See Munich. 5.10, Exchange, Review of Almanacs. 5.25, Topical Talk. 5.45, Announcements. Weather. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, See Berlin (Deutschlandsender). 7.10, See Leipzig. 7.20, The Sileslan Philharmonic Orchestra, conducted by Josef Topitz, and Soloists. Selection from Das Pensionat (Suppé); Drinking Song, from Das verwunschene Schloss (Millöcker); Two Songs from Carneval in Rome (Strauss); Duet from Die Fledermaus (Strauss); Waltz, Mein Lebenslauf ist Lieb und Lust (Strauss); Two Songs from Das seisse Mädel (Reinhardt); Polka, Leichte Blut (Strauss);

Song, Die Nachtigall (Alabiev); Melodies (d'Laquai); Overture, Fesche Geister (Ziehrer); Song from The Cousin from Nowhere (Künneke); Waltz Song from Schön ist die Welt (Lehár); Tango Dnet from Glückliche Reise (Künneke); Waltz, An der schönen grünen Narenta (Komzak); Song (Brandt); Song from Lischott von der Pfalz (Künneke); Song from The Count of Luxemburg (Lehár); Selection from Die Fledermaus (Strauss). 9.0, Sec Leipzig. 9.20, Time. News, Exchange. 9.35, Sec Leipzig. 11.30, Caraso Records. 12.30 a.m. (Wednesday), Wandering Singers—Musical Play (Sczuka). 1.30, Close Down.

BRNO

BRNO

878 kc., 342 metres; 35 kW.—12.35 p.m.,
Topical Talk. 12.45, See Prague. 1.0, Agricultural Talk. 2.30, See Prague. 2.40, Talk.
2.50, See Prague. 4.15, Chess Lesson. 4.35,
See Prague. 4.50, Records. 5.0, Talk on
Music. 5.15, For Workers. 5.25, German
Transmission, News. Talk, and Programme
for Workers. 6.0, See Prague. 7.0, Jazz Records. 7.40, See Prague. 8.10, See MorayskaOstrava. 9.0 to 10.0, See Prague. 10.0 (approx.), Close Down.

cords. 7.40, See Prague. 8.10, See Moravska-Ostrava. 9.0 to 10.0, See Prague. 10.0 (approx.), Close Down.

BRUSSELS (No. 1)

1.N.R., 589 kc/s, 509.2 metres; 15 kW.—

12 Noon, The Small Station Orchestra, conducted by Lecamans, Ure bonne nonvells (Walter); Prelude (Douliez); Joycuse aubade (Gregh); Madrigal (Ganbert); Simple aven (Thome); Canonetta (d'Ambrosio); Song (Rimsky-Korsakov); Autrefois (Sibelius); Souvenir (Drdla); Passé (Nouguès); Meditation (Giazunov); 1.0 p.m., Le Journal Parlé, 1.10, Debussy Pianoforte Recital by Mile, Maric-Louise Nailis: La puerta del Vino; Bruyères; Canope, 1.20, Records: Selection from White Horse Inn (Stolz-Benatzky); Kashmiri Love Song (Woodforde-Finden); Bine Roses (Carter); Sweetheart Darlin' (Stothart); The Song of the Drum (Ellis); I cover the Waterfront (Green); Old Contemptibles (Somers); Selection from The Three Musketeers (Friml); 5.0, The Radio Orchestra, conducted by André: Rigaudon (Chaninade); Les deux cœprs (de Fontenailles); Selection from Piecolino (Guiraud); En sourdine (Ilahn); Frimousse (Berger); Petites pièces Pompadour (Pierné); First Waltz (Durand). 5.30, For Children. 6.5, Literary Review. 6.15, Concert; Orchestra: Pastorale d'été (Honegger), conducted by the Composer; Two Novelettes (Poulenc), with Musical Improvisations by Jean Meer. 7.0, Request Records. 7.15, Weckly Review. 7.30, Art Notes. 8.0, The Station Symphony Orchestra, conducted by Kumps; Soloist, José Bules (Pianoforte); Selection from Hansel and Gretel (Humperdinek); Pianoforte Concerto in D (Mozart); Adagio for String Quartet (Lekcu); Cortège (De Greef); Walloon Variations (Giuson). 9.0, Talk. 9.15, The Radio Orchestra, conducted by Andrée Rouison (Dalcroze); Danse paysanne (Pachernegg); Sauserie (Mailly); Accordion Solos of Popular Musie; Clarinet Solo. Canzonetta (Pierné); Cabaret from Scènes alsaciennes (Massenet); Melody (Lincke); La chanson de grand "mère (Walter); Féte rustique (Houfflack); Réverie (Luigini). 9.55, Christus Vincit (Liszt). 10.0, Le Journal Parlé.

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.1.R., 888 kc/s, 337.8 metres; 15 kW. Programme in Flemish.—12 Noon, Records. Selection from The Czarevitch (Lehâr); March. Sei mein Kamerad (Gilbert); Du wärst was für nich (Gilbert); Ufatonbomben (Borchert); Slow Foxtrot (Abraham); Tango (Grothe); Es war einmal ein Walzer (Lehâr); Es gibt noch Märchen auf dieser Welt (Lehâr); Schade dass Liebe ein Märchen ist (Yurmann); In Wien wird es Friihling (Doelle); Selection from Love me To-night (Hart); March and Waltz (Gray); I'm bringing a Red, Red Rose (Donaldson). 1.0 p.m., Le Journal Parlé. 1.10, The Small Station orchestra, conducted by Leenans; Waltz (Zeller); La chanson des abeilles (Filipucci); Potpourri (Morena); Tempo di memuetto (Albert); Dance Fantasia (Albert); The Wedding of the Rose (Jessel); Potpourri, Contrasts (Robrecht). 5.0, The Station Symphony Orchestra, conducted by Kumps: Overture, Ruy Blas (Memdelssohn); Melody (Rubinstein); Records (R. Strauss): (a) Ständelen, (b) Morgen; Selection from William Tell (Rossini); Records: (a) Mazurka (Chopin), (b) Cigány Song; Egyptian March (Joh. Strauss). 5.48, For Children. 6.30, The Small Station Orchestra, conducted by Leemans: Cortège catalan (de Sévérae); Orientale (Albéniz); Five Old Viennese Tone Pictures

(Bass); Selection from Les Gueffes (Godard), 7.0, Records; Overture, Coriolanus (Beetloven), 7.10, Announcements, 7.15, Reading, 7.30, Talk for Women, 8.9, The Revue of Revues, 10.0, Le Journal Parle.

BUCHAREST

T60 kc/s, 394.7 metres; 12 kW.—11.0 2.m., Exchange, followed by Records. 12 Noon, Radio Journal. 12.15 p.m., Light Music (on Gramophone Records). 4.0, Gica Ionesco's Orchestra. 5.0, Radio Journal. 5.15, Gica Ionesco's Orchestra (contd.). 6.0, Educational. 6.20, Records. 6.45, Talk. 7.0, Song Recital by Nicolesco-Bassu (Bass). 7.20, Symphony Concert by the Station Orchestra. 8.0, Talk. 8.15, Concert (contd.). 8.45, Radio Journal.

BUDAPEST

BUDAPEST

545 kc/s, 550.5 metres; 120 kW. Also relayed on 840 metres from 6.20 p.m. till Close Down. —5.45 a.m., Gym.; Records. 8.45, News. Topical Talk; Records. 10.10, Tides Report. 11.0, Chimes. 11.5, Concert by the University Choir. 12.30 p.m., Orchestral Concert. 3.0, For Women. 4.30, 'Cello Recital. 5.10, French Lesson. 5.40, Song Recital. 6.20, Talk: Reminiscences of a Student. 6.50, Orchestral Concert. 8.30, Concert from the Denes Restaurant. 9.35, Records. 10.15, Dance Music from the Ritz Hotel.

CASSEL.-See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc, s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres, and Skamleback, 31.51 metres,—6.0 a.m., Gymnastics for Women. 6.15, Gym. 7.39, Divine Service from the Cathedral. 10.0, Weather. 10.10, Fishing Notes. 11.0, Time and Chinnes from the Town Hall. 11.2, The Andersen String Ensemble from the Hotel d'Angleterre. 1.0 p.m., The Rydahl Instrumental Ensemble: Overture (Gade); Waltz Etinoclles (Walditenfel); Sorg (Henriques); Minuet (Marino); Aubade and Perceuse (Rosenberg); Five Songs from Tannhäuser (Drachmann); Waltz (Lumbye); Overture, The Circus Princess (Kálmán); Romance (Würtz); Waltz (Monando); Tango (Gyldmark); March (Riming). 2.30, New Year's Programme for Boys. 4.30, Exchange, Fish Market Prices. 4.43, A Poen. 4.45, Talk. 5.15, German Lesson. 5.45, Weather. 5.54, Wireless Notes. 5.0, News. 6.15, Time. 6.30, Talk: Capital and the Community. 7.0, Time from the Town Hall. 7.2, Nineteenth Century Operetta and Waltz Music: The Station Orchestra, conducted by Gröndahl. Overture, Gioffédiciroffa (Lecocq); Waltz (Ivanovici); Selection from The Geisha (Jones); Waltz (Waldtenfel): Overture, La jolic Partumense (Offenbach); Waltz (Gungl); March from Donna Juanita (Suppé). 7.50, A Microphone Visit to the Zoological Gardens. 8.20, Pianoforte Sonata No. 5 in G (Mozart). 8.40, Reading (Blicher). 9.0, News. 9.15, Romantic Music. The Station Orchestra, conducted by Gröndahl. Overture, Le Preciosa (Weber); Three Movements from the Italian Symphony in A (Mendelssohn). 10.0, Dance Music from the Nimb Restaurant. 11.0, Time and Chimes from the Town Hall. 11.2, Dance Music (contd.).

CORK .- See Athlone.

CRACOW

S59 kc/s, 312.8 metres; 1.5 kW.—6.0 a.m., See Warsaw. 10.35, Programme Announcements. 10.40, See Warsaw. 10.57, Time Signal and Fanfare from St. Mary's Church. 11.5, Records. 11.30, See Warsaw. 2.25 p.m., See Warsaw. 3.40, Talk. 3.55, See Warsaw. 6.0, Programme Announcements. 6.5, Technical Talk. 6.20, Miscellaneous Items. 6.25, See Warsaw. 10.30 (approx.), Close Down.

DANZIG .- See Heilsberg.

DRESDEN.-See Leipzig.

FECAMP

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—11.0 a.m. to 12.0 (Noon), Programme in English by the 1.B.C. Part I—Orchestral Concert: Signature Tune; Selection, The Mand of the Mountains (Fraser Simpson); The Wedding of the Rose (Jessel); Spanish Gypsy Dance (Marquia); The Butterfly (Nevini); Morgenblätter (Strauss); Xylophone Solo, Jovial Jasper (Green); Beautiful Spring (Lincke); The Clock and the Dresden Figures (Ketchley), 11.30 a.m. Part II—Dance Music: Let's make up: Old-Pashioned Sweethearts; If you'll say "Yes," Cherie; Everyone loves my Marguerite; A One-Horse Town; Dawn in Montmartre; The last Round-Up; A Couple of Pals; Signature Tune, 12.0 Noon, French Programme. 3.30 to 6.0 p.m., Programme in English by the I.B.C. 3.30, Concert for Torquay and Exeter Listeners. Part I, Orchestral Music: Signature Tune, Bells of Normandy; Potpourri Overture (arr. Leggett); Chinese Fantasy (Deppen); Duet, Give me thy Hand O Fairest (Masseuet); The Dance of the Clowns (Smetana); 'Cello Solo, The Garden of Sleep (de Lara); The Poet's Song from La Bohéme (Puccini); I Love Thee (Grieg); In Vienna One Night (Bordin). 4.0, Part 2, Dance Music: Hand in Hand; Making Conversation; You ought to see Sally on Sun-

JAN. 2nd TUESDAY continued

y; There's a Cabin in the Pines; The ist Round-Up; My Lucky Day; Symphony the Breeze; Laughing Waltz. 4.30, The B.C. Nursery Corner: Birthday Greetings. A. Concert for Plymouth and Devonport steners. Song. The Two Grendiers chumann); War March of the iests (Mendelssohn); Song. The Old perb (Standford); Cradle Song (Brahms); enzi 'Overture' (Wagner); I.B.C. me Signal. 5.30, Concert (contd.). simal Antics (Wark); A Cuckoo in the 2st (Sievier); When you've Fellows like me the Force (Frankau); The Water Melon ite (Thurban). 5.45, Dance Music: Hand in and; When Autumn comes around; Sweet reams, Pretty Lady; Experiment; Signare Tune, The Night by the Sea. 6.0, Programme in French. 10.0, Programme in nglish by the I.B.C.; Dance Music. 10.30, gnature Tunc, The Bells of Normandy; An id, Old Man with an Old, Old Pipe; Withit that Certain Thing; Yvonne; The eleta; Did my Heart beat? Blue Moents; Rockin' in Rhythm; We'll all goding on a Rainbow; Signature Tunc. ypsy Music: March of the Russian Hustrs (Traditional); Hungarian Dance No. 2 Brahms); Spanish Gipsy Dance (Brahms); ity Me (Traditional); Hungarian Dance No. 6 Brahms). 11.0, Request Programme; ioodbye (Tosti); Play Fiddle, Play; Bitter weet Waltz (Coward); The Sanctuary of the Heart (Ketelbey); How deep is the becan? (Berlin); In the Valley of the Moon Tobias); So long, Lads, we're off; Please Robin); L.B.C. Time Signal. 11.30, Concert arranged by the I.B.C. (Ireland), Ltd.: signature Tune. Come Back to Erin; Pases Fleurs (Delibes); Violin Solo, Boubliohka (Traditional); Norwegian Dance (2. 2 (Grieg); The Londonderry Air (arr. rainger); Minuet (Mozart); Valse des Pleurs (Tchaikowsky); Harlequiu's Serenade, Pagliacci (Leoncavallo); A Thousand and me Nights (Strauss); Signature Tune, Jome Back to Erin. 12.5 a.m. (Wednessay), Latt News Bulletin in English. 12.10, L.B.C. Club Concert for Whitby Listeners: I was in the Mood; You've got Everything; The Cage in the Window; My Moonlight Madonna; Everyone loves my Marguerite. 12.30, Happy and Contented: He was a aandsome yo

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Casset and Trier, 1,157 kc/s, 259.3 metres.

—9.0 a.m., News. 9.45, For Housewives.

10.0, ('oncert. 10.40, Announcements, News. 11.0, Concert. 12.15 p.m., Time, News. 12.25, News. 12.35, Records: Norwegian Dance No. 2 Op. 64 (Grieg); Tarantella (Liszt); Bulgarian Dance (Wladigerov); March (Tchaikowsky); Hungarian Dances (Brahms); Capriccio (Rimsky-Korsakov); Persian Dance (Mussorgsky). 1.30, For Women. 2.30, Weather. 2.40, Time, Exchange. 3.0, See Stutigart. 5.0, Italian Lesson. 5.20, Talk. 5.35, Talk on Art. 5.50, News. 6.0, Transmission for all German Stations. relayed from Berlin (Funkstunde). 7.0, See Berlin (Deutchlandsender). 7.10, Concert from Breslau. 9.0, Time. News. 9.20, See Stuttgart. 9.30, News. 9.45 to 11.0, See Langenberg. 11.0, Zwingil's Anniversary Programme, with Music and Songs of the Reformation Period. 11.45 (approx.), Close Down. FREDRIKSSTAD.—See Oslo.

FREIBURG.—See Stuttgart. GENEVA.—See Radio-Suisse Romande. GENOA .- See Turin. GLEIWITZ.—See Breslau. COTEBORG.—See Stockholm GRAZ.-See Vienna. HAMAR.—See Oslo. HANOVER.-See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—5.15 a.m., Gym. 5.35, Small Station Orchestra. 7.0, Morning Prayer. 7.30 to 8.0, Gym for Women. 9.40, News. 9.50, Weather. 10.0, News. 10.5, Talk. 10.30 to 12 Noon, See Berlin (Funkstunde). 12.5 to 1.30 p.m., Viennese Music: Andante from the Kaiser Quartet (Itaydn); Gern hab' ich die Fraun geküsst (Lehâr); Viennese Music (Komzak); Meine Liebe. deine Liebe (Lebâr); Dream (Millöcker); Du sollst der Kniser Seele sein (Stolz); In Wien gibt's manch winziges Gasterl (Stolz); Wild Violets (Stolz); Donanweitchen (Strauss); Gesch

windmarsch (Strauss); Lagunenwalzer (Strauss); Morning, Noon and Night (Suppé); Weaner Madeln (Ziehrer). In the interval, News, Exchange. 2.0, Exchange. 2.20, Talk for Women. 2.30, Musical Improvisation for Children. 3.0, Italian Music by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Consalvo (Azzoni); Romanian Rhapsody (Carabela); Melody (Poldini); Old Dances (Respighi); Suite (Micheli); Overture, The Thieving Magpie (Rossini). 4.0, Village Music from Hamburg. 5.0, Book Review. 5.15, Exchange. 5.55, Talk: The Art of Planoforte Playing. 5.50, Weather. 6.0, Transmission for all German Stations relayed from Berlin (Funkstunde). 7.0, News, Weather. 7.5, Concert and Readings from Hamburg. 9.0, Weather, Sports Notes. 9.30, Talk: National Safety, from Hamburg.

HILVERSUM

HILVERSUM

(Announced HUIZEN), 1,013 kc/s, 296.1 metres; 7 kW. until 5.40 p.m. and 20 kW. from 5.40 p.m.—Programme of the Catholic Radio Society (K.R.O.), 7.40 a.m., Records. 8.55, Interval. 9.40, Records. 11.10, Religions Address. 11.40, Police Notes. 11.55, The K.R.O. Sextet: Melody (Kreuzberger); Mighty lak' a Rose (Nevin); Mon rève (Waldteufel); Selection from The Pearl Fishers (Bizet); The Butterfly's Dream (Jakma); Melody (Elliott); Records; Serenade (Heykens); Weber Potpourri (Tavan); Nights of Gladness (Ancliffe); Finale. 1.40, Programme for Women. 2.40, Dresmaking. 3.40, The K.R.O. Orchestra, conducted by Marius van 't Woud, 4.30, Records. 4.50, Orchestral Concert: Overture, The Barber of Seville (Rossini); Song of the Butterfly (Weckerlin); Plaisir d'amour (Mortini); Selection from Cavaileria rusticana (Mascagni); Absence (Berlioz); Nuit d'étoiles (Debussy); Selection from Lakme (Delibes). 5.25, Records. 5.40, K.R.O. Orchestra, conducted by Marius van 't Woud. Overture, Oberon (Weber); Selection from A Midsummer Night's Dream (Mendelssolin); in the Steppes of Central Asia (Borodin); Concert Waltz (Glazunov). 6.20, Esperanto Lesson. 6.40, Police Notes. 6.55, Talk. 7.15, Records. 7.55, Second and Third Acts of Die Königskinder—Opera (Humperdincke). In the interval, Records. 9.30, Records. 10.10, News. 10.15, K.R.O. Boys, conducted by Lustenhouwer: Selection from De Flederinaus (Joh. Strauss-Kochmann); Ritorna (Carosio); English Waltz and Song (Mohr); Potpourri, Bravo: Bravo! (Ciere). 10.45, Records. 11.10, Concert (contd.): Slav Rhapsody (Friedemann); Two Gnitars (Makarov); March Potpourri (Ciere); Finale. 11.40 (approx.), Close Down.

HORBY.-See Stockholm.

HUIZEN

HUIZEN

(Announced HILVERSUM), 160 lc/s, 1,875 metres; 7 kW. until 3.40 p.m. Transmitted from Kootwijk, 50 kW., from 3.40 p.m.—
7.40 to 10.40 a.m., Programme of the General Broadcasting Society (A.V.R.O.). 7.40 a.m., Time and Records. 9.40, Divine Service. 9.55, Records: Saered Music. 10.10, The Hague String Quartet. 10.40, Talk by the R.V.U. 11.10 to 5.10 p.m., Programme of the General Broadcasting Society (A.V.R.O.). 1.10, The Hague String Quartet. 11.40, Time. 11.41, Otto Hendriks Orchestra. In the Intervals, Records and Talks. 1.55 p.m., Records. 2.15, Planoforte Recital by Anny Oostdam: Prelude and Fugue in E Flat (Bach): Sonata in D (Scarlatti); Aufschwing (Schumann); Berceuse (Chopin): Prelude in C Sharp Minor (Rachmaninov). 2.40, Dress Making Lesson. 3.40, Songs by Lucio Macia. 4.10, Children's Choir, conducted by Jacoh Hamel. 4.40, For Children. 5.10, Talk by the Liberal Protestant Radio Society (V.P.R.O.). 5.40, Programme of the A.V.R.O.—Records. 6.10, Talk by the R.V.U. 6.40 till Close Down, Programme of the A.V.R.O.—Records. 6.10, Cello Recital by Tibot de Machula: Symphonic Variations (Boëllmann); Elegy (Fauré); Pièce en forme de Habanera (Ravel); Minuet (Debussy); Spanish Carnival (Popper). 7.10, English Lesson. 7.40, Time and News. 7.45, The Wireless Orchestra, conducted by Nico Treep: March and Two Step (Christiné); Beautini Garden of Roses (Schmid); The Valeta (Morris); Snanish March. Granada (Garcia); Basque Waltz (Wittmann); 1905 Potpouri (Samehtini); When Madelon . . . (Kohert). 9.40, Records. 9.55, Kovacs Lajos and his Orchestra. In the interval at 10.40, News. 11.40 (approx.), Close Down.

INNSBRUCK.-See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—12.30 p.m., Amusement Guide and Variety Items. 1.0, News. 1.15, Radio Concert. 8.0, Amusement Guide, News and Exchange. 8.10, Agricul-tural Talk. 8.20, English Lesson. 8.35,

Radio Concert. 9.0, Weather and News. 9.15, Radio Concert. 10.30, Concert.

KALUNDBORG.—See Copenhagen.

KIEL.—Sec Hamburg. KLAGENFURT.—See Vienna.

KOSICE.-See Prague.

LANGENBERG

LANGENBERG

635 kc/s, 473 metres; 60 kW.—5.0 a.m., Choral Record. To-day's Motta. 6.5, Records. 5.30, See Stuttgart. 6.45, Gym. 6.0, See Frankfurt. 6.10, Weather. 6.15, See Frankfurt. 7.15, News. 7.25, For Women. 7.35, Gym for Women. 9.0, See Frankfurt. 7.16. See Frankfurt. 7.16. See Frankfurt. 10.10, Records. 10.25, Records. 10.55, Weather. 11.0, See Munich. 12.15, See Frankfurt. 12.25, News. 12.35, See Frankfurt. 145, Talk. 2.0, Talk: Education. 2.15, Pianoforte Duets: licitere Suite (Lemacher). 2.30, News. 2.40, Rural Programme. 3.0, See Suttgart. 5.0, See Frankfurt. 5.35, Reading. 5.45, News. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, See Berlin (Deutschlandsender). 7.10, Weekly Review. 7.40, Part Relay of the Concert from Breslau. 9.0, See Frankfurt. 9.20, See Stuttgart. 9.30, News. 9.45, Records. 10.0, Chamber Music: Müller (Violin). Bushach (Viola), Schmidt ('Cello), Mantels (Oboe), Wielsch (Pianoforte): Quartet in F (Mozart); Extract from Weihnachtsbaum (Liszt); Trio in B, Op. 97 for Pianoforte, Violin, and 'Cello (Beethoven). 11.0, See Frankfurt. 11.45 (approx.), Close Down. LAUSANNE.—See Radio-Suisse Romande.

LAUSANNE.-See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—5.30 a.m., Programme from Munich. 6.15, News. 6.25 (Dresden), Concert relayed from the Dresden Philharmonie. 8.0, For Housewives. 8.40, Exchange. 8.45, Weather, Tides Report, and Announcements. 9.55, Post Office Programme, with Records. 10.40, Weather. News. 10.50, News and Time. 11.0, Sce Munich. 12.15 p.m., News and Time. 11.0, Sce Munich. 12.15 p.m., News and Time. 12.25, See Breslau. 1.0, News. 1.10, Exchange and Snow Report. 1.15, Book Review. 1.30, Art Notes. 1.50, For Children. 2.15 (from Dresden), Young Artists Before the Microphone: Recital hy Ellen Dickertmann (Mezzo-Soprano) and Heinrich Göldner (Pianoforte): Scherzo in B Minor (Chopin); Two Songs (Brahms): (a) Meine Liebe ist grün, (b) Sapphische Ode; Pianoforte) Sole: Tarantelle (Liszt); Two Songs (Beethoven): (a) Die Trommel gerührt, (b) Freudvoll und leidvoll. 2.45, Exchange. 3.0, See Breslau. 4.30 to 5.10, Sce Munich. 5.10, Talk: The Fascist Revolution in Rome. 5.30, Records. 5.45, Exchange. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, See Berlin (Deutschlandsender). 7.10, To-day's News. 7.20, See Breslau. 9.0, News and Time. 9.20, Weather, Snow Report, News. 9.35 (from Dresden), Organ Recital. 10.0, Sans-Souci—Concert, with Commentary: Sonata in D for Two Flutes and Harpsichord (Quantz); Third and Pourth Movements from the Violin and Harpsichord Sonata in C Minor (Bach); Sonata in D Minor for Flute and Harpsichord (Frederick the Great). 11.0 (approx.), Close Down.

LINZ.—See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—7.0 p.m., Dance Music. 8.0, Song Recital. 8.30, Time, News. 8.50, Records. 9.30 till Close Down, Programme in English by the I.B.C. Dance Music: My Wishing Song; Flor de Cuba; The Old Spotted Cow; Then the Moon came out; Song of the Tramp; Spanish Sweetheart; When my little Pomeranian; Heaven will protect an Honest Girl; I lay me down to Sleep.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—7.0 p.m.,
Gramophone Concert: Overture, Les Dragons
de Villars (Maillart); Selection from
L'Africaine (Meyerbeer); Potpourri (Rivelli);
Weber Potpourri (Urbach); Ballet Music
from Le Cid (Massenet); Selection from
Dear Love (Wood and Tunbridge); Selection
from The Flower of Hawaii (Abraham);
Spanish Waltz, Conchita (Mateo); One-Step,
Fooling me (McKnight). 8.10, Concert by the
Station Orehestra: Canson de Mai (Dupuis);
Romance (Dupuis); Volupté (Guillaume);
Intermezzo from A Midsummer Night's
Dream (Vreuls); Flemish Sketches (Brusselmans). 8.45, Exchange. 8.50, News in French.
9.0, Concert by the Station Orchestra:
Carnival Overture (Glazunov); Clarinet
Concerto No. 1 (Weber); Spanish Dance No.
5 (Granados-Salabert); Calme (HoneggerSalabert); Norwegian Rhapsody (Svendsen).
9.50, News in German. 10.0, Concert (contd.):
Overture, Le Roi l'a dit (Delibes); Ave
Maria (Gounod); Serenade in F minor
(Tarenghi). 10.20, Dance Music on Gramophone Records.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 15 kW.— 12.30 p.m., Radio Concert: Potpourri, Mosaie (Zimmer); I'm Telling the World (Valen-

tine); Just a Little Closer (Meyer-Johnson); Egyptian March (Straub); Frühlingserwachen (Bach); Roses from the South (Joh. Strauss); Frühlingsstimmen (Joh. Strauss); Dubinushka (Schirmann); Selection from The Merry Widow (Lehár); Selection from Cacarini); Sonata, Op. 13 (Grieg); Piece (Schumann); Popular Dances (Lekeu); Concertino (Zocarini); Choral (Bach); Lepetit berger (Debussy); Siciliene (Fauré); Habanera (Ravel); Canzonetta (Boccherini); Seguidillas gitanos (Arbos); Allegro (Fiocco); Serenade (Lehár-Kreisler); La cancion del Ovido (Serrano). 6.30, News. 7.30, Reords. 7.40, Radio Gazette for Lyons and the South East. 8.50, Programme, relayed from Paris (Eiffel Tower). After the Relay, News. Relay, News.

MADRID

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres;
20 kW.—10.30 p.m., Spanish Music. 10.45,
Radio Chronicle. 11.0, Spanish Music (contd.).
11.45, Light Music. 12 Midnight till Close
Down, Programme in English by the I.B.C.
12 Midnight, Instrumental Music: Octet;
Gavotte from Mignon (Thomas); Fashionette
(King); The Whistler and his Dog (Pryor);
Tango des Pâques (Cuvelier); Looping the
Loop (Gaston); Julien (Donata); Restless
Fingers (Cuvelier); The Wee Macgregor
Patrol (Aners). 12.30 a.m. (Wednesday),
Military Band Music: Wiesbaden March
(Anderson); Les Cloches de St. Malo (Rimmer); Entry of the Gladiators (Fucik); The
Phantom Brigade (Myddleton); The Mill in
the Black Forest (Eilenberg); Bells across
the Meadow (Ketelhey); Souvenirs of Switzerland; Christmas Melodies by the Fireside.
1.0, I.B.C. Goodnight Melody and Close
Down.

MADRID

MADRID

EAJ7. 707 kc/s, 424.3 metres; 2 kW-2.0
p.m., Chimes, Time, Weather, Theatre
Notes. 2.15 (approx.), Popular Concert.
3.40, Radio Journal Film Review. 3.50, News.
4.8 to 7.0, Interval. 7.0, Chimes, Exchange,
Topical Talk. 7.15 (approx.), Concert. Part
I—Song Recital by Federico Garcia Lorca.
Part II—Instrumental Music. Two-Step
(Zabala); Selection, Doña Francisquita
(Vives); Waltz (Waldteufel); Spanish Caprice (Espinosa); Selection, The Mastersingers (Wagner); Sevilla (Albeniz). In the
interval, Talk. 8.15, Radio Journal. 8.30 to
9.15, Interval. 9.15, English Lesson. 9.30,
Chimes, Time, Radio Journal. 9.45 (approx.),
An Opera relayed from the Gran Teatro del
Licco. 11.45, Radio Journal. 12 Midnight,
Chimes. 1.0 a.m. (Wednesday) till Close
Down, Programme in English by the I.B.C.:
Dance Music; Delight; I've found the Right
Girl; The Last Round-up. 2.0, I.B.C. Goodnight Melody and Close Down.
MALMO.—See Stockholm.

MALMO.-See Stockholm.

MILAN .- Sce Turin.

MORAVSKA-OSTRAVA

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—10.0 a.m.,
Records. 10.5, Brass Band Concert. 10.55,
Talk from Prague. 2.30, See Prague. 2.40,
Talk. 2.58, See Prague. 5.5, Talk: Horses
and Dogs in the Army. 5.15, See Brno. 6.0,
See Prague. 6.30, The Ostrava Schrammel
Ensemble. 7.0, See Brno. 7.40, See Prague.
8.10, The Station Orchestra, conducted by
Plichta. Soloist: Vera Repkova (Pianoforte). 9.0, See Prague. 10.0 (approx.),
Close Down.
MOTALA.—See Stockholm.

MOTALA.-See Stockholm.

MUHLACKER.-See Stuttgart.

MUNICH

MUNICH

716 kc/s, 419 metres; 60-100 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres, and Nürnberg, 1,256 kc/s, 239 metres.—10.15 a.m., Time, Weather, News. 10.30, Records. 10.50, See Leipzig. 11.0, Orchestra. conducted by Kloss: Overture, Pierrot's (Aristmas (Monti); Scene from Scheherazade (Rimsky - Korsakov); Selection, Christelfiein (Pfitzner); Zigeunerweisen (Sarasate); Potpourri, Paganini (Lehar); Two Pieces (Ranzato); Waltz (Margis); March (Blon), 12.15 p.m., See Leipzig. 12.25, Records: Luxembourg Waltz (Lehar); Songs for Tenor; Die Bremer Stadtmusikanten (Krone); Song from Die Hochzeit am Wolfgangsee (Stolz); Des Abends woll't ich schlafen gehn (Niel); Dance Song (Cole-Porter); Serenade (Rust); Deutschland zur See (Sylvar). 1.0, Weather, News, Exchange. 1.50, For Women. 2.30, Reading. 2.50, Weather, News. 3.0, See Breslau. 4.30, Talk: A Fourteenth Century Globe-Trotter. 4.50, Stefan George Memorial Programme by the Station Orchestra, conducted by List and Irma Drumnner (Contraito). 5.10, Talk. 5.30, Records. 5.45, Time, Weather, News. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, See Berlin (Deutschlandsender). 7.10, See Leipzig. 7.20, See Breslau. 9.0, Weather, News. Exchange. 9.35, Close Down. See Leipzig. NAPLES .- See Rome.

NOTODDEN.-See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1

JAN. 2nd TUESDAY continued

metres; and Rjukan, 671 kc/s, 447.1 metres; and Jelöy, LCL, 6,990 kc/s, 42.92 metres.

—4.0 p.m., Concert: Moonlight on the Alster (Fetras); Waltz, Krolls Ball-klänge (Lumbye); Paysanne (d'Ambrosio); Serenade (Wilden); Selection, The Bird Fancier (Zeller); Amorettenständehen (Kockert); Waltz Intermezzo, Erika (Lincke); March, Hoch die Friedensflagge (Blankenburg). 5.0, For the Housewife. 5.45, Saxophone Solos by Jolly Kramer Johansen: Gavotte (Sinding); Serenade (Per Reidarson) Red Roses; (Haarklou); Neige (Lie); Valse-Caprice (Gundersen). 6.0, Announcements. 6.30, Talk. 7.0, Time Signal. 7.2, Finnish Music by the Station Orchestra: Suite for Strings (Ehrström); Extract from King Christian II (Sibelius): (a) Nocturne, (b) Serenade, (c) Elegy, and (d) Musette; Album Leaves (Merikanto) Finnish Lyric (Palmgren). 8.10, Political Review. 8.40, News. 9.0, Topcal Talk. 9.15, Cabaret. 10.0 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PARIS

PARIS

E1FFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m., Concert relayed from Paris (Ecole Superioure), 671 kc/s (447.1 metres). 1.0, Exchange. 1.15, News. 1.30, Agricultural Report. 1.45, Report of the International Labour Bureau. 2.0, Exchange, News. 2.15, Exchange; News. 2.30, Exchange. 2.45, Amusement Guide; Art Review. 3.0, News. 3.15, Exchange; News. 3.45, Review of the Union des Grands Associations. 4.0, Tourist Talk; News. 4.15, Exchange. 5.45, Le Journal Parié. 8.30, Concert.

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.10 a.m., Fanfare, Records. In the intervals, News, Gastronomic Talk. 12 Noon, Exchange. 12.5 p.m., Records: En gaité (Filipucci); Les cigalettes (Filipucci); Pas des écharpes (Chaminade); Le matin (Chaminade); Ronde de nuit (Witowsky). 12.20, Sponsored Programme. 12.35, Records. 15, Exchange. 1.15, Records. 2.0, Exchange. 3.15, Exchange. 3.45, Exchange. 4.50, Exchange. 6.45, Exchange. 6.22, Legal Talk. 7.0, Records of Cortot: Etude in Waltz Form (Saint-Saëns); La Leggerazza (Liszt). 7.7, Film Review. 7.15, Le Journal Parlé. 7.30, Records. 8.10, The Station Symphony Orchestra, conducted by Mathieu; Soloist: Rousseau (Songs): Orchestral Suite from The Pearl Fishers (Bizet); Extracts, L'attaque du Moulin (Bruneau); Dance Refrains (Bruneau); Suite from Romeo and Juliet (Gounod); Ballet Music from Faust (Gounod).

PARIS

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725
metres; 75 kW.—12 Noon, Records: La
Meunière; Maman dites-moi; Bergère légère;
O ma tendre Musette; Old Limousin Airs
(Rouchaud); Le p'tit Quinquin (Desrousseaux); Auprès de ma blonde; La belle est
au jardin d'amour (Weckaton); Montagnes
délicieuses; Saint Gil; Le général Finfin;
Chanson Tourangelle; Le roi a fait battre
tambour; Magali; Rossignolet; Chansons
Ardennaises (Jaquemin); Scènes alsaciennes
(Massenet); Corsican Melodies (Tomasi);
Fandanguillo (Pierné); Marche Lorraine
(Ganne). In the intervals, News. 2.5 p.m.,
News. 3.45, Exchange. 6.20, Weather, Agricultural Talk. 6.50, Film Review. 7.0, Talk
on Art. 7.20, Records: Jardins sous ld pluie
(Debussy); Le foutane di Roma (Respigni);
A la fontaine (Mouret); Jeux d'eaux
(Ravel); Night in the Gardens of Spain
(Falla); My Garden of Roscs (Wood). 7.45,
News. 8.0, Songs arranged by Jean Rieux,
with Reine Prévost, Paul Maye and Géo
Charny. In the intervals, News.

PITTSBURGH

PITTSBURGH

KDKA, 980 ko/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—12 Noon, Musical Clock. 1.0 p.m., Morning Devotions, from New York. 1.15, Don Hall Trio, from New York. 1.30, Organ Recital, from New York. 2.0, Breakfast Club, from New York. 2.30, Style and Shopping Service, 2.45, News, Work-a-day Thoughts. 3.0, Edward Macliugh, from New York. 3.30, To-day's Children, from New York. 3.30, To-day's Children, from New York. 3.45, Singing Strings, from New York. 3.45, Singing Strings, from New York. 4.0, Four Southern Singers, from New York. 4.15, Sammy Fuller. 4.30, Shut-in-Hour, from New York. 5.30, News, Market Reports. 5.45, Ernie Holst's Orchestra. 6.30, Ernie Holst's Orchestra. 7.6, Meredith Wilson's Orchestra, from New York. 7.30, KDKA Home Forum. 8.0, Rochester Orchestra, from New York. 9.15, Congress of Clubs, 9.30, News, Market Reports. 9.45, Brown Palace Orchestra, from New York. 10.0, Uncle Tom and Betty. 10.15, KDKA Kiddies' Klub. 10.30, The Singing Lady, from New York. 10.0, Orchestra. 11.45, Lowell Thomas, from New York. 12.15 a.m. (Wed-mesday), Popular Programme Preview. 11.30, KDKA Salon Orchestra. 11.45, Sports Notes, Programme Preview. 11.30, KDKA Salon Orchestra. 11.45, Lowell Thomas, from New York. 12.15 a.m. (Wed-mesday), Popular Programme. 12.45, Sweet Rhýthm Quartet, from New York. PORSGRUND.—See Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—11.10 a.m., Records. 11.20, Weather. 11.25, News. 11.35, Records. 12.35, Labour Market Report. 12.45, Records. 12.55 to 1.0, Exchange and Weather. 2.30, Records. 2.40, Reading. 2.50, Weather. 3.0, The Station Orchestra conducted by Parik: Overture, Mein Heim, Op. 62 (Dvorak); Selection from The Brandenburgians in Bohemia (Smetana); Suite for Symphony Orchestra (Haba); Two Pieces (Axman): (a) Elegy, (b) Rondino. 3.55, Records: Stories and Slovak Carols. 4.15, Economic Talk. 4.25, Records. 4.35, German Lesson. 4.50, Records. 5.5, Agricultural Talk. 5.15, Topical Talk for Workers. 5.25, News in German. 5.30, German Transmission. 6.0, Time, News. 6.10, Talk: The Language of the Future Generation. 6.30, Paganini Violin and Guitar Recital: Variations on an English Hymn; 1 palpiti; Le Carnaval de Venise. 7.0, Topical Talk. 7.5, Choral Concert, with Introductory Talk, relayed from the Smetana Itall. 7.40, Reading of Russian Poetry. 8.10, See Moravská-Ostrava. 8.35, Concert by a Vocal Octet. 9.0, Time and News. 9.15, Czech Dance Missic played by the Prague Pianoforte Duo. 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s. 403 metres; 25 kW; and Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15 a.m. (from Lausanne), (iym. 11.28, Time Signal from the Neuchâtel Observatory. 11.30, News, Weather. 11.40 (from Lausanne), Records. 12 Noon (from Lausanne), Records. 12 Noon (from Lausanne), Records. 258, Time Signal from the Neuchâtel Observatory. 3.0 (from Lausanne), The Small Radio Lausanne Orchestra, conducted by Moser. Petite suite de concert (Coleridge-Taylor); Waltz from The Count of Luxembourg (Lehâr); Ballet Music from La Source (Delines); Elegy (Becce); Tarantella (Becce); Waltz, Pomona (Waldteufel); Three Dances (German); Country Music. Dance Music. 5.0 (from Lausanne), Talk: The Development of Radio Wireless. 6.50 (from Lausanne), Piantoforte Recital by Germaine Schmitt. Sonata in D, Op. 28 (Beethoven); Three Pieces (Blanchet): (a) Petite Suite, (fr) Etude in E, (c) Berceuse; Romance in B Flat Minor (Schumann). 6.30 (from Lausanne), Literary Programme. Readings: Spleen (Baudelaire); Le Dormeur du Val (Rimband); Ma Bohême (Rimband); Les cochons roses (E. Rostand); Les Papillons (E. Rostand); Ariette (Verlaine); Green (Verlaine); Ballads (Fort). 7.0 (from Lausanne), Lucia di Lammermoor—Opera in Two Acts (Donizetti), on Records. After the Records, News, Weather. 9.45 (approx.), Close Down.

REYK JAVIK

KEIN JAVIK

250 kc/s, 1,200 metres; 21 kW.—11.0 a.m.,
Weather. 1,15 p.m., Variety Programme.
4.0, Weather. 8.0, Musical Programme. 8.10,
Weather. 8.20, Musical Programme, Announcements. 8.35, Reading. 9.0, (himes,
News. 9.30, Reading. 10.0, Pianoforte Recital by Emil Thoroddsen and Records,
followed by Dance Music. 11.30 (approx.),
Close Down.

RIGA

RIGA

571 kc/s, 525.3 metres; 15 kW.—5.0 a.m., Choir. 5.5, Gym. 5.40 to 6.10, Concert. 10.0, News. 10.30, Weather. 2.30 p.m., Mandoline Music. Overture. romantique (Keler-Bela); Melody (Rubinstein); Fantasia (Cickof). 3.0, Legal Talk. 3.30, Mandoline Music (contd.). Melody (Sicde); Waltz (Olsen); Sephyr (Sicde); Gallop (Ellenberg). 4.0, Latvian Lesson. 4.30, Pianoforte Recital by Erika Laktins-Daniels; La fontaine (Arensky); Prelude in C Sharp Minor (Rachmaninov). (b) Prelude in G Sharp Minor (Rachmaninov); Polonaise from Engene Onigin (Tchaikovsky). 5.0, French Lesson. 5.30, Talk: Haly. 6.0, Weather. 6.5, The Station Orchestra, conducted by Medins. Impressions d'Italie (Charpentier); Popular Italian Songs. 7.0, News. 7.20, Concert (contd.). Capri et Taornina (Rossini-Respighi); Italian Suite (Dostai); Italian Scenes (Godard). 8.0, Weather. News, Selection, A Night in Venice (Jol). Strauss). 8.20, Light Music (on Records).

RJUKAN.-See Oslo. SALZBURG.-See Vienna

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAF on 19.56 metres.—12.45 a.m. (Wednesday), Stock Reports.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; Basle, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—5.50 a.m. (Basle), Gym. 11.0 a.m. (Berne), Records.

11.29, Time, News. 11.40 (Zürich), The Station Orchestra, conducted by Neppach. 12.30 p.m. (Berne), Talk: Black Coffee. 2.0, Studio Programme. 5.0 (Berne), Records. 5.30 (Berne), Talk: Old Swiss Customs are reflected by Head Ornanients. 6.0 (Berne), Time, Weather, Announcements, and Records. 6.10 (Berne), Humorous Eighteenth Century Song Recital by Hans Leicht. 6.55, Classical Music. 7.25 (Berne), Popular Programme. 8.0, Weather, News. 8.10 (Berne), Humorous Programme by R. Bernhard, Tucher, and Hans Kolischer. 9.10 (Berne), Talk in English: Forthcoming Winter Sports Events in Switzerland. 9.20 (approx.), Close Down.

SOTTENS .- See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 322 kc/s, 322 metres; Hörby, 1,167 kcs, 257 metres; Motala, 222.5 kc/s, 1,348 metres; Ostersund, 409 kc/s, 766.2 metres; and Sundsvall, 554 kcs, 542 metres,—4.0 p.m., Weather. 4.5, Accordion Music. 4.30, Talk, 5.0, Rc. cords. 6.0, Talk: The Broadcasts for Schools in the coming Year. 6.30, Song Recital by Lillan Grill. 6.50, Talk. 7.15, Sandra Droucker (Pianoforte, Bronislaw Gimpel (Violin): Pianoforte Solos: (a) Overture (Bach), (b) Melody (Gluck-Sgambati), (c) Gavotte (Gluck-Brahms); Violin Solos: (a) Adagio and Fugue from the Sonata in G minor (Bach), (b) Romance in F (Beethoven); Pianoforte Solos: (a) Capriccio in D minor (Brahms), (c) Hungarian Dance (Brahms), (d) Mazurka in G (Chopin), (e) Capriccio (Liszt); Romanian Dances (Bartok); Tamhourin chinois (Kreisler). In the interval. Reading. 8.15, Literary Review from Malmö, 1,301 kc/s, 231 metres, 9.0, Chamber Concert from Göteborg. Conductor: Tor Mann. Octet in A, Op. 3, for Strings (Svendsen); Adagietto from L'Arlésienne (Bizet); Eine kleine Nachtmusik (Mozart). 10.0 (approx.), Close Down.

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—10.30 a.m., Orchestral Concert, relayed from Toulouse (PTT), 1,176 kc/s, 255.1 metres. 12.0 Noon, Orchestral Concert, relayed from Toulouse (PTT), 1,176 kc/s, 255.1 metres. 12.0 Noon, Orchestral Concert, conducted by Maurice de Villers: Overture, Der Vampyr (Marschner); Selection from Alidsummer Night's Dream (Mendelssohn); Selection from Philémon et Baucis (Gounod); Une nuit à Lisbonne (Saint-Saéns). 12.45 p.m., News. 1.0, Time and Exchange. 1.5; Orchestral Concert (contd.): Selection from Hans the Fluteplayer (Ganne); Waltz, Espana (Waldteufel); Romance (Dumas); Selection from Les Dragons de Villars (Maillart); Suite gaie (Gabriel-Marie). 4.45, Talk on Morocco, 5.0, Orchestral Concert, conducted by Roskan: Waltz, Winterstürme (Fucik); Selection from Rigoletto (Verdi); Piece for Viola and Pianoforte, Si tu le voulais (Tosti); Pour un baiser (Tosti); Ballet Russe (Luigini); Selection from La Périchole (Offenhach). 6.0, Historical Talk. 6.15, Topical Talk. 6.30, Orchestral Concert, conducted by Maurice de Villers: Overture, Hamlet (E. Bach); Symphony No. 13 (Haydn); Violin Solo, Romance in G (Beethoven); Suitc Algérienne (Saint-Saëns); March (Chabrier). 7.30, Time and News. 7.45, Talk on Epinal. 8.0, News in German. 8.30, See Paris (Eiffel Tower). 10.30 (approx.), News.

STUTTGART

STUTTGART

MUHLACKER, 563 kc/s, 533 metres; 100 kW. Relayed hy Freiburg, 1,157 kc/s, 259.3 metres; and 527 kc/s, 569 metres; until January 16, 1934.—9.10 a.m., Cinema Organ Recital; Kapriolen (Lindner); Prolog (Summer); Liebeslied (Huppertz); Blätter unter'm Schnee (Dyk); Herzleid (Savino); Pewegt (d'Albert); Lustiges Landleben (Hermann); Melody and Waltz (Moszkovski). 9.30, Records: Orchestral Suite, Le Bourgeois gentilhomnue (R. Strauss). 10.25, Post Office Concert. 10.55, Weather. 11.0 to 12.25 p.m., See Frankfurt. 12.25, News, Weather. 12.35, to 1.30, See Frankfurt. 2.30, Talk: Flowers. 3.0, Station Orchestra, conducted by Gustav Görlich, and Soloists. Overture. Die Schweizerfamilie (Weigl); Trio for Horn. Clarinet and Bassoon; Ballet Suite, Les petits riens (Mozart); Sonata for Horn and Pianoforte (Haas); Overture, Hans Sachs (Lortzing); Aria, Der Wildschütz (Lortzing); Aria, Ter Wildschütz (Lortzing); Ariafrom Das Nachtlager von Granada (Kreutzer); Overture, Der lustige Krieg (Strauss); Waltz (Strauss); Rhine Songs; March (Fetras). 5.0, See Frankfurt. 5.35, Exchange. 5.50, Time, Weather. 6.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 7.0, See Bersiau. 9.0, See Frankfurt. 9.20, Things you should know... 9.30, News, Weather, Sports Notes. 9.45 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

TOULOUSE

779 kc/s, 385 metres; 8 kW.—8.0 a.m., Dai Refrains. 8.30, News. 8.35, Military Mus 8.45, Chausonnettes. 12 Noon, Orchest Pieces. 12.15 p.m., Opera Music. 12. News. 12.45, Request Records. 1.0, 4 nouncements. 1.5, Chamber Orchestra. 1. Bal musette. 1.45, Viennese Orchestra. 2 News. 4.15, News. 6.0, News. 6.15, Orchetal Music. 6.30, Light Music. 6.45, Milita Music. 7.0, Choral Music. 7.15, News a Announcements. 7.30, Talk. 7.45, Operet Music: Songs from The White Horse I (Benatzky); La vie parisienne (Offenhact La opuponière (Verdun); and Mam-zel Nitouche (Hervé). 8.0, Chamber Orchestr. Le cygne (Saint-Saëns); Screnade (Pierné Minuet from Bereniice (Handel). 8.15, E tracts from Sound Films. 8.30, Orchestr Music. 8.45, Opera Music. Selection fro Don Giovanni (Mozart), Siegfried (Wagner and Sigurd (Reyer). 9.0, Variety Programm 9.30, Chamber Orchestra. 9.45, Opera Music Arias from Tosca (PPuccini), Romeo at Juliet (Gounod), and Manon Lescat (Auber). 10.0, Orchestra: Selection fro Faust (Gounod); Overture, The Magic Flut (Mozart). 10.15, News. 10.30, Chanson ettes. 10.45, Argentine Orchestra: 11.4 Opera Music. 11.15, Dance Music. 12.0 Mic night, News and Announcements. 12.5 a.m (Wadnosday), Popular Melodies. 12.15, It strumental Music. 12.30 (approx.), Clos Down.

TRONDHEIM.-See Oslo.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning); an 5,969 kc/s, 50.26 metres (Evening); 10 kW-10.0 a.m., Religious Information in English 7.0 p.m., Religious Information in Italian.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 382.1 metres; Innsbruck 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s 453.1 metres; Linz, 1,220 kc/s, 245.9 metres and Salzburg, 1,373 kc/s, 218.5 metres.—8.28 a.m., Exchange. 8.30, Weather. 9.50, Tides 10.30, Records. 10.55, Weather. 11.0, The Wiener Symphoniker, conducted by Josee Holzer. Overture, Poet and Peasant (Suppé); Second Albanian Suite (Kostal), Lune de Miel (Waldteufel); Ständchen (Jos. Strauss); Internezzo (Clemus); Walty (Ziehrer); Selection Der liebe Augustin (Fall). 12 Noon, Time, News. 12.10 p.m., Concert (condd.). Ballet Overture (Gaugiberger); Song (Jurmann); Waltz (Joh. Strauss); Gallop (Jos. Strauss). 12.30 to 1.0, Records. Aria from The Flying Dutchman (Wagner); Hungarian Rhapsody No. 2 (Liszt); Aria from The Force of Destiny (Vetdi). 2.0, Time, Weather, Exchange. 2.15, Talk: Photography. 2.30, For Children. 2.55, Records. Brandenburg Concerto No. 4 in D (Bach); Sonata in F for 'Cello (Marcello); Song (Grétry); Trio Sonata in D (Buztehude). 3.35, Handwork. 4.5, Sport Talk. 4.25, Song Recital by Anny Gregorie (Soprano), Max Kundegraber (Baritone). 5.5, Talk. 5.30, French Lesson. 6.0, The Wiener Symphoniker, conducted by Josef Holzer, Salkerchief (Joh. Strauss); Potpourri of Waltzes (Komzak); Two Icelandic Melodies (Svendsen); Hungarian Fantasia for Violin (Lehár); Song (Engel-Berger); Siciliana (Schmalstich); Melody (O. Straus); Potpourri (Kalmán). In the interval, Time, Weather, News. 7.15, Die Grosstadtluft (City Air)—Comedy in Four Acts (Blumenthal-Kadelburg). 9.15, Concert, followed by Announcements.

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—6.0 a.m.,
Time and Hymn. 6.5, Gymnastics. 6.20, Records. 6.35, Radio Journal. 6.40, Records. 6.52,
For Housewives. 10.40, Press Review. 10.50,
Talk on Art. 10.57, Time and Fanfare from
St. Mary's Church, Cracow. 11.5, Records.
11.30, Radio Journal. 11.35, Weather. 11.38,
Records. 2.25 p.m., News. 2.30, Economic
Report. 2.40, Violin and Pianoforte Recital
by Stokowska and Olga Hiwicka: Sonata in A
Minor, Op. 23 (Beethoven); Sonata in A
(Franck). 3.25, The Letter Box. 3.40, Sports
Talk. 3.55, The Cyganerja Jazz Band. 4.50,
Talk. 5.0, Talk: Learned Men and Poets
of Ancient Greece. 5.20, Talk on Music. 5.35,
Records: Symphony of the Psalms (Stravinsky). 6.0, Programme Announcements. 6.5,
Announcements. 6.25, Reading. 6.40, Sports
Notes. 6.47, Radio Journal. 7.0, The Gypsy
Princess—Operetta in Three Acts (Kälmán).
In the interval. Literary Programme. 9.0,
Dance Music. 10.0, News. 10.5, Dance Music.

ZAGREB

ZAGREB
977 kc/s, 307 metres; 0.75 kW.—11.20 a.m.,
Talk for Housewives, 11.30, Gramophone
Concert. 12 Noon, Programme Announcements and Advertising Notes. 12.10 p.m.,
Gramophone Concert. 12.40, News. 3.40,
News and Aunouncements. 4.0, Concert by
the Radio Orchestra. 6.25, Announcements
and News. 6.55, Educational Talk. 7.15,
Song Recital by Auga Kaufman. 7.48,
Oriental Music (on Gramophone Records).
8.15, Song Recital by Gita Coronelli. 8.45,
Dance Music. 9.0, News, Weather and Programme Announcements. 9.15, Dance Music.
10.0 (approx.), Close Down.
ZURICH.—See Sohweizerischet Landessender.

ZURICH.—See Schweizerischer Landessender.

ALGIERS

ALGIERS

.5 kc/s, 363.3 metres; 13 kW.—12.30 p.m., cords: I can't Give you Anything but ve. Baby (Hugh): American March utsa): La tourterelle (Damere): Aubade amour (Monti): Ay Ay Ay (Freire): appertite (Greer); Uracker (Reser). 1.0, ws. 1.5, Viennese Orchestra: Donatusagen ucik): Selection, Schön ist die Welt chär): The Water Mill (Evans): Le Tango Rève (Modren): Wine, Woman and Song oh. Strauss). 6.0, Military Music. 6.15, ngs from Sound Films. 6.30, Talk on Art. 5, Monologues. 7.0, Exchange. 7.10, Sbipig Notes. 7.15, Weather. 7.20, Song from: Papa (Yvain): Duet and Waltz from ssionnément (Messager). 7.30, Lottery sults. 7.45, Records: Two Songs from ups de Roulis (Messager). Essayez donc. om Encore cinquante centimes (Yvain). 15, News. 8.0, Time. 8.2, Records: Ray blde and isi Orchestra: Fox-trot; Waltzing a Dream; What a Perfect Combination: ook What you've Done; Love is the Sweet-t Thing; I'll do my Best to Make you (ppy; Just an Echo in the Valley; Lying the Hay. 8.25, Spanish Concert by the ignented Station Orchestra, conducted by fosse; Part 1: Albeniz Programme: Prede. Orientale; Catalan Caprice; Tango, udez. Zambra Granadina; Granada Malra; Sevilia. 8.55, News. 9.0, Spanish coords: Cancion Polo (Falla); Ansturiana I Pafio Moruna (Falla); El More Y ha refacelne (Montesinas). 9.10, Spanish Conrt; Part II: Citana (Pedrell); Tince Pieces Granados): (a) Danza Aragoniesa, (b) Anituza, (c) Zambra; Four Pieces (Turina); wo Dances from La Vida Breve (Falla). 55, News. 10.0, Dance Music, Jelayed from e Municipal Casino. 11.0 (approx.). Close own.

ATHLONE

athin open.

ATHLONE

15 kc/s, 413 metres; 60 kW. Relayed by tublin, 1,382 ke/s, 217 metres; and by Cork, 337 kc/s, 224.4 metres.—7.15 p.m., German esson by Olga Von Wenekstern. 7.30, time. 7.31, Violin and Pianoforte Sonata by liss Thompson and Mrs. Miley. 7.55, Tenor tolos by Burke. 8.5, Violin Solos by Nora tichardson. 8.20, "Sweethearts" (W. S. ilbert), produced by The Leven Players. 50, Soprano Solos by Kitty Fagan. 9.5, raditional Fiddle Solos by Mac Flanucadha. 20, Readings by 6, de Croctas. 9.30 to 0.30, Programme by the LB.U. dreland), dd. 9.30, Concert of Dance Music; loved your Wednesday: Life's so fomplete; Laughing Waltz; We'll all golding on a Rainbow. 9.45, Dance Music; signature Tune. There's a New Day Comin'; Sight Owl; Laybones; Goodnight Little Girl any Dreams; Minnie the Moocher's Wedling Day; Signature Tune. There's a New Day Comin', 10.0, Concert, Orchestral dusic; Prelude to Carmen (Bizet); Inter-oczzo, Cavalleria rusticama (Mascagai); folliwog's Cake Walk (Debussy); Racing formunentary; Barcarolle from The Tales of Hoffmann (Offenbach); Selection from La Boheme (Puccini); Harlequin's Serenade from I Pagliacci (Leoncavallo); Valse des Fleurs from the Nuteracker Suite (Tehaistovsky), 10.30, LB.C. Goodnight Melody, followed by News, Time and Weather, 10.40, Concert by the Columcille Ceilidhe Band. 11.0, Close Down

BARCELONA

BARCELONA

BARCELONA

BARCELONA

EAJ1, 861 kc/s, 348.4 metres; 8 kW.—2.0 p.m., Humorous Dialogue, followed by Sextet Concert. 3.6, For Hospitals. 4.15, Television Transmission. 4.30 to 6.0, Interval. 6.0, Trio Concert. 7.0, Request Records. 7.30, Exchange and Records contd.). 8.0, Records and News. 8.30, Educational Programme and News. 9.0, Chimes. 9.5, Announcements. Exchange. 9.15 (approx.). The Radio Orchestra. 10.0, El Abuelo Curro-Concedy in Three Acts (Luis Fernandez Sevilla and Gnillermo Hernandez Miry. 11.0, News. 11.5 (approx.). El Abuelo Curro-Condt.). 1.0 a.m. (Thursday) till 'Close Down, Programme in English by the I.B.C. 1.0, Gramophone Music: Drifting down the shalimar (Moll): Selection from Faust (Goundd): Times from 184-1930 (Coward): For ever and for ever (Tosti); Chaut sams paroles (Tchaikovsky): Tango. Perdita (Cuvelier); Wiegenlied (Brahms). 1.30, Instrumental Music: Marilyan (Alter): The Squirred Dance (Elliott): Hawaiian Twilight: Petit Jean—Polka (Cuvelier); Carnival of Venice (arr. Gaston); Serenade from Les Millions d'Arlequin (Drigo); The Buffoon (King); Love's Old Sweet Song (Molloy). 2.0, I.B.C. Goodnight Melody and Close Down.

BASLE .- See Schweizerischer Landessender.

BELGRADE

BELGRADE

698 kg s, 429.7 metres; 2.8 kW.—10.0 a.m.,
Ammonacements, Records. 10.20, Weather,
Records. 10.59, Time, Chimes. 11.5. The
Radio Orchestra. 11.35, Exchange. The
Radio Orchestra. 12.30 p.m., News. Time.
3.0, For Women. 3.30, Records. 4.0, Tak.
5.25, Time. Ammonacements. 5.30, French
Lesson. 6.0. The Radio Orchestra. 7.0,
Concert from Ljubijana. 522 kg s, 547.7
metres. 9.0, Time, News, Cigány Music from
the Rudnicamin Restaurant.

BERLIN

DEUTSCHLANDSENDER (REICHSSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—7.43 a.m., Gym. 8.0, Talk. 8.20, A Discus-(REICHSSEN-



I WYTTO LIGES

World



sion on Genealogical Research. 8.40, Gym. 9.0, News. 9.10, Songs and Pianoforte Music. 10.0, Talk: Floral Decorations in Winter. 10.15, Weather. 10.30, Programme for the Housewife. 10.50, Topical Talk. 11.0, Weather. 11.2, Records: Rodetzky March; Waltz. Roses from the South (Strauss); Liebesständehen (Waddan); Madonna der Rosen (Bund-Mfy); Die Nacht von Saragossa (Frey); Es war ein Frühlingstag im somnigen Sorrent (Schmidt-Seder); Polka, Fenerfest (Strauss); Wiener Fantasie (Stolz); Tscherkessischer Zapfenstreich (Machts); The Angel's Serenade (Braga); Waltz, Gold and Silver (Lehir); Ländler. Für jung und alt. After the Programme, Weather. 11.55, Time. 12.45 p.m., News. 1.0, Records: The Nuteracker Suite (Tchaikovsky); The Swan of Thonela (Sthelius); March from Thesse (Lully). 1.45, For Children. 2.16, Talk for Children. 2.15, Talk for Children. 2.16, See Leipzig. 4.0, Talk: With Pearl Fishers in the Indian Ocean. 4.25, Concert. 5.0, Poems.

7.0, Announcement, 7.5, Concert from Hamburg, 8.0, A Concest from Hamburg, 9.0, News. 9.30, Concert from Hamburg, 11.0 (approx.), Close Down,

BERNE,-See Schweizerischer Landessender.

BEROMUNSTER. - See Schweizerischer Landessender.

BODEN.-See Stockholm, BODO.--See Oslo.

BRATISLAVA

BRATISLAVA

1,073 kc s, 279.5 metres; 14 kW.—11.25 a.m., The Station Orchestra, conducted by Dyk. 12.25 p.m., Talk from Prague. 12.45, News in Slovak, German and Humgarian. 12.55, Exchange from Prague. 2.50, See Prague. 3.50, For Children. 4.20, Records. 4.40, Talk for Children. 4.55, Humgarian Programme: Talk, Reading. and Talk with Gramophone Illustrations: A Tone of Slovakia. 5.55, For Housewives. 6.0, See Prague. 6.25, The Station Orchestra, conducted by Dyk, 7.25, The Last Shot—One-Act Play with Prologue

"A VOCAL ORCHESTRA" would be an apt description of the famous choir of the Berlin station, seen above at rehearsal. Choral music is highly popular throughout Germany.

5.5, Violin and Organ Recital by Gerhard Misch and Fritz Adam: Andante from the Sonata in A for Violin and Organ (Bach); Address by Alfred Bierschwab; Andante cantable for Violin and Organ (Tartini); 5.30, German for Germans, 5.50, Weather, Announcements, 6.0, Transmission for all German Stations, relayed from Breslau, 7.0, Today's Motto, 7.5 (approx.), Two Piamotorte Sonatas (Mozart), played by Selma Erler-Honigberger, 7.30, Perpetum mobile The best Dance Bands of the World Play, 9.0, News, 9.30, Technical Wireless Talk, 9.45, Weather, 10.0, See Frankfurt, 11.0 (approx.), Close Down.

BERLIN

BERLIN

FUNKSTUNDE, 716 ke/s, 419 metres; 1.5 kW. Relayed by Zeesen, DJC, DJA, DJD, DJB, and DJE.—5.15 a.m., Gym. 5.30, To-day's Motto, Weather, 5.35, See Heitsberg. In the interval, News. 7.15, Gym. 7.30, Physical Culture, 9.0, News. 9.10, Market Prices. 9.30, Records, Announcements. 10.25, Exchange. 10.30, The Small Station Orchestra, conducted by Steiner, Overture, Lysistrata (Lincke); Salut d'amour (Elgar)); Dynamiden-Walzer (Jos. Strauss); Ständehen (Heykens); Extase (Gamue); Idylle passionelle (Razigade); Puppen-Mennett (Blon); Selection from Where the Lark sings (Lehàr); Entr'acte-Gavotte (Gillet); Musica proibita (Gastaldon); Waltz, España (Waldtenfel). In an interval at 11.15, Weather. 12 Noon, Records, Donauliceler-Walzer (Dietrich); Folk Song, Cud der Hans schleicht umher; Folk Melody; Ich bin der Turlhofer; Waltz, Im Dreiviertelackt durchs Tessin (Wild); Folk Song, Mädle ruck, ruck, ruck. 12.20 p.m., Concert from Hamburg, 1.15, News, 1.35, Extracts from The Barber of Bagdad (Cornelius) on Records, 2.0, Exchange, 2.20, Recends, Melody (Glück); Canzonetta (d'Ambrosio); Après la rêve (Fauré); Spanish Dance (Granados); Am Rand einer Quelle; Concert Etude in F minor (Liszt), 2.45, Talk; Sport for Young People. 3.0, See Heiisberg, 4.0, A Discussion; Books of our Grandparents. 4.30, Humoresque in B flat, Op. 20 (Schumann), played by Wührer (Pianoforte), 5.5, See Berlin (Deutschlandsender), 5.30, The Funkstunde informs its Listeners, 5.35, Review of the Week, 6.0, Transmission for all German Stations, relayed from Breslau.

and Epilogue. 8.15, Light Music. 9 Prague. 9.15 (approx.). Close Down.

BREMEN.-See Hamburg,

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed' by Gleiwitz, 1,185 kc/s, 253.1 metres.—5.30 a.m., Programme from Munich. 6.15, Ser Leipzig. 6.25, Concert. 8.0, Gym. 8.20, Time, News. 10.20 (from Gleiwitz), Agricultural Talk. 10.40, Time. Anneamcements. 10.50 a.m. to 1.10 p.m., See Leipzig. 1.0, See Leipzig. 1.10, p.m., See Leipzig. 1.10, Time. Weather. 1.15, Post Office Programme with Records. 1.50, Market Prices, Exchange. 2.10 (from Gleiwitz). Sports Talk. 2.30 (from Gleiwitz). Everyday Stories from Uppera Silesia. 3.0 to 5.10, See Leipzig. 5.10 (from Gleiwitz). Market Prices, 5.15 (approx.). Reading. 5.30 (from Gleiwitz). Prices. 5.15 (approx.). Reading. 5.30 (from Gleiwitz). Market Prices. 5.15 (approx.). Reading. 5.30 (from Gleiwitz). Prince (Mozart) by Erna Ullrich. 5.45, Amouncements. 6.0, Transmission for all German Stations. The Spirits of the Riesengebirge—A Silesian Poem (Penckert) with Incidental Music by Sezuka. 7.0, See Leipzig. 7.10, See Munich. 8.0, Folk Music on a Thousand Instruments. The Station Orchestra, conducted by Topitz. 9.0, See Leipzig. 9.20, Time, News. 9.35, The Silesian Philharmonic Orchestra, conducted by Friebe. Overture. Frau Meisterin (Suppe); Selection. Aida (Verdi); Introduction to the Third Act and Bridal Chorus from Lobengrin (Wagner); Overture, Raymond (Thomas); Waltz, Winterstürme (Pincik); Potponrii, Für Instige Leut' (Konzak); An Evening in Toledo (Schmeling); Selection from Paganini (Lehár); March, Durch Kampf zum Sieg (v. Blon), 11.30 (approx.). Close Down.

BRNO

BRING

878 kc's, 342 metres; 35 kW.—10.0 a.m., See Moravska-0strava. 10.55, News from Prague. 11.0, Agricultural Notes. 11.10, Records from Prague. 11.35, See Bratislava. 12.25 p.m., Talk from Prague. 1.0 to 1.15, Exchange. 2.30, See Prague. 3.50, Ferbildren. 4.35, Records. 4.25, Talk. 4.55, See Prague. 5.5, Review of Periodicals. 5.15, Talk for Workers. 5.25, German Transmission: News, Film Notes and Political Review. 6.0, See Prague. 6.25, See Bratislava. 8.0, Talk on Jiri Wolker

for the Tenth Anniversary of his Death, 8.15, See Bratislava. 9.0 to 9.30, See Prague. 9.30 (approx.). Close Down.

BRUSSELS (No. 1)

BRUSSELS (No. 1)

I.N.R.; 589 kc, s, 569.2 metres; 15 kW.—12.0 Noon, Concert conducted by Fedeman, relayed from the Grand Hotel, Antwerp. 1.0 p.m., Le Journal Parlé, 1.19, Orchestral Concert, relayed from L'Ancienne Belgique, 5.0, Concert by the Station Orchestra, conducted by André, Soloists; Misson (Yodin), Bronders and Gras (Pianoforte). The Old Man of the Mountains (Brown); Foxtrot, Beek and Call (Young); En Floride (de Bourguignon); Volin Solo: Poloniale in A (Wieniawsky); Foxtrot, Singing in the Moonlight (Wade); Hoch, Caroline (Waller); Nocturne (Bronta); Seherzo for Two Pianofortes (Saint-Saines); Valse en sourdine (Ackermans); Play it Hot (MacKnight), 6.0, Talk; The Pooposed Trans-Atlantic Aerial Line, 6.15, The Symphony Orchestra, conducted by Kumps. Solo:st; Tambuyser (Pianoforte); Victory Ball (Schilling); Pianoforte Concerto (Cras); Escales (Ibert), 7.15, Protestant Talk; The Young Girl Alone in Brussels, 7.30, Medical Talk, 8.6, The Delton Vocal Trio. 8.30, Les hométes femmes—Concedy in One Act (Henry Becque), 8.55, Dance Music, relayed from the Palace Hotel, 40.

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.I.R.; 888 kc s, 337.8 metres; 15 kW.—Programme in Flemish.—12.0 Noon, The Max Alexys Orchestra, 1.0 p.m., Le Journal Paric. 1.10, Concert conducted by Felleman, relayed from the Grand Hötel, Antwerp. 5.0, Dance Music from the St. Sauveur Palais de Danses. 6.0, Song Recital by Jeanne Weyler. 6.20, Talk. 6.35, The Volleman Trio. 7.15, Records. 7.30, Le Journal Paric. 8.0, The Radic Orchestra, conducted by Franz André. Soloists; Boyarin (Songs) and Georges Harris (Tenor). Polish March; Russian Potpourri; Saschinka (Schirmann); Norwegian Dances (Boreh); (ettic Suite (Fonds); Tenor Solos; (a) Home (Clarkson), (b) What would happen to me? (Woods); Dance Music from Hallo America (Finck). 8.45, Recitations. 9.0, The Radio Orchestra (contd.): Serbian Dances (Sisceck); Dubinuschka (Schirmann); Japanesc Suite (Holst); Tenor Solos; Irish Impressions (O'Donnell); Egypt (Haydn-Wood); You try Somebody Else (de Sylva); Rumba, Habana (Chwat); Broadway (Wraskov). 10.0, Le Journal Paric.

BUCHAREST

BUCHAREST

760 kc/s, 394.7 metres; 12 kW.—12.15 p.m., Light Music (on Gramophone Records), 4.0, The Station Orchestra, conducted by Nottara, Romaniau Overture (Flechtenmacher); Les Préludes (Liszt); Extract from Manon (Massenet); Orchestral Piece (Goerster), 5.0, Radio Journal, 5.15, Station Orchestra, Overture, La Traviata (Verdi); Selection, The Land of Smiles (Lehár); Violín Solo, Legend (Wieniawski); Waltz (Strauss); The Liberty Fell (Souva), 6.0, Educational, 6.20, Records, 6.45, Talk, 7.0, String Quartet No. 2 in A Minor (Cugler), played by the Theodoresco Quartet, 7.30, Talk, 7.45, Song Recital by Dimitrie Galutan: Two Arias from Andrea Chénier (Giordano); Avia from Werther (Massenet); L'Indidèle (Kiriac), 8.15, Pianoforte Recital by Imanuel Bernfeld; Two Préludes (Mendelssolm); Minuet (Schuhert); Rondo (Weber); Intermezzo (Brahms); Four Pieces (Schumaun); (a) Des Abends, (b) Anfschwing, (e) Warum, (d) Grillen, 8.45, Radio Journal, 9.0, Romanian Music by the Station Orchestra, conducted by Dinico.

BUDAPEST

BUDAPEST
545 kc's, 550.5 metres; 120 kW. Also relayed of 840 metres from 6.45 p.m. till Close Down. 5.45 a.m., Gym. Records. 8.45, News. Topical Talk. Records. 10.10, Tides Report, 11.0, Chimes. 11.5, The Ludwig Radics Cigary Band. 12.30 p.m., Concert. 3.0, Talk. 4.0, The Somogyi Orchestra. 5.10, Italian Lesson. 5.40, Concert. 6.15, Talk. 6.45, Talk and Records. 7.50, The Opera House Orchestra conducted by Ludwig Ratier; Piece (Mogart); Saite, A Midsummer Night's Dream (Mendel sohn); Symphony in C (Schubert). 9.15, Trio Concert from the Café Simplon. 10.15, The Arpad Toll Cigary Band from the Café Patria.

CASSEL, -See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kc s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc s, 1.153.8 metres; and Skamleback, 31.51 metres.—6.0 a.m., Gymnastics for Women. 7.30, Service from the Cathedral. 10.0, Weather Announcements. 10.10, Fish Market Prices. 11.0, Time and Chines. 11.5, String Ensemble Concert, relayed from the Bellevue Strandhotel. 2.0 p.m., Records. 2.30, The Radio Orchestra, conducted by Reesen. Concert Overture, Mecrestille and glickliche Fahrt. (Mesdelssohn): Waltz from Cinderella (Palmgren): Solite, Barocco (Atterberg): Selection from Engene Onegin (Tchaikovsky). 3.15 (approx.). Talk for Women. 3.30 (approx.). Concert Overture (Game): Waltz (Waldtenfel): Selection from The Land of Smiles (Lehar): Castilla (Alleniz); March from The Queen of Sheba (tounod). 4.30, Exchange. Fish Market Prices. 4.45, Talk: England's Slums and the English Five Year Plan. 5.15, French Lesson. 5.45, Weather, Announcements. 6.0, News. 6.15, Time. 6.30, Talk: Agricul-

ture in 1933. 7.0, Time. 7.5, Slav and Hungarian Music by the Radio Orchestra, conducted by Mahler. Overture, Nature (Dvorisk); Die Moldau (Smetana); Two Hungarian Dances (Brahms); Dance (Kodály); Hungarian Rhapsody, No. 2 (Liszt). 8.0, Topical Talk. 8.30, Eighteenth Century Danish Songs. 8.45, Dialogue. 9.0, News. 9.15, Chamber Music. Sonata in D for Violin, 'Cello and Harpsichord (Buxtehude); Three Songs for Soprano with Harpsichord Violin and 'Cello Obligato (Handel); Concerto in E for Violin. 'Cello and Harpsichord (Telemann). 10.0, Dance Music from the Town Hall.

CORK .- See Athlone.

CRACOW

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—6.0 a.m., Programme from Warsaw. 10.35, Programme from Warsaw. 10.57, Time Signal and Fanfare from St. Mary's Church. 1.1.5, Records. 11.30, Radio Journal and Weather. 2.25, See Warsaw. 3.40, Ski-ing Report. 3.55, See Warsaw. 4.50, Medical Talk. 5.0, See Warsaw. 6.0, Programme Annonneements. 6.5, Talk on Old Cracow. 6.20, Miscellaneous Items. 6.25. See Warsaw. 6.40, Sports Notes. 6.47, See Warsaw. 8.5, Programme, relayed from Wilno, 530 kc/s, 566 metres. 9.0, See Warsaw. 11.0, Close Down.

DANZIG .- Sec Heilsberg. DRESDEN .- See Leipzig.

FECAMP

1,328 kc/s, 225.9 medres; 10 kW.—11.0 a.m. to 12 Noon, Programme in English by the 1.B.C. Happy Hour: Orchestral Concert: Signature Tune; Selection from Die Fledermaus (Strauss); Chinese Fantasy (Deppen); Song, Drake Goes West (Sanderson); Love sends a little Gift of Roses (Openshaw); Selection, Dixieland (Stoddon); The Maid from Alsace (Lehâr); Gems of Robbie Burns (Beatin); Gypsy Moon (Borganov); Dancing with the Daffoddils: I love the rain; Susie; Happy little Tune; For you; Hobo, you can't ride this Train (Armstrong); Since Maggie became Margaret; New Kinda Blues (Lawrence); Signature Tune. 12.0, Programme in French. 3.30 to 6.0 p.m., Programme in English by the 1.B.C. 3.30, Concert for Listeners in the Isle of Wight: Part I, Choral Selections: Signature Tune, The Night by the Sea; When the Lilae blooms again (Rotter); The Lincolnshire Poacher (Trad.); Mistrel Memories; Orchestra: Overture 1014 (arr. Somers); Selection from The Flower of Hawaii (Abraham); Chinatown, my Chinatown (Schwartz); Mighty lak a Rose (Chtsam); Orchestra: Waltz Favourites (Ancilife), Part II: Dance Music: Without that certain Thing; Give me Liberty or give me Love; I only want one Girl; Reflections in the Water; Tick. Tock; Mood Indigo; Thanks; The Wind's in the West. 4.30, The I.B.C. Nursery Corner; Birthday Greetings. 5.0, Concert for Portsmonth and Sonthsea Listeners. Part I: Light Music: In Tulip Time beside the Water Mill (Ailhout); Narcissus (Nevin); Vienna, Vienna (Foss.); Banjo Solo, Viva la Liberta Song; Having a Good Time (Kahal); Russian Rhapsok (Nossbaum); Still I love her (Gaskill); Snacks in Bars (Egerer); L.B.C. Time Signal. Part II: Hawaiian Band: Alona Oe (Lillowkalani); Tomi, Tomi (Trad.); Naughty Waltz (Carlo); Honolulu Bay (Kahn): My Waikiki Mermaid (Trad.); Hula Hula; Cara Mia (Brodszky); Isle of paradise (Earl); Signature Tune. 6.0, French Programme. 16.0 till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: Signature Tune, 16.30, Orchestral Concert: Selection from The Yeoman of the Guard (Suliv

JAN. 3rd WEDNESDAY continued

Thing (Nesbitt); This is Romance (Heymann); Roll up the Carpet (Klarges); Love Locked out (Nohle); I've got to Get up and Go to Work (Hupfeld); I.B.C. Time Signal. 1.0, Dance Music: Egypt; Wood Violets; I'll show you off; Lazybones; Isn't it Heavenly?; Hand in Hand; The Cage in the Window; Munca; Shadows on the Swanee; Dinner at Eight; Goodnight, little Girl of my Dreams; Everyone loves my Marguerite; A Heart of Stone; An old old Man with an old old Pipe; La Comparsita; Wheezy Anna's Wedding Day; Signature Tune. 2.0, I.B.C. Goodnight Melody and Close Down.

FLENSBURG .- See Hamburg. FLORENCE.-Sec Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel and Trier, 1,157 kc/s, 259.3 metres. —9.0 a.m., Xews. 9.45, For the Housewife. 10.0, Concert. 10.40, Announcements. 11.0, Records: Overture. Romeo and Juliet (Tehaikovsky); Hungarian Rhapsody No. 6 (Liszt); Pianoforte Concerte in A minor (Grieg); Symphonic Poem; Don Juan (R. Strauss). 12.15 p.m., Time, News. 12.25, Announcements. 12.35 to 2.30, Nee Langenberg. 2.30, Weather. 2.40, Time, Market Prices. 3.0, Concert. 5.0 to 5.35, See Langenberg. 5.35, Topical Talk. 5.50, News. 6.0, Transmission for all German Stations, relayed from Breslau. 7.0, Topical Talk. 7.10 to 9.0, See Stuttgart. 9.0, Time, News. 9.20, See Stuttgart. 10.0, Serenade. 11.0, See Stuttgart. 12 Midnight, Close Down.

FREDRIKSSTAD.—See Oslo.

FREDRIKSSTAD .- See Oslo. FREIBURG .- See Stuttgart. GENEVA .- See Radio-Suisse Romande. GENOA.—See Turin. GLEIWITZ .- See Breslau. GOTEBORG .- See Stockholm. GRAZ.-See Vienna. HAMAR See Oslo.

HANOVER.—See Hamburg. **HEILSBERG**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—10.5 a.m. (from Danzig), Agricultural Report. 16.30, See Berlin (Funkstunde). 12.5 p.m., Concert by the Königsberg Opera House Orchestra, conducted by Wolfgang Brückner. In the intervals, News. 2.20, For Housewives. 2.30, For Children. 3.0, Concert by the Small Radio Orchestra. conducted by Eugen Wilcken: Overture No. 2 (Smetana); Divertimento No. 2, Op. 43 (Tchaikovsky); Humorcsque (Dvorák); Selection from L'Amico Fritz (Mascagni); Scherzo and Waltz Scene from Intermezzo (R. Strauss); Ballet Music from Undine (Lortzing); Scandinavian Sketches (Frederiksen). 4.0 to 5.0, See Berlin (Funkstunde). 5.0, Educational Talk. 5.15, Market Prices. 5.25 (from Danzig). Tenor Recital by Fritzkurt Wehner: Three Songs (Schumaun); (a) Schöne Wiege meiner Leiden, (b) Stille Liebe. (c) Der Hidalgo; Three Songs (Greig); (a) Dem Lenz soll mein Lied erklingen, (b) Im Kahne, (c) Zur Johannisnacht. 5.50, Market Prices. 6.0, Transmission for all German Stations, relayed from Breslau, 7.0, News. 7.5, Concert from Hamburg. 8.0, Comedy from Hamburg. 9.0, News. 9.30, Concert from Hamburg.

HILVERSUM

Hamburg. 11.0 (approx.), Close Down.

HILVERSUM

Announced Huizen. 1,013 kc/s, 296.1 metres;
7kW. until 5.40 p.m. and 29 kW. from 5.40
p.m.—Programme of the Christian Radio
Society (N.C.R.V.). 7.40 a.m., Religious Programme. 7.55, Records. 10.10, Divine Service. 10.40, Harmonium Recital by Duif;
March from Athalie (Mendelssohn); Fantasia
on Psalm 100 and Song 229 (Duif); Records;
New Year's Greetings (Duif); Fantasia
on Hymns (Duif). 11.40, Police Notes, 11.55,
Records, 12.10 p.m., Quintet Concert: Andante (Kulidau); Old Sacred Dutch Songs;
Trio in G (Haydn); Four Songs from Reiseslieder; Duet for Flute and Violin (Beethoven). 12.15, Records. 1.25, Quintet Concert (contd.): Overture. Rosamunde (Schubert); Mendelssohn Potpourri (Erhach);
Selection, Coppélia (Delibes); Waldesrulie
(Dvorak); March (Suppé). 2.10, For Voung
Stamp Collectors, 2.40, Records. 3.40, Pianoforte Recital by Koole: Petite toccata
(Sweelinek); Suite in F minor (Handel);
Sonata Op. 33 (Chopin); Valse impromptu
(Liszt). 4.40, For children. 5.40, Agrienttural Talk. 6.10, Programme to be announced,
6.40, Police Notes, 6.55, Ecclesiastical Notes,
7.10, Recitations. 7.40, Organ Recital by
Visser: Choral with Variations: Andante re,
ligioso (Leybach); Melody (Guilmant): Communion (Guilmant): Paraphrase on Hymns
Offertory (Bodlmann); Cantificae (Marchant);
Canzone (Handel): Autumn Song (Fanikes);
Melody (Stojovsky): Idyle (Merkel); Arrangement of Psalm 75. 8.40, Talk. 9.10,
The Amsterdam Chamber Music Society; Quintet for Pianoforte, Oboe, Clarinet, Horn and

Bassoon (Verhey); Quintet for Pianoforte, Obow, Charinet, Bassoon and Horn (Beet-hoven). In the interval, News, 10.10, Re-cords, 11.10 (approx.), Close Down.

HORBY .- See Stockholm.

HUIZEN

HORBY.—See Stockholm.

HUIZEN

(Announced HILVERSUM), 160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m. Transmitted from Kootwijk, on 50 kW., from 3.40 p.m.

7.40 to 9.40 a.m., Programme of the Workers' Radio Society (V.P.R.O.). 9.55 till Close Down. V.A.R.A.

9.10, Gastronomic Talk, 9.40, Religions Programme of Liberal Protestant Radio Society (V.P.R.O.). 9.55 till Close Down. V.A.R.A. Orchestra, conducted by de Groot; Records.

11.40 a.m., Concert. 1.10 p.m., Records. 1.55, Dressmaking Lesson. 2.40, Programme for Children. 5.10, Concert of Light Music: Who's afraid of the Big Bad Wolf? The Last Round 1'p. 1 b isn't fair; Lazyhones; I was in the Mood; Lover; Nocturne in E. flat minor (Chopin-Bee); Tea for Two (Youmans); Night and Day; Dance of the Cuckoos (Steinberg); Brother, can you spare a dime? 5.55, Organ Recital by Steyn: Rakoczy Overture (Kéla-Béla); Ne dis pas tonjours (Lenoir); The Vision of Enji-San (Ke(elbey); The Juggler (Groitasch); Records; My Yiddish Momma; If Winter comes (Fennent); Who's afraid of the Big Bad Wolf? 6.40, Talk on Boxing. 7.0, Song and Pianoforte Recital: Alma Espagnola (Romero); Cielito lindo (Sedas); Granada (Albeniz); Espagnola from Verda (Gracia); Records; Pinrelerias (Cotarelo); Lagarterana (Guerrero); Cordoba (Albeniz); El sombrero cordobe's (Costa), 7.40, News. 7.55, Orchestral Concert, conducted by de Groot; Overture, Der Opernhall (Henberger); La Verbena (Lacóme); Two Hungarian Dances (Brahms); Minuet (Paderewski); Selection from Don Giovanni (Mozart). 8.40, Feest—Radio Play (Heyermans-van Duin), 9.40, Orchestral Concert, conducted by de Groot; Overture, The Hebrides (Mendels-sohn); Die Sorgenbrecher (Strauss); Cosachoque (Dargomijsky): Potpourri (Komzuk); My Old Kentucky Home (Busch); Abendilied (Schumann); Selection from The Desert Song (Friml). 10.40, Records. 11.40 (approx.), Close Down.

INNSBRUCK .- See Vienna.

JUAN LES PINS

1,205 kc's, 249 metres; 0.8 kW.—12.30 p.m., Amusement Guide and Variety Items. 1.0, News. 1.15, Radio Concert. 8.0, Amusement Guide. News, and Exchange. 8.10, Tides. 8.20, Radio Concert. 9.0, Weather and News. 9.15, Radio Concert.

KALUNDBORG .- See Copenhagen. KIEL .- See Hamburg. KLAGENFURT.-See Vienna. KOSICE .- See Prague.

LANGENBERG

Cords to day's Motto. 5.5 Records. 5.30, See Stuttgart. 5.45, Gyn. 6.0, Time, Announcements. 6.10, Weather. 6.15, Records from Frankfurt. 7.15, Announcements. 7.25, For Women. 7.35, Gym. 9.0, See Frankfurt. 9.10, Topical Talk. 10.10, Records. 10.25, Records. 10.55, Weather. 11.0 to 12.25 p.m., See Frankfurt. 12.25, News. 12.35, Concert; Waltz, Flott durchs Leben (Translateur): Scandinavian Suite (Juel Frederiksen): Serenata della laguna (Becee): Xarcissns (Nevin): Wedding Day on Troldhäugen (Grieg): Rococco Gavotte (Kockerl): Catalonian Serenade (Niemann): Im Kaffeehaus (Schrammel). 1.30, For Young People. 2.30, Exchange 2.50, Political Announcements. 3.00, See Frankfurt. 5.0, German for Germans. 5.20, Talk on Race. 5.35, Talk on a Record. 5.45, News. 6.0, Transmission for all German Stations, relayed from Breslau. 7.0, See Frankfurt. 7.10 to 9.0, See Stuttgart. 9.0, See Frankfurt. 9.20, See Stuttgart. 1.10, See Frankfurt. 1.10, See Stuttgart. 12 Midnight (Approx.). Close Down.

LAUSANNE. See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc's, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc's, 319 metres.—5.30 a.m., Programme from Munich. 6.15, News's 6.25 to 8.20, 855 Breslau. 8.40, Exchange. 8.45, Annonneements. 9.45, Post Office Programme and Records. 10.40, Annonneements. 10.50, News. 11.0, The Station Orchestra. conducted by Blumer: Gavotte and Passepied from Castor et Pollux (Rameau); Minnet and English Dalee from the Carnival Symphony (Differsdorf); German Dances (Mozart); Clog Dance from Czar and Carpenter (Lortziag); Léndler (Lanner); French Polka. Schneesternchen (E. Strauss); Waltz, Die Publizisten (John Strauss); Dance from Carmen (Rizet); Valse friste (Sibelius); Sturmgalopp (Konazak); Slav Dance No. 1, Op. 46 (Dvorak); Hungarian Dances No. 5, and 6 (Brahms). 12.15 p.m., News. 12.25, Records:

Recitative and Aria from Fidelio (Bechoven); Aria from Figaro (Mozart); A from Tanuhäuser (Wagner); Duet from the Second Act of The Barber of Bagd (Cornelins); Extract from Friedema Bach (Graener); Aria from Arabella (Strauss). 1.0, News. 1.10, Exchang Weather. 1.15, Talk: Scandinavian Legene 1.35, Theatre Talk and Balcony Scene from Shakespeare's Romeo and Juliet. 2.0, Play for Boys (Kurt Riemann). 2.45, Echange. 3.0, The Symphony Orchestic Soloist: Alfred Patzak (Tello). Alpine Suit Op. 34 (Grabner); Tello Concerto in B Min Op. 104 (Dvorak); Overture, The Sevravens (Rheinherger); Extract from The Mastersingers (Wagner); Waltz in A Fi (Chopin-Weber). 4.30, Talk: The Ancie Saxons. 4.50, Brahms Songs: Todessehne Friihlingsstrost; Erinnerung An ein Bild; A die Tanhen. 5.10, Talk: Scandinavic Weapons. 5.30, Topical Talk. 5.45, Exchang 6.0, Transmission for all German Station relayed from Bresslau. 7.0, To-day's New 7.10, See Munich. 8.0, See Breslau. 9. News. 9.20, Announcements. 9.35 to 11.3 See Breslau.

LINZ .-- See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—11.15 a.m Records. 11.45, News. 12 Noon, Time, Records. 5.0 p.m. Chamber Music. 5.30, 0r. chestral Concert. 6.0, Talk. 6.30, Literar Talk. 7.0, Violin Recital. 7.45, Pianofort Recital. 8.30, Λ Vocal Quartet. 9.0, Time News, Records.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 191 metres; 200 kW.—7.0 p.m.
Concert by the Station Orchestra, conductsby Persis: Overture, Heimkehr aus des
Fremde (Mendelssohn); Suite from L'Arlé
sienne (Bizet); Humoresque (De Taye);
Russian Dance (De Taye); Dance
of the little Dolls (Mertens); Le
Rossignol (Pensis); Selection from Tae
Queen of Spades (Tchaikovsky); March
(Albricht), 8.0, Luxembourg Songs, 8.25,
Exchange, 8.30, News in French, 8.45, See
Radio Paris. In the Interval: News in
German, 10.30, Dance Music by the Radio
Band, conducted by Ferry Jusa.

LYONS

LYONS
LA DOUA, 644 kc/s, 465.8 metres; 15 kW.—
7.45 a.m., Weather and News. 12.30 p.m.,
Records. 1.0, Radio Concert. Bridal Chorus
from Lohengrin (Wagner); Selection from La
Gioconda (Ponchielli): Piece; Quand le merle
saute au pré (Canteloube); Si tu veux
(Pothier); Waltz from Rose Marie (Friml);
Ballet Music from The Bartered Bride (Smetana); Selection from L'Arlesienne (Bizet).
In the interval. News and Exchange. 6.30,
News, relayed from Paris. 7.30, Records.
7.40, Radio Gazette for Lyons and the South
East. 8.30, Old French Music from Paris
Ecole Supérieure, 671 kc/s, 447.1 metres), followed by News.

MADRID

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Popular Spanish Music. 10.45, Radio Chroniele 11.0, Spanish Music (contd.), 11.45, Light Music. 12 Midnight till Close Down, Programme arranged by the International Broadcasting Company. 12 Midnight, Light Music; Signature Tune; Come back to Erin; Waltz, The Bluc Danube (Joh. Strauss); Chanson (Frind); Cuckoo Waltz (Johnsson); Tango, Adios Argentina (Matros); Song of the Islands (King); Rosc Dreams (Shannon); Song of the Vagabonds (Friml); Moment musical (Schubert); Signature Tune; Come back to Erin. 12.30, Popular Music: Star Song; Rosa del Rio; My beautiful One; Fate's Disconrtesy; Haydm Wood's Songs; Fishers Hornpipe; Largo from Xerxes (Handel); After Love (Erwin), 1.0, 1.B.C. Goodnight Melody and Close Down.

MADRID

MADRID

EAJ7, 707 kg's, 424.3 metres; 2 kW.—8.0
a.m. Radio Journal. 11.45, Annot neements.
12 Noon, Chimes, Radio Journal, Announcements.
12 Ketchen, Chimes, Radio Journal, Chimes, Chime, Weather, Theatre Notes.
15 (approx.), Concert. Two-Step (Penella); Gavette, Mignon (Thomas); Après un rèce (Fauré); Selection, Eva (Lehâr); Duct. La Dolores (Codina-Breton); Tango (Discepolo); Waltz, Waldtenfel); Hymn to the Sun (Rimsky-Korsakov); Selection, Luisa Fernanda (Moreno Torrobri); Foxtrot (Coward); Caprice viennois (Kreisler); Selection, La Gioconda (Ponchelli); March from The Prophet (Meyerbeer). In the interval; Exchange, 3.40, Radio Journal, Film Review, 3.50, News.
4.0 to 7.0, Interval.
2.5, Nanish Music. Part II; Extracts. The Count of Luxembourg (Lehâr). In the interval; Talk by Ramon Gomez de la Serna.
3.15, Radio Journal.
3.16, (Approx.), Seviet Concert.
1.1.45, Radio Journal.
12 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MALMO .- See Stockholm.

MILAN .- See Turin,

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.-10.0 a.m., Records. 10.5, The Station Orchestra. 10.55,



News from Prague. 11.0, Agricultural Talk.
11.10, Records from Prague. 11.35, See Bratislava. 12.25 p.m., Talk from Prague. 2.30,
See Prague. 3.50, See Brno. 4.35, See Prague.
5.5, Talk: The Care of Children. 5.15, Talk
for Workers. 5.25, Marches and Dance Music
by a Village Orchestra, conducted by Gunka.
6.0, See Prague. 6.10, Talk: The Poor Law.
6.25, See Prague. 9.15 (approx.), Close
Down.

MOTALA.—Sec Stockholm.

MUHLACKER .- See Stuttgart.

MUNICH

MUNICH

563 kc/s, 533 metres; 60-100 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 530 metres; and Nürnberg, 1,256 kc/s, 530 metres.—10.30, Programme arranged by the Post Office with Records: 10.50 to 12.25 p.m., See Leipzig, 12.25 p.m., Records: Presto from the Symphony in D (Bach); Prelude to Undine (Lortzing); Adagio from the Concerto in C Minor (Bruch); Pictures from an Exhibition (Mussorgsky); Prelude to Tristan and Isolda (Wagner). 1.0, See Leipzig. 1.20, Programme arranged by the Post Office, with Records. 1.50, Programme for Children. 2.30, Talk: Stamboul, the Modern Constantinople. 2.50, Weather. 3.0 to 5.10, See Leipzig. 5.10, Talk: The Far and Near Eastern Races. 5.30, Records: Am Springbrunnen von Babel (Dilling); Jeux d'eaux à la Villa d'Este (Liszt); Le fontane di Roma (Respighi). 5.45, Time, Weather. 6.0, Transmission for all German Stations, relayed from Breslau. 7.0, See Leipzig. 7.10, Variety Programme. 8.0, See Breslau. 9.0, Time, News. 9.35 till Close Down. NAPLES.—See Rome.

NAPLES .- See Rome.

NOTODDEN,-See Oslo,

OSLO

OSLO

277 kc/s, 1.083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres, and Rjukan, 671 kc/s, 447.1 metres, and Bjukan, 671 kc/s, 447.1 metres, and Jeloy, LCL. 6,990 kc/s, 42.92 metres.—4.0 p.m., The Grand Hotel Orchestra. 5.0, Talk. 5.30, For Boys, relayed from Trondheim, 605 kc/s, 495.8 metres. 6.0, News. 6.30, Violin and Ohoe Recital, relayed from Bergen, 824 kc/s, 364 metres: Concerto in C (Vivaldi-Kreisler); Prelude, Prayer and Villancele for Ohoe (Boisdefre). 7.0, Time. 7.1, Norwegian Stories. 7.30, The Station Orchestra. conducted by Kramm: Kleine Abendmusik for Strings (Grabner); Mclody (Pauline Hall); Chaconne (Honegger); Suite (Weingartner); Erotica (Melling); March (Borgström). 8.30, News. 9.0, Topical Talk. 9.15, Recitations. 9.45, Dance Records. 11.0 (approx.), Close Down.

DSTERSUND.—See Stockholm.

PARIS

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 15 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—12.30 p.m., Concert relayed from Paris (Ecole Supérieure), 671 kc/s, 447.1 metres. 1.0, Exchange. 1.15, News. 1.30, Agricultural Taik. 1.45, Report of the International Labour Bureau. 2.0, Exchange, Science Taik. 2.15, Talk on Economics. 2.30, Exchange, Colonial Review. 2.45, Amusement Guide and Review. 3.0, Medical Talk. News. 3.15, Exchange. Sason, Exchange. Second of the Union des Grandes Associations. 4.0, Tourist Talk. News. 4.15 to 4.30, Exchange. 5.45, Le Journal Parlé. 8.15, The Pasquier Trio: Trio in C Minor, Op. 9 No. 3 (Becthoven); Trio (Françaix). 9.0 (approx.), Close Down.

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.10 a.m., Fanfare and Records. In the interval, Press Review. 8.0, Concert. In the interval, Press Review. 8.45, For Housewives. 12 Moon, Exchange. 12.5 p.m., Orchestral Concert. Soloist: Cruque (Songs). Overture, Phiedre (Massenet); Nocturne from Gitancrias (Infante); Columbine (Infante); Petite Suite (Bizet); Russian Songs (Lalo); Intermezzo (Massenet); La Honssardc (Ganne). In the intervals. Announcements and Exchange. 2.0, Exchange. 3.15, Exchange. 3.45, Exchange. 4.50, Exchange. 6.45, Financial Report. 6.52, Assurance Societies' Report. 7.0, Records: Extract from an Operetta (Hahn). 7.15, Le Journal Parlé. 7.30, Records. 7.34, Recitations. 7.38, Talk on Cars. 7.45, Topical Talk. 8.0, Le Printemps des autres—Play in Three Acts (Bernard). 10.15, News.

PARIS

PARIS
RADIO PARIS, Call CFR, 174 kc/s, 1,725
metres; 75 kW.—6.45 to 7.0 a.m., Gym. 7.30
to 7.45, Weather, Gym (contd..) 7.45, Records. 8.0 to 2.30, Weather, News. 12 Noon,
Talk. 12.15 p.m., Records of Bach and
Laverne. 12.30, Organ Recital from the Gaumont Palace: Chanson (Akist); Mood Indigo
(Ellington); Selection from Poet and Peasant
(Suppé); Melody (Marsondet); Melody
(Akist). 1.0, Exchange, News. 1.5, Fauré
Music (on Records). In the interval and
after the Records, Exchange. 3.45 to 3.50,
Exchange. 6.45, Massentet Music (on Records).
7.0, Medical Talk. 7.20, Records: Dans la
rue (Yvain); Entre deux ponts (Borel-Clere);
La vague (Metra); La blonde Elisabeth

JAN. 3rd WEDNESDAY continued

(Hatscher); Tu m'oublieras (Lenoir); Fantastique (Mirasky); Roeky (Mahieux-Graven), 7.45, News. 8.0, Elocution Lesson. 8.30, News. Weather, Fashion Notes. 8.45, Concert by the Association des concerts Lamoureux, conducted by Albert Wolff. Soloist. Mme. Ennma Boynet (Pianoforte). Symphony in C (Dukas); Pianoforte Concerto in E Plat (Mozart); Death and Transfiguration (R. Strauss); Night on the bare Mountain (Moussorgsky); Fête polonaise (Chabrier). In the intervals, News.

PITTSBURGH

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—12 Noon, Musical Clock .1.0 p.m., Morning Devotious, from New York. 1.15, Don Hall Trio. from New York. 1.30, Lew White, Organist, from New York. 3.30, To-day's Children, from New York. 3.30, To-day's Children, from New York. 3.45 p.m., Singing Strings, from New York. 4.0, Four Southern Singers, from New York. 4.15, Sammy Fuller. 4.30, U.S. Army Band, from New York. 5.0, Eva Taylor, Crooner, from New York. 5.15, Wendell Hall. 5.30, News, Markets. 5.45, Ernie Holst's Orchestra. 6.0, Farm and Home Hour, from New York. 6.30, Ernie Holst's Orchestra. 6.30, Ernie Holst's Orchestra. 6.30, Ernie Holst's Orchestra. 6.30, Ernie Holst's Orchestra. 7.0, Happy Days in Dixie, from New York. 7.30, KDKA Home Forum. 8.0, Joe White, Tenor, from New York. 8.15, Syncopators, from New York. 8.45, Human Values. 9.0, Betty and Bob, from New York. 9.15, Utility Hall. 9.30, Frances Ingram. 9.45, News, Markets. 10.0, Babe Ruth Presents. 10.15, KDKA Kiddies' Klub. 10.30, Singing Lady, from New York. 10.45, Little Orphan Annie, from New York. 10.45, News, Pat Haley. 11.15, Sports, Programme Preview. 11.30, KDKA Salon Orchestra. 11.45, Lowel Thomas, from New York. 12.45, Irene Rich, from New York. 12.30, Potash and Perlmutter, from New York. 12.45, Irene Rich, from New York. 12.30, Potash and Perlmutter, from New York. 12.45, Irene Rich, from New York. 12.30, Potash and Perlmutter, from New York. 12.45, Irene Rich, from New York. 12.30, Potash and Perlmutter, from New York. 12.45, Irene Rich, from New York. 12.45, Irene

PORSGRUND.—Sec Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—2.30 p.m., Records. 2.40, Talk: How Students look at Life. 2.50, Weather; Exchange. 3.0, Jaroslav Cech and his Orchestra: March (Fucik): Serenade (Novak): Overture, Casanova (Lineke); Rustling Zephyr (Jensen): Foxtrot (Ingris) Selection from The Gipsy Princess (Kalmán): Waltz (Kumok): Foxtrot (Grev). 3.50, See Brno. 4.35, Song Recital by Felicita Lerchenfeldová-Hrimala. 4.55, Nature Talk: Hibernating Animals. 5.5, Agricultural Programme. 5.15, For Workers. 5.25, News in German. 5.30, German Transmission: Programme to be announced. 6.0, Time; News. 6.10, Advanced French Lesson. 6.25, Introductory Talk to the following Relay. 6.30, Relay of an Opera from the State Opera House. In the interval, Literary Talk. 9.0, Time; News. 9.15, News in French. 9.30 (approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE
SOTTENS, 743 kc/s, 403 metres; 25 kW., and
Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15
a.m. (from Lausanne), Gym. 11.28, Time.
11.30, News. Weather. 11.40 (from Lausanne),
Financial Notes. 12.10 p.m. (from Lausanne)
Cher Landessender (Beromünster). 5.0 (from
Geneva), Programme for Children. 6.0 (from
Geneva), Radio Chronicle. 6.59 (from
Geneva), Radio Chronicle. 6.59 (from
Geneva), Weather. 7.0 (from Lausanne),
Concert. 7.30 (from Lausanne), Dramatic
Programme. 8.20 (from Lausanne), Country
Music with Yodelling Solos: The Radio
Lausanne Orchestra, conducted by Moser.
9.0, News, Weather. 9.10 (from Lausanne),
Dance Music. 10.0 (approx.), Close Down,

REYK JAVIK

250 kc/s, 1,200 metres; 21 kW.—11.0 a.m., Weather. 1.15 p.m., Variety Programme. 4.0, Weather. 8.0, Musical Programme. Announcements. 9.0, Chimes. News. 9.30, Reading. 10.0, La Bohême—Opera (Puccini).

RIGA

RIGA

571 kc/s, 525.3 metres; 15 kW.—5.0 a.m.,
Popular Latvian Songs. 5.5, Gym. 5.40 to
6.10, Concert. 10.0, News. 10.30, Weather.
2.10 p.m., Chamber Music. 3.13, Talk: Gymnastics. 3.40, Songs. 4.0, Foreign News.
4.30, Records: Overture. A Night m May
(Rimsky-Korsakov); Russian Songs; Caucasian Sketches (Ippolitov-Ivanov). 5.0,
Agricultural Talk. 5.30, English Lesson.
6.0, Weather. 6.5, Jansons Concert, conducted by the Composer: Andante from the
Symphony in A Flat: Violin Solos: (a)
Serenade, (b) Air de Ballet; Seven Songs;
Moderato from the Symphonic Suite; Andante rostenuto from Symphony in C Suite;

Night. 7.0, News. 7.20, Station Orchestra. conducted by Parups: Overture, Pique Dame (Suppé): Selection, Paganini (Lehár): Selection, Countess Maritza (Kalmán); Selection, White Horse Inn (Benatzky). In the interval, Weather, News. 8.30, Records. String Quartet in B Flat, Op. 15 (Suk).

RJUKAN.-Sec Oslo.

SALZBURG.—See Vienna.

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres, and by W2XAD on 19.56 metres.
7.30 p.m., Two Seats in the Balcony, from New York.
8.0, Golden Treasury, from New York.
12.45 a.m. (Thursday), Stock Reports.

SCHWEIZERISCHER

LANDESSENDER

LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60
kW.; Basle, 1,229 kc/s, 244.1 metres; and
Berne, 1,220 kc/s, 246.9 metres; and
Berne, 1,220 kc/s, 246.9 metres.—5.50 a.m.,
Gym. 11.0 (Berne), Records. 11.29, Time,
Weather, News. 11.40 (Berne), Records. 12
Noon, Records. 12.25 p.m. (Berne), Time, Exchange. 2.30 (Berne) Programme for Women.
3.0, Mozart Concert, 3.40, Mozart Records. 4.0,
Records. 4.30, Chamber Music. 5.0 (Berne),
For Children. 5.30 (Zürich), Talk: Bringing
up Children. 6.0 (Zürich), Elementary English Lesson. 6.50 (Zürich), Ballet Music and
Songs. 8.0, Weather, News. 8.10 (Berne),
Die Alphütte—Opera (Kreutzer). 10.0 (approx.), Close Down.
SOTTENS.—Sce Radio-Suisse Romande.

SOTTENS,-See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

889 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres; Ostersund, 409 kc/s, 746.2 metres, and Sundsvall, 554 kc/s, 542 metres, 4.0 p.m., Weather. 4.5, Country Music, relayed from Karistad, 1,382 kc/s (217 metres). 4.30, The Practical Corner. 4.45, Records. 5.45, Talk, 6.30, Choral Concert, conducted by Axel Nylanler; Soloist, Kerstin Lindberg-Torlind (Songs). 7.0 (from Göteborg), Talk, 7.30, Ester Berggten (Songs), Lottie Andreasson (Violin), and Marta af Klintberg (Piano); Songs, Two Concert Pieces for Pianoforte (Backer-Gröndahl); Violin Solos, (a) Romance (Sinding). (b) Polichinelle Planoforte (Backer-Grondam); Volin Solos.

(a) Romance (Sinding), (b) Polichinelle (Kreisler); (c) Slav Fantasia (Dvorák-Kreisler); Songs (Sibelius); Pianoforte Solos, (a) Romance (Sibelius), (b) Erotica in A Sharp (Sjögren).

8.15, Reading. 9.0, Dance Music.
10.0 (approx.), Close Down.

STRASBOURG

10.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—10.30 a.m., Orchestral Concert, relayed from Lyons-la-Doua, 644 kc/s, 465.8 metres, 12 Noon, Records: Selections from Faust (Gounod), Mignon (Thomas), The Tales of Hoffman (Offenbach), Lakmé (Delibes), Mireille (Gounod), Mascotte (Audran), Les noces de Jeannette (Massé). The Count of Luxembourg (Lehár), The Merry Wildow (Lehár), 12.48 p.m., News. 1.0, Time and Exchange. 1.5, Records. 4.45, Talk on Electricity. 5.0, Dance Music: Two-Step, Carambolina, Caramboletta (Kálmán); Waltz. Carlotta (Millöcker); Overture, The Nuremberg Doll (Adam): Fox-trot, Hello (Fraggi); Fox-trot, Lela (Clarey); Selection from The Geisha (Jones); Tango, Countess Maritza (Kalman); Słow Waltz, Sag mir Darling (Reisfeld. Fryberg, Marbot): Patrouille galante (Lachoume): Fox-trot, Gloria (Ring-Hager); March (Heymann). 6.0, Chamber Music, relayed from Lille, 1,128.5 kc/s, 265.8 metres. 7.0, Talk in German: The Motor Roads of Europe. 7.15, Talk in German. 7.30, Time and News. 7.45, See Paris (Eiffel Tower). 8.15, News in German. 8.30, Hansel and Gretel, Opera in three Acts (Humperdinck). In the interval, News. 10.30, Concert relayed from the Taverne Grand Kiéher: March, Le jongleur (Rosey); Waltz, Mondnacht auf der Alster (Fétras); Overture, Le Maçon (Auber); Selection from The Count of Luxembourg (Lehár); Potpourri. Tempo-Tempo (Dostal); Waltz, Gold and Silver (Lehár); Les airs de St. Granier (Salabert).

STUTTGART

STUTTGART

MUHLACKER, 563 ke/s, 533 metres; 100 kW. Relayed by Freiburg, 1,157 ke/s, 259.3 metres; and 527 ke/s, 569 metres until January 16th, 1934.—9.0 a.m., News. 9.10, Programme for Women. 9.40, Songs by Franz Völker (on Records): Legend of the Grail from Lohengrin (Wagner); Air from Cavalleria Rusticana (Mascagni); Helmsan's Song from The Flying Dutchman (Wagner); Winterlied (Kosz): Lass dir Zeit, from Der Kellermeister (Zeller): Gruss an Marburg (Schröder). 10.5, Folk Music (on Records). 10.25, Post Office Concert. 10.56, Weather. 11.0 to 12.25 p.m., See Frankfurt. 12.25, News. 12.35 to 2.30, See Langenberg. 2.30, Accordion Concert. 3.0, See Frankfurt. 5.0 to 5.35, See Langenberg. 5.35, Time, Announcements. 5.45, Talk: The German Hansa League. 6.0, Transmission for all

German Stations, relayed from Breslau. 7.0, See Frankfurt. J.10, With Kettledrums and Trumpets—a Potpourri by the Station Orchestra, conducted by Görlich. 8.0, The German Song—Programme arranged by Walter Reuschle. 8.30, Horu Concerto No. 4 (Mozart), by Max Zimolong and the Station Orchestra, conducted by Drost. 9.0, See Frankfurt. 9.20, Talk: What Everyone Shonld Know. 9.30, News. 9.45 to 11.0, See Frankfurt. 11.0, Serenade. 12 Midnight, Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

TOULOUSE

779 kc/s, 385 metres; 8 kW.—8.0 a.m., Dance Refrains. 8.30, News. 8.35, Opera Music. 8.45, Popular Melodics. 12 Noon, Operetta Music. 12.15 p.m., Orchestral Music. 12.39, News, Exchange. 12.45, Request Records. 1.0, Announcements. 1.5, Bal musette. 1.36, Instrumental Music. 1.45, Opera Music. 2.0, News, Exchange. 4.15, News. 6.0, News. 6.15, Argentine Orchestra. 6.30, Popular Melodies. 6.50, Musical Programme. In the interval, Talk. 7.15, News, Exchange. 7.30, Pianoforte Recital: Valse brillante (Chopin); Preludes (Allende); Caprice (Bach); Suite bergatnasque (Debussy), 7.45, Opera Music: Arias from L'enfant prodigue (Debussy), William Tell (Rossini), and Figaro (Mozart). 8.0, Viennese Orchestra. 8.30, Chansonnettes. 8.45, Chamber Music. 9.0, Concert Version of Lohengrin, Opera (Wagner). 9.40, Hawaiian Guitar. 10.0, Sound Film Music. 10.15, News. 10.30, Opera Music: Selection from Tosca (Puccini), Siegfried (Wagner), Norma (Bellini), La Traviata (Verdi), Mignon (Thomas) and Prince Igor (Borodin). 11.0, Request Records. 11.15, Dance Music. 21 Midnight, News, Announcements. 12.5 a.m. (Thursday), Variety Programme. 12.30 (approx.), Close Down. TRONDHEIM.—See Oslo.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning); and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 a.m., Religious Information in Spanish. 7.0 p.m., Religious Information in Italian.

VIENNA

p.m., Religious Information in Italian,

VIENNA

S80 kc/s, 517.2 metres; 100 kW. Relayed by
Graz, 852 kc/s, 352.1 metres; 1nnsbruck, 1,058
kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.1
metres; Linz, 1,220 kc/s, 245.9 metres; and
Salzburg, 1,373 kc/s, 218.5 metres,—8.20 a.m.,
Exchange. 8.30, Weather. 9.50, Tides, 10.30,
Records: Arioso (Handel); Aria from Samson
and Delilah (Saint-Saëns); Aria from Don
Giovanni (Mozart); Gavotte (Gossec-Burmester); Moment musical (Schubert); Nocturne in E. Op. 9 (Chopin). 10.55, Weather.
11.0, The Wiener Symphoniker, conducted by
Holzer. Solo.st: Adolf Ludwig (Flute).
Overture, Le roi l'a dit (Delihes); Flute Solo:
Minuet in D (Beethoven); Smugglers' Scene
from Carmen (Bizet); Perpetuum mobile
(Joh. Strauss); Spanish Waltz, Susanna
(Rosey); Ave Maria (Makomaski); Scherzo
(von Goens); Selection from La Traviata
(Verdi). 12 Noon, News. 12.10 p.m., Concert (contd.): Russian March (Ganne); Eysler Potpourri (Hruby). 12.30 to 1.0, Country
Dances on Records. 2.0, Exchange. 2.15,
Talk on Poultry Keeping. 2.30, Talk: The
Ventian Theatre in the Rococco Period. 2.55,
Chamber Music. 3.35, Talk: Hunting Two
Thousand Years Ago. 4.0, Talk: The New
School Term. 4.20, Contemporary Austrian
Composers—Marco Frank Concert. 5.10,
Mcdical Talk. 5.35, Talk for Workers. 6.0,
Topical Talk. 5.15, News. 6.25, Relay from
the State Opera House. In the interval,
News. 9.5, Announcements. 9.10, Report
in Esperanto. 9.20, Concert. After the
Concert, News.

WARSAW

212.5 kc/s. 1.411 metres: 120 kW.—11.38 a.m.,

WARSAW

Concert. News.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.38 a.m., Records: First Symphony (Beethoven). 2.25 p.m., News. 2.30, On Economics. 2.40, Mezzo-Soprano Recital by Hejdukowska-Marczynaka: Aria from L'Annico Fritz (Mascagni); Aria from La Favourita (Donizetti); Fiocca la neve (Cimara); Two Songs from The Chalk Circle (Vladigerov); Two Songs from Gipsy Melodies (Dvorák). 3-0, Records. 3.10, For Children. 3.40, The Letter Box. 3.55, The Warsaw String Quartet String Quartet No. 1 (Moniuszko); Quartet Op. 10 (Statkowski). 4.30, Song Recital by Elvine Rove-Stalinska: Mattinata (Leoncavallo); Aria from Louise (Charpentier): Trees (Rasbach); Chhan Love Song (Stathart); American Lullaby (Clutsam). 4.50, The Letter Box. 5-0, Talk: Natural History. 5-20, Jazz on Two Pianofortes by Mmes, Birynska and Eiger: Russian Potpourri (Kaper); The Wedding of the Painted Doll (Brown: Kaper); Ah Pardon (Panufnik); The Pagan Love Song (Brown: Kaper); Viennese Cocktail (Kaper); Fantasia (Wark). 5-40, Song Recital by Dygas. 6-60, Announcements. 6-25, Talk: Polish Novels. 6-40, Sports Notes, Radio Journal. 7-0, Violin Recital by Irene Dubiska: La Folia (Corelli-Tomson); Chaut d'automne (Tchaikovsky); Slav Dance (Dvorák); Burlesque (Andrzejewski); Rève de jeunesse (Wintermitz); Le coucon (Daquin-Manen); Die Biene (Schubert); Le cygne (Saint-Saïsa); The Dragon-dies (Zsolt); The Cock and the Hen (Leonard). 7-45, Talk. 8-5, Programme relayed from Wino, 530 ke/s, 566 metres. 9-0, Variety Programme. 10-0, News. 10-5, Dance Music.

ZURICH .- See Schweizerischer Landessender.

ALGIERS

ALGIERS

825.5 kc/s, 363.3 metres; 13 kW.—12.20 p.m., Records: Prelude to Lohengrin (Wagner); Dance of the Hours from La Gioconda (Ponchielli); Polish Pestival (Svendsen); Russian Rhapsody (Nusshaum). 1.0, News. 1.5, Concert (contd.): O Sole Mio (Di Capua); Torna a Sorriento (De Curtis); Selection from Cavalleria rusticana (Mascagni); Welsh Rhapsody (German). 6.0, Programme for Women. 6.45, Bal Musette. 7.0, Exchange. 7.10, Shinping. 7.15, Weather. 7.20, Military Music: Marche Algérienne (Bosc); Le Magyar (Allier). 7.30, Lottery Results. 7.45, Sketch in Dialect. 7.55, News. 8.0, Time. 8.2, Talk. 8.10, Records. 8.25, News. 8.30, The Blue Rose—Comedy in One Act (Brieux). 9.55, Request Records: Le merle blanc (Damaré); Grossmütterchen (Lange); Hungarian Czardas No. 3 (arr. Barthet); Les Montagnards (Roland); Piece (Lintz); Aubade (Peguri). 9.30, News. 9.35, Records (contd.): Parlez-moi d'amour (Letoir); Le Crucifix (Fauré); L'ai rêve d'une fleur (Scotto); Granada (Garcia); Potpourri of Old Songs (Christiné). 9.55, News. 10.0, Concert of Eastern Music. 11.0, Close Down.

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres, and Cork, 1,337 kc/s, 224.4 metres.—7.15 p.m., Talk; 3rish Culture. 7.30, Operetta Music by the Station Orchestra. 8.0, Operetta Songs. 8.30, Sketch. 9.0, Soprano Solos by Margaret Dempsey. 9.15, Pipe Solos by Leo Rowsome. 9.30 to 10.30, Concert by the I.B.C. (frefand), Ltd. 9.30, Light Music: Play, Fiddle, Play; Keyboard Kapers; Song. Lazybones; For you, just you, my Baby; Her Name is Mary; Song. The Sidewalk Waltz; Waltz Clog Medley; Couchita. 10.0, Dance Music: Roaming; My Hat's on the Side of my Head; I Don't like her Dog Fido; Racing Commentary; Sittin' on a Backyard Fence; The Way I Feel tonight; When the Sweet Maguolius Bloom again; There's a New Moon over my Shoulder. 10.30, I.B.C. Goodnight Melody, followed by Time, Weather, and News. 10.40, Columcille Ceilidhe Band. 11.0, Close Down.

BARCELONA

BARCELONA

EAJ1, 861 kc/s, 348.4 metres; 8 kW.—2.30 p.m. (approx.), Sextet Concert: Selection from The Rose of Stamboul (Fall); Gallop from Jeux d'enfants (Bizet); Carmenes granadinos (Millan); Pavane (Albéniz); Selection from La gatita blanca (Jimenez and Vives); Bonita y graciosa (Vila). After the Concert, Exchange. 3.0, For Hospitals. 4.0, Educational Programme. 4.40 to 6.0, Interval. 6.0, Trio Concert: Oriental Dance (Breton); Selection from Los Cadetes de la Reina (Luna); Jardines de la Alhambra (Torens); Selection from Alegria del batalon (Serrano); Excena gitaua (Perello); Poom (Iretagoyena); Selection from La Viejecita (Canallero). 7.0, Records. 7.30, Exchange and Records (contd.). 8.0, Records and News. 8.15, Talk in Catalan. 9.0, Chimes. 9.5, Announcements, Exchange. 9.10, Humorous Review of the Week in Verse. 9.20, The Radio Orchestra, followed by Part Rolay of an Opera from the Gran Teatro del Li. 11.0, News.

BASLE .- See Schweizerischer Landessender.

BELGRADE

BELGRADE

88 ko/s, 429.7 metres; 2.8 kW.—10.0 a.m.,
Announcements; Records. 10.20, Weather;
Records. 10.59, Time; Chimes. 11.5, The
Radio Orchestra. 11.35, Exchange; the
Radio Orchestra. 11.35, Exchange; the
Radio Orchestra. 12.30 p.m., News; Time.
3.0, For Schools. 4.0, Records. 5.25, Time;
Announcements. 5.30, Programme to be
announced. 6.0, Records. 6.10, Talk. 6.30,
Records. 7.0, Song Recital by Zarko (Zejic.
7.30, The Radio Orchestra. 9.0, Time;
News; Songs with Orchestra.

BERLIN

BERLIN

DEUTSCHLANDSENDER REICHSSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—9.10, a.m., Records. 9.30, Carnival Piano Music. 10.15, Weather. 10.30, Talk: When shall we be able to fly to the Moon? 10.45, Topical Talk. 11.0, Weather. 11.5, Records: March, Waltz, Die Werber (Lanner); None but the Weary Heart (Tchaikovsky); sphärenklänge (Strauss); Verdi Potpourri; Waltz, Nachtswärmer (Ziehrer); Marionetten-Polka (Laudschulz); Sag mir, sag mir, from Frasquita (Lehár); Waltz, El Turia (Ranado); Frühling am Rhein (Höser); Ilusarenattacke (Oscheit); Marching Song, Lisa. 11.55, Time. 12.45 p.m., News. 1.0, Records: Ballet Music from Aida (Verdi), Carmeu (Bizet), Rosamunde (Schubert), Faust (Gounod). Ballet Suite (Reger), Samson and Delliah (Saint-Saëns) and The Bartered Bride (Smetana). 1.45, Songs for Children. 2.10, Programme for Women. 2.30, Exchange. 2.45, New Year Poens. 3.0, Concert from Munich. 4.0, Programme for Children. 4.25, Arias from Mozart and Verdi Operas. 5.0, Poems. 5.5, New Year Greetings. 5.30, Talk: Women Workers on the Land. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Leipzig. 7.0, Talk on the following Traumission. 7.5, Susanna's Secret—Opera (Wolf-Perrari), relayed from the Municipal Theatre, Göttingen. 7.50, Topical Talk. 8.0, Humorous Scenes, 9.0, News.

HURSDA JANUARY THE FOURTH

9.25, Talk by the Reich Director of Sports. 9.45, Weather. 10.0, Programme from Leip-zig. 11.0 (approx.), (lose Down.

BERLIN

BERLIN

FUNKSTUNDE, 716 kc/s, 419 metres; 1.5 kW.—5.15 a.m., Gym. 5.30, To-day's Motto. Weather. 5.35, The Small Station Orchestra, conducted by Steiner. Romantic Overture (Keler-Bela); Waltz, Die Werber (Lanner); Stephanie Gavotte (Czibulka); Ellentanz (Heykens); La lettre de Manon (Gillet); Waltz, Amorettenreigen (Fucik); Overture, Berlin, wie es weint und lacht (Conradi); Schattenspiele (Finck); March. Der grüne Jägersmann (Ailbont); Austrian Peasant Dances (Pachernegg); Waltz. Wiener Bonbons (Joh. Strauss); Vergissmeinicht (Macbeth); Petersburger Schlittenfahrt (Elleuberg). In the interval, News. 7.15, Gym. 8.45, For Children. 9.0, News. 9.10, Report on Retail Trade. 9.30, Records, Announcements. 9.50, A Talk, relayed from a Furniture Factory. 10.25, Exchange. 10.30, See Heilsberg. In an interval, Weather. 12.0 Noon, Sound-Film Music on Records: Song from Das Lied vom Glück (Engel-Berger); Song from Ist mein Mann nicht fabelhaft (Knobel-Kiesow); Tango and Paso-Doble from Der Stern von Valencia (Stauch). 12.20 p.m., Concert from Hamburg. 1.15, News. 1.35, Schubert Concert on Records: Overture, Die Zwillingsbrüder; Songs: (a) Der Doppelgänger, (b) Abschied; Serenade, Zögernd leise; Minuet from Symphony No. 3 in D. 2.0, Exchange. 2.20, Records: Concerto grosso in A Minor (Vivaldi); Serenade No. 6 (Mozart). 2.35, For Yonng People. 3.0 to 5.0, See Heilsberg. Italk. 6.0, Transmission for all German Stations, relayed from Leipzig. 7.5 to 11.0, Dance Evening. The Small Station Orchestra, conducted by Steiner, and Engen Jahn's Dance Band. In the interval, News. 11.0 (approx.). Close Down.

BERNE .- See Schweizerischer Landessender,

BEROMUNSTER. — See Schweizerischer Landessender.

BODEN .- Sec Stockholm.

BODO.—Sec Oslo.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—12.35 p.m., Sec Prague. 12.45, News in Slovak, German and Hungarian. 12.55, See Prague. 1.0, Agricultural Notes. 2.50, See Prague. 4.15, Talk: A Tour of Poland. 4.25, See Prague. 5.0, Talk. 5.15, The Station Band conducted by Nágl. 5.40, Talk for Women: Gym. 5.55, For Housewives. 6.0, See Prague. 6.15, See Brno. 8.15, See Prague. 10.0 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

923 kc s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—5.30 a.m., Gym from Munich. 5.45, To-day's Motto and Records from Munich. 5.45, To-day's Motto and Records from Munich. 6.15, News from Leipzig. 6.25 to 8.20, Programme from Munich. 8.20, See Breslau. 10.25, Agricultural Report. 10.40, Time, Weather and Tides Report. 10.50, See Leipzig. 11.0, Concert by the Station Orchestra, conducted by Ernst Josef Topitz: Overture, Tancred (Rossimi); Waltz Intermezzo, Rosen im Schmen (Siede); Tone Poem. Königin Luise in Paretz (Leuschner); Waltz, Bei uns z'Haus (Joh. Strauss); Dolorosa (Lindemann); Der Pan tanzt (Jucl-Frederiksen); Song from The Bird Fanpier (Zeller); Paraphrase, Es liegt eine Krone im grünen Rhein (Pachernegg); Selection from Frühlingsluft (Jos. Strauss-Reiterer); Waltz from Das süsse Mädel (Reinhardt); March, Meine Ehre heisst Treue (Wilke). 12.25 p.m., Records: Xylophone Solos (Notvo); (a) Ein Guckloch in der Wand, (b) Ungerufen; Banjo Solos (Resser); (a) Der Prahthans, (b) Der Backfisch; Duets (a) Perdetrah (Hästrav). (b) Nineteenth Century Waltz (Talet); Finte and Orchestra; Schmetterlinge (Köhler); Harp Solos (Alvers); (a) Griechischer Marsch, (b) Karneval in Venedig; Guitar and Orchestra: Wenu die ersten Rosen blühn (Klenner). 1.0, See Leipzig. 1.10, Time, Weather. 1.15, Programme arranged by the Post Office, with Records. 1.50, Exchange. 2.10, Recitations (Ehrler). 2.30, For Children. 3.0, See Munich. 4.30, Talk: The Ancestry of Famous Germans. 4.50, Song Recital by Gertrud Gottschalk. Cycle of Five Songs: Natur, Kind und Empfinden (Schilling); Songs (Vollerthun); (a) die wünsche, (b) Der Esel, (c) Heimliches Ständehen, (d) Zweifel. 5.10, Market Prices and Talk. 5.30, Topical Talk. 6.50, Announcements. 6.0, Transmission for all German Stations, relayed from Leipzig. 7.0,

See Leipzig. 7.10, See Munich. 7.30, Nordic Peoples—Radio Sequence taken from Nordic Literature. 8.20, See Leipzig. 9.40, Time, News. 9.55, See Leipzig. 11.30 (approx.). News, 9.55, Close Down,

BRNO

BRNO

878 kc/s, 342 metres; 35 kW.—10.30 a.m.,
Records. 10.55, Programme from Prague.
11.0, Agricultural Notes. 11.10, Programme
from Prague. 11.35, Radio Report
of the Ski Champiouship of Moravia.
11.55, Concert from Bratislava. 12.35 p.m.,
See Prague. 12.55, Radio Report of the Ski
Championship of Moravia. 2.30, See Prague.
4.35, Records. 4.45, See Prague. 5.0, Theatre
and Film Talk. 5.15, See Prague. 5.25,
German Transmission: News, and Dramatic
Programme. 6.0, See Prague. 6.16, Lecture
Recital; The Highlands of Moravia. 8.15
to 10.0, See Prague. 10.0 (approx.), Close
Down.

BRUSSELS (No. 1)

1.N.R., 589 kc/s, 599.2 metres; 15 kW.—12
Noon, The Small Station Orchestra, conducted by Leemans. 1.0 p.m., Le Journal
Parlé. 1.10, Records. 5.0, The Radio Orchestra, conducted by Walpot: Overture to
Solidarité (Weyts); Waltz (O. Straus); Selection from The Grand Duchess of Gérolstein (Offenbach); Intermezzo from Cavalleria Rusticana (Mascagni); Violin Solo, Italian Screnade (Caludi); Neapolitan
Dance (Desormes). 5.30, For Children. 6.0,
Talk. 6.15, The Small Station Orchestra, conducted by Leemans. 7.15, For Workers.
7.30, Sports Notes. 8.0, The Radio Orchestra, conducted by Leemans. 7.15, For Workers.
7.31, Cabaret Programme. 8.45, Agricultural
Talk. 9.0, The Radio Orchestra (contd.).
Waltz Potpourri No. 3 (Robrecht); Overture, La petite Bohème (Hirschmann);
Second Suite (de Micheli); Selection from
White Horse Inn (Stolz-Benatzky); Cappice
for Flute, Le merie blanc (Damare); Balht
egyptica (Luigini). 10.0, Le Journal Parlé.

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.I.R., 888 kc/s, 337.8 metres; 15 kW. Programme in Flemish.—12 Noon, Operetta Music on Records. 1.0, Le Journal Parlé. 1.10, The Small Station Orchestra, conducted by Leemans. Overture, Fingal's Cave (Mendelssohn); Andalusian Song (Fort); Devant une vieille horloge à carillon (Müller-Melborn); Violin Solo: Minuet (Mozart); La mia serenata (Stafelli); Hindu Song from Sadko (Rimsky-Korsakov); Record: Duet from Norma (Bellini): Andalusian Serenade. The Blue Pavilion (Armandola); Selection from Le Cid (Massenet). 5.0, The Station Symphony Orchestra, conducted by Meulemans, Overture. Die Fledermans (Joh. Strauss); Ballet Music from Les deux pigéons (Messager); Scènes pittoresques (Massenet); Waltz, La houssarde (Ganne). 5.45, For Children. 6.30, Catholic Boy Scout Programme. 7.12, News. 7.15, Talk. 7.30, Tourist Report. 8.0, The Station Symphony Orchestra, conducted by Meulemans. Part I. Lalo Music. Overture, Le roi d'Ys; Violin Concerto. 8.35, Light Programme. 9.15, The Station Symphony Orchestra (contd.). Part II. Festival March (Gilson); Feestklanken (D'Hayer); Fête polonaise (Chabrier); Air from Scheherazade (Rimsky-Korsakov); Festival March (Busser). 9.55, Evening Prayer. 10.0, Le Journal Parlé.

BUCHAREST

760 kc's, 394.7 metres; 12 kW.—11.0 a.m., Exchange, Records, 12 Noon, Radio Journal. 12.15 p.m., Light Music (on Granophone Records), 3.15, For Children, 40, The Station Orchestra, conducted by Dinico, 5.0, Radio Journal, 5.15, The Station Orchestra (contactional Pregramme, 6.20, Talk, 6.35, Der Rosenkavalier—Opera (R. Strauss), Relayed from the Romanian Opera House, In the interval: Reading, After the Opera, Radio Journal,

BUDAPEST

BUDAPEST

545 kc/s, 550.5 metres; 120 kW. Also relayed on 840 metres from 6.40 p.m. till Close Down.—5.45 a.m., Gym. 6.0 (approx.), Records. 8.45, News. 9.0 (approx.), Records. 0.10, Amouncements. 11.0, Chimes. 11.5, Military Band Concert. 12.30 p.m., Concert by Serge Smirnoff's Balalaika Orchestra. 2.0, Reading of Fury Stories. 4.30, Hungarian Folk Songs to Cigány Band Accompaniment. 5.30, English Lesson. 6.0, Concert. 6.40, Talk. 7.15, Records. 8.0, News. 8.20, A Comedy. 9.10, News. 9.15 (approx.) Cigány Band Concert. 10.15, Giovanni dell'Agnola (Pianoforte).

CASSEL,-See Frankfurt.

COPENHAGEN

COPENHAGEN

1,067 kg/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kg/s, 1,153.8 metres; and Skamlebaek, OXY, 31.51 metres.—6.0 a.m., Gym for Women. 6.15, Gym. 7.30, Divine Service from the Cathedral. 10.0, Weather. 10.10, Fish Market Prices. 11.0, Time and Chimes from the Town Hall. 11.2, The Arnold Nielsen String Ensemble from the Ritz Restaurant. 1.45 pm., Jazz Music by the Kai Julian Band. In the interval, Reading. 3.45, For Boys. 4.30, Exchange. 4.43, Poem. 4.45, Talk: Liberalism To-day. 5.15, Elementary English Lesson. 5.45, Weather. 6.0, News. 6.15, Time. 6.16, Talk. 6.45, Danish Lesson. 7.10, The Radio Symphony Orchestra relayed from the State Broadcasting Building. Conductor: Paul Paray. Soloist: Marcel Moyse (Flute). Overture, Le roi d'Ys (Lalo); Extracts, Pelléas et Mélisande (Fauré); Flute Concerto (thert); Le rouet d'Omphale (Saint-Saëns); L'apprenti sorcier (Dukas); Nocturne and Allegro scherzando (Gaubert); Selection, The Damnation of Faust (Berlioz). 9.15, News. 9.30, Reading: Rikkitiktavi (Rudyard Kipling), Danish Translation by Halling. 9.55, Dance Music by the Teddy Petersen Band from the Wivex Restaurant. In the interval at 11.0, Time and Chimes from the Town Hall. 11.30 (approx.), Close Down.

CORK .- See Athlone.

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—6.0 a.m., Programme from Warsaw. 10.35, Programme from Warsaw. 10.40, Programme from Warsaw. 10.57, Time Signal and Faufare from St. Mary's Church. 11.5, Orchestral Concert. relayed from Lwów, 788 kc/s, 381 metres. 11.30, See Warsaw, 2.25 p.m., See Warsaw. 4.50, Records. 6.0, Programme Announcements. 6.20, Miscellaneous Items 6.25, See Warsaw. 6.40, Sports Notes. 6.47, See Warsaw. 10.30, Close Down.

DANZIG .- See Heilsberg.

DRESDEN .- See Leipzig.

FECAMP

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—10.30 to 11.30 a.m., Programme in English by the I.B.C. Happy Hour. Part I. Orchestral Concert. Signature Tune; A thousand and one nights (Strauss); The fairles' Gavotte (Kohn); One alone, The Desert Song (Romberg); Lazy Pete (Kernsten); Pizzicato, Sylvia (Delibes); Minuet (Mozart); Rose Mousse (Bose); Pan and the Wood Goblins (Rathke). Part II: Dance Music. Swingy little thingy; Night and Day; Wheezy Anna's Wedding Day; Without that certain thing; Come out, vienna; We'll all go riding on a rainbow; Sophisticated Lady; Happy and Contented; Signature Tune. 11.30 to 3.30 p.m., French Programme. 3.30 to 4.30, Programme in English by the I.B.C. for Worthing and Littlehampton Listeners. Part I: Balalaika Orchestra. Waltz (Andrieff); The Red Sarafan (arr. Leontieff); Mazurka (Wienleasky); Balalaika Solo, Moonlight; Lovely Night (arr. Leontieff); Mazurka (Wienleasky); Balalaika Solo, Moonlight; Lovely Night (arr. Leontieff); Shining Moon (Trad); Troika and a Lady (Andreef); Song of the Volga Boatmen (Trad). Part II: Dance Music. Old-Fashoned Sweethearts; Roll up the Carpet; Roanning; Yvonne; A Girl like Nina; We'll all go riding on a Rainbow; A little Street where old Friends meet; This is Romanee, 4.30, The I.B.C. Nursery Corner Birthday Greetings. 4.30 to 5.0, French Programme. 5.0 to 5.45, Programme in English by the I.B.C. for Brighton and Hove Listeners. Part I: Orchestral Concert. Dance of the Syplis (Berlioz); The Witches' Ride (Humperdinek); Cello Solo, The Nightingale and the Rose (Rimsky Korsakov); Waltz (Glazounow); Vienna Maidens (Ziehrer); Violin Solo, Le Cyme (Saint Saöns); Prelude, Carmen (Bizet); Prelude and Mazurka Coppella (Delibes), 5.30, I.B.C. Time Signal, 5.31, Part II: Organ Recital. Il Bacio (Arditi); Traümeie (Schunnann); Unrequited Love (Lincke); Song (Sanderson), 5.45 to 6.0, Dance Music: Did my heart beat?; I was in the Mood; La Mulata Rumbera; Love Locked Out; Signature Tune, Tells Signal, Concert of Light Music (Thurhan), 11.0, Military Band Concer

Hall of the Mountain King. (Grieg); Minuet, Pette Suite (Debussy); Hungarian Dance No. 5 (Brahms); Signature Tune, Come back to Erin. 12.5 a.m. (Friday), I.B.C. Late News Bulletin. 12.10 (approx.), I.B.C. Cube Concert for Beverley Listeners. Dance Music. Don't Blame me; Night and Day; The Veleta; Mary Rose; Sweetheart Darlin'. 12.30, Dance Music by Ambrose and his Orchestra (Electrical Transcriptions); The Cage in the Window; Learn to Croon; Sweet Dreams, Pretty Lady; After You; The Monkey on a String; I Cover the Water Front; Making Conversation; Without that Certain Thing. 1.0, I.B.C. Time Signal. 1.1, Concert of Gramophone Records: The Jug and Bottle (Noble); Katja the Dancer (Gilbert); Old Folks at Home (Foster); Intermezzo, Orient Express (Gerhard); Wrap me up in my old tarpaulin Jacket (Whyte); Dainty Lady (Leo Peter); Silver Stars (Barsoti). 1.30, Request Programme: Stars and Stripes (Sousa); Just an echo in the Valley (Woods); Second Serenade (Heykens); Trees (Rashach); The Bhe Danube (Strauss); The Busy Bee (Bendix); in the Valley of the Moon (Schuster); Wot's the price o' Swedes? (Vinnecombe). 2.0, I.B.C. Goodnight Mclody and Close Down.

FLENSBURG.—See Hamburg. FLORENCE.-Sec Turin.

FRANKFURT

FRANKFURT

1.157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel and Trier, 1,157 kc/s, 259.3 metres.—7.25 a.m., See Langenberg. 9.0, News. 9.45, For the Hoosewife. 10.0, Concert. 10.40, Announcements. 11.0, See Stuttgart. 12.15 p.m., Time, News. 12.25, Announcements. 12.35, Records: Two Arias from Faust (Gounod); Duet from Aida (Verdi); Trio from Tristan and Isolda (Wagner); Chorus from Turandot (Puccini); Entry of the Guest from Tanhäuser (Wagner); Chorus from Turandot (Puccini); Entry of the Guest from Tanhäuser (Wagner); Chorus from Tanhäuser (Wagner); Chorus from Te Force of Destiny (Varidi). 1.30, Stuttgart, Frankfurt and Langenberg. Inter Relay. 2.30, Weather. 2.40, Time, Market Prices. 3.0, See Langenberg. 5.0 to 5.35, See Stuttgart. 5.35, Reading from Sturm 33 (Haus Maikowski). 5.50, News. 6.0, Transmission for all German Stations, relayed from Leipzig. 7.0, Topical Talk. 7.10, Folk Music. 7.40, Love and Crime—Topical Play with Music (Paul Scharf). 8.10, A Musical Potpourri by the Station Orchestra, conducted by Hans Rosband. 9.0, Time, News. 9.20, See Stuttgart. 11.0, See Langenberg. 12 Midnight, Close Down.

FREDRIKSSTAD.—See Oslo.

FREDRIKSSTAD .- See Oslo.

FREIBURG .- See Stuttgart.

GENEVA.-See Radio-Suisse Romande.

GENOA .- See Turin.

GLEIWITZ .- See Breslau.

GOTEBORG.-Sec Stockholm.

GRAZ.-See Vienna.

HAMAR .- See Oslo.

HANOVER.—See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—5.15 a.m., Gym. 5.35, See Berlin (Funkstunde). In the interval, News. 70, Morning Prayer. 7.30, Gym. for Women. 8.5, For Women. 9.40, News. 9.55, Weather. 10.30, The Danzig Police Band, conducted by Stieberitz: Festival March; Alles für Deutschland (Göldenitz); Overture (Cooper); Herzwinden (Grieg); Norwegian Bridal Procession (Grieg); Rhapsody (Lalo); Alsatian Peasant Dances (Merkling); Zeller Potpourri (Thiele); Waltz, Mein Lebenslauf ist Lieb und Lust (Jos. Strauss); Landskuechte auf dem Marsch (Schmeling); Memorics of Frederick the Great (Hütther); March on Themes from Carmen (Bizet). 12.5 p.m., Records: The Moldau (Smetana); Overture Fantasia, Romeo and Julict (Tchaikovsky); Selection, Le maschere (Mascagni); Academic Festival Overture (Brahms); Faust Overture (Wagner). In the intervals, News. 1.30 (from Danzig), Danzig Exchange. 1.40, For Boys. 2.0, Exchange. 2.20, Book Review. 2.30, For Young People. 3.0, The banzig Municipal Theatre Orchestra, conducted by Kallipke: Nachklänge von Ossian (Gade); Rococo Serenade (Meyer-Helmund); Selection, The Pearl Fishers (Bizet-Fetras); Serenade (Schmalstich); German Dances (Mozart); Rakoczy Overture (Kéler-Bela). 4.20, Soprano and Pianoforte Recital by Hanna Richtsmeier and dlein z Lamann: Zigennerlieder (Brahms): (a) He in z Lamann: Zigennerlieder (Brahms): (a) He in z Lamann: Dances (Mozart); Rakoczy Overture (Kóler-Bela). 4.20, Soprano and Pianoforte Rois (Graner): (a) Heidelandschaft, (b) Choral in Grimen, (c) Wolken und Wind; Two Pianoforte Solos (Brahms): (a) Heidelandschaft, (b) Choral in Grimen, (c) Wolken und Wind; Two Pianoforte Solos (Brahms): (a) Heidelandschaft, (b) Choral in Grimen, (c) Wolken und Wind; Two Pianoforte Caprices (Liszt-Paganini). 5.0, Discussion: Cold Weather

JAN. 4th THURSDAY continued

Fatalities. 5.15, Agricultural Prices. 5.25, Agricultural Talk. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Leipzig. 7.0, News. 7.5, See Berlin (Funkstunde). In the interval, News. 11.0 (approx.), Close Down.

HILVERSUM

HILVERSUM

(Announced Huizen). 1,013 kc/s, 296.1 metres; 7 kW, up to 5.40 p.m. and 20 kW, from 5.40 p.m.—7.40 a.m., Programme of the Catholic Radio Society (K.R.O.)—Records, 9.40 to 10.40 a.m., Programme of the Christian Radio Society (N.C.R.V.). 9.40, Records, 9.55, Religious Programme, 10.25, Records 10.40, to 1.40 p.m., K.R.O. Programme, 10.40 a.m., Records: 11.10, Religious Address, 11.40, Police Announcements. 11.55, The K.R.O. Orchestra, conducted by Van 't Woud: March, Prinz Eitel Friedrich (Blankenburg); Overture, Carnival in Rome (Strauss); Selection, Frühlingsluft (Jos. Strauss); Melody; Auf Skiern (Kark); The Belles of Valencia (Morena); Records; Overture, Casanova (Lincke): The Canary (Poliakin); Der alte Brummbär (Fucik); Selection, Aida (Verdi); 1.40 p.m. till Close Down, N.C.R.V. Programme, 1.40, Handwork Lesson, 2.40, Records, 3.40, Bible Reading, Baritone and Organ Solos by H. Smit Doyzentkunst, 4.40, Handicraft Lesson, 5.10, Soprano Song Recital by Mme.A. de Rooky Leeuwen; Songs (Bach) (a) Kommt Scelen dieser Tag, (b) Warum betrühst du dich, (c) Bist du bet mir; Songs (Brahms); (a) Immer leiser wird mein Schlummer, (b) Wir wandelten, (c) Ständelnen; Records; Songs (Debussy); (a) Les Cloches, (b) Le temps a laissé son manteau, (c) Romance, (d) Mandoline; Records; Avec les séraphins du ciel Le Paradis; Ik bad op ecnen berg alleen (Rennes); Herders Zang (arr, Pijper); Jezus' bloemhof (arr, Pijper), 6.10, Records, 6.40, Police Announcements, 6.55, Records, 7.10, Press Review, 7.40, Choral Concert, In the intervals, Records, 1.0 an interval, News, 11.0 (approx.), Close Down.

HORBY .- See Stockholm.

HUIZEN

HUIZEN

(Announced HILVERSUM), 160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m. Transmitted from Kootwijk, 50 kW., from 3.40 p.m. Programme of the General Broadcasting Society (A.V.R.O.). 7.40 a.m., Time and Records. 9.40, Time and Divine Service. 9.55, Records: Sacred Music. 10.10, Reading. 10.40, Organ and Song Recital by Frans Hasselaar and Henri Bloengarten (Bass). Two Organ Chorals (Bach); Aria from Der Schauspieldirektor (Mozart); Aria; Piece héroique (Franck): Songs: (a) Le cor (Flégier). (b) Folk Song (Taglafleo), (c) Ideale (Tosti); Improvisation (Hasselaar). 11.40, Time. 11.48, The Wireless Orchestra, conducted by Nico Gerharz: March, Leicht zu Fuss (Latann); Second Suite from Ballet égytien (Luigini); Arabian Night (Arbos-Chapelier); Second Canzonetta (d'Ambrosio): Selection from The Mascot (Andran); Waltz, Bien aimée (Waldteufel); Records: Overture, The Grand Duchess of Gérolstein (Offenhach); Piece (Eilenberg); Selection from The Rose of Stamboul (Fall); Autumn Shadows (Clarke); The Gazelle (Myddleton); Records; Waltz, Sphärenklänge (Jos. Stranss); Die Spieldose (Manfred); Egyptian Serenade, Amina (Lincke); March Polpourri (Wolfschach). 1.55 p.m., Programme for Women. 2.25, The Wireless Orchestra (contd.): Selection from Iolanthe (Tehaikovsky); Bolnemian Dance (Debussy); Extracts from Scenes pittoresques (Massenet. 2.55, Twenty-four Preludes, Op. 28 (Chopin), played by Willem Zonderland (Pianoforte). 3.40, Programme for Hospitals. 4.10, Records. 4.40, Programme for Hospitals. 4.10, Records. 7.55, The Concertgebouw Orchestra, conducted by Ednard van Beinum. Soloist: Zino Francescatti (Violin), relayed from the Concertgebouw, Amsterdam, Gramophone Interlude. 10.10, Records. 10.40, News. 10.50, Dance Music from the Central, The Hague. 11.40, Time and Close Down.

INNSBRUCK.—See Vienna.

INNSBRUCK .- See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—12.30 p.m., Amusement Guide and Variety Items. 1.0, News. 1.15, Radio Concert. 8.0, Amusement Guide, News and Exchange. 8.10, Scientific Talk. 8.20, Radio Concert. 9.0, Weather and News. 9.15, Literary and Musical Programme.

KALUNDBORG.-See Copenhagen.

KIEL.-See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE .- See Prague.

LANGENBERG

CANGENBERG

635 kc/s, 473 metres; 60 kW.—5.0 a.m., Record: To-day's Motto. 5.5, Records. 5.30, Programme from Stuttgart. 5.45, 6ym. 6.0, Programme from Frankfurt. 6.10, Weather. 6.15, Programme from Frankfurt. 7.15, Ambouncements. 7.25, For Women. 7.35, Gym. 9.0, News. 9.5, Tides Report. 9.10, Variety. 10.10, Records. 10.25, Records. 10.55, Weather. 11.0, See Stuttgart. 12.15 p.m., See Frankfurt. 12.25, News. 12.35, See Frankfurt. 1.30, Youth greets Youth—Stuttgart, Frankfurt and Langenberg Inter-Relay. 2.30, Exchange. 2.50, Political Announcements. 3.0, The Station Choir and Orchestra: Rohert Grote ('Cello), Egbert Grape, Hans Haass and Paul Manel (Pianoforte). Overture, Iphigenia in Tauris (Gluck); Concerto for Three Pianofortes (Mozart); Symphony No. 31 in D (Haydn); Liebeslieder-Walzer for Choir and Pianoforte (Brahms); 'Cello Solo: Rondo (Bruch): Symphonic Poem. L'Apprenti sorcier (Dukas). 5.0, See Stuttgart. 5.35, Talk. 5.45, Exchange. 6.0, Transmission for all derman Stations, relayed from Leipzig. 7.0 to 9.20, See Frankfurt. 9.20, See Stuttgart. 9.30, News. 9.45, See Stuttgart. 11.0, Serenade. 12 Midnight (approx.). Close Down.

LAUSANNE.-See Radio-Suisse Romands.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—5.30 a.m., See Munich. 6.15, News. 6.25, See Munich. 8.0, See Munich. 8.40, Exchange. 8.45, Announcements. 9.45, Post Office Programme with Records. 10.20, Agricultural Talk. 10.40, Announcements. 10.50, News. 11.0, See Breslau. 12.15 p.m., News. 12.25, See Breslau. 1.0, News. 1.10, Exchange. 1.15, Film Report. 1.50, A Visit with the Microphone to a Milk Depot. 2.15 (from Dresden), Recital by Hans Müller-Hayn (Bass) and Johannes Schneider-Marfels (Pianoforte). 2.40, Exchange. 3.0, See Munich. 4.30 to 5.10, See Breslau. 5.10, Talk; The Querfurt Museum. 5.35, Reading. 5.45, Exchange. 6.0, Transmission for all German Stations; Concert on Historic Instruments from the Heyer Collection; Introductory Talk; Fantasia in G Minor for Organ (Pachelbel); Praelindium and Riecerar in D Minor for Organ (Krieger); Pastorals in C and D for Organ (Krieger); Pastorals in C and D for Organ (Rathgeber); Minuet in C from the Third Sonata for Harpsichord (Leopold Mozart); Sarahande, Gigne and Finale in A (Walther); Gavotte in G Minor and Aria in D for Viola da Gamba and Harpsichord (Schenk); Andante in E Flat, Op. 17 (J. C. Bach); Allegro with Eight Variations in D, Op. 18 (Förster). 7.0, Today's News. 7.10, See Munich. 7.30, See Breslau. 8.20, Seandinavian Music by the Leipzig Symphony Orchestra, conducted by Hilmar Weber; Soloist: Charlotte Danthe (Mezzo-Soprano); Scandinavian Music by the Leipzig Symphony Orchestra, Conducted Soloist: Charlotte Danthe (Mezzo-Soprano); Scandinavian (b) An das Vaterland, (c) Hoffoung; Karelia Overture (Sibelius). 9.20, News. 9.40, Announcements. 9.55, The Emide Orchestra. 11.30, Records. 12.20 a.m. (Friday), Wagner and Bruckner Concert; The Leipzig Symphony Orchestra conducted by Hans Weishach; Soloist: Herman Reichert: Adago and Scherzo from the Seventh Symphony (Bruckner); Ride of the Valkyries (From The Valkyrie (Wagner); Prelnde to The Mastersingers (Wagner); Prelnde to The Mastersingers (Wagner); Prelnde to The

LINZ .- See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—11.15 a.m., Records. 11.45, News. 12 Noon, Time, Records. 5.0 p.m., Talk for Women. 5.30, The Letter Box. 6.0, Sepho-Croat Lesson. 6.30, Request Records. 7.0, Pianoforte Recital. 7.30, Trio Concert of Yugoslav Songs. 8.0, Waltzes by the Station Orchestra. 9.0, Time, News, Dance Music.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—7.0 p.m.,
Concert by the Station Orchestra, conducted
by Pensis: Overture to an Operetta (Lincke);
Valse lente (Gilet); Selection from La
Bohème (Puccini); Prélude (Rachmaninov);
Selection from Les Millions d'Arlequin
(Drigo); Melody (Palmgren); Suite, In a
Fairy Realm (Ketelbey). 8.5, Talk in German; P. Reis, the Inventor of the Telephone. 8.10, Schubert Song Recital. 8.45,
Exchange. 8.50, News in French. 9.5, Concert by the Station Orchestra; Overture. Ein
Nachlager in Granada (Kreutzer); Souvenirs
of Bayrenth (Wagner-Morena); The Clock is
Playing (Loewe); Spring Song (Mendelssohn). 9.45, News in German. 9.55, Concert (contd.); Suite, Carnival (Schmalstich).
10.15, Dance Music on Gramophone Records.

LYONS

LYONS

LA DOUA; 644 ko/s, 465.8 metres; 1.5 kW.—
12.30 p.m., Radio Concert: Selection from The Damnation of Faust (Berlioz); Selection from Alcina (Händel); The Finte of Sans-Souci (Graener); Ituliabalos (Welter); Just a Little Dance (Wenling); Selection from The Barber of Seville (Rossini); Selection from Le Pardon de Ploermel (Meyerbeer); Selection from Louise (Charpentier); Selection from Madame Butterfly (Puccini); Selection from Madame Butterfly (Puccini); Selection from Louise (Charpentier); Selection from Louise (Thavy). In the interval, Programme for Women. 3.30, Messages of Good Cheer for Invalids. 3.45, Concert. 4.30, Programme for Children. 5.30, Concert. 4.30, Programme for Children. 5.30, Concert. 6.10 lowed by News from Faris. 7.30, Records. 7.40, Radio Gazette for Lyons and the South-East. 8.30, Concert. Mme. Vittipond Aulagne (Songs), Mme. Gadlard Farey (Violin), Dujols (Viola), Trillat (Pianoforte). Pianoforte Quartet (Weber); Ariette from Richard (Caur de Lion (Gretry); Prelude and Fugue (Baéh); Serenade for String Trio (Mozart); Monologue from Iphigenia in Aulis (Gluek); Il penseroso (Liszt); Waldesrauschen (Liszt); Barcarolle (Saint-Saëns); Berceuse (Env Rowartz Lucas). Demande (Lazzari) Monologue from Iphigenia in Aulis (Gluck); Il penseroso (Liszt); Waldesrauschen (Liszt); Barcarolle (Saint-Saëns); Berceuse (Gny Ropartz Lucas); Demande (Lazzari Klingsor); L'âne blanc (Hue Klingsor); First Movement from the Trio for Strings (Manuel); Les Muletiers devant le Christ de Llivia (de Sévérac); General Lavine, eccentric (Debussy); Alla Polacca, from the Serenade in D (Beethoven). After the Concert News.

MADRID

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Programme, relayed from Madrid (EAJ7). 12 Midnight till Close Down, Programme in English by the I.B.C. 12 Midnight, Orchestral Concert: The Skaters' Waltz (Waldteufel); Overture Mediey (Carl Peters); Song of the Tramp (Gallatly); Only a rose (Friml): On a little Street in Honolulu (Sherman); Song; My Mother's Garden (Itanley); Ilungarian Mediey (arr. Leggett); Beautiful Spring (Lincke). 12.30, Concert of Dance Music: The Gold-diggers' Song; Look what you've done; Waltzing alone with you; Remember my Forgotten Man; Without that Certain Thing; My Moonlight Madonna; It's the Talk of the Town; Forty-Second Street. 1.0, I.B.C. Good-night Melody and Close Down.

MADRID

MADRID

EAJ7; 707 kc/s, 424.3 metres; 2 kW.—2.0 p.m., Chimes, Time, Weather, Theatre Notes, 2.15 (approx.), Concert of Popular Music, in the interval, Exchange, 3.40, Radio Journal. 3.50, News. 4.0 to 7.0, Interval. 7.0, Chimes, Exchange, Announcements, and for Children. 8.15, Radio Journal. 8.30 to 9.15, Interval. 9.15, English Lesson. 9.30, Chimes, Time, Radio Journal. 9.45 (approx.), Pianoforte and Song Recital in connection with the Music Competition. Pianoforte Soloa: (a) Toccata (Bach-Busoni), (b) Waltz in E Minor (Chopin), (c) Ballad in A Flat (Chopin), (d) Zambra (Turini), (c) El puerto (Alhéniz), (f) Sonatina (Halffter), (g) La maja y el ruiseñor (Granados), (h) Dance, El sombrero de tres picos (Falla), (i) Dance, La vida breve (Falla); (j) Triana (Albéniz); Soprano Selos: (a) La maja (Yilla), (h) Sevillana (Longás), (c) Aria from Lohengrin (Wagner), (d) Aria from La Gioconda (Ponchielli), (e) Spanish Song (Luna), (f) La chavala (Chapi), (g) Aria from Tannhäuser (Wagner), (h) Aria from Tannhäuser (Wagner), (h) Aria from Tannhäuser (Poriday) till Close Down, Programme in English by LB.C.: Dance Music. 2.0, LB.C. Goodnight Melody and Close Down, MALMO.—See Stockholm.

MALMO .- See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—9.10 a.m., 1,137 ke's, 263.8 metres; 11 kW.—9.10 a.m., Brass Baud Concert 10.0, Records. 10.55, Programme from Prague. 11.0, See Brno. 11.10, Programme from Prague. 11.35, See Bratislava. 12.35 p.m., Sec Prague. 2.30, See Prague. 5.0, Reading. 5.15, See Prague. 5.0, German Transmission: Talk on New Poetry and Theatre and Film Reviews. 6.0, See Prague. 6.15, See Brno. 8.15, See Prague. 10.0 (approx.). Close Down. views. 6. 8.15, See Down.

MOTALA .- See Stockholm.

MUHLACKER .- See Stuttgart.

MUNICH

MUNICH

716 kc/s, 419 metres; 60—100 kW. Relayed by Augsberg and Kaiserslautern, 536 kc/s, 560 metres; and Nürnberg, 1,255 kc/s, 239 metres.—10.30 a.m., Records. Amouncements. 10.50, Time and News. 11.0, See Breslau. 12.15 p.m., Time and News. 12.25, Records. Intermezzo, Kucksuhr (Winkler); Waltz, Wiener Bonbons (Joh, Strauss); Waltz (Webster); Ich trage dein Bild stets in Herzen 'from 1st mein Mann nichtfabelhaff (Knobel); The Flower Girl (Padilla); Waltz, leh hube dieses Lied für dich erdacht (Brodsky); Lore, Lore; Waltz, Schöne Schäferin (Niel); Der deutsche Achter (Car-

Wireless World

los); Tango (Panizzi). 1.0, See Leipzig.
1.10, Announcements. 1.30 (from Nürriberg),
Richard Strauss Concert. Käte Jordan
(Mezzo-Soprano); Ewald Zimmer ('Cello);
and Hans Hüberlein (Pianoforte). Songs:
(a) Nachigang, (b) All' mein' Gedanken;
Sonata in F. Op. 6 for 'Cello and Pianoforte.
2.5, Reading from Sturm 33 (Hans Maikovsky). 2.30, For Children. 2.50, Weather,
Exchange. 3.0, The Station Orchestra, conducted by List. March. Partita (Wartisch);
Eine kleine Nachtmusik (Mozart); Waltz
(Sibelius); A Student passes by (Limenta);
Overture, The Bartered Bride (Smetana);
Adagio (Haydn); 'Cello Concerto (Klughardt); Selection from 11 Trovatore (Verdi).
4.30 to 5.10, See Breslau. 5.10, Talk: The
Milk Industry in Bavaria. 5.30, Records:
Hildegarde Ranczak-Schaetzler (Soprano);
Ave Maria from Othello (Verdi); Knowest
thou the Laud, from Mignon (Thomas); Aria
from La Bohème (Puccini); Aria from Aida
(Verdi. 5.45, Announcements. 6.0, Transmission for all German Stations, relayed
from Leipzig. 7.0, See Leipzig. 7.10, Austria.
7.30, See Breslau. 8.20 to 9.40 (approx.),
See Leipzig. 9.40, Announcements.
NAPLES.—See Rome.

NAPLES .- See Rome.

NOTODDEN.—See Oslo.

OSLO

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; and Rjukan, 671 kc/s, 447.1 metres; and Rjukan, 671 kc/s, 447.1 metres; and Beiby, LCL, 6,980 kc/s, 42.92 metres.—4.0 p.m., Records. 5.0, Norwegian Stories, relayed from Bergen, 824 kc/s, 364 metres. 5.30, Divine Service. 6.0, News. 6.30, Tenor Solos by Theodor Andresen. Songs (Schnmann): (a) Der Nussbaum, (b) Widmung, (c) Wanderlied; Songs (Grieg): (a) Hjertesar, (b) Eu Fuglevise, (c) Borte, (d) Utfarten. 7.0, Time. 7.1, Agricultural Programme. 7.30, The Station Orchestra, conducted by Kramm. Marche militaire (Schubert); Overture, Russlan and Ludmilla (Glinka); Piece (Schumann); Saeterjentens Söntag (Ole Bull); Slav Dance, No. 1 (Dvorak); Albumblatt (Wagner); Nocturne (Grieg); A Wedding Day on Troldhaugen (Grieg); Selection, The Gipsy Princess (Kálmán); March (Gunström). 8.40, News. 9.0, Topical Talk. 9.15, Recitations. 9.40 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PARIS

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals). 12.30 p.m., (Concert from Paris (Ecole Superieure), 671 kc/s, 47.1 metres. 1.0, Exchange. 1.5, News. 1.30, Agricultural Talk. 1.45, Report of the Labour Bureau. 2.0, Exchange. 2.45, Economic Notes. 2.30, Exchange. 3.0, See Strasbourg. In the interval at 3.30, Market Prices. 4.15, Exchange. 5.45, Le Journal Parlé. 7.15, Weather. 7.25, News. 7.30, Records: Part I.—Russian Music: The Nutcracker Suite (Tchaikovsky); A Night on the Bare Mountain (Mussorgsky). 8.0, Political Talk. 8.15, Records: Part II—Variety Music: Overture, Morning, Noon and Night (Suppé); Ballet Music from Isoline (Messager); Selection from The Dubarry (Millocker-Mackeben); March from The Prophet (Meyerbeer). 9.0 (approx.), Close Down.

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.10 a.m., Fanfare and Records. In the intervals, Press Reviews. 8.45, For Housewives. 12 Noon, Exchange. 12.5 p.m., Records. La Botte à Joujoux (Debussy). 12.15, Recitation. 12.20, Announcements. 12.30, Concert. 1.5, Exchange. 1.10, Concert. In the interval, Exchange. 1.35, Records. 2.0, Exchange. 3.15, Exchange. 3.45, Exchange. 4.50, Exchange. 5.45, Financial Report. 6.52, Agricultural Talk. 7.0, Records. 7.7, Talk. 7.15, Le Journal Parlé. 7.30, Programme for Children. 8.10, Review of the Week. 8.17, Old French Songs—Harp and Song Recital by Mile. Odette Godeau and Mme. Aimée Bourgeois-Félix. 8.55, Gala Concert with Records. 10.10, News.

PARIS

PARIS

RADIO PARIS, Call GFR, 174 kc/s, 1,725 metres; 75 kW.—6.45 a.m., Gym. 7.30, Weather. Gym. 7.45, Records. 8.0, Weather. News. 12 Noon, Protestant Address. 12.30 p.m., Records: Potpourri of Old French Songs; La bonne hotesse (Chepfer); A Souvenir of the Circus (Peter); Readings from L'Aiglon (Rostand); Selection from Les Biches (Poulenc); Le coeur de ma mie (Daleroze); La toute petite maison (Daleroze); Les réponses de grand' mère (Daleroze); Songs from Au pays du soleil (Scotto); Doudou (Delannoy); It's you baby (Mitchell); Melody, A la foire (Bach and Laverne); Le Français tel qu'on le parle (Laverne); Kentucky Rose; Kamiki Hula; Ronde des feux follets (van Hoorebeke); March (van Hoorebeke). In the interval, Exchange. 2.0, Exchange. 3.45, Exchange.

JAN. 4th THURSDAY continued

6.20, Weather, Agricultural Talk, Racing Results. 6.45, Legal Talk. 7.0, Book Review. 7.20, Records: Trink-Trink (Bendix); Song of the Hebrides (Kennedy-Fraser); Yvonne (Loyraux); La femme qu'on aime (Leardy-Gabriello); Phonomanie (Avignon). 7.45, News. 8.0, Hans the Flute Player—Opcretta (Ganne). In the intervals, News, Weather.

PITTSBURGH

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—3.45 p.m., Magic Moments, from New York. 4.0, Four Southern Singers, from New York. 4.15, Sammy Fuller. 4.30, Rhythm Ramblers, from New York. 5.0, Gene Arnold, from New York. 5.15, Aniceta Shea, Soprano, from New York. 5.30, News, Markets. 5.45, Ernie Holst's Orchestra. 6.0, Farm and Home Hour, from New York. 6.30, Ernie Holst's Orchestra. 7.0, Musical Originalities, from New York. 7.15, State Federation of Pennsylvanian Women. 7.30, KDKA Home Forum. 8.0, Pioneers, KDKA to New York. 8.15, Rochester Orchestra, from New York. 9.0, Betty and Bob, from New York. 9.30, Business News and Markets. 9.45, Billy Leech. 10.0, Uncle Tom and Betty. 10.15, KDKA Kiddies' Klub. 10.30, The Singing Lady, from New York. 10.48, Little Orphan Annie, from New York. 10.0, KDKA Salon Orchestra. 11.45, Lowell Thomas, from New York. 12.0 Midnight, Amos 'u' Andy, from New York. 12.30, Djer Kiss Recital, from New York. 12.45, Programme to be announced.

PORSGRUND.—See Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—12.35 p.m., Records. 12.55, Exchange, Weather. 2.30, Records. 2.40, Talk: The Dangers of Winter in the Mountains. 2.50, Weather, Exchange. 3.0, Dvorsky and his Melody Boys. 3.50, For Young People. 4.15, Economic Talk. 4.25, Song Recital by Petar Markovic. 4.45, Advanced French Lesson. 5.0, Records. 5.5, Gardening Notes. 5.15, For Workers. 5.25, News in German. 5.30, German Transmission: Programme to be announced. 6.0, Time, News. 6.10, An Appeal for the Red Cross Society of Czechslovakia. 6.15, See Brno. 8.15, Suk Concert for the Composer's Sixtieth Birthday; Bagatelle for Flute, Violin and Pianoforte; Friendship, Op. 36 for Pianoforte. In the interval, Talk. 9.0, Time, News. 9.15, Introductory Talk in Czech, German and French to the following Transmission. 9.25, Smetana Memorial Concert: Two Symphonic Poems from the Cycle, My Country, by the Station Orchestra, conducted by Jeremias: (a) Kitava, (b) From the Fields and Groves of Bohemia. 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and
Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15
a.m. (from Lausanne), Gym. 11.28, Time
from Neuchâtel Observatory. 11.30, News.
11.40 (from Geneva), Variety Items. 12 Noon
(from Lausanne), Financial Notes. 12.10 p.m.
(from Geneva), The Radio-Suisse Romande
Orchestra, conducted by Echenard. Sinfonietta (Lauber); Sextet (Beethoven). 3.45,
Records. 4.0, Records. 4.15, Concert
(contd.). Selection from Ali Baba (Cherubini); Two Pieces (Grainger); Selection
from Arthur (Christiné); Suppé Potpourri
(Michaelov). 5.0 (from Lausanne), Book
Review. 5.30 (from Lausanne), Theatre
Talk. 5.55 (from Lausanne), Theatre
Talk. 5.55 (from Lausanne), Swiss Music.
7.20 (from Neuchâtel), Local News. 6.35
(from Lausanne), Talk on Norway. 6.59,
Weather. 7.0 (from Lausanne), Swiss Music.
7.20 (from Geneva), Talk: Modern Slav
Music by the Radio-Suisse Romande Orchestra, conducted by Ansermet. Soloist:
Frenkel (Violin). Telescope (Polowinkin);
Opera Suite (Szostakowicz); Violin Concerto
(Fitelberg): In a Steel Foundry (Mossolov);
Sailors' Dance (Glière). In the interval,
Modern Russian Poems. 9.0 (approx.), News.
9.10 (approx.), Close Down.

RIGA

RILA

571 kc/s, 525.3 metres; 15 kW.—5.0 a.m., Hymn. 5.5 a.m., Gym. 5.40 to 7.10 a.m., Concert. 10., News. 10.30, Weather. 10.35, Talk: Birds. 2.10 p.m., Opera Musci: Overture, Donna Diana (Reznicek); Aria from Czar and Carpenter (Lortzing); Overture, The Arnourer (Lortzing); Waltz from Der Rosenkavalier (R. Strauss). 2.40, Talk. 3.10, Old Dance Music. 3.40, Talk. 4.10, Musical Programme. 5.10. Wireless Notes. 5.40, English Lesson. 6.10, Weather. 8.15, Syniphony Concert: Symphony No. 5 (Tchaickovsky); Concerto in D Minor for two Violins (Bach); Coriolanus Overture (Beet-

hoven); Les Préludes (Liszt). In the inter-vals: Weather, News. 83.0, Records.

RJUKAN.-See Oslo.

SALZBURG .- See Vienna.

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAD on 19.56 metres.—12.45 a.m. (Friday), Stock Reports.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; Basle, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—5.50 a.m. (Basle), Gym. 11.0 (Zürich), The Small Station Orchestra, conducted by Scherbaum. 12.20 p.m. (Zürich), Programme for Housewives. 2.30 (Berne), Records. 3.0, Programme to be announced. 5.0 (Basle), Records. 6.30 (Basle), The Fountains at Basle. 6.0 (Basle), Time, Announcements. 6.5 (Basle), Film Review. 6.15, Popular Swiss Music. 6.45 (Basle), Talk with Musical Illustrations: Hungarian and Cigány Music. 7.30, L'elisir d'amore—Opera in Two Acts (Donizetti). In the interval, Weather, News. 9.15 (aprox.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,343 metres; Ostersund, 409 kc/s, 746.2 metres; and Sundsvall, 554 kc/s, 524 metres.—4.0 p.m., Weather. 4.5, Divine Service.—4.0 p.m., Weather. 4.45, Records. 5.45, Reading. 6.15, Weather, News. 6.30, Talk. 7.0, Military Band Concert. conducted by Grundström. Carnival Overture (Glazunov); Frühlingsstimmen (Joh. Strauss); Poème (Fibich); Selection, Aida (Verdi); Overture, Tamhäuser (Wagner). 8.0, Talk. 8.30, Palk Strauss-Schulz-Evler). 8.45, Weather, News. 9.0, Sjögren-Stenhammar Concert by Kerstin Lindberg-Torlind (Songs). Ernst Törnqvist (Violin), Algot Haquinius (Pianoforte) and the Stockholm Quartet: String Quartet in A Minor, Op. 25 (Stenammar); Six Songs (Sjögren); Poem for Violin and Pianoforte, Op. 40, (Sjögren).

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—10.30 a.m., Orchestral Concert, relayed from Lille, 1,128.5 kc/s, 265.8 metres. 12.0 Noon, Russian Music on Records: Three Caprices (Stravinsky); Prelude, The Volga Boatmen (Rachmaninoff); Ballet Music from The Fire Bird (Stravinsky); Coronation Polonaise from Boris Godunov (Mussorgsky); Selection from Night in May (Rimsky-Korsakov); Selection from Prince Igor (Borodin). 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Records. 2.0, For Children. 2.0, Orchestral Concert, conducted by Maurice de Villers. March, The Diplomat (Sousa); Suite Trianon (Lachaume); Waltz, Herbstrosen (Jos. Strauss); Suite Exotique (Delmas); Overture, Farfadet (Adam); Selection from Le Timbre d'Argent (Saint-Saëns); Intermezzo, Omaka (Scassola); Radio March (Pischeck). 4.15, For Children, relayed from Bordeaux-Lafayette, 986 kc/s, 304 metres. 6.0, Talk on Vienna (in German). 6.15, For Women. 6.30, Records. 7.30, Time and News. 7.45, Records. 8.0, News in German. 8.30, Orchestral Concert, conducted by Maurice de Villers. Part I: Serenade for two Violins and Pianoforte (Sinding); Sonata for two Violins and Pianoforte (Milhaud). Part II: Fauré Music: (a) Orchestral Suite, Dolly, (b) The Birth of Venus, Op. 29. In the interval, News.

STUTTGART

MUHLACKER, 563 kc/s, 533 metres; 100 kW. Relayed by Freiburg, 1,157 kc/s, 259.3 metres, and 527 kc/s, 569 metres, until January 16th, 1933.—9-10 a.m., Slav Chamber Music on Records. Nocturne from the String Quartet in D (Borodin); Dumka from the String Quartet in E Flat (Dvorák); String Quartet in E Minor, From Out my Life (Smetana). 16.0, Operetta Music on Records. Selection from The Maid of the Black Forest (Jessel); Selection from Der Rastelbinder (Lehár); Waltz from Die Försterchristi (Jarno); Selection from Boccaccio (Suppé). 10.25, Post Ollice Concett. 10.55, Weather. 110, The Station Orchestra, con-

ducted by Görlich; Soloist, Heinz Becher (Oboe); Overture, Il Guarasy (Gomes); Catalonian Rhapsody (Ailbout); Fantasia for Oboe and Orchestra (Khemcke); Verdi Opera Potpourri (Rhode); Ballet Suite (Lautenschläger). 12.15 p.m., Time, News. 12.25, News. 12.35, See Frankfurt. 1.30 to 2.30, Youth greets Youth—Stuttgart, Frankfurt and Langenberg Inter-Relay. 2.40, Humorous Stories. 3.0, See Langenberg. 5.0, Spanish Conversation. 5.20, Talk: The Year in Peasant Lore. 5.35, News. 5.45, Talk: Island Life. 7.0 to 9.20, See Frankfurt. 9.20, Talk: What Everyone Should Know. 9.30, News. 9.45, Records. 10.0, Variety Programme. 11.0, See Langenberg. 12.0 Midnight (approx.), Close Down.

SUNDSVALL .- See Stockholm.

TOULOUSE

TOULOUSE

779 kc/s, 385 metres; 8 kW.—8.0 a.m., Dance Refrains. 8.30, News. 8.35, Orchestral Music. 8.45, Sound Films Music. 12 Noon, Operetta Music. 12.15 p.m.. Popular Melodies. 12.30, News. 12.45, Request Records. 1.0, Announcements. 1.5, Cabaret Programme. 1.15, Opera Music. 1.30, Balalaika Music and Russian Songs. 1.45, Accordion Music. 2.0, News. 4.15, News. 6.30, News. 6.15, Argentine Orchestra. 6.30, For Children. 7.0, Viennese Orchestra. 7.15, News. Exchange. 7.30, Operat Music. 7.45, Orchestral Music. 8.0, Opera Music. 8.30, Military Music. 8.45, Popular Melodies. 9.0, Massenet Concert. Extracts from Manon, Le Jongleur de Notre Dame, Thais, Griselidis, Werther, Sappho, Le Roi de Lahore and Herodiade. 9.45, Sound Film Music. 10.0, Ilunting Horn Solos. 10.15, News. 10.30, Bal Musette. 11.0, Operetta Music. 11.15, Dance Music. 12 Midnight, News, Announcements. 12.5 a.m. (Friday), Tangos. 12.15, Operetta Music. 12.30 (approx.), Close Down.

TRONDHEIM.—See Oslo.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 a.m., Religious Information in French. 7.0 p.m., Religious Information in Italian.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres, and Salzburg, 1,373 kc/s, 218.5 metres.—8.20 a.m., Exchange, Weather. 9.50, Tides. 10.30, Records. 10.55, Weather. 11.0, The Wiener Symphoniker. conducted by Josef Holzer: Overture, Flotte Bursche (Suppé); Violin Solo: Vision (Drdla); Der Zirkus kommt (Rust); Waltz (Jos. Strauss); Mondscheinserenade (Glück); Masquerade (Byford); Frauen, Ihr unacht das Leben schön (O. Straus); Selection, The Count of Luxembourg (Lehár); March (Fucik); Violin Solo: Príhoda Sérénade (Buchbinder); Waltz (Komzak); Song (Kálmán); Gallop (Bayer). In the interval, News. 12.30 p.m., Records: Aria from Ariadne auf Naxos (R. Strauss); Romance from the Violin Concerto No. 2 in D minor (Wieniawsky); Des Mädchens Klage (Schubert); Die Fussreise (Wolf); Espenlaub (Sauer); Ich liebe dich (Grieg); Oh! Star of Eve, from Tannhäuser (Wagner). 2.0, Time, Announcements. 2.15, Practical Hints for Housewives. 2.25, For Children. 2.55, Opera Music on Records: Quintet and Dance of the Apprentices from The Mästersingers (Wagner); Siegfried's Rhine Journey from The Twilight of the Gods (Wagner); Entr'acte from Intermezzo (R. Strauss); Prelude to Act III of The Mastersingers (Wagner). 3.35, Talk. 3.50, Talk: Cheap Meals for Lent. 4.15, Soprano and Tenor Recital by Beate Grenelli and Anton Arnold. 5.5, For Workers. 5.30, Talk: Description of Gran Chaco, South America. 6.0, Weinberger Music by the Wiener Symphoniker, conducted by Holzer. In the Interval, Time, Announcements. 7.0, Reading. 7.30, Topical Talk. 7.45, The Auderith Volksoper Orchestra. 9.15, News. 9.30, Records, Announcements.

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 190 kW.—11.30
a.m., Radio Journal. 11.35, Weather, 11.38,
Concert (contd.). 2.25 p.m., News, Exchange.
2.40, Records. 3.40, For Women. 3.55,
Pianoforte Recital by Edouard Steinberger.
Sonate brève (Cassado): Suite (MompouSuburbia); El puerto (Alhéniz). 4.45, Records. 4.50, Agricultural Talk. 5.0, Talk:
Modern Poland. 5.20, Variety Programme.
6.0, Programme Announcements. 6.5, Announcements. 6.25, Talk. 6.40, Sports Notes.
6.47, Radio Journal. 7.0, The Station Orchestra, conducted by Nawrot. Mme. Rudnicka (Songs). Overture. Vison (Lehár);
Waltz (Nedbal); Songs, Selection, The Circus Princess (Kalmán); Songs: Turkish Tales
(Lincke); Caprice, Tenisspielen (Lincke);
March (Lehár). 8.0, The Letter Box. 8.15,
Concert (coutd.). 9.0, Dance Music. 10.0,
News. 10.5, Dance Music (contd.).

ZURICH.-See Schweizeri:cher Landessender.

ALGIERS

ALGIERS

824 kc/s, 364 metres; 13 kW.—12.30 p.m., Records; Overture, Orphens in the Underworld (Offenbach); Play of the Butterflies (Heykens); Spanish Gipsy Dance (Marquina); Selection from Paganini (Lehár); Dances from Henry VIII (German). 1.0, News. 1.5, Concert: Pianoforte Solos; (a) Soliloquy (Bloom), (b) My bine Heaven (Donaldson); Waltz Potponrri (Robrecht); Ballet Egyptien (Luigini). 6.0, Military Music. 6.15, Songs. 6.20, Review of New Records. 6.45, Waltz Refrains. 7.0, Exchange. 7.15, Weather. 7.20, Waltz Refrains. 7.30, Lottery Results. 7.40, Literary Review. 7.55, News. 8.0, Time. 8.2, Jack Hylton and his Band on Gramophone Records. 8.30, News. 8.35, Records: Spring Song (Sibelius); Valse triste (Sibelius). 8.45, Extracts from Manon—Opera (Massenet). 9.55, News.

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres; and Cork, 1,337 kc/s, 224.4 metres.—6.0 p.m., For Children. 6.45, News. 7.0, Mrs. Sheeny Skeffington's Memories. 7.15, Literary and Dramatic Talk. 7.30, Time. 7.31, Station Orchestra. 8.0, Baritone Solos by Brync. 8.15, Violin Solos by Jennic Ballantine. 8.30, Songs and Stories by Fay Sargent. 8.45, The Three Kings.—Xmas Play with Orchestra. 9.30 to 10.30, Programme by the LB.C. (Ireland), Ltd. Dance Music; Signature Tune; Young and Healthy; I'm dancin' on a Rainbow; Shanghai Lil; Just a year ago to night; Honeymoon Hotel; You can't stop Me from Lovin' You; It isn't fair; Perla; My Imaginary Sweetheart; Signature Tune, Young and Healthy. 10.0, Concert: Military Band Music; Zampa Overture (Herold); Coronation March (Meyerbeer); Humoresque (Dvorák); Racing Commercial Tambibasor. March (Waymer). tary Band Music: Zaimpa Overture (Hérold); Coronation March (Meyerbeer); Humoresque (Dvorák); Racing Commentary Tannhäuser March (Wagner); Valse triste (Schubert); Cradle Song (Brahms); Marche Militaire (Schubert), 10,30, LB.C. Goodnight Melody, followed by News and Weather. 10,40, Traditional Piddle Solos by Michael O'Dnian. 10,50, Pipe Solos by Liam Andrews. 11.0 (approx.), Close.

BARCELONA

BARCELONA

EAJ1, 861 kc/s, 348.4 metres; 8 kW.—7.15 a.m., Radio Journal and Records. 8.0, Chimes, Gym and Records. 9.0, News. 11.0, Chimes from the Cathedral, Weather. 12 Noon, For Women. 12.45 p.m., Records. 1.0, Records. 1.30, Theatre Notes and Records. 2.0, Sextet Concert. In the interval, Talk. 3.0, For Hospitals. 4.0 to 6.0, Interval. 6.0, Trio Concert: Selection from Tosca (Puccini); Traunnerei (Schumann); Madrigal (d'Ambrosio); Gavotte (Lully); Italian Serenade (Holmes); Andante from the Moonlight Sonata (Beethoven); Selection from Hamlet (Thomas). 7.0, Request Records. 7.20, Exchange and Records (contd.). 8.0, Records. 8.30, Educational Programme, News and Messages to Scamen. 9.5, News, Exchange. 9.10 (approx.), The Radio Orchestra: Waltz from The Mastersingers (Wagner); Prologue to La Atlantida (Morera); Rokoko Minuet (Haydn); In a Chimese Temple Garden (Ketellney); Mazurka (Liszt). 9.45, Song Recital by Margarita Prats (Soprano). 10.10, Quintet Concert, relayed from the Café Vienes. 11.0, News. 11.5 (approx.), Close Down.

BASLE,-See Schweizerischer Landessender.

BELGRADE

698 kc/s, 429.7 metres; 2.8 kW.—10.0 a.m., Announcements, the Radio Orchestra. 10.20, Weather, the Radio Orchestra. 10.59, Time, Chimes. 11.5, The Radio Orchestra. 11.35, Exchange. Records. 12.30 p.m., News, Time. 3.00, Song Recital by Mme. Radovanovic. 3.30, Gym. 4.0, Beethoven Concert (on Records) 5.15, Educational 5.55, Time, Announcements. 6.0, Talk. 6.30, Records, 7.0, Programme from Zagreb, 977 kc/s, 307 metres. 9.0, Time, News, the Radio Orchestra. kc/s, 307 metre Radio Orchestra.

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—9.0
a.m., News. 9.10, Household Hints. 9.30, Records. 9.50, Gymnastic Games for the Kindergarten. 10.15, Weather. 10.30, Topical Talk. 11.0, Weather. 11.5, Records: March, Under the Star Spangled Banner (Sonsa); Selection from Le maçon (Auber); Waltz, Tales from the Vienna Woods (Joh. Strauss); Münchner Bilderbogen; Cowboy; Ducky; Wandern mit Gesaug Goldhähnchen (Sommerfeld); Die lustigen Drei (Sommerfeld); Die lustigen Drei (Krome); Sonvenir (Drdla). After the Records. Weather. 11.55, Time. 12.45 p.m., News. 1.0, Records: Part I, German Opera: Prelude to Act I of Tristan and Isolda (Wagner); Arias from Car and Carpenter (Lortzing); Oveture, The Magic Flute (Mozart); Arias from (a) Fidelio





(Beethoven), (b) Der Freischütz (Weber); The Porter's Song from Martha (Flotow); Part II, Italian Opera: Overture, The Barber of Seville (Rossini); Cavatina from La Favorita (Donizetti); Arias from (a) I Pagliacci (Leoneavallo), (b) II Trovatore (Verdi); Finale from La Bohème (Puccini); Drinking Song from Cavalleria rusticana (Mascagni). 2.0, Programme for Girls, 2.30, Weather, Exchange. 2.45, Book Review. 3.0 to 4.25, See Munich. 4.25, Recital of Mozart and Verdi Arias by Robert Hager. 5.0, Poems. 5.5, Legal Talk. 5.25, Programme for Countrywomen. 5.45, Weather, News. 6.0, Transmission for all German Stations: "Dem Siedler wird ein Sohn geboren "—A Humorous Radio Picture (Haken), 7.0, Today's Morto, 7.5, Peasant Music on Records. 8.5, A German Calendar—January in the Country, 9-0. Weather, News. 9.45, Weather, 10.0, See Frankfurt. 11.0 (approx.), Close Down.

BERLIN

BERLIN

FUNKSTUNDE, 832 kc, s, 360.5 metres; 100 kW.. Relayed by Zeesen, DJC, DJA, DJD, DJB, and DJE_-5.15 a.m., Gymnastics. 5.30, Motto, Weather. 5.35, Harbour Concert, from Hamburg. In the interval, News. 7.15, Gym. 7.30, Records, News. 9.0, Weather. News. 9.10, Exchange, 10.25, Exchange, 10.30, Concert from Hamburg. In the interval, Weather. 12 Noon, Ballet Music from Faust (Gounod), on Records. 12.20 p.m., Concert from Hamburg. 1.15, News. 1.35, Records of South German Folk Music: Tölzer Schützenmarsch; Ländler, Die Mürtaler (Kalbacher); Swabian Folk Song, Auf'm Wase graset d'Hase Der alte Pater; Two Swabian Folk Airs: (a) Drunten im Unterland, (b) Auf de schwäbische Eisenbahne. 2.0, Exchange. 2.20, For Women. 3.0, See Heilsberg. 4.0, See Munich. 4.20, Concert from Hamburg. 5.0, Talk, with Records: Speech as an Indication of Character. 5.30, The Funkstunde informs its Listeners. . 5.35, Sports Talk. 6.0 p.m., Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.5 to 9.0, See Heilsberg. 9.0, News. 9.30, Concert from Heilsberg. 11.0 (approx.), Close Down.

BERNE .-- See Schweizerischer Landessender.

BEROMUNSTER. - See Schweizerischer

BODEN .-- See Stockholm.

BODO .-- See Oslo.

BRATISLAVA

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW—11.35 a.m.,
The Station Orchestra, conducted by
Schimpel, 12.35 p.m., See Prague, 12.45, News
in Slovak, German and Hungarian, 12.55,
See Prague, 2.50, See Prague, 3.0, See
Moravská-Ostrava, 3.55, See Prague, 5.5,
Sports Notes, 5.20, Double Bass Recital
by Novotny, 5.40, Morse Lesson, 5.55,
For Housewives, 6.0, See Prague,
7.55, The Station Orchestra, conducted
by Dyk, March (Fucik); Slovak Dances
(Mory); Grossmütterehen (Langer); Idyll,
The Mill in the Black Forest (Ellenberg); Melody (Razek); Polka (Pieman);
Fantasia on a Popular Song (Ochs); Waltz
(Cermak); March, Don Quixote (Rupprecht),
9.0, See Prague, 9.30 (approx.), Close Down,
BREMEN,—See Hamburs.

BREMEN.—See Hamburg.

BRESLAU

BRESLAU

923 kc s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—5.30 a.m., Programme from Munich. 6.15, Sec Leipzig. 8.0, Gym for Women. 8.20, Time, News. 10.40, Time, Announcements. 10.50, Sec Leipzig. 11.0, Sec Munich. 12.15 p.m., Sec Leipzig. 11.0, Sec Munich. 12.15 p.m., Sec Leipzig. 11.0; Sec Munich. 12.15 p.m., Sec Leipzig. 12.25, Records; German Reveille (Kirsten); Schattenspiele (Finck); March. Carmen (Bizet); Hobomoko (Reeves); Die Dorfschmiede (Carmont); Nibelungen-Marsch (Sonntag); Durch Nacht zum Licht (Laukien). 1.0, Sec Leipzig. 1.10, Time, Weather. 1.15, Post Office Records. 1.50, Exchange. 2.10, Reading (Theodor Storm). 2.35, Programme for Young People. 3.0 to 5.10, Sec Munich. 5.10, Exchange. Reading. 5.23, Programme to be announced. 5.45, Announcements. 6.0, Transmission for all German Stations. relayed from (Deutschlandsender). 7.0, Sec Leipzig. 9.20, Time, News. 9.35, The Silesian Philharmonic Orchestra, conducted by Hoffmann: Suite, Through the Looking Glass (Taylor); American Rhapsody (McKinley); Suite (Converse); In the Year 1880 on the Prairie (Woodin); Second Indian Suite (McDowell). In the interval, Talk: The Experiences of German Rogues in America. 11.30 (approx.), Close Down.

BRNO

DRNO

878 kc/s, 342 metres; 35 kW.—11.35 a.m., See Bratislava. 12.35 p.m., Legal Talk. 12.40, See Prague. 1.0 to 1.5, Agricultural Notes. 2.30, See Prague. 3.0, See Moravská-Ostrava. 3.55, Sports Talk. 4.5, See Prague. 5.5, Talk: Creative Art. 5.15, Talk: State and Citizens. 5.25, German Transmission: News, Sports Notes, Programme for Women and Winter Sports. 6.0, See Prague. 6.10, See Bratislava. 6.25, See Prague. 8.20, "Women's Rights"—A One-Act Comedy. 9.0 to 9.30, See Prague. 9.30 (approx.), Close Down.

BRUSSELS (No. 1)

BRUSSELS (No. 1)

1.N.B., 589 kc/s, 509.2 metres; 15 kW.—12
Noon, Concert by the Small Station Orchestra, conducted by Leemans: Selection from Jean de Paris (Boiedden); Scènes Norvégieunes (Matt); Menuet pompeux (Ganne); Sclection from Norma (Bellini); Violin Solo, Concert Fantasia on Faust (Gounod-Sarasate); Internuezo, Filir sous bois (De Tacye); Féte des accordailles (De Tacye); Selection from Le violoneux (Offenbach); Extracts from l'n soir de réveillon (Moretti).

1.0 p.m., Journal Parlé. 1.10, Records: Malbourough (Paradis); Simple aven (Thoné); Songs; (a) Piece (Grieg), (b) Le clavecin (dell'Acqua), (c) Reproche (dell'Acqua), (d) Serenade (Pierné), (c) Chanson de Concert (Viardot); Serenade (Mozart); Waltz, Op. 64 (Chopin-Taffanel); Allegro spiritoso (Senaille). 5.0, Concert by the Symphony Orchestra, conducted by Jean Kumps: Overture, Russlan and Ludmilla (Glinka); Persian Dance (Aussorgsky); Humoresque (Frémolle); Dance (De Boeck); Divertissement et Musette (Samazeuillh); Nocturne and Scherzo (rom A Midsummer Night's Dream (Mendelssohn): Dance Suite (Brumagne). 6.0, Veterinary Talk. 6.15, Request Records. 6.30, Arab Dances by the Small Station Orchestra, conducted by Leemans. 6.45, Chopin Pianoforte Recital by Oscar Delvinge; Eight Waltzes and three Ecossaises. 7.15, Political Talk. 7.30, Legal and Literary Review. 8.0, Concert by the Symphony Orchestra, conducted by Jean Kumps; Soloist: Mme. Andriani (Songs); Overture. H Seraglio (Mozart); Interlude from Olivier le Simple (Vreuls); Scherzo (De Boeck); Songs: (a) Mon amour était mort (Rohan), (b) Le chant de la pluie (Laucel). (c) Aria from The Queen of Sheba (Gounod); Ballet Music from Le captive (Gilson). 8.45, Political Talk. 9.0, Concert (contd.); Soloist: Simone Ghislaine (Songs): Fête polonaise (Chabrier); Aspiration (Dubois); Soloist: Simone Ghislaine (Songs): Fête polonaise (Chabrier); Extracts from the Suite, Versailles (Guillaume); Viennese Waltz (Lonque); Ballet Music from Carmen (Bizet). 10.0, Journal Parlé. 10.10, La Brabançonne.

BRUSSELS (No. 2)

BRUSSELS (No. 2)

N.I.R., 888 kc/s, 337.8 metres; 15 kW. Programme in Flemish.—12 Noon, Records: Extracts from The Valkyric (Wagner). 1.0 p.m., Le Journal Parlé. 1.10, The Small Station Orchestra, conducted by Leemans: March of the Three Musketeers (Riesenfeld); Overture, La petite mariée (Leecoq); Screnade (Guillemyn); Selection from The Merry Widow (Lehâr); Violin Solo, Mazurka (Zarzycky); Selection from Elle est à vous (Yvain); Waltz. Dorothy (Mirrio); Tango (Langlois); One-Step (Caludi). 5.0, Dance-Music, relayed from the Hotel Atlanta. 6.15, Talk: Parasite Plants. 6.30, Violin Recital. 7.0, Symphonie Etude. Falstaff (Elgar). 7.30, Wireless Notes. 8.0. Records: Extracts from the First Symphony (Beethoven). 8.20, Kapitein Wolf—Radio Play (Barleig and Contryn). 8.40, Song Recital by Mmc. Arnouts. 3.55, Records: Christmas Overture (Coleridge-Taylor); Sérénade mélancolique (Tchaikovsky); Waltz (Roger). 9.15, Weest romantisch (Be romantie); Radio-Sketch (Van Casteren). 9.30, Liszt Pianoforte Recital by Jean du Chastain: Two Legends: (a) St. François de Paul; Eglogue; Two Capriess after Paganini: (a) La Chasse, (b) St. François de Paul; Eglogue; Two Capriess after Paganini: (a) La Chasse, (b) La campanella. 10.0, Le Journal Parlé.

BUCHAREST

BOCHARES1

760 kc/s, 394.7 metres; 12 kW.—11.0 a.m., Exchange, Records. 12 Noon, Radio Journal. 12.15 p.m., Light Music (on Gramophone Records). 4.0, Romanian Music by the Fanica Luca Orchestra. 5.0, Radio Journal. 5.15, The Franica Luca Orchestra (contd.). 6.0, Educational. 6.20, Records. 6.45, Talk. 7.0, Song Recital by Mmc. Rosl Rathlesco. 7.20, The Station Orchestra, conducted by Rogalski: Overture, Nebuchadnezzar (Verdi); Selection from Dic Fledermans (Strauss); Waltz (Delmas). 8.0, Talk. 8.15, The Station

Orchestra: Russian Songs and Dances (Sclinski): Madrigalesca (Albergoni); On the Steppes of Central Asia (Borodin), 8.45, Radio Journal.

BUDAPEST

CASSEL .- See Frankfurt.

COPENHAGEN

COPENHAGEN

1,667 kc/s, 281 metres; 0.75 kW. Relayed by Katundborg, 260 kc/s, 1,153.8 metres; and Skamleback (OXY), 31.51 metres.—6.0 a.m., Gym for Women. 6.15, Gym. 7.30, Divine Service, relayed from the Cathedral. 10.0, Weather. 10.10, Fish Market Prices, 11.0, Town Hal. Chimes. 11.2, The Lonard Gyldmark String Orchestra, relayed from the 3cllevue Strandhotel. 1.40 p.m., Violin Recital by Takacs. Hungarian Folk Melodies Hungaria (Leopold); Melody (Hubay). 2.0, Concert conducted by Petersen, relayed from the Wivex Restaurant. 4.0, For Children. 4.30, Exchange. 4.43, Poems. 4.45, Literary Talk. 5.15, Elementary German Lesson. 5.45, Mnouncements. 6.0, News. 6.15, Time Signal. 6.20, Talk on Thrift. 6.50, Programme by Per Knutzon. 7.0, Time from the Town Hall. 7.1, Liljom Legend in Seven Pictures (Molnar), Danish Transalation by Paul Sarauw. 9.15, Kews. 9.30, Mandoline Quartet. March (Wagner); Rococco (Aletter); Nocturne, Rosaline (Rubner); Melody (Placet); Serenade, Gondola Song (Acton). 10.0, Dance Music by the Erik Tuxen Band from the Palace Lotel. In the interval, at 11.0, Time and Chimes from the Town Hall. 11.30 (approx.), Close Down. CORK.—See Athlone.

CORK .-- See Athlone.

CRACOW

CRACOW

See Warsaw. 10.35, Programme Amouncements. 10.40, See Warsaw. 10.57, Time Signal and Fanfare from St. Mary's Church. 11.5, Records. In the interval at 11.30, Radio Journal. 2.25 p.m., See Warsaw. 4.50, Records. 6.0, Programme Amouncements. 6.5, Miscellaneous Items. 6.47, See Warsaw. 11.0, Close Down.

DANZIG .-- See Heilsberg. DRESDEN.-Sec Leipzig.

FECAMP

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—11.0 a.m. to 12 Noon. Programme by the L.B.C. Part I: Hawaian Band Music. Signature Tune. In V enna One Night; Tango des Ro.es; Mani Girl; Three Little Words; Lazy Lou'siana Moon; All through the Night; Silvery Moon; Sleepy Head. 11.30 a.m., Part II: Dance Music. Buckin' the Wind; The Cage in the Window; Blue Moments; He was a handsome young Soldier; Hand in Hand; I was in the Moo-t; My Moonlight Madonna; Making Conversation; Signature Tane. 12 Noon, Pregramme in French. 3.30 to 6.0 p.m., Programme in English by the L.B.C. 3.30, The L.B.C. Nursery Corner. Birthday Greetings. 5.0, Concert for Southampton and Winchester Listeners. Part I: Novelty Orchestra. Part II: Accordion Band. 6.0 till Close Down, Programme in French, 10.0 (approx.) till Close Down, Programme in English by the L.B.C. 10.0, Dance Music. Signature Tune; Bells of Normandy; When you're over sixty; Laughing Wallz; The Cage in the Window; Awful Sad: The Monkey on a String; A little old Street where old friends Meet; Adlios Goodbye; You ought to see Sally on Sanday; Sanature Time. 10.30, Variety Concert: Orchestral. Over the Waves (Rosas); Song. The Roaming Yodeller (Norton); Sketch, Building a Chieken House; Sayaphone Solo, Valse Marguerite; Song. A little of what you Fancy; Accordion Band, Milano (le Clerq); Orchestral, Over the Waves (Rosas); Song. The Roaming Yodeller (Norton); Sketch, Building a Chieken House; Sayaphone Solo, Valse Marguerite; Song. A little of what you Fancy; Accordion Band, Milano (le Clerq); Orchestra, Dixieland (Stoddon). 11.0, Talkie Time. Times from the Talkies and Shows. Signature Time; Stitin' in the Dark; Aunt Sally Selection (Woods); In a Year, in a Day (Heymann); I always keep my Girl ont late Hammerstein); Bittersweet Selection (Coward); The Moment I saw you (Grey); Dancing on the Ceiling (Hart); A Glass of Golden Bubbies (Strauss); Signature Time, Sittin' in the Dark, 11.30, L.B.C. Time Signal, 11.31, L.B.C. Club Concert, Part Houset for Middlesbrough Listeners, Part 1: Orc

Good-night, little Girl of my Dreams; A One-Horse Town; Cecilia Mia; Diuner at Eight; Did my Heart Beat?; Swingy little thingy. 1.0, I.B.C. Time Signal. 1.1, Dance Music. The Last Round-Up; Mary Rose; Night and Day; We'll all go riding on a Rainbow; Symphony of the Breeze; Solitario; Tick, Tock; Let's call it a day; The Wind's in the West; Lover; Twist the Devil and the Deep Blue Sea; I've got to get up and go to Work; A Couple of Fools in Love; Love Locked Out; He was a handsome young Soldier; Thanks; Signature Tune. 2.0 I.B.C. Goodnight Melody and Close Down.

FLENSBURG.-See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel and Trier, 1,157 kc/s, 259.3 metres.—

10.40 a.m., Announcements. 11.0, Records; Selection from Schön ist die Welt (Lehár); Song, Es gibt nur eine Liebe (Künneke); Waltz, Schöne Frauen (Niedderberger); Drinking Song (Czernik); Melody (Lecocq); Serenade, Schön ist jeder Tag (Meisel); Waltz, Das ist der Zantber vom grünen Rhein (Schmalstich); Ein neuer Frühling wird in die Heimat kommen (Engel-Berger); Im Schwarzwald geht ein Mühlenrad (Rust); Auf den Bergen wohnt die Freiheit (Krapfer); Kirchweih in Tirol (Krome); Vieunese Song Potpourri; Servus Wien! (Dostal); Drint in der Lobau (Strecker); Italian Folk Song, A canzone e Napule; Spanish Two-Step, Manzanilla (Siegl); Blauer Himmel von Hawaii (Lops); Volka Song (Lehár); Tango, In Shanghai (Rost); (thinesischer Märchenerzähler (Dreyer); March, Wirziehen durch die Heimat (Engel-Berger), 12.15 p.m., Time, News. 12.25, News. 12.35, See Langenberg. 1.40, For Women: The Position of German Wives in Shanghai. 2.30, Weather. 2.40, Time; Economic Notes. 3.0, An Orchestra of Uncuployed Musicians, conducted by Hoffmann, Part I: Friegermarsch (Urbach); Traunwalzer (Millöcker); Overture, Die schöne Galathee (Suppé); Selection from "Der Ohersteiger" (Zeller). Part II: Operetta Songs and Popular Music. 4.0, See Munich. 4.20, Concert (contd.). Part III: Operetta Songs and Popular Music. 4.0, Strauss); Selection from Die Fledermaus (Joh. Strauss); Selection from Berlin (Deutschlandsender). 7.0, Topical Talk. 7.10 to 9.0, See Stuttgart. 9.30, News. 9.45, Concert from Freiburg. 10.0, Screnade by the Station Orchestra, conducted by Roshaud; Soloist, Jakob Zunker (Double Bass Concerto (Findeisen); Overture, Dame Kobold (Reinecke); Polka, Springinsfeld (Jos. Strauss); Waltz, Hymens Feierklänge (Lanner); Valtz, Hymens Feierklänge (Lanner); Other Statuss); Waltz, Hymens Feierklänge (Lanner); Waltz, Wellen und Wogen Joh. Strauss); Banditen-Galop (Joh. Strauss); 11.0, Talk: Jakob Burckhardt and the Period of Decadence. 11.45 (ap

FREDRIKSSTAD.—See Oslo.

FREIBURG .- See Stuttgart.

GENEVA .- See Radio-Suisse Romande.

GENOA .-- See Turin.

GLEIWITZ.—See Breslau.

GOTEBORG .- See Stockholm.

GRAZ.-See Vienna.

HAMAR. - See Oslo.

HANOVER .- See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres.—5.15 a.m., Gym. 5.35, Concert from Hamburg. 7.0, Morning Prayer. 7.30, Gym for Women. 9.40, News. 9.50 (from Danzig), Weather. 9.55, Weather. 10.30, Concert from Hamburg. 12.5 p.m., Records: Overture, The Barber of Seville (Rossini); Caro mio beu (Giordano); Toccata (Michelangelo-Rossi); La folia (Corelli); Musica Proibita (Gastaldon); Oriental March (Granados); Tesoro mio (Becucci); Minuet (Boccherini); Spanish Life (Rizi); A Gay Caballero (Cruinti); Ballet égyptien (Luigini); Suite pastorale (Scassola); Ojos Espanolos (Luchesi); Que ha pasado (Silva). In the intervals, News. 1.30, Post Office Programme with Records. 2.0, Exchalge. 2.15, For Children. 2.40, For Women. 3.0, The Small Station Orchestra, conducted by Eugen Wileken: Overture, Lurline (Wallace); Love Screnade (Glan); Ballet Suite (Hinfeld); Am schönen Rhein gedenkich dein (Kéler-Bela); Overture. Ilka (Doppler). 4.0, See Munich. 4.20, Concert from Hamburg. 5.0, Book Review. 5.15, Agricultural Prices. 5.25 (from Danzig), Talk, Reynard the Fox. the Forest Thief. 5.50, Weather. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0, News. 7.5, The Königsberg Opera Ilouse Orchestra, conducted by

FRIDAY JAN. 5th

continued

Brückner: Pictures from an Exhibition (Mussorgsky-Ravel); Suite after Pictures by Böcklin (Reger). 8.20, Reading (Königsegg). 8.40, Eight Polonaises for Two Pianofortes (Schumann), by Cilly Konopatzki and Richard Kursch. 9.0, News. 9.30, The Small Station Orchestra, conducted by Engen Wilcken: March, Germanentreue (Biankenburg); Overture, The Gipsy Baron (Joh, Strauss); Drolcrie (Hermann-Webau); Japanese Puppet Play (Yoshitomo); Selection from Paganini (Lehár); Romantic Waltz (Heinecke); Golden Dreams (Murzilli); Diavoletta (Lindemann); Potpourri, Schön ist die Jugend (Rhode); Overture, Light Cavalry (Suppe). 11.0 (approx.), Close Down.

HILVERSUM

HILVERSUM

(Announced Huizen), 1,013 kc/s, 296.1 metres; 7 kW. up to 5.40 p.m. and 20 kW. from 5.40 p.m. Programme of the Christian Radio Society (N.C.R.V.).—7.40 a.m., Bible Reading; Prayer, 7.55 to 9.10, Records, 10-10, Religious Programme. 10.40, The Van der Horst Ensemble: Overture, Cosi fan tutte (Mozart); Il bacio (Arditi); La Guivre (Ratez); Selection, Mirella (Gounod); Records: Minutet (Fietter); Babillage (Gillet); Selection from Polenblut (Nedbal), 11.40, Police Notes, 11.55, Records, 12.10 p.m., Organ Recital by Kloeck: Two Fantasias, Op. 9, Nos. 1 and 2 (Beniot); Three Pieces (Bossi), (a) Gavotte, Op. 103, No. 2, (b) Minute, Op. 127, No. 1, (c) Ultimo canto, Op. 109, No. 3; Minutet and Fantasia (Pierné); Albumblatt (Wagner). 12.55, The Van der Horst Ensemble (Contd.), Overture, Queen for a Day (Adam); Selection from The Rose of Stamboul (Fall); Von Bülne zu Bülne (Fetras); Selection from the Rose of Stamboul (Fall); Von Bülne zu Bülne (Fetras); Selection from Le petit duc (Leocq); Potpourri (Kálmán). 1.40, Records. 2.10, Reading. 2.40, Chamber Musie: Two Songs from Cantatas (Bach), (a) Ich bin vergnügt in meinen Leiden, (b) Ich ende behend mein irdisches Leben; Sonata in E (Bach); Sonata in G Minor (Eccles); Der Ilirt auf dem Felsen (Schubert); Neherzo-Tarantella (Wieniawski); Orientale (Cui); Habanera (Oberstandt): Ballads (Brahms); Berceuse (Diepenbrock); Trio, Op. 1, No. 1 (Beethoven). 4.40, Records. 5.0, Records. 5.10, Concert of Music for Two Accordions, Drum and Xylophone: March (Deyer); Fantasia on themes from William Tell (Rossini-Krüger); Silberglöckehen (Ramthor); Comedy (Verture (Kéla-Béla); Radetzky March (Strauss); Japanese Lantern Dance (Yoshitomo); Records: Potpourri (Ciere); The Glow-worm Idyll (Linckc); Wiener Praterleben (Translateur); In a Persian Market (Ketelbey); Stars and Stripes (Sousa). 6.10, Agricultural Talk. 6.40, Police Notes. 6.55, Religious Information. 7.10, Literary Talk. 7.40, Organ Recital by van der Horst: Fantasia in G (Bach); A Tune for the Flutes (Stanley); Int

HORBY.-See Stockholm.

HUIZEN

HUIZEN

(Transmitted from HILVERSUM), 160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m. Transmitted from Kootwijk on 50 kW. from 3.40 p.m.—7.40 to 9.40 a.m., Programme of the Workers Radio Society (V.A.R.A.): Records. 9.40, Programme of the Liberal Protestant Radio Society (V.P.R.O.): Service. 9.55 to 11.40, Programme of the V.A.R.A. 9.55, Organ Recital. 10.40, Records. 11.40 to 3.40 p.m., Programme of the General Broadcasting Society (A.V.R.O.). 11.40, Kovaes Lajos and his Orchestra. 1.55 p.m., Records. 2.40, Records. 2.10, Talk: Winter Sports in Norway. 2.40, Records. 3.40, Interval. 3.55 to 7.40, Programme of the V.A.R.A. 3.0, Records. 3.55, Concert: Viva el torero (Popy); Spanish Suite (Barbot); Marie Louise (Meisel); Sunny Grain (Caylor); Swabian Peasant Dance (Krome); Du schwarzer Zigenner (Vacck); Saragossa (Gredos). 4.40, Orchestral Concert: March (Straatman); Overture, Il Gharany (Gomez); Waltz from Der Schatzmeister (Ziehrer); Volgaschlepper (Artok); Torna a Sorriento (de Curtis); Styrian Humoresques (Spary); Humoresque (Tarenghi); Bravo, bravo (Dostal). 5.25, Records. 5.40, Orchestral Concert: Grüss (Ott Wien (Komzak); Wienerleben (Vilmos); Let me dream (Sullivan); Parisiana (Leopold): Roses of Picardy (Haydo-Wood); Die Spieluhr (Manfred); Pluie de diamants (Waldteufel). 5.20, Talk. 6.40, Organ Recital: Es geht auch

ohne Auto; Mach' beim ersten Rendez-vous nicht gleich beiden Augen zu; Das bleibt der schönste Liebesroman (Kollo); The last round-up (Hill); Moonlight and Shadows (Dennis); Blue Prelude (Bishop). 7.0, Light Music. 7.40 to 10.40, Programme of the V.P.R.O. 7.40, Talk. 8.10, Pianoforte Recital. 8.40, Talk. 9.10, Pianoforte Recital. 9.40, Religious Notes, News. 9.55, Talk. 10.25, Records. 10.40 to 11.40, Programme of the V.A.R.A.: Records. 11.40 (approx.), Close Down.

INNSBRUCK .- See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—12.30 p.m., Amusement Guide and Variety Itens. 1.0, News. 1.15, Radio Concert. 8.0, Amusement Guide, News and Exchange. 8.10, Esperanto Lesson. 8.30, Radio Concert. 9.0, News and Weather. 9.15, Radio Concert. 10.30, Concert.

KALUNDBORG .- See Copenhagen.

KIEL .- See Hamburg.

KLAGENFURT,-See Vienna.

KOSICE .- See Prague.

LANGENBERG

LANGENBERG

635 kc/s, 473 metres; 60 kW.—5.0 a.m., Benedictus, To-day's Motto. 5.5, Records. 5.30, Programme from Stuttgart. 5.45, Gym. 6.0, Programme from Frankfurt. 6.10, Weather. 6.15, Programme from Frankfurt. 7.15, Tides Report. 7.25, For Women. 7.35, Gym for Women. 9.0, Programme from Frankfurt. 7.15, Tides Report. 7.25, For Women. 7.35, Gym for Women. 9.0, Programme from Frankfurt. 9.10, Topical Talk. 10.0, Records. 10.55, Weather. 11.0 to 12.25 p.m., See Frankfurt. 12.25, News. 12.35, The Station Orchestra, conducted by Kühn: Entr'acte from Der Heidenkönig (S. Wagner); L'apres midi d'un faune (Debussy); Air, Romeo and Juliet (Berlioz); Fantasia on Two Russian Folk Songs, Kamerinskaja (Glinka). 1.40, Records: Overture, Il re pastore (Mozart-Frederick the Great); Presto from the Flute Concerto (Frederick the Great); Presto from the Symphony in D (P. E. Bach); Largo from the Scoond Flute Concerto (Frederick the Great); Presto from the Violin Concerto in A (Benda); Allegro from the Solo per il flauto, No. 122 (Frederick the Great); Presto from the Komödie—Prussian Comedy (Hans Rehberg). 2.30, Exchange. 2.40, Rural Programme. 3.0, See Frankfurt. 4.0, See Munich. 4.20, See Frankfurt. 5.0, English Conversation Lesson. 5.20, Talk on Genealogy. 5.35, Talk: The Rhenish Museum in Cologne. 5.45, Anhouncements. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0, See Frankfurt. 7.10 to 9.0, See Stuttgart. 9.30, News. 9.40, Forthcoming Events in West Germany. 10.0 till Close Down, See Frankfurt. 11.45 (approx.), Close Down.

LAUSANNE.-See Radio-Suisse Romande,

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—5.30 a.m., Programme from Munich. 6.15, News; Time. 6.25, The Dresden Philharmonic Orchestra, conducted by Brnno Schestak: Overture, Hungaria (Nagypal); Suite, Karnevalminiaturen (von Kaskel); Valse Ariette (Gounod); Selection from The Black Orchid; Waltz, Barcarolle (Waldteufel); Extracts from the Second Suite. Op. 19 (Micheli); Selection from Der Feldprediger (Hillöcker); Polonaise (Dvorak); Waltz, Veilchen am Wege (Fetras). 8.0, Sce Breslau. 8.40, Exchange. 8.45, Announcements. 9.45, Post Office Programme with Records. 10.40, Weather, News. 10.50, Time, News. 11.0, Concert from Munich. 12.15 p.m., News. 11.0, Exchange. Weather, News. 10.50, Time. News. 11.5, Art Review. 1.25. Fables (Paul Gurk). 2.0, For Young People. 2.25, For Women. 2.45, Exchange. 3.0, See Munich. 5.0, Tales of Adventure. 5.10, A Story (Schaper). 5.35, Topical Talk. 5.45, Exchange. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0, News. 7.10 to 9.0, See Munich. 9.0, News. Time. 9.20, News. 9.35, Serenade from Breslau. 11.30 (approx.), Close Down.

LINZ .- See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—11.15 a.m.,
Records. 11.45 a.m., News. 12 Noon, Time
and Records. 5.0 p.m., Records. 5.30, Yugo.
slav Lesson. 6.0, Talk for Sokols. 6.30,
Tourist Talk. 7.0 to 9.0, Programme from
Zagreb. 7.0, "Cello Concerto (Schumann).
7.30, Song Recital. 8.0, A Radio Play. 8.30,
Folk Songs. 9.0, Time, News, Records.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—7.0. p.m.
Gramophone Concert: Selection from La Bou
tique fantasque (Rossini-Respighi); Selection
from Samson and Delillah (Saint-Saëns); The
Frogs' Tea Party (Ailbout); Xylophone Duet
The Two Imps (Alford): Mazurka (Avignon)
Selection from Aida (Verdi-Tavan); Sérénade
à Jeannette (Danjaunne); Suite, Children':
Tales (Blech); Melody from Das Lied vom
Glück (Engel-Berger); Weinlied from Det
lachende Ehemann (Eysler-Brammer-Grümwald); Foxtrot (Van Herck); Liefdezang
(Serlé); Valse caprice (Rubinstein); La
Housarde (Ganne-Kelsen); Songs from Der
Dreigroschenoper (Weill); Prélude and Waltz
from Faust (Gounod); Strauss Waltz Potpourri (De Groot); Lalou, biguiue (Labusquière); Waltz (Harris); The Lancers' Quadrille (Metra). 8.45, Exchange. 8.50, News in
French. 9.5, Symphony No. 5 (Tchaikovsky),
on Gramophone Records. 9.50, News in German. 10.0, Gramophone Concert: Overturc,
Der Freischütz (Weler); La Berline parisienne (Paul); Dance of the Hours from La
Gloconda (Ponchielli); Polka, Coq et Poule
(Paradis). 10.20, Dance Music on Gramophone Records.

LYONS

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 15 kW.—
7.45 a.m., Weather and News. 12.30 p.m.,
Concert: Chinese serenade (Siede); Japanese Lantern Dauce (Yoshitomo); Love me cr
leave me (Donaldson-Kahn); Moanin' low
(Rawger); Du und du (Strauss); Ma Rosine
(Farault and Leblond); Selection from La
Mascotte (Audian). In the interval, News.
4.30, Tenor Song Recital by Anspach:
L'Absence (Berlioz); Nocturne (Franck);
Extase (Duparc); Songs (Fauré); (a) Les
Berceaux, (b) Au cimentière, (d) Clair de
lune, (e) Adieu; Three Songs (Debussy);
(a) Le jet d'eau, (b) L'ombre des arbres,
(c) Recueillement; Five Popular Greek
Melcdies (Ravel); Marionettes (Pierné).
Aiter the Concert, Programme of Light
Music and Radio Journal, 7.30, Records.
7.40, Radio Gazette for Lyons and the South
East. 8.30, Les Noces d'argent—Play
(Géraldy). After the Play, News.

MADRID

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres; 20 kW.—10.30 p.m., Popular Music. 10.45, Radio Chronicle. 11.0, Popular Music (contd.). 11.45, Light Music. 12.0 Midnight till Close Down, Programme in English by the I.B.C. 12.0 Midnight, Dance Music: Nightfall; Peter, Peter; I called to say Goodnight; Tick, Tock; I've told every little Star; Reflections in the Water; Swert Savannah Sue; Roll up the Carpett 12.30, Waltzes: My Wishing Song (Kahal); Song of the Islands (King); Hawaiian Sweetheart of Mine (Heagney); Ding, Dong (Hargreaves); Waltzing along with you (Gerard); In the Valley of the Moon (Tobias); Hold your Man (Freed); My Moonlight Madonna (Webster). 1.0, I.B.C. Goodnight Melody and Close Down.

MADRID

MADRID

(EAJ7), 707 kc/s, 424.3 metres; 2 kW.—8.0 a.m., Radio Journal. 11.0 (approx.), Relay from the Ayuntamiento. 2.0 p.m., Chines, Time, Weather, Theatre Notes. 2.15 (approx.), Concert: Frehude, La villana (Vives); Waltz (Blancaflor): Foxtrot (Berlin); El lago de Como (Galos): Love Song from The Pearl Fishers (Bizet); Invocation (Owen-Kreisler); Neapolitan Song (Marcueci); Duet. Los Claveles (Sevilla-Carreño-Serrano); Selection. Manon (Massenet); Soirce de Vienne (Schubert); Ballad (Golpe-Baldomir); El Corpus en Sevilla (Albeniz). In the interval, Exchange. 3.50, Radio Journal. 4.0 to 7.0, Interval. 7.0, Chimes, Exchange. Announcements and Programme for Women. 8.15, Radio Journal. 8.30 to 9.30, Interval. 9.30, Chimes, Time, Radio Journal. 9.45 (approx.). A Musical Comedy. 11.45, Radio Journal and Announcements. 12 Midnight, Chimes and Close Down.

MALMO.-See Stockholm.

MILAN.-See Turin.

MORAVSKA-OSTRAVA

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—10.0 a.m. Programme from Prague. 11.0, Programme from Brno. 11.10, Programme from Brno. 11.10, Programme from Prague. 11.35, See Bratislava. 12.35 p.m., Programme from Prague. 2.40, Theatre Review. 2.50, See Prague. 2.40, Theatre Review. 2.50, See Prague. 3.0, The Station Orchestra. 3.55, Topical Talk. 4.5, See Prague. 5.5, Tourist Talk. 5.25, See Prague. 7.55, Pianoforte Rectal by Koneczy: Intermezzos, Op. 117, Nos. 1 and 3 (Brahms); Two Arabesques (Debussy); Six Pieces (Koneczny). 8.20, See Brno. 9.0, See Prague. 9.30 (approx.), Close Down.

MOTALA .- See Stockholm.

MUHLACKER.-See Stuttgart.

MUNICH

716 kc/s, 419 metres; 60-100 kW. Relayed by Augsburg and Kaislerslautern, 536 kc/s, 569 metres; and Nurnberg, 1,256 kc/s, 239 metres.—10.5 a.m., Market Prices. 10.15,

JAN. 5th FRIDAY

continued

Time, Weather, News. 10.30, Records, 10.50, see Leipzig. 11.0, Orchestral Concert, conducted by Kloss; Overture The Viremberg Doll (Adam); Eallet Suite Die Jessechöpte des Prometheus (Beethoven); Schubert Potpourri; Preindes for two Violins and Pianoforte (Vecsey); Fantasia Strauss); Cello Solo (Popper); Gavotte Maanfred); Tango (Lautenschläger). 12.15. Lm., See Leipzig. 12.25, Cigány Music on Records. 1.0, Time, News, Weather, Autonneements. 1.20, Post Office Programme with Records. 1.50, Programme for Women. 2.30, Talk: Johann Christian von Mannich. 2.50, Weather, Market Prices. 3.0, Orchestral Concert, conducted by Kloss; Overture, Peter Schmoll (Weber); Märchen (Suk); selection, Rigoletto (Verdi); Ballet Suite from Kassya (Delibes); Siesta (Waldteufel); Potpourri of Romainan Folk Tunes (Bauber); Andante (Tchaikovsky). 4.0, Talk: Sport and Travelling Adventures. 4.20, Concert (contd.): Intermezzo from Mona Lisa (von Schillings); Irdian March from Fete in Bangkok (Norden). 4.30, Talk. 4.50, Song Recital by Maria Trunk Delbran. 5.10, Dialogue: Handicrafts. 5.30, Three Records: Lucia, Luci (Curtis); Dunka, from The Quartet in E Flat; Aria from Rigoletto (Verdi); 5.48, Time, Weather, News. 6.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0, See Leipzig. 7.10, Station Orchestra, conducted by Winter: Overture, The Water Carrier (Cherubini); Concert for two Violins and Orchestra (Spohr); Symphony in D (Mozart). 8.15, Das Traumlied des Olaf Aasteson—for Two Speaking Voices and Choir. 9.0, Time, News, Weather, Exchange, 9.35 to 11.30, See Bresiau. 11.30 (approx.), Close Down.

NOTODDEN.-See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc s, 453.1 metres; and Rjukan, 671 kc/s, 447.1 metres, and Rjukan, 671 kc/s, 447.1 metres, 40.5 kc, 449.2 metres.—4.0 p.m., Chamber Music by the Radio Ensemble, relayed from Bergen, 824 kc/s, 364 metres. 5.0, Recitations, relayed from Bergen. 5.30, Chopin Pianoforte Recital by Inge Rolf Ringnes: Nocturne No. 1, 0p. 48; Etude; Mazurka; Waltz. 6.0, News. 6.30, Topical Talk. 7.0, Time. 7.1, The Philharmonic Orchestra, conducted by Oscar Holst; Soloist, Erling Carlsen (Clarinet); Coriolanus Overture (Beethoven); Clarinet Concerto (Weber); Selection, La Traviata (Verdi); Suite No. 1 from L'Arlésienne (Bizel); Nowegian Rhapsody No. 1 (Svendsen); Marche militaire (Saint-Saëns). 8.40, News. 9.0, Topical Talk; Old and Modern Dance Music. 10.0 (approx.), Close Down.

OSTERSUND.-See Stockholm.

PARIS

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Pre-liminary and 6-dot Signals).—12.30 p.m., (concert from Paris (Ecole Supérieure), 671 kc/s (447.1 metres). 1.0, Exchange. 1.15, News, 1.30, Agricultural Talk. 1.45, Report of the Labour Burcau. 2.0, Exchange. 2.15, Economic Notes. 2.30, Exchange. (Colonial Report. 2.45, Poetry Reading. 3.0, News. 3.15, Exchange. 3.30, Exchange News. 3.45, Talk on Hygiene. 4.0, Tourist Report. 4.15, Exchange. 5.45, Le Journal Parlé. 7.15, Weather. 7.25, News. 7.30, Classical Music. The Station Symphony Orchestra, conducted by Flament: Septet (Beethoven). 8.0, Political Notes. 8.15, Concert (contd.): Chaconne and Rigandom (Monsigny); Symphony (C. Ph. Bach); Entr'acte from Rosamunde (Schubert); Selection from The Secret Marriage (Cimarosa); Minuet (Mozart); Hommage à Rameau (Debussy).

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.10 a.m., Fanfare and Records. In the interval. Press Review. 8.0. Concert. 8.20, Press Review. 8.45, For Housewives 12 Noon, Exchange. 12.5 p.m., Records: Paysage (Hahn); Ständchen (Schubert); Spanish Dance (Granados); Andalusian Screnade (Eilenberg); Liebestraum (Liszt). 12.20, Announcements. 12.30, Records. 1.5, Exchange. 1.15, Records. Sérénade (Gounod); Le Vallon (Gounod); La Ballade des gros dindons (Chabrier); Vilanelle des petits canards (Chabrier). 1.30, Records. 2.0, Exchange. 3.15, Exchange. 4.50, Exchange. 6.45, Financial Report. 6.52, Talk. 7.0, Records. 7.7, Talk on Music. 7.15, Le Journal Parlé. 7.30, Concert of Hawaiian Music. 8.0, Mam'zelle Carabin—Operetta in Three Acts (Pessard).

RADIO-PARIS, Call CFR, 174 kc/s, 1,725 motres; 75 kW.-6.45 a.m., Gym. 7.30, Weather and Gym. 7.45, Records. 8.0, News. 12 Noon. Talk: The Jews in Paris in the

Seventeenth Century. 12.30 p.m., Records; Extracts from William Tell (Rossini); Extracts from The Barber of Seville (Rossini); Overture. Fra Diavolo (Anber); Overture and Aria from Masaniello (Auber); O Paradise, from L'Africaine (Meyerbeer); Cavatina, from The Prophet (Meyerbeer); Extracts from Les Hugnenots (Meyerbeer). In the intervals, News and Exchange. 2.0, Exchange. 2.5, News. 3.45, Exchange. 4.30, English Lesson. 6.20, Weather and Agricultural Report, Racing Results. 6.45, Talk. 7.0, Talk: Post War Novels. 7.20, Talk: The History of Opera—Lully. 7.50, News. 8.0, Talk: Modern Novelists. 8.30, News. 8.45, Humorous Programme: La Parade du pont neuf (Tabarin); Extracts from Le mariage forcé (Molière); L'article 330 (Courteline); Le gendarme est sans pitie (Courteline); L'ile deserte (Bernard). In the interval, News.

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—12 Noon, Maiscal Clock. 1.0 p.m., Morning Devotions, from New York. 1.15, Don Hall Trio, from New York. 1.30, Lew White, Organist, from New York. 1.45, Don Hall Trio, from New York. 1.46, Don Hall Trio, from New York. 1.40, Devoting Programme. 2.0, Breakfast Club, from New York. 2.30, Style and Shopping Service. 2.45, News, Minute Manners, 3.0, Programme to be announced. 3.15, Clara, Lu 'n' Em, from New York. 3.30, To-day's Children, from New York. 3.45, Sammy Fuller. 4.0, Music Appreciation Hour, from New York. 5.0, Rosalie Wolfe, Soprano, from New York. 5.30, News, Markets. 5.45, Ernie Holst's Orchestra. 6.0, Farm and Hone Hour, from New York. 6.30, Ernie Holst's Orchestra. 6.0, Farm and Hone Hour, from New York. 6.30, Ernie Holst's Orchestra. 6.0, Farm and Hone Hour, from New York. 6.30, Ernie Holst's Orchestra. 6.0, Farm and Hone Hour, from New York. 9.15, Utility Hall. 9.30, News, Markets. 9.45, Variety Programme. 10.0, Uncle Tom and Betty. 10.15, KDKA Kiddies Kluh. 10.30, The Singing Lady, from New York. 10.45, Orphan Annie, from New York. 11.0, News, Pat Haley. 11.15, Sports, Programme Preview. 11.30, KDKA Salon Orchestra. 11.45, Lowell Thomas, from New York. 12.0 Midnight, Amos in' Andy, from New York. 12.15 a.m. (Saturday), The Silver Toppers. 12.30, Porssgrund.—See Oslo.

PORSGRUND,-See Oslo.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—12.45 p.m., Records. 2.55, Exchange, Weather. 2.30, Records. 2.40, Programme to be announced. 2.50, Weather. Exchange. 3.0, See Moravska-Ostrava. 3.55, Technical Talk. 4.5, The Ondricck Quartet: String Quartet in E. Op. 15 (Forester); String Quartet in F. No. 1. Op. 18 (Recthoven). 5.5, Agricultural Programme. 5.25, News in German. 5.30, German Transmission: Programme to be announced. 6.0, Time. News. 6.10, See Bratislava. 6.25, Talk. 6.40, Benes and his Brass Band. 7.25, Foreign News. 7.35, Records. 7.55, Baritone Song Recital by Konstantin: Psalms (Axman); Six National Songs on Words by Neruda (Zich). 8.20, See Brno. 9.0, Time. News. 9.15, Russian News. 9.30 (approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS; 743 kc/s, 403 metres; 25 kW.; and
Geneva, 400 kc/s, 749.9 metres.—6.0 to
6.15 a.m. (from Lausanne), Gym. 11.28,
Time from Neuchâtel Observatory. 11.30,
News. 11.40 (from Lausanne). The Radio
Lausanne Orchestra, conducted by Moser,
12.0 Noon, Financial Notes. 12.10 p.m.
(from Lausanne). Orchestral Concert
(contd.). 2.58, Time from Neuchâtel Observatory. 3.0, New Schweizerischer Landessender. 5.0 (from Geneva), For Women.
5.30 (from Geneva), Esperanto Lesson. 5.40
(from Geneva), English Lesson. 6.5 (from
Geneva), Talk on Bridge. 6.20 (from Geneva),
For (hess Players. 6.35 (from Geneva), Illustrated Talk: Newly Released Records. 6.59,
Weather. 7.0 (from Geneva), Chamber
Music: Sonata in D for Two Pianofortes
(Mozart); Andante and Variations, Op. 46
(Schumann), 7.35 (from Geneva), Variety Items. 7.50 (from Geneva), Variety Programme. 8.50, News. 9.0 (from Geneva).
Tourist Report, 9.15 (from Geneva), Answers
to Correspondence. 9.30 (approx.), Close

RIGA

KIGA

571 kc/s, 525.3 metres; 15 kW.—5.0 a.m.,
Popular Latvian Songs. 5.5, Gym. 5.40,
Concert. 6.40, For Housewives. 10.0, News.
10.30, Weather. 10.35, Agricultural Talk.
2.20 p.m., Economics Talk. 2.50, Records.
3.40, Poetry. 4.0, Talk. 4.30, Latvian Lesson. 5.0, Divine Service, Sacred Music. 6.50,
News. 7.10, Concert of Latvian Music. In
the interval. Weather, News.

RJUKAN.-Sce Oslo.

SALZBURG.-Sec Vienna.

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAD on 19.56 metres.—7.30 p.m., Friday Steeplechase, from New York, 12.45 a.m. (Saturday), Stock Reports.

SCHWEIZERISCHER LANDESSENDER

LANDESSENDER
BEROMUNSTER, 653 kc/s, 459 metres; 60
kW.; Basle, 1,229 kc/s, 244.1 metres; and
Berne, 1,220 kc/s, 245.9 metres.—5.50 a.m.
(Basle), Gym. 11.0 (Basle), Records. 11.29,
Time, Weather, Kews. 11.40 (Basle), Light
Music and Jazz Music. 12.25 p.m. (Basle),
Time, Weather, Exchange. 2.30 (Zürich),
Records. 3.0, The Station Orchestra. 4.0,
Records. 4.10, The Small Station Orchestra.
Conducted by Scherhaum. 5.0 (Zürich), For
Children. 5.30 (Berne), For Young People.
6.0 (Berne), Time, Weather, Announcements. 6.20 (Berne), Song Recital by Hans
Leicht. 6.55 (Berne), Talk. 7.30, Old
French Music. 8.0, Weather, News. 8.10
(Zürich), Programme to be announced. 9.15
(approx.), Close Down.

SOTTENS,-See Radio-Suisse Romande

STOCKHOLM

STOCKHOLM

689 kc/s, 432 kc/s, 1,239.5 metres; Göteborg,
932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257
metres; Motala, 222.5 kc s, 1,348 metres;
ostersund, 409 kc/s, 746.2 metres; and Sundsvall, 554 kc/s, 542 metres.—3.0 (from Göteborg). The Astis Orchestra: March, San Lorenzo (Silva); Waltz, Gold and Silver (Lehár); Overture, Rosamunde (Schubert); Selection from Les Cloches de Corneville (Planquette); Gavotte (tanne); Selection from The Dollar Princess (Full), 4.5 (from Göteborg), For Children, 4.30, Records, 5.30, Variety Programme, 6.15, Weather, News.
6.30, Talk, 7.0, Cabaret Programme, 8.0, Dance Music by Enders Band from the Bern Hall. 10.0 (approx.), Close Down.

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—10.30 a.m., Orchestral Concert, relayed from Bordeaux-Lafayette, 986 kc/s, 304 metres. 12 Noon, Records: Dans la Roseraie (Bialeski); Nelection from Die Puppenfee (Bayer); Minuet (Notblin): La Cinquantaine (Gabriel-Marie); Melody (Czibnika); Melody (Denza); Romance (Glinka); Prière (Minkovsky); Two Black Eyes (Holländer); Two Songs from Véronique (Messager); Envoi de fleurs, and Vous êtes si jolie (Delmet); Gavotte from Mignon (Thomas). 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Orchestral Concert, conducted by Maurice de Villers: Prelude to Lohengrin (Wagner): Selection from La Traviata (Verdii); Waltz (Scassola); Scènes Bohémiennes from Les Saltimbanques (Ganne); Suite Pittoresque (Pessard). 4.45, Literary Talk. 5.0, Orchestral Concert, conducted by Roskan: Ballet Saite (Popy); Selection from Die Puppenfee (Bayer): Le chemin dn Rève and Gai Printemps (Gillet); Melody (Koechlin); Waltz (Barbivolli); Selection from La cigale (Audrau). 6.0, Trio Concert, relayed from Lille, 1,128.5 kc/s, 265.8 metres. 7.0, Talk in German. 7.15, Recitations. 7.30, Time and News. 7.45, Records. 8.0, News in German. 8.30, Chamber Music, relayed from the Hôtel de la ville de Paris, STUTTGART

STUTTGART

STUTTGART

MUHLACKER, 563 kc/s, 533 metres; 106
kW. Relayed by Freiburg, 1,157 kc/s, 250.3
metres; and 527 kc/s, 569 metres (until January 16, 1934).—9.10 a.m., Cello and Pianoforte Recital by Willi Esterl and Thea
Bischoff: Sonata in A minor (Marcello); Andantino (Martini); Adagio non lento
(Haydn); Gavotte (Francoeur). 9.40, Records: Overture, Alessandro Stradella
(Flotow); Chopin Potponrri; Elegy (Massenet); Aria from The Force of Destiny
(Verdi); Narcissus (Nevin); Lute Serenade
(Wismar); Serenade No. 1 (Drdla); SphinxWalzer (Popy); Erinnerung an Herkuleshad
(Pazeller); Revue March (Reckling). 10.25,
Post Office Concert. 10.55, Weather. 11.0,
See Frankfurt. 12.15 p.m., Time, News. 12.25,
News. 12.35, See Langenberg. 5.35, Time, News.
turt. 40, See Munich. 4.20, See Frankfurt.
5.0 to 5.35, See Langenberg. 5.35, Time, News.
5.45, Talk: German Game Preserves. 6.0,
Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 7.0,
See Frankfurt. 7.10, The Würtemberg Symphony Orchestra, conducted by Drost: Overture, Zampa (Hérold); Suite from Die Puppentee (Bayer); Rakoczy March (Liszt);
Polovtsian Dances from Prince Igor (Borodin); Overture, Der Opernball (Heuberger);
Waltz, Seid umschlingen Millionen (Joh.
Strauss). 8.20, Der Aufgang des Sternes

—Epiphany Play (Alois Johannes Lippl). 9.0, Time, News. 9.20, Talk: Things you should know. . . 9.30, News. 9.45, See Frankfurt. 11.45, Programme to be announced. 12.15 a.m. (Sunday), (on Zeesen, 31.38 metres), Shooting Stars—Musical Potpourri by the Station Orchestra, conducted by Görlich. 1.15 (approx.), Close Down.

SUNDSVALL.—Sec Stockholm.

TOULOUSE

TOULOUSE

779 k6/s, 385 metras; 8 kW.—8.0 a.m., Dance Music. 8.30, News. 8.35, Military Music. 8.45, Light Music. 12 Noon, Orchestral Music; Scherzo valse (Chabrier); Overture, Masaniello (Anber); Invitation to the Waltz (Weber); Invitation to the Waltz (Weber), 12.15, Sound Film Music. 1.20, News, Exchange. 12.45, Request Music. 1.0, Announcements. 1.5, Military Music 1.15, Dance Music. 1.30, Orchestral Music. 1.45, Light Music. 2.0, News. 4.15, News. 6.60, News. 6.15, Opercta Music: Air from Katinka (Latjai); Duet from Cibouletæ (Hahn); Airs from Au pays du solcil (Scotto), Un soir de réveillon (Moretti), La fille de Madame Augot (Lecocq), Véronique (Messager). 6.30, Argentine Orchestra. 6.45, Sound Film Music. 7.0, Ballet Music from Isoline (Messager). 7.15, News, Exchange. 7.30, Talk. 7.45, Opera Music: Air from Lohengrin (Wagner); Trio from Faust (Goundd); Air from Prince Igor (Borodin). 8.0, Ensemble Music. 8.15, Opera Music; Airs from Manon (Massenet), La Bobine (Puccini), Resurrection (Alfano). 8.45, Viennese Orchestra. 9.0, Boeuf sous le toit—Radio Fantasy. 9.30, Russian Songs and Bulalaika Music. 9.45, Orchestral Music. 10.4, Opera Music. 10.45, Light Music. 11.15, Dance Music. 12.10 Midnight, News. 12.5 a.m. (Saturday), Chansonettes. 12.15, Dance Music. 12.30 (approx.), Close Down.

TRONDHEIM.-See Oslo.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and 5,989 kc/s, 50.26 metres (Evening); 10 kW.—10.0 a.m., Religious Information in German. 7.0 p.m., Religious Information in Italian.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; 1nnsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres, and Salzburg, 1,373 kc/s, 218.5 metres.—10.30 a.m., Alpine Songs on Records, 10.55, Weather. 11.0, Concert by the Wiener Symphoniker, conducted by Josef Holzer. 12 Noon, Time, News. 12.10 p.m., Concert (contd.): Overture, Marinarella (Fucik); Potpourri, Wiener Leben (Komzak). 12.30, Records: Aria from Leeia di Lammermoor (Donizetti); Nocturne in D Sharp, Op. 27, No. 2 (Chopin); Aria from Tannhäuser (Wagner). 2.0, Time and News. 2.15, Talk. 2.30, For Children. 2.55, Records of Sound Film Music. 3.25, For Women. 3.50, Talk. 4.15, Recital by Marie Jehnar (Contratlo) and Margit Sturm (Piano-torte). 4.55, Tourist Talk. 5.10, Talk: Winter Sports in Carinthia. 5.20, Sports Notes. 5.40, Talk. 6.0, Viennese Music by the Wiener Symphoniker, conducted by Josef Holzer. 6.35, Time, News. 7.30, Trialogue: The Three Kings (Timmermans). 8.15, Talk. 8.45, News. 9.0, Concert. In the interval, Traffic Report, Announcements.

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—6.0 a.m., Time and flymins. 6.5, Gym. 6.20, Records. 6.35, Radio Journal. 6.40, Records. 6.52, For Housewives. 6.55, Programme Notes. 10.40. Press Review. 10.50, Art Notes. 10.57, Time and Fantare from St. Mary's Church, Cracow. 11.5, Records. 11.38, Records. 2.25 p.m., News. 2.30, Notes on Economics. 2.40, Tenor Song Recital by Anatole Wronski: Je me souviens des jours clairs. dorés et silencieux (Karlowicz); Ariso from Zaza (Leoncavallo); Mia piccirella (Goncz); Granadinas (Barrera-Galleja); Voca Voca (Labriola); Rosalinda (Fuentes). 3.0, The Adamska Grossman Quintet: Pas de fleirs from Naila (Delibes); Serenade (Moszkowsky); Bolero (Arbos); Tango (Riviardi); Arietta (Brogi); Spanish Waltz (Metra). 3.40, Book Review. 3.55, Violin Recital by Krongold: Andante (Handel); Melody (Tehaikovsky); Poeme (Chausson); Air (Bach); Caprice No. 20 (Paganini). 4.30, Soprano Song Recital by Mme, Platt: Berceuse from Manru (Paderevsky); Cavatine from Euryanthe (Weber); Aria from Loreley (Catalini); Rends-moi ma paix (Tosti); Pastorale (Bizet). 4.50, Agricultural Talk. 5.0, Talk. 5.20, Dance Music from the Café Adria. 6.0, Programme Annonucements. 6.5, Announcements. 6.20, Talk: Where to go on Sundays. 6.25, Topical Talk. 6.40, Sports Notes. 6.45, News. 7.0, Talk on Music, 7.15, The Warsaw Philharmonic Orchestra, conducted by Clemens Krauss, relayed from the Philharmonie. Soloist: Bandrowska-Turska (Songs). In the interval: Talk. 9.40, Dance Music (10.0, News. 10.5, Dance Music (contó.).

ZURICH.-See Schweizerischer Landessender.

ALGIERS N/A

JANUARY THE SIXTH

ALGIERS

\$25.5 kc/s, 363.3 metres; 13 kW.—12.30 p.m.,
The Station Orchestra: Selection from Die
Fledermaus (Strauss); Selection from Lakmé
(Delihes); Fleur de Neige (Vallaury). 1.0.
News. 1.5, The Station Orchestra: Rigaudon
(Lacome); Escales (Ibert); The Musical
Snuff Box (Liadov); March (Chomel). 6.0,
Bal Musette. 6.20, Zither Solos. 6.30,
Sports Review. 6.45, Records: Ray Ventura
and his Band. 7.0, Dance Music. 7.10,
Shipping. 7.15, Weather. 7.20, Songs. 7.30,
Lottery Results. 7.45, Records, 7.55, News.
8.0, Time. 8.2, Dance Music. 8.40, The
Station Orchestra: Singspiel (Lincke); Selection, La Favorita (Donizetti); Valses des
Brunes (Ganne). 9.10, Records: Variations
(Proch). 9.20, Concert: Chanson d'amour
(Nougnès); Melody (Morrison); Suite in the
Old Style (Blockx). 9.55, News.

ATHLONE

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Dublin, 1,382 kc/s, 217 metres; and Cork, 1,337 kc;s, 224.4 metres.—6.0 p.m., Records. 6.45, News. 7.0, Talk: Ireland's Contribution to American Progress. 7.15, Gaelic Talk. 7.30, Time. 7.35, Ballad Selection by the Station Orchestra. 8.0, Soprano Recital of Ballads by Mme. Heffernan. 8.15, Harp and Violin Recital by Fagan and Oakley. 8.35, Recitation. 9.0, Station Orchestra. 9.30 to 10.30, Programme by the I.B.C. (Ireland), Ltd. 9.30, Orchestral Concert: The Gypsies (Higgs); Pizzicato from Sylvia (Delibes); Hungarian Dance No. 6 (Brahms); Cavatima (Raff); Selection from Lilac Time (Schubert-Berté); Waltz from Coppélia (Delibes); Hungarian Medley (arr. Leggett). 10.0 Dance Music: You've got everything; When you're over Sixty; Sweet Dreams, pretty Lady; Racing Commentary; The Song that you gave to me; An Old Old Man with an Old Old Pipe; You'll never understand; The Wind's in the West. 10.30, I.B.C. Goodnight Melody followed by News and Weather. 10.40, Uileann Pipe Solos by John Doran. 10.50, Traditional Fiddle Solos by Michael Norris. 11.0 (approx.). Close Down.

BARCELONA

BARCELONA

EAJ1, 861 kc/s, 348.4 metres; 8 kW.—2.15
p.m., The Station Sextet. In the interval,
Art Review. 3.0, For Hospitals. 3.30, Request Programme. 5.30, For Children. 7.0,
Request Records. 7.30, Exchange and
Records. 8.0, Records. 8.5, Talk and News.
9.0, Chimes. 9.5, Announcements. 9.35, The
Station Orchestra: Baile español (Fernández); Andante, from the Suite romantica
(Villar); Bajo los naranjos (Turina); Castilla (Albéniz). 10.0, Guitar Recital by Rosa
Rodes. 10.30, Radio Gazette in Catalan.
11.0, News. 12 Midnight, Interval. 1.0 a.m.
(Sunday), Programme in English by the
I.B.C. 1.0, Hawaiian Music.; Swect
Hawaiian Dreams (Coleman); Bone Festa
(Traditional); Klima (Traditional); Aloma
(Bowers); Hawaiian Hotel (Traditional);
The Rosary (Nevin); Hawaiian Twilight,
All through the Night (York). 1.30, Orchestral Music: Overture Medicy (Peters); Chauson (Friml); Chant sans paroles (Tchaikovsky); Hungarian Dance No. 6 (Brahms);
Spring Song (Mendelsochn): Meditation
from Thais (Massenet); Moment musical
(Schubert); Grand March from Aida (Verdi).
2.0, I.B.C. Goodnight Melody and Close
Down.

BASLE.—See Schweizerischer Landessender.

BELGRADE

698 kc/s, 429.7 metres; 2.8 kW.—8.55 a.m., Aunouncements, 9.0, Service, 10.30, Records, 10.59, Time, Chines, Records, 12.30 pm., News, Time. 3.0, Divine Service Relay, 6.25, Time, Announcements, 6.30, Talk, 7.30, Choral Concert. 8.0, Radio Play, 8.30, Records, 9.0, Time News.

BERLIN

BERLIN

DEUTSCHLANDSENDER (REICHSSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—9.0

a.m., News. 9.10, Records. 9.30, The Feast of the Epiphany. 9.50, For Children. 10.15, Weather. 10.30, Reading (Heinrich von Kleist). 10.45, Topical Taik. 11.0, Weather. 11.5, Records: Overture, Zampa (Hérold); Waltz, Morgenblätter (Joh. Strauss); Selection, Die Puppenfee (Bayer); By the Blue Hawaiian Waters (Ketelbey); Wedgwood Blue (Ketelbey); Rustle of Spring (Sinding); Little Star (Ponce); Carpathia (Bereny); Schattenspiele (Finek); March. Mein Regiment. After the Records: Weather. 11.55, Time. 12.45 p.m., News. 1.0, Records: Quadrille, Die Fledermaus (Joh. Strauss); Die lustigen Schuniedegesellen (Grunow); March, Weana Humor (Lorens); Kannst du pfeifen, Johanna? (Axelson); Fensterpromenade (Mohr); Melodie der Liebe (Engel-Berger); Das ist das einzig Wahre (Stolz); Ich bin ein Matrose (Rathke); Sternschnuppen (Kauler); In deine Hände (Kollo); Kleine Anneliese (Kollo); Der Graf von Rüdesheim (Krome-Weiss); Die lustigen Fuhrleut'; Die Bremer Stadtmusikanten (Krome-Weiss); Ich spiel' so schön Harmonika (Krüger). 2.0, Handwork Programme. 2.30, Weather, Exchange. 2.45, Economic Week's Review. 3.0, See Leipzig. 4.0, Sports Notes. 4.20, Belantos and Bandonion Music. 5.0, Poems. 5.5, For Young People. 5.25, Talk:

Gregor Mendel, the Biologist. 5.45, Chimes from Speyer Cathedral. 5.50, Weather, News. 6.0, Transmission for all German Stations, relayed from Stuttgart. 7.0, Today's Motto. 7.10, See Langenberg. 9.0, News. 9.45, Weather. 10.0, Dance Music from Leipzig. 11.0 (approx.), Close Down.

BERLIN

BERLIN

FUNKSTUNDE, 832 kc/s, 360.5 metres; 100 kW. Relayed by Zeesen, DJC, DJA, DJD, DJB, and DJE.—5.15 a.m., Gym. 5.30, Weather, News. 5.35, See Heilsberg. In the interval, News. 7.15, Gym. 9.0, News. 9.10, Exchange. 9.30, Records, News. 10.0, Exchange. 9.30, Records, News. 10.0, Exchange. 10.30, See Heilsberg. In the interval, Weather, 12 Noon, Dance Music on Records: Tango, Von hunderttausend Frau'n hist du die eine (Kaiser); Tango, Baby, willst du wirklich schon nach Hause geh'n (Rust-Zitzewitz); Adieu, Adieu, ich geh' (Baxter); Foxtrot, Heute möcht' ich glücklich sein (Kirchstein). 12.20 p.m., Concert from Hamburg. 1.15, News. 1.35, Operetta Music on Records: March Refrain and Tango from Schön ist die Welt (Lehär); Volga Song from The Czarevitch (Lehär); Selection from Liselott (Kiinneke). 2.0, Exchange. 2.20, A Mother and Child visit an Astrologer. 2.45, Talk: The Passing of the Old Year. 3.0, See Heilsberg. 4.0, Die heiligen drei Könige—Cantata (von Knorr), after the Text by Rainer Maria Rilke. The Station Choir and Orchestra. Conducter: Weigel. Soloists: Nora Klauge (Soprano), Einmy Spielhagen (Contralto), Erich Mühl (Tenor), Wilhelm Winterberg (Baritone), and Georg Köppen (Bass). 4.30, The Sphinx—Radio Play (Editta Eriksen), with Music by Wagner-Regeny. 5.0, Gregor Mendel Memorial Talk. 5.10, With the Fishers of Pomerania—Songs and Dialogue (on Records). 6.0, Transmission for all German Stations, relayed from Stuttgart. 7.5, Concert from Hamburg. 8.15, Dance Music from Hamburg. 9.0, Weather, News. 9.30, Concert from Hamburg. 11.0, Dance Music from the Trocadero, Hamburg. 12 Midnight, Close Down.

BERNE.—See Schweizerischer Landessender.

BERNE.-See Schweizerischer Landessender. BEROMUNSTER. - See Schweizerischer Landessender.

BODEN.-See Stockholm.

BODO.-See Oslo.

BRATISLAVA

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—10.0 a.m., Glazunov Concert, relayed from Kosice, 1,022 kc/s, 293 metres. 11.0 a.m., See Prague. 11.15 a.m., See Brao. 12.30 p.m., See Prague. 1.15, Weather. 3.0, See Prague. 4.0, See Moravská-Ostrava. 4.30, Opera Music by the Station Orchestra, conducted by Dyk; Soloist: Nelly Bakesova (Soprano): Overture, Martha (Flotow); Aria from La Traviata (Verdi); Selection from The Kiss (Smetana); Two Arias from A Masked Ball (Verdi); Selection from Madame Butterfly (Puccini); Aria from The Tales of Hoffmann (Offenbach); Selection from Schwanda, the Piper (Weinberger). 6.0, See Prague. 8.0, The Station Orchestra, conducted by Schimpel. 9.0, See Prague. 10.30 (approx.), Close Down.

BREMEN.—See Hamburg.

BREMEN.—See Hamburg.

BRESLAU

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,185 kc/s, 253.1 metres.—5.30 to 6.15 a.m., Programme from Munich. 6.15, Programme from Leipzig. 6.25, Concert by the Station Orchestra, conducted by Topitz. 8.0, For Housewives. 8.20, Time, News. 9.40, For Children. 10.40, Time. Weather, Tides Report. 10.50 to 1.15 p.m., See Leipzig. 1.15, Time, Weather, 1.20, Programme arranged by the Post Office vith Records. 1.50, Exchange. 2.10, Film Review. 2.20, The Magi in Silesia—Radio Sequence. 2.40 to 5.10, See Leipzig. 5.10, Chimes. 5.25, Topical Talk. 5.50, Announcements. 6.0, Transmission for all German Stations, relayed from Stuttgart. 7.0 to 9.20, See Leipzig. 9.20, Time, News. 9.35, See Leipzig. BRNO

BRNO

BRNO
878 kc/s, 342 metres; 35 kW.—10.0 a.m., Glazunov Concert, relayed from Kosice, 1,022 kc/s, 293 metres. 11.0, See Prague. 11.15, Brass Band Concert. 12.30 to 12.45 p.m., Talk. 3.0, See Prague. 4.0, See Moravská-Ostrava. 4.30, See Prague. 5.0, German Transmission: Pianoforte and Song Recital by Frotzler and Meudl (Bass): Variation on a Theme of Handel, Op. 24 (Brahms): Four Songs (Wolf); Three Songs (Wolf); Variation in B Major (Handel). 6.0, See Prague. 8.0, See Bratislava. 9.0 to 10.30, See Prague. 10.30 (approx.), Close Down.

BRUSSELS (No. 1)
1.N.R., 589 kc/s, 509.2 metres; 15 kW.—12.0
Noon, The Radio Orchestra, conducted by
Charles Walpot; Soloist, Mile. Marguerite

Brullez (Songs); Two-Step (Beltram); Overture, The Black Domino (Auber); Waltz, Toujours on jamais (Waldteufel); Selection from Dédé (Christiné); Songs with Orchestral Accompaniment; Jungle Drums (Ketelbey); Pieces (Fletcher). 1.0, Le Journal Parlé. 1.10, Concert conducted by André Fellemann, relayed from the Grand Hotel, Antwerp. 4.45, Tourist Talk. 5.0, The Small Station Orchestra, conducted by Pierre Leemans. Overture, Richard III (Gilson); Two Melodies (Dupuis): (a) Sur la campagne endormie, (b) Jour de récolte; Two Tone Pictures (Brusselmans): (a) L'élfe dans la plaine, (b) Soleil couchant; Ilumorous Piece: Tom Thumb, from Charles Stratton (Dejoncker); Finale from the Pianoforte Sonata (Poot); Scènes enfantines (Strens); Violin Solo: Ballade (De Boeck); Suite, Pantins et poupées (de Taeye). 6.0, Talk: Joseph (alozet, the Walloon Writer. 6.15, Records: Le vieux château (Mireille); Tango (Ursmar); Valse lente (Garimbo); C'est un jardniner qui boite (Mireille); March, Namur (Richards). 6.30, Planoforte Recital by Jean Jamssens: Six Preludes (Chopin); Nocturne in B (Chopin); Nocturne No. 2 (Liszt); Etude in D Flat (Liszt). 7.0, Records: Waltz, Wienerphit (Joh. Strauss); Selection from The Singing Fool (arr. Connelly); More Melodions Memories (Finek). 7.30, Wireless Notes and Science Talk. 8.0, The Radio Orchestra, conducted by Charles Walpot: March, Sambre et Meuse (Planquette); Slav Rhapsody No. 2 (Friedmann). 8.15, Poil de Carotte—Play in One Act (Renard). 9.15, The Radio Orchestra (cond.): Suppé Potpourri (Michaelov); Polka for Two Clarinets (Bnot); Selection from The Merry Widow (Lehâr); Waltz (Paradis); Selection from On with the Show (Nicholls). 10.0, Le Journal Parlé. 10.10, Dance Music by Robert de Kers and his Cabaret Kings, relayed from the Century Ilotel, Antwerp.

BRUSSELS (No. 2)

BRUSSELS (No. 2)
N.1.R., 888 kc/s, 337.8 metres; 15 kW. Programme in Flemish—12 Noon, Concert conducted by André Felleman, relayed from the Grand Hotel, Antwerp. 1.0 p.m., Le Journal Parlé. 1.10, The Radio Orchestra, conducted by Walpot. Soloist: Marguerite Brullez (Songs). Fantasia on Flemish Songs (Walpot); Intermezzo-Waltz, Joie de printemps (Hullebroeek); Songs; Selection from Martha (Flotow); Flemish Dances (Blockx). 4.45, Reading. 5.0, Dance Music, relayed from the Plaza. 6.15, Readings. 6.30, The Small Station Orchestra, conducted by Leemans: Overture, Il Guarany (Gomez); Begine in chiesa (Singorini); Serenade (Moszkovsky); Polonaise No. 2 (Liszt); La fille aux cheveux de lin (Debussy); Tango (Albéniz-Kreisler); Selection from Gianni Schiechi (Puccini); Finale (Sullivan). 7.30, Film Review. 8.0, Tannhäuser—Opera in Three Acts (Wagner), relayed from the Royal Opera House, Antwerp. In the intervals, Recitations and Le Journal Parlé.

BUCHAREST

BUCHAREST

760 kc/s, 394.7 metres; 12 kW.—11.0 a.m., Exchange, Records, 12 Noon, Radio Journal, 12.15 p.m., Light Music (on Gramophone Records). 4.0, New Dance Music. 5.0, Radio Journal. 5.15, New Dance Music. 6.0, Educational. 6.20, Records. 6.45, Talk. 7.0, Suite for 'Cello, Op. 36 (Tchaikovsky), played by Joseph Thaler. 7.30, The Letter Box. 7.45, Romanian Songs by Alexandre Grozuta. 8.15, Sound Film Music (on Records). 8.45, Radio Journal. 9.0, Romanian Music by the Station Orchestra, conducted by Dinico. by Dinico.

BUDAPEST

BUDAPEST

545 kc/s, 550.5 metres; 120 kW. Also relayed on 840 metres from 4.30 p.m. till (lose Down.—11.30 a.m., The Opera House Orchestra, conducted by Dolmányi. Soloist: Honka Fehér (Volin). 1.0 p.m., Records. 2.0, Reading of Fairy Stories. 2.20, Concert by the Palestrina Choir, conducted by Zsasskovsky. 3.0, Readings. 4.0, Missionary Programme. 4.30, Trio Concert. 5.30, Reading from the Archduke Joseph's Diary. 6.0, Radio Report from the Skating Rink: 6.30, Play (Rostand). 7.20, Old Jance Music. The Budapest Concert Orchestra, conducted by Fridl: Mazurka brillante (Liszt); Minuet (Boccherini); Hungarian Dance (Kisfaludy); Gavotte, Ella (Hummer); Kaiserwalzer (Joh. Strauss); Lied (Bihari); Polomaise No. 1 (Chopin); Old Hungarian Dance (Szabados); Czardas (Barta). 8.40, News. 9.0, Dance Music relayed from the Hotel Royal. 9.50, Cigány Band Concert relayed from the Hotel Britannia.

CASSEL.—See Frankfurt.

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres; and Skamleback, OXY, 31.51 metres.—6.0 a.m., Gymnasties for Women. 7.30, Divine

Service, relayed from the Cathedral. 10.0 Weather. 10.10, Fish Market Prices. 11.0 Time and Chimes from the Town Hail 11.2, The Bendix String Ensemble from the Wivex Restaurant. 1.30 p.m., Records: Selection, Aida (Verdi); Hungarian Rhapsody (Popper); Duet from Sicilian Vespers (Verdi); Hunting Chorus from Euryanthe (Weber); Hunting Chorus from Euryanthe (Weber); Hunting Chorus from Der Preischütz (Weber); Waltz, Faust (Gounod); Dictencello vive (Falvo). 2.0, For Children. 2.30, The Radio Orchestra, conducted by Reesen: Overture, The Nuremberg Doll (Adam); Selection, Tiefland (d'Albert); Summer Days (Coates); Waltz (Coleridge-Taylor); Entr'acte and Dance, Philémon et Baucis (Gounod); Overture, The Mikado (Sullivan); Extracts, Egyptian Suite (Haydn Wood); Madrigal (Gaubert); Selection, Sylvia (Delibes); Extract from Les Brigands (Offenbach). In the interval, Reading 4.30, Exchange. 4.45, Talk: Frederiksberg Church History. 5.15, French Lesson. 5.45, Weather. 5.54, Announcements. 6.0, News. 6.15, Time. 6.30, Talk on Music. 7.0, Time from the Town Hall. 7.1, Recital of Old Norse Songs by Per Knudsen. 7.10, Literary Talk on Danish Dramatic Poetry. 8.0, Programme for Young People; Jazz Music by the Choir and Orchestra of the Danish Jazz Music Society. 8.50, Reading. 9.5, News. 9.20, Dance Music by the Erik Tuxen Band from the Palace Hotel. 10.10, Records: Viennese Songs from Sound Films. 10.25, Dance Music by the Otto Lington Band from the Ritz Restaurant. In the interval at 11.0, Time and Chimes from the Town Hall. 11.15 (approx.), Close Down.

CORK.—See Athlone.

DANZIG.—See Heilsberg.

CORK .- See Athlone. DANZIG .- See Heilsberg. DRESDEN .- See Leipzig.

FECAMP

to 12 Noon, Programme in English by the I.B.C. Happy Hour. Part 1, Light Music: Signature Tune; 1 do like to be beside the Seaside (Glover); Heartaches (Klenner); Dance of the Nymphs (Birch); Song, My Mother's Garden (Hanley); My Lady Dainty (Hesse); Pianoforte Solo, Dancing Butterfly (Young); Little Yvonne (Schwartz); Selection, White Horse Inn (Stolz). Part 2, Dance Music: The Wind's in the West; Ah, But is it Love? A One Horse Town; Moths around the Candle Flame; Mary Rose; Isn't this a Xight for Love; Thanks; Old Fashioned Sweethearts; Signature Tune. 12 Noon, Programme in French. 3.30 to 6.0 p.m., Programme in English by the I.B.C. 3.30, Concert for Tunbridge Wells and Isle of Thanet Listeners. Part 1, Gramophone Records: Anitra's Dance from the Peer Gynt Suite (Grieg); Sam's Medals (Hogan); The Jolly Whistlers (Gennin); Classica (arr. Ewing); Night Brings me to You (Lockton); Missouri Waltz (Shannon); Alice Delysia Memories. Part 2, Dance Music: My Hat's on the Side of my Head; Pettin' in the Park; The Monkey on a String; A Little Street where Old Friends Meet; I was in the Mood; The Veleta; A Couple of Pals. 4.30, The I.B.C. Nursery Corner; Birthday Greetings. 5.0, Concert for Dover and Folkestone Listeners. Part 1, Light Orchestral Music: Destiny Waltz (Baynes); Selection from Sari (Kalmán); Violin Solo, Souvenir (Drdla); Selection from No, No, Nanette (Youmans); Fairy Tale (Heykens); Guitar Solo, Picking my Way (Lang Kress); The Busy Bee (Bendix); The Way to the Heart (Lincke); I.B.C. Time Signal. Part 2, Hawaiian Band: My Southern Home (Camillio); Tango des Roses (Scherler); Hawaiian Waltzes; Cara Mia (Brodsky). 5.45, Dance Music: My Wild Oat; When you're over Sixty; Taint; This is Romance; Signature Time. 6.0, Programme in English by the I.B.C. 11.0, Concert of Eight Music: Out of Breath; Pianoforte Solo, The Birth of the Blues (Henderson); Song Sundown in a little Green Hollow (Baskette); Romance; Marian Woods (Strauss); I.B.C. Time Signal. 1.30, Concert, arranged by the International Broadcasting C

Wireless World

in Love; We'll all go riding on a Rainbow; Ah, but is it Love? Yvonne; Roaming; Sig-nature Tune. 2.0, I.B.C. Goodnight Melody nature Tune. 2.0 and Close Down.

FLENSBURG.-See Hamburg. FLORENCE.-See Turin.

FRANKFURT

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel and Trier, 1,157 kc/s, 259.3 metres.
7.25 a.m., See Langenberg. 9.0 a.m., News.
9.10 a.m., Broadcast for Schools. 9.45 a.m.,
Post Office Talk. 10.0 a.m., Concert. 10.40
a.m., Announcements. 11.0 a.m., See Stuttgart. 12.15 p.m., Time, News. 12.25, News.
2.35, Records: Plüstern! (Schonberger); Wir tanzen Walzer (Plessburg); Selection from The Merry Widow (Lehār-Robrecht); Das fidele Alt-Berlin (Robrecht); Humorous Interlude; Rheinländler Potpourri (Robrecht); Neapolitan Folk Song, Tarantella sincera; Selection from The Dubarry (Millöcier-Mackeben); Strauss Potpourri. 1.30, For Young People: Winter-Radio Sequeuce (Wigger). 2.30, Weather. 2.40, Time, Economic Notes, 3.0, The Freiburg Concert Orchestra, conducted by Dehrmann. Soloists: Post (Volin) and Kullmann (Pianoforte): Overture, Fra Diavolo (Auber); German Dances (Schubert); Scandinavian Suite (Torjussen); Address; Sonata for Violin and Pianoforte (Handel); Address; Minuet (Bolzoni); Gavotte (Gillet); Geschichten ans Oesterreich (Mader); Flotte Postillone (Rathke); Intermezzo, Kornblumen (Gangl-berger); Gallop (Joh. Strauss). 5.0, Talk: Frontier Problems. 5.20, Week's Review. 5.35, A Flying Visit. 5.50, Weather, News. 9.45, Epiphany Programme. 10.0, The Station Orchestra, conducted by Rosbaud: Humorous Interludes by Richard Kautz; Gallop, Die schöne Reiterin (Kéler-Béla); Polka Mazurka, Das liegt bei uns im Bht (Ziehrer); Polka, Sie kriegen sich (Dellinger); Ein Ballnachtstraum (Translatcur); Polka, Stürmisch in Lieb und Tanz (Joh. Strauss); March, Des Matrosen Heimkehr (Suppé). 11.0, Serenade from Stuttgart. 12 Midnight, Close Down.

FREDRIKSSTAD.—See Oslo.

FREIBURG.—See Stuttgart.

FREDRIKSSTAD .- See Oslo. FREIBURG,-See Stuttgart. GENEVA .- See Radio-Suisse Romande. GENOA .- See Turin. GLEIWITZ .- See Breslau. GOTEBORG.—See Stockholm.

GRAZ.-See Vienna, HAMAR.-See Oslo.

HANOVER .- See Hamburg.

HEILSBERG

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 671 kc/s, 447.1 metres, -5.15 a.m., Gym. 5.35, Concert from Hamburg. 7.0, Morning Prayer. 7.30, Gym for Women. 8.5, Broadcast for Schools. 9.40, News. 9.55, Weather. 10.5, Agricultural Talk. 10.30, The Small Station Orchestra, conducted by Eugen Wilcken: Overture, Anne Boleyn (Domizetti); Selection, Le postillon de Longjumeau (Adam); Two Old Dutch Dances; Zigemerfest (Heykens); Waltz. Roses from the South (Joh. Strauss); Prelude to The Loreley (Bruch); Intermezzofrom Ferdinand and Miranda (Humperdinek); Overture, Martha (Flotow); So schön wie's einmal war (Ziehrer); Fanfarenklänge (Pucik). 12.5 p.m., Records: Siamesische Wachtparade (Lincke); Waltz. The Blue Danube (Joh. Strauss); Anitra's Dance (Grieg); Selection. Im Reiche des Indra (Lincke); Was man in Vogtland singt (Löscher); Clgány Music (Pataky); Sizilietta (Blon); Russian Folk Melody; Danna vatra (Copping); Souvenir di Capri (Becce); Japanese Lantern Dance (Yoshitomo); Melody (Arnold); Carpathia (Bereny); Chinesische Strassenserenade (Siède); Münchener Bilderbogen (Gulden); The Turkish Patrol (Michaelis). In the intervals, News. 1.30, Post Office Programme with Records. 2.0, Exchange. 2.15, For Women. 2.25, Talk: Gregor Mendel, the Biologist. 2.35, Handwork Programme. 3.0, The Small Station Orchestra, conducted by Eugen Wilcken: Overture, Le maçon (Auber); Selection, The Sunken Bell (Respighi); Winterstürme (Pucik); Bei den Wiener Schrammeln (Recktenwald): Vom Rhein der Wein (Lincke). 4.0 to 5.0, See Berlin (Funkstunde). 5.0, Traffic Report. 5.5, Programme Announcements. 5.15, Agricultural Prices. 5.25, Organ Recital by Walter Eschenbach: Two Choral Preludes (Drischner): (a) Nun sich der Tag geendet hat, (b) Quem pastores laudavere, (c) Dir, dir Jehova will leh singen. 5.50, Weather. 6.0, Transmission for all German Stations relayed from Stuttgart. 7.0, News. 7.5, Concert from Hamburg. 8.15, Dance Music from Hamburg. 9.0, News. 9.30 Concert from Hamburg. 11.0 (approx.), Close Down.

JAN. 6th SATURDAY continued

HILVERSUM

HILVERSUM

(Announced Huizen), 1,013 kc/s, 296.1 metres; 7 kW until 5.40 p.m., and 20 kW, from 5.40 p.m. Programme of the Catholic Radio Society (K.R.O.).—7.40 a.m., Records. 8.10, Divine Service Relay for Children. 9.10, Records. 11.10, Talk on the Epiphany. 11.40, Police Notes. 11.55, I van Schustov and his Balalaika Ensemble. 12.25 p.m., Records. 12.55, Ensemble Concert (contd.). 1.40, Records. 2.10, For Children. 3.40, H.J.R.O. (Hebrew Radio Society) Programme. 4.40, Orchestral Concert, conducted by Leeuwen: Death or Glory (Hall); Overture, Peter Schmoll (Weber); Tout Paris (Waldteufel); In a Pagoda (Bretton); Ballet russe (Luigini); Jubilee March (Leeuwen). 5.25, Records. 5.55, Concert (contd.): Per aspera and astra (Urhach); Overture, Ruy Blas (Mendelssohn); Spanish R h a p s o d y (Richardy); Panis angelicus (Franck); Selection. The Beile of New York (Kerker); University of Dayton (Panella). 6.40, Police Notes. 6.55, Talk on Christmas and the Epiphany. 7.25, Talk on Christmas and the Epiphany. 7.25, Talk on Christmas and the Epiphany. A. 125, Talk on Christmas and the Epiphany Radio Play (Henri Ghéon). 9.20, The K.R.O. Orchestra (conducted by Kooten. 8.35, Epiphany Radio Play (Henri Ghéon). 9.20, The K.R.O. Orchestra (conduct.): Scènes alsaciennes (Massenet); Canzone (Vranken); Flemish Dances (Block). 9.50, Records. 9.55, Choral (oncert (cond.). 10.15, News. 10.20, The K.R.O. Orchestra (conducted by Unstenhouwer: I've found the Right Girl (Lupino); Wenn du sagst leh liebe dich (Eisemann); Baby (Rust); The Wedding of the Winds (Hall): Einmat heinschau'n—einmal herschau'n (Stolz): Der schönste Sport ist Radelfahr in (Katscher). 10.50, Records. 11.5, The K.R.O. Orchestra (cond.): La Castiliana (Salter); Potpourri (Robrecht); Finale. 12 Midnight, (lose Down.

HORBY.-See Stockholm.

HUIZEN

HUIZEN

(Announced HILVERSUM), 160 kc/s, 1,875 metres; 7 kW. until 3.40 p.m. Transmitted from Koctwijk on 50 kW. from 3.40 p.m..

7.40 to 9.40 a.m., Programme of the Workers' Radio Society (V.A.R.A.); Records, 9.40 to 9.55, Religious Programme of the Liberal Protestant Radio Society (V.P.R.O.), 9.55 till Close Down, V.A.R.A. Programme, 9.55, Programme for Night Workers, 11.40, Orchestral Concert, conducted by de Groot; Folies Bergère (Lincke); Overture, Le lae des fées (Auber); Estudiantina (Waldteufel); Serenade (Clapi); Hearts and Flowers (Czibulka); Selection from La mascotte (Audran); Records; Overture, Martha (Flotow); Selection from Paganini (Lehār); Grüss mir mein Wien (Kalmán); Selection from The Geisha (Jones), 12.55 p.m., Records, 1.0, Records, 1.10, Organ Recital by Steyn: Melody (Rust); King Lear (Rust); Birthday Greetings (Ketelbey); Obsession (Demaret); Dimah (Akst); Potpourri ancienne (Steyn), 1.40, Records, 2.0, Records, 2.40, Talk, 2.5, Music Talk with Illustrations (on Records), 3.40 to 3.55, Interval, 3.55, Concert, conducted by Wins: Griserie (de Leur), 4.40, Records, 5.0, Records, 5.0, Records, 5.0, Literary Talk, 5.40, The V.A.R.A. Children's Choir, 6.10, Organ Recital by Jong, 6.40, V.R.A. Programme, 7.40, S.O.S. Messages and Announcements, 7.55, The V.A.R.A. Orchestra, conducted by Mins: Griserie (Genot: Overture, Das Nachtlager in Granada (Krentzer); Sefenade à Ninon (Lacôme); The Musical Snuff Box (Nicolaicwsky); Russian Danees (Bortkiewicz); Warch (Rosey), 8.25, Songs at the Pianoforte by Mile, Ada Dassy, 8.40, The V.A.R.A. Orchestra (contd.); March from Tsust (Goundd); Nocturne No. 3 (Liszt); Waltz in A Flat (Brahms); Suite from Faust (Goundd); Nocturne No. 3 (Liszt); Waltz in A Flat (Brahms); Suite from Tsar Saltan (Rimsky-Korsakov), 9.25, Songs at the Pianoforte foundd); March from Tsar Saltan (Rimsky-Korsakov), 9.25, Songs at the Pianoforte foundd); Records, 1.140 (approx.), Close Down. INNSBRUCK.—See Vienna.

INNSBRUCK.-See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—12.30 p.m., Amusement Guide and Variety Items. 1.0, News. 1.15, Variety Programme. 8.0, Amusement Guide, News and Exchange. 8.10, Film Review. 8.30, Radio Concert. 9.0, News. 9.15, Radio Concert.

KALUNDBORG.-See Copenhagen.

KIEL.-See Hamburg.

KLAGENFURT.-See Vienna.

KOSICE,-See Prague.

LANGENBERG

LANGENBERG

635 kc/s, 473 metres; 60 kW.—5.0 a.m., Records and To-day's Motto. 5.5, Records. 5.40, See Stuttgart. 5.45, Gym. 6.0, News. 6.10, Weather. 6.15, Records from Frankfurt. 7.15, Announcements. 7.25, For Women. 7.35, Gym for Women. 9.0, See Frankfurt. 9.15, Roman Catholic Service, relayed from Cologne Cathedral, 10.0, The Augmented Station Orchestra, conducted by Buschkötter: Symptomy No. 91 in E flat (Haydn); Symptomy No. 91 in E flat (Haydn); Symptomy No. 91 in E flat (Haydn); Symptomy for Violin, Viola and Orchestra (Mozart). 10.55, Weather. 11.0, Concert from Stuttgart. 12.15 p.m., See Frankfurt. 12.25, News. 12.35, See Frankfurt. 12.25, News. 12.35, See Frankfurt. 5.0, Epiphany Programme. 5.45, Announcements. 6.0, Transmission for all German Stations, relayed from Stuttgart. 7.0, See Frankfurt. 7.10, Humorous Programme (Paul Schaaf) with Music by Gustav Kneip. 9.0, See Frankfurt. 9.20, See Stuttgart. 9.30, News. 9.45 to 11.0, See Frankfurt. 1.10, Serenade from Stuttgart. 1.0 a.m. (Sunday), Close Down.

LAUSANNE,-See Radio-Suisse Romande.

LEIPZIG

LEIPZIG

770 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—5.30 a.m., Programme from Munich. 6.15, News, Time. 6.25, See Breslau. 8.0, See Breslau. 8.40, Exchange, 8.45, News, 9.45, Post Office Programme with Rrecords. 10.40, News 10.50, News, Time. 11.0, The Leipzig Symphony Orchestra, conducted by Blumer; Soloists, Max Krämer (Violin) and Karl Meissner (Viola); Overture, Le Carnaval romain (Berlioz); Sinfonie concertante for Violin, Viola and Orchestra (Mozart); Extracts from the Suite Vasantasena (Halvorsen); Music for Big and Little Children (Ambrosius); Italian Caprice (Tchaikovsky); Extracts from Euryanthe (Weber). In the interval, News and Time. 1.0 p.m., News. 1.10, Exchange, Weather. 1.15, Review of Books on Africa. 1.35, For Children (2.15, Review of the Week. 2.30, Agricultural Notes. 2.40, Johannes Gregor Mendel Memorial Programme. 3.0, Epiphany Concert by the Leipzig Symphony Orchestra, conducted by Steffen; Soloists, Marianne Haine (Soprano) and Karl Hoyer (Organ): Frelude in C (Bach); Concerto grosso No. 7 in C (Handel); Epiphany Cantata for Soprano, Flute and Organ (Telemann); Concerto grosso No. 2, Op. 6 (Corelli); Wie schön leucht' uns der Morgenstern, for Soprano, Flute and Viola (Hoyer); Concertino in Old Style for Organ and Strings (Hoyer). 4.30, Reading. 4.50, The Henze Guitar Quartet. 5.10, A Modern Dictionary. 5.20, Ski-ing Programme in Urose and Verse. 5.45, Exchange. 6.0, Trausmission for all German Stations, relayed from Stuttgart. 7.0, News. 7.10, Die fröhlichen drei Könige—Epiphany Play (Steguweit). 8.0, The Leipzig Symphony Orchestra, conducted by Hilmar Weber Soloists, Emil Genssler (Bassoon) and Günther Olbrich (Cornet): Selection from Ein Fest in Aranjuez (Demerssenann); Introduction and Polonaise for Bassoon (arr. Hilmar Weber); German Folk Song Fantasia (Blumer); Cornet Solo: Nachklänge aus dem Killertal (Hoch); Waltz. Am Wörther See (Koschat). 9.0, News. Time. 9.20, News. 9.35, Dance Music by the Emdé Band.

LINZ.-See Vienna.

LJUBLJANA

LJUDLJANNA

522 kc/s, 574.7 metres; 7 kW.—6.30 a.m.,
Agricultural Talk. 7.15, News. 7.30, Gym.
8.0, Religious Address. 8.30, Records. 9.0,
Relay from a Church. 10.0, Yugoslav Music
by the Station Orchestra. 11.0, Time, News.
3.0 p.m., Agricultural Talk. 3.30, Quartet
Concert. 4.30, Waltz Music on Records. 7.0,
Violin Recital. 8.0, Accordion Solos. 8.30,
Time, News. 8.50, Dance Music.

LUXEMBOURG

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—7.0 p.m.,
Gramophone Concert. Overture, The Flying
Dutchman (Wagner); Waltz, Trés jolie
(Waldteufel); Weaner Madln (Ziehrer);
Waltz, Pluie des Roses (Avignon); Déja
(Aivas-Lenoir); Amoretten Tänze (Gungl),
7.30, Violin Reeital by Mertzig: Sarabande
(Bach); Romance in F (Becthoven); First
Movement from the Concerto in F (Lalo),
7.55, Concert of French Music by the Station
Orchestra, conducted by Pensis: Overture,
Les Franc-Juges (Berlioz); Musiques foraines
(Schmitt); Les Angelus (Debussy-Salabert);
Voici que le Printemps (Debussy-Salabert);
Sérénade (Gounod). 8.30, Talk on Economics.
8.35, Ma poupée chérie (de Sévérac).
8.45, Exchange. 8.50, News in French. 9.0,
Variety Concert by the Station Orchestra
and Soloists. 9.50, News in German. 10.0.
Gramophone Concert. 1812 Overture (Tchaikovsky); Potpourri, Fortissimo (Kálmán):
Mozart Potpourri (Urbach); Selection from

Tip-Toes (Gershwin); Selection from The King of Jazz. 10.45, Dance Music by the Station Jazz Band, conducted by Ferry Jusa.

MADRID

MADRID

ARANJUEZ, EAQ, 10,000 kc/s, 30 metres; 20 kW.—6.0 to 8.0 p.m., Programme for Listeners in the Canary Islands, (fuinea and Europe. 6.0, Concert of Popular Music. 7.15, Talk. 7.30, Light Music. 8.0 to 10.30, Interval. 10.30, Variety Music. 10.45, Radio Chronicle. 11.0, Variety Music (contd.). 11.45, Light Music. 12 Midnight till Close Down, Programme in English by the I.B.C. 12 Midnight, Light Music: Selection from The Count of Luxembourg (Lehár); Aloha 0e (Lilionkalani); Soft Lights and Sweet Music (Berlin); The Clock is Playing (Pierre); Selection from Viktoria and her Hussar (Abrahani); Selection from A Waltz Drean (O. Straus); Black Eyes (Traditional): 12.30 a.m., Dance Music: Fortysecond Street; My First Love to Last; Wond'ring; African Lament; With you and me here; Cornflowers and Poppies; It's Sunday down in Caroline; Happy as the Day is Long. 1.0, I.B.C. Goodnight Melody and Close Down.

MADRID

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—2.0 p.m., Chimes. Time, Weather, Theatre Notes. 2.15 (approx.), Concert: Sevilla (Albeniz); Capricho arabe (Tarrega); Cavatina (Gaztanhide); Aria (Bach); Waltz (Vance); Rondo from The Fire Bird (Stravinsky); Selection, L'Africaine (Meyerbeer); Navarra (Albeniz); Tango (Rossi-Podesta); Selection, Luisa Fernanda (Moreno Torroba); Foxtrot (Baxter); Selection, El amor brujo (Falla); Sardana (Marti-Apareio-Mayral). In the interval. Exchange. 3.40, Radio Journal, Film Review. 3.50, News. 4.0 to 7.0, Interval. 7.0, Chimes, Exchange, Talks and Dance Music. 8.15, Radio Journal. 8.30 to 9.15, Interval. 9.15, English Lesson. 9.30, Chimes, Time, Radio Journal. 9.45 (approx.), Violin Recital in connection with the Music Competition: First Movement, from the Concerto in D Minor (Bruch); Nocturne in E Flat (Chopin-Sarasate); Gipsy Melodies (Sarasate); Finale of the Spanish Symphony (Lalo); Romance in F (Beethoven); Saltarello (Wieniawsky-Thibaud); Tango (Fernandez Arbós). After the Recital, En la Noche de Reyes.—Play (Francisco Camba). 11.45, Radio Journal. 12 Midnight, Chimes and Close Down.

MALMO .-- See Stockholm.

MILAN.-See Turin,

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—10.0 a.m., Glazumov Concert, relayed from Kosice, 1,022 kc/s (293 metres). 11.0, Sec Prague. 11.15, Sec Brno. 12.30 p.m., Sec 9.3.0, Sec Prague. 4.0, The Station Orchestra, conducted by Plichta. 4.30, Talk on Peasant Art. 4.45, Records. 5.0, Sec Prague. 8.0, The Station Orchestra, conducted by Musil. 9.0, Sec Prague. 10.30 (apprex.), Close Down.

MOTALA.-See Stockholm.

MUHLACKER .- See Stuttgart.

MUNICH

MUNICH

716 kc/s, 419 metres; 60-100 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 239 metres.—8.0 a.m., Winter in Literature and Music—Radio Sequence. 9.0, Roman Catholic Service. 9.45, Chimes. 9.50, Reading. 10.15, The Small Station Orchestra, conducted by Erich Kloss. Soloist: Hugo Reker (Violin) and Georg Troibner ('Cello); Suite from Prometheus (Beethoven); Adagio from the Violin Concerto in G minor (Bruch): Music from Li-Tai-Pe (Franckenstein); Abendlied (Schumann); Unter Kirschblüten (Niemann). 11.0 to 1.0 p.m., See Leipzig. In the interval, News. 1.0, Time, Weather, Announcements. 1.10, A Waltz on the Ice—Sketch (Geissler). 1.35, Popular Concert. 2.5, Dialect Reading. 2.25, Records: Epiphany Music. 2.40 to 4.30, See Leipzig. 4.30, Talk: Epiphany Customs in Old Bavaria, 4.50, See Leipzig. 5.10, Wir sind die drei Königs—Play for Children (Wurmbach). 5.50, Weather, Sports Notes. 6.0, Trausmission for all German Stations, relayed from Stuttgart. 7.10 to 9.20, See Leipzig. 9.20, (approx.), Weather, Announcements. 9.35 till Close Down, See Leipzig.

NAPLES .- See Rome.

NOTODDEN.-See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.1 metres; and Riukan, 671 kc/s, 447.1 metres; and Jefoy LCL, 6,990 kc/s, 42.92 metres.—3.30 p.m., Records. 4.15, For Children, 5.15, Norwegian Music, for Hardanger Fiddle and Duleimer. 5.45, Talk on Economics. 6.0, Announcements. 6.30, Discussion on Jazz



Music. 7.0, Time. 7.1, The Station Orchestra: Nibelungen March (Sonntag); Overture, Semiramis (Rossini); Norwegian Suite (Ulfristad); Selection, Robin Hood (Bunning); Three Songs (Mendelssohn); Light Music. 8.40, New, Topical Talk. 9.15, Humorous Recitations. 9.45, Dance Records. 11.0 (approx.) (Close Nown) prox.), Close Down.

OSTERSUND.—See Stockholm.

PARIS

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—12.30 p.m., Concert, relayed from Paris (Ecole Supérieure), 671 kG/s, 447.1 metres. 1.0, Market Prices. 1.15, Talk on Museums. 1.30, Agricultural Notes. 1.45, Report of the Labour Bureau. 2.0, Exchange, Talk on Hygiene. 2.15, Economic Notes. 2.30, Exchange, Colonial Notes. 2.45, Amusement Guide, Programme for Women. 3.0, News. 3.15, Exchange, S. Amusement Guide, Programme Talk in Esperanto. 4.0, Tourist Notes. 4.15, Exchange. 5.45, Le Journal Parlé. 7.15, Weather. 7.25, News. 7.30, Dramatic Programme: (a) Le Hérison—Play in One Act (Duvernois), (b) Un ami de Jeunesse—Play in One Act (Sée). 9.0 (approx.), Close Down.

PARIS

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.10 a.m., Fanfare, Records. At intervals, News. 8.45, Talk for Ilousewives. 12 Noon, News and Exchange. 12.5 p.m., Selection, The Marriage of Mademoiselle Beulemans (on Records). 12.20, Records. 12.30, Ilumorous Programme by Leon Raiter. 1.5, Exchange. 1.15, The Station Quintet: Selection, Les Cloches de Corneville (Planquette); Soir d'été sur la terrasse (Turina); Melodies (Casadesus); Selection, Le Jongleur de Notre-Danie (Massenet); Selection, The Tales of Hoffmann (Olfenbach); Marche hérolque (Saint-Saëns). In the interval, Exchange. 2.0, Exchange. 3.15, Exchange. 3.45, Exchange. 6.45, Exchange. 6.45, The Station Jazz Orchestra, conducted by Lucien Moraweck. 11.0, News.

PARIS

PARIS

RADIO-PARIS, Call CFR, 174 kc/s, 1,725 matres; 75 kW.—6.45 a.m., Gymnastics. 7.30, Weather, Gymnastics. 7.45, Records. 8.0, Weather, News. 12 Noon, Records: Marchedes forgerons; By the Blue Hawaiian Waters (Ketelbey); Prends mon cœur (Marafloti); Melody (Lehár); Chant de berger (Servant-Bergeret); Les Pompons rouges (Mercier); Bambolina (Lehár); Pastel (Paradis); O Frühling, wie bist du so schön (Lincke); Tu me demandes si je t'aime (Bertet-Scotto); Charmaine (Rapée); La Cancalaise (Avignon); Les Gars de la marine (Boyer-Heymann); Mon bateau (Drigo); Ches le médecin (Chepfer); Waltz, La cocárde de Mimi Pinson (Goublier-Bellecour); Song of the Jungle (Freed-Brown); Les hommes ne mentent jamais (Borel-Clerc); Les réves sent des bulles de savon (Hermitte); Parade de la mère l'oie (Breau-Sthemm-Libbo); Dans les lûes de Toulou (Izoird-Raiter); Leila (Dauber); Donauwellen (Ivanovici); Doucement (Bertal-Mauton); Waltz, Potpourri (Irving-Berlin); Adieu (Champ-fleuri); Lucienne (Curti); Vers toi (Chapons-Rodor); Florida (Dufas); My Garden of Roses (Wood); When we're alone (Messier); Vieille Java (Marceau); Melody (Erwin); New York (Padilia). In the interval, News. 3.0, For Children. 3.45, Exchange. 6.20, News and Agricultural Talk. 6.45, Records. 7.0, Science Talk. 7.20, Records: Selection from La vie Parisienne (Offenbach); O Sole mio (Di Capua); Pas des écharpes (Chaminade); Moineau (Beytts); Gnomenparade (Ellenberg); Selection from O Kay (Gershwin); Melody (Green); Ronde des feux follets (Van Hoorebecke). 7.45, News. 8.0, Figaro—Opera (Mozart). In the intervals, News.

PITTSBURGH

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres; and 25.27 metres.—12 Noon, Musical Clock. 1.0 p.m., Morning Devotions, from New York. 1.15, Don Hall Trio, from New York. 2.0, Breakfast Club, from New York. 2.30, Style and Shopping Service. 2.45, News, Work-a-day Thoughts. 3.0, Edward MacHigh, from New York. 3.15, KDKA Home Forum. 3.30, Singing Strings, from New York. 3.45, Organ Melodies, from New York. 3.45, Organ Melodies, from New York. 4.0, Four Southern Singers, from New York. 4.0, Four Southern Singers, from New York. 4.5, Spanish Idylls, from New York. 5.0, Piano Classique. 8.18, Ward and Minzzy, from New York. 5.30, News. 5.35, National Farm and Houre Hour, from New York. 6.30, Ernie Holst's Orchestra. 7.0, Musical Originalities from New York. 8.0, Words and Music, from New York. 8.30, Wealth of Harmony, from New York. 9.30, Concert Favourites, from

JAN. 6th SATURDAY

New York. 10.0, Programme to be announced. 10.15, Bobby and Sue—Helen Irwin. 10.30, A Recreo, Isill and Alex. 10.45, Orphan Annie, from New York. 11.0, News. Pat Haley. 11.15, Sports, Programme Preview. 11.30, Mary Small, from New York. 11.45, Captain Al Williams, from New York. 12 Midnight, Ernie Holst's Orchestra. 12.30 a.m. (Sunday), Ritz Carlton Orchestra from New York.

PORSGRUND.—Sec Osio.

PRAGUE

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—10.0 a.m., Glazunov Concert, relayed from Kosice, 1,022 kc/s, 293 metres. 11.0, Chimes. 11.5, News. 11.15, See Brno. 12.30 p.m., Literary Talk. 1.45, Interval. 3.0, A Quiet House-Humorous Radio Play (Nexuda). 4.0, See Moravska-Ostrava. 4.30, Talk: Modern America. 4.45, Records. 5.0, German Transmission. 6.0, News. 6.5, Talk. 6.20, Introductory Talk to the Following Transmission. 6.25, L'Enfance du Christ—Oratorio (Berlioz), by the Station Orchestra and Choir, conducted by Jeremias, and Soloists. 8.0, See Bratislava. 9.0, Time, News, Sports Notes. 9.15, Programme arranged by the Syndicate of Czechoslovak Journalists, relayed from the Town Hall. 10.30 (approx.), Close Down.

RADIO-SUISSE ROMANDE

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW; and Geneva, 400 kc/s, 749.9 metres.—6.0 to 6.15 a.m. (from Lausanne), Gym. 11.28, Time. 11.30, News. 11.40, Soldier Sougs. 12 Noon (from Lausanne), Financial Notes. 12.5 p.m. (from Lausanne), Pinancial Notes. 12.45 (from Lausanne), Announcements and Answers to Correspondence. 2.58, Time. 3.0 (from Lausanne), The Lausanne Station Orchestra, conducted by Moser. 3.45, Concert relayed from Lugano. 5.0 (from Geneva), For Children. 5.20 (from Geneva), Talk on Vocations—The Lawyer. 5.40 (from Geneva), Film Talk. 6.30 (from Geneva), Radio Chronicle; News. 6.59, Weather. 7.0 (from Geneva), Variety Itens by Max and Eddy. 7.25 (from Geneva), Humorous Talk. 7.45, The Radio-Suisse Romande Orchestra, conducted by Echenard. Soloists: Georges Perret and Pasche (Pianoforte); Symphonic concertante for Clarinet, Ohoe, Horn, Bassoon and Orchestra (Mozart); Le Carnaval des animaux for Two Pianofortes (Saint-Saĕns); The Nursery (Ingelbrecht); Divertissement (Lalo). 9.0, News. 9.10, Dance Music on Records.

RIGA

RIGA

571 kc/s, 525.3 metres; 15 kW.—7.10 a.m., Hymns. 7.15, Concert. 8.15, Talk. 9.0, Divine Service. 11.0, Weather. 11.10, Agricultural Talk. 11.40, Records. 12.10 p.m., Reading. 12.40, For Children. 1.10, Music. Talk. 2.10, Reading. 2.40, Military Music. 3.40, Talk. 4.10, Poetry. 4.30, Organ Recital: Prelude in G (Bach); Idyll (Kalnins); Gothic Suite (Boelmann). 5.0, French Lesson. 5.30, Agricultural Talk. 6.0, Weather. 6.5, Concert: Preludes to Acts IV and V of King Manfred (Reinecke); Air in D (Bach); Ave Maria (Schubert); Biblical Scenes (Reinecke); Melody (Franck): Meditation (Abt); Andante cantabile (Tchaikovsky); March (Wagner). 7.0, News. 7.25, Choral Concert. 8.0, Weather, followed by Selection from Lohengrin (Wagner). 8.30, Records: 9.0, Dance Music. 10.0 (approx.), Close Down.

RJUKAN.-See Oslo.

SALZBURG.—See Vienna.

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by WZXAF on 31.48 metres and by WZXAD on 19.56 metres.—12.45 a.m. (Sunday), Stock Reports.

SCHWEIZERISCHER LANDESSENDER

LANDESENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; Basie, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—5.50 a.m.

(Basie), Gym. 11.0 (Berne), Records. 11.29, Time, News. 11.40 (Berne), Records. 12 Noon, Records. 12.15 p.m. (Berne), Songs. 12.25 (Berne), Time, Weather, Exchange. 12.30 (Berne), Review of the Week. 12.45 (Basie), Wireless Notes. 1.0 (Basie), Book Review. 1.30 (Basie), The Edelweiss Accordion Club. 3.45, Programme to be announced. 3.0 (Basie), Records. 5.30 (Basie), Records. 6.30 (Basie), Records. 6.50 (Basie), Time, Weather. Exchange. 6.20 (Basie), Time, Weather. Exchange. 6.20 (Basie), Dr. Knuchel reads from his Sketch

Book of the Basle Zoological Gardens. 6.50 (Basle), Introductory Talk to the following Relay. 7.0 (Basle), Brahms Concert, relayed from the Musiksaal. 9.0 (approx.), Weather, News. 9.10 (approx.) (Basle), Dance Music (on Records). 10.0 (approx.), Close Down.

continued

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 242 kc/s, 1,239.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,167 kc/s, 257 metres; Motala, 222.5 kc/s, 1,348 metres; Ostersund, 409 kc/s, 746.2 metres; and Sundsvall, 554 kc/s, 542 metres;—10.0 a.m., Divine Service. 11.45, Weather. 1.0 p.m., (from Göteborg), Variety Programme. 2.0, For Children, relayed from Hudiksval, 1,327 kc/s, 226 metres. 2.30, Choral Concert of Christmas Carols and Songs, conducted by Gabriel Graner. 3.0, Rending of Swedish Poetry. 3.15, Ilungarian Music. Ragnar Hulten (Songs), Carl Garaguly (Violin), and Witowsky (Pianoforte). Pianoforte Solo: Rhapsody No. 3 (Liszt); Hungarian Folk Songs; Violin Solos: Hungarian Fantasia (Garaguly), (h) Gipsy Dance (Nachez); Pianoforte Solo: Rhapsody No. 11 (Liszt); Hungarian Folk Songs; Violin Solos: Ziegennerweisen (Sarasatc). 4.5, Talk, The Land of Eldorado. 4.35, Records. 5.45, Reading. 6.15, Weather: News. 6.30, The Grand Duchess of Gerolstein—Operetta (Offenbach). 9.0, Light Music by the Elite Orchestra. 10.0 (approx.), Close Down.

STRASBOURG

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—10.30 a.m., Orchestral Concert, relayed from Marseille, 950 kc/s, 315 metres. 12 Noon, Dance Music on Records. 12.45 p.m., News and Time. 1.0, Orchestral Concert, conducted by Roskam. Overture, Zampa (Herold); Boston, Blue Ridge Moon (Kahn, Arnold, Alstyne); Tango from the Star of Valencia (Stauch); Grossmitterchen (Langer); Foxtrot, I'll Do my Best to Make you Happy (Noble); Selection from Phi-Phi (Christiné); Ninon, lach' mir einmal zu (Kaper and Jurmann); Gavotte, The Way to the Heart (Lincke); Fox-trot, Roses at Dawning (Kahn and Moret); Wherever you are (Kahn, Noble, Campbell, Connelly); March (Stolz). 2.0, Legal Talk in German. 2.15, Records. 3.0, The Triumph of Rhythm in Modern Music. 4.0, Records: Extracts from La Mascotte (Audran). 4.30, Tourist Talk. 4.45, Records. 7.0, French Lesson. 7.15, Agricultural Talk in German. 7.30, Time and News. 7.45, Records. 8.0, News in German. 8.30, Rose ma Voisine, Comic Opera in One Act (Chadal); and Les petites brebis, Operetta in Two Acts (Varney). In the interval, News. 10.30, Dance Music from the Savoy.

STUTTGART

MUHLACKER, 563 kc/s, 533 metres; 100 kW. Relayed by Freiburg, 1,157 kc/s, 259.3 metres; and 527 kc/s, 559 metres until January 16, 1934. 9.10 a.m., Organ Recital of Tchaikovsky Music by Lochs; December from The Months, Op. 37a. No. 12; Chant sans paroles, Op. 2, No. 3; Romance, Op. 5; Nocturne, Op. 19, No. 4; Song, Op. 40, No. 2; Valse des fleurs. 9.30 a.m., Records. 10.10, Mouth Organ Recital by Theo Lachenmann: March, Stolzer Adler, erwache! (Lachenmann); Die Mundharmonika spielt (Lachenmann); Die Mundharmonika spielt (Lachenmann); Overture, Light Cavalry (Suppé). 10.25, Post Office Concert. 10.55, Weather. 11.0 a.m., The Station Orchestra, conducted by Görlich: Apollo March (Lincke); Potpourri of Pre-War Melodies, Deuchtkugelm (Petras); Rheinländer-Intermezzo, Die Bajadere (Lincke); Popular 1911 Melodies (Lincke); Funeral March (Dohnanyi); Dance of the Merry Mascots (Ketelbey); Quartet for Wind Instruments (Krüger); Bassoon Solo: Der Brummbär (Fucik); Intermezzo, Der Elefant im Porzelianladen (Zander); March Potpourri (Komzak). 12.15 p.m., Time, News. 12.25, News. 12.35, See Frankfurt. 2.15, Morse Lesson. 2.30, Talk on Flowers. 3.0 to 5.35, See Frankfurt. 5.35, Talk: Gregor Johann Mendel, the Biologist. 5.50, Time, Weather. 6.0, Transmission for all German Stations: Essingt und klingt im deutschen Land—Sequence of German Folk Scags and Music (arr. Fritz Ganss) by the Station Orchestra, Accordion Band, a Children's Choir, the Kromer Sextet, and the Heinz Mönch Zither Trio. 7.0, See Frankfurt. 7.10, See Langenberg. 9.0, Time, News. 9.20, Talk: Things you should know. 9.30, News. 9.45 to 11.0, See Frankfurt. 11.0, Serenade. 1.0 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

779 kc/s, 385 metres; 8 kW.—12 Noon, Opera Music. 12.15 p.m., Ilawaiian Guitar

Music. 12.30, News, Exchange. 12.45, Request Music. 1.0, Announcements, Time. 1.5, Opera Music. 1.15, Argentine Orchestra. 1.30, Light Music. 1.45, Orchestral Music. 2.0, News, Exchange. 4.15, News, Exchange. 6.0, News. 6.15, Operetta Music. 6.30, Sound Film Music. 6.45, Symphony Orchestra: Fingal's Cave (Mendelsson). 7.0, Chansonnettes. 7.15, News. 7.30, Orchestral Music. 7.45, Opera Music. Airs from Fortunio (Messager); La Bohème (Puccini); The Fair Maid of Perth (Bizet); Don Quixote (Massenet). 8.0, Military Music. 8,15, Sound Films Music. 8.45, Opera Music. 9.0, Concert Version of La dame blanche—Opèra (Boieldieu), followed by Viennese Orchestra. 10.0, Accordion Music. 10.15, News. 10.30, Operetta Music. 12 Midnight, News. 12.5 a.m. (Sunday), Au caveau de minuit—Radio Fantasy. 12.30 (approx.), Close Down.

TRONDHEIM .- See Oslo.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 a.m., Religious Information in Various Languages. 7.0 p.m., Religious Information in Italian.

VIENNA

VIENNA

580 kc/s, 517.2 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.1 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.6 metres, 9.0 a.m., Pianoforte and Organ Music (Bach). 9.30, Reading. 9.50, Planoforte Duets. 10.30, Talk. 11.0 a.m. to 1.0 p.m., Orchestral Concert conducted by Anton Konrath. Soloist: Grete Lorweg (Pianoforte). 2.0, Time, Announcements. 2.5, Talk: Austria in Winter. 2.30, Chamber Music for Guitar. 3.30, Talk: Bosnian Towns. 4.0, The Wiener Symphoniker, conducted by Josef Holzer: March, Tirolerbub (Juchei): Overture, The Vintager's Bride (Nedbal): Ländliche Szene (Czibulka): Waltz, Frohe Stunden (Ertl): Polka for Violin, The Canary (Poliakin): Potpourri, Perlen von Donaustrand (Uhl); Hungarian Comedy Overture (Kéler-Bela): Prelude to the Third Act of Cinderella (Job. Strauss): Waldandacht (Rainann): Piecolo Solo, Nachtigalls Morgengruss (Recktenwald): American Internezzo (Recktenwald): S.35, Reading (Rudolf A. Schröder). 6.5, ('Cello Recital. 6.45, Time and Sports Notes. 7.0, To-day's Motto. 7.5, Operetta and Opera Concert by the Wiener Symphoniker, conducted by Holzer, and the State Opera House Choir. conducted by Max Schönherr. 8.33, News. 8.50, The Wiener Symphoniker, conducted by Josef Holzer: Austrian Military March (Streicher): Potpourri, Johann Strauss spiett auf (Morena); Song, Wein und Musik (Strauss, Rither-Korngold): Overture, A Waltz Dream (O. Strauss): Serenade (Neumann); Waltz, Gruss aus Wien (Süss); Selection from Eva (Lehâr): 1ch denk' an dieh (Guttmann); Hungarian Dance Suite from Der Teifelsreiter (Kalinán); Waltz, Weaner Frücht'in (Czibulka); Song, 1ch weiss gar ein heimliches Platzerl da draussen in Neuwaldegg (Stolz): March, Hurra, die Deutschmeister (Kreutzberger); Potpourri, Weaner Hamur (Drescher); Gallop, Auf nach Schwechat (Kaiser). Anno

WARSAW

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—8.0 a.m., Time Signal and Christmas Carols. 8.5, Gym. 8.20, Records. 8.35, Radio Journal. 8.40, Records. 8.50, For the Housewife. 8.54, Announcements. 9.0, Divine Service relayed from Lwow, 788 kc/s, 381 metres. 10.57, Time Signal and Fanfare from the Tower of St. Mary's Church, Cracow. 11.5, Announcements. 11.10, Weather. 11.15, Christmas Carols by the Philharmonic Orchestra. conducted by Maklakiewicz, with Choir and Soloists. 1.0 p.m., Talk: The Forest in Winter. 1.15, Orchestral Concert. 2.0, Rural Programme. 2.20, Pianoforte Recital by L. Borunski: (a) Prelude. (b) Rigaudon (Ravel); Gavotte (Gluck-Brahms); Etude, Op. 63, No. 2 (Friedmann); Carolidare, Grande, (h) Caprice (Paderevski); Etude Fminor (Liszt); Fantasia on Waltz themes (Strauss-Grünfeld), 3.0, For Children. 3.30, Waltz Records. 3.45, Reading (Galsworthy), 4.0, Talk, 4.15, Organ Recital by Rukowski, 4.40, Popular Songs by Eugene Maj (Baritone), 5.0, Dramatic Programme. 5.40, Song Recital by Mme. Werminska: Arias (Verdi) from (a) Don Carlos, (b) The Force of Destiny, (c) Aida; Aria from La Gioconda (Ponchielli), 6.0, Announcements. 6.5, News. 6.30, Records. 6.35, Art Review. 6.40, Reading. 7.0, International Concert, relayed from Prague. 8.0, Radio Journal. 8.10, Sports Notes. 8.20, Chopin Recital by Joseph Smidowicz: Nocturne in C sharp Minor, Op. 27; Mazurkas; Four Etudes from Op. 10; Fantasia, F minor, Op. 49, 9.5, Dance Music from the Café Italia. 10.0, News. 10.5, Dance Music (contd.).

ZURICH.-See Schweizerischer Landessenden-



PRINCIPAL BROADCASTING STATIONS OF EUROPE

Arranged in Order of Wavelength

Metres.	kc/s.	kW.	Station.	Tuning Positions.	Metres.	kc/s.	kW.	Station.	Tuning Positions.
1935 1875	155 160	7 7	Kaunas (Kovno) (Lithuania)		363.6 360.6	825 832	13' 1.5	Algiers (Algeria)	
1796	167	40	3.40 p.m.) (K.R.O. and N.C.R.V. programmes.) Lahti (Finland)		355.9	843	50	on low power) London Regional (Brookmans Park)	
1725 1635	174 183.5	75 60	Radio Paris, UFR (Germany).	 	352.1 349.6	852 858	7 7.6	Graz (Austria). (<i>Relays Vienna</i>) Barcelona, EAJ1 (Spain)	
			(SW. Sin. DJA on 31.38 m., DJB on 19.73 m., DJC on 19.83 m., DJD on 25.51 m.,		348.8	860	10	Leningrad, RV70 (Russia)	
1554.4	193	30	DJE on 16.86 m.) Daventry National		345.2 341.7	869 878	11.5 35	Strasbourg, PTT (France)	
1546	194	7	Ankara (Angora) (Turkey)		337.8	888	15	Brussels II Velthem (Belgium). (In Flemish)	
1481 1446	202.5 2 07. 5	500 13	Moscow, RV1 (Russia) (SW. Stn. on 25m.) Eiffel Tower, FL. Paris		335 334.4	896 897	5 1.9	Poznan (Poland)	
1412	212.5	120	Eiffel Tower, FL, Paris		332.2	903 914	50 60	Milan (Italy). (Relays Turin)	
1380 1348	$\begin{array}{c} 217.5 \\ 222.5 \end{array}$	100 30	Novosibirsk, RV76 I (Russia) Motala (Sweden). (Relays Stockholm)	. 	328.2 325	923	60	Poste Parisien (France) Breslau (Germany)	
1200	250	5	Stamboul (Turkey)		321.9 318.8	$932 \\ 941$	10 0.25	Göteborg (Sweden). (Relays Stockholm) Dresden (Germany). (Relays Leipzig)	· · · · · · · · · · · · · · · · · · ·
1200 1190	$\begin{array}{c} 250 \\ 252 \end{array}$	21 200	Reykjavik (Iceland) Luxembourg		318.8	941	1.5	Naples, INA (Italy). (Relays Rome) Marseilles, PTT (France)	· · · · · · · · · · · · · · · · · · ·
1170	256	25	Tashkent, RVII (Russia) Kalundborg (Denmark). (Relays Copenhagen)		315.8 312.8	95 0 959	1.6 1.7	Marseilles, PTT (France) Cracow (Poland)	
1154 1132	$\begin{array}{c} 265 \\ 265 \end{array}$	30 15	Monte Ceneri (Switzerland)		312.8	959	10	Genoa, IGE (Italy). (Relays Turin)	
1117 1083	$\frac{268.5}{277}$	40 60	Moseow, Popoff RV58 (Russia)		309.9 307	968 977	50 0.7	West Regional (Washford Cross)	
1071	280	35	Tiflis, RV7 (Russia)		307	977	0.75	Zagreb (Yugoslavia)	
1035 1000	290 300	36 100	Kiev, RV9 (Russia)		304 301.5	986 995	13 50	Bordeaux Lafayette, PTT (France)	
938	320	20	Kharkov, RV4 (Russia)		298.8	1004	11	Tallinn (Estonia)	
857 840	350 357	100	Leningrad (Russia) Budapest (Hungary)		296.1	1013	20	Hilversum (Holland). (7 kW. before 4.40 p.m.) (V. A.R. A., A.V. R.O. and V. P. R.O.	
800	375	50	Sverdlovsk, RV5 (Russia)		293.5	1022	0.7	(V.A.R.A., A.V.R.O. and V.P.R.O. programmes.) Limoges, PTT (France) Kosice (Czechoslovakia)	
750 720	400 416.6	1.3 20	Geneva (Switzerland). (Relays Sottens) Moscow, RV2 (Experimental) (Russia)		293.5	1022	2.6	Kosice (Czechoslovakia)	
68 9	436	1.5	Oulu (Uleaborg) (Finland)		291 288.3	$\frac{1031}{1040}$	13.2 50	Viipuri (Viborg) (Finland). (Relays Helsinki) Scottish National (Falkirk)	
574.7 574.7	$\frac{522}{522}$	0.7	Hamar (Norway) (Relays Oslo)		288.3	1040	1 0.8	Bournemouth. (Relay Station)	
570	527	0.25	Freiburg (Relays Muhlacker)		286 284.8	$\frac{1049}{1053}$	0.7	Lyons (Radio-Lyon) (France)	· · · · · · · · · · · · · · · · · · ·
568.1 565	$\frac{528}{531}$	2 16	Grenoble (France)		000.0	1058 1058	0.5 0.5	German Relays (Berlin, Magdeburg, Stettin) Innsbruck (Austria). (Relays Vienna)	
560 550	536 545	1.5 120	Kaiserslauten and Augsburg (Relay Munich) Budapest No. 1 Lakihegy (Hungary)		282.2	1063	2.5	Lisbon CT 1AA (Portugal). (Short-wave	
542	554	10	Sundsvall (Sweden). (Relays Stockholm)		281.2	1067	0.75	Station on 31.25 m.) Copenhagen (Denmark)	
539.6 533	556 563	3 1.5	Palermo (Italy)		279.3	1074	13.5	Bratislava (Czechoslovakia)	
525	571	15	Riga (Latvia)		276.5 273.7		60		
517.2 509	580 589	100 15	Vienna (Bisamberg) (Austria) Brussels No. 1, Velthem (Belgium). (In French)		411.0	1105	1.3	Rennes, PTT (France)	
501.6	598	20	Florence, 1Fl (Italy) (Relays Turin)		269.8 267.6		20 0.75	Bari (Italy) (Relays Rome) Valencia (Spain)	
495.8 488.6	$605 \\ 614$	1.2	Tröndelag (Norway)		11	1122	6.25	Nyireghaza (Hungary). (Relays Budapest) Lille, PTT (France)	
480	625	50	Prague (Czechoslovakia)		265.8 263.8		1.3 11.2	Moravska Ostrava (Czechoslovakia)	
472.4 465.8	635 644	60 15	Langenberg (Germany)		261.5 259.3		50 17	London National and West National Frankfurt-aM. (Germany)	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland).		259.3	1157	2.3	Trier and Cassel. (Relay Frankfurt)	
453.2	662	1	San Sebastian, EAJS (0.6 kW.); Klagen-		257.1 255.1		10	Hörby (Sweden). (Relays Stockholm) Toulouse, PTT (France)	
453.2	662	0.25	furt (0.5 kW.) (Austria) (rclays Vienna). Agen (France)		253.1	1185	5	Gleiwitz (Germany). (Relays Breslau)	
453.2 451.8	$\frac{662}{664}$	20	Milan (Vigentino) (Italy). (Relays Rome) Madona (Latvia). (Relays Riga)		252 249	1193 1205	0.8	Barcelona, EAJ15 (Assoc. Nat.) (Spain) Juan-les-Pins, Nice (France)	
447.1	671	0.5	Danzig (Relaus Heilsberg)		247.7	1211	10	Trieste (Italy). (Relays Turin) Berne (0.5kW.) (Switzerland) (relays Beromün	· · · · · · · · · · · · · · · · · · ·
447.1 441.2	671 680	50	Paris, Ecolc Supérieure, PTT Rome, IRO. (SW. Station, 2RO on 25.4 m.)		245.9	1220	ĺ	ster); Eskilstuna (0.2kW.), Säffle (0.4 kW.)	
435.4	689	55	Stockholm, SASA (Sweden)					ster); Eskilstuna (0.2kW.), Säffle (0.4 kW.) (Sweden) (relays Stockholm); Linz (0.5 kW.) (Austria) (relays Vienna); Turku (Abo) (0.5 kW.) (Finland) (relays Helsinki). Basle (Switzerland). (Relays Beromunster).	
429.7 424.3	698 7 0 7	2.5 2	Belgrade (Yugoslavia)		244.1		0.5	Basle (Switzerland). (Relays Beromunster)	
424.3 419	707 716	100	Moscow, Imini Stalina (Russia) Berlin, Funkstunde (Germany)		242.3 240.6		1 0.5	Belfast (N. Ireland) Stavanger (Norway)	1
416.4	720.5	5	Rabat (Morocco)		238.9	1256	2	Nürnberg (Germany). (Relays Munich)	
413 408.7	725 734	60 16	Katowitz (Poland)		238 237.2	1260 1265	3	Bordeaux, Sud-Ouest (France)	
403.8	743	25	Sottens (Radio Suisse Romande) (Switzerland)		235.5 233.8		0.5 1.65	Kristiansand (Norway) Lodz (Poland). (Relay Station)	
398.9 394.2	$\begin{array}{c} 752 \\ 761 \end{array}$	25 12	Midland Regional (Daventry) Bueharest (Roumania)		232.2	1292	0.25	Kiel (Germany). (Relays Hamburg)	
389.6	770	120	Bucharest (Roumania)		230.6 227.4			Swedish Relay Stations	
385.1 385.1	779 779	10	Stalino, RV26 (Russia)					Hambura)	
381	788 797	16 50	Lwow (Lemburg) (Poland) Scottish Regional (Falkirk)		225.9 224.4		10	Cork (Irish Free State) (Relays Athlone)	
376.4 372.2	806	1.5	Hamburg (Germany)		219.9	1365	1.5 0.2	Béziers (France)	
368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.); Galicia EAJ4 (0.2 kW.) (Spain); Bolzano		218.5 218.5		0.5	Salzburg (Austria). (Relays Vienna)	
			Galicia EAJ4 (0.2 kW.) (Spain): Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (relays Lahli): Kharkov, RV20 (10kW)		217 217	1382 1382	1.2 0.5	Dublin (Relays Athlone) Königsberg (East Prussia). (Relays Heilsberg)	
368.1	815	0.7	(Russia). Fredriksstad (Norway). (Relays Oslo)		214.3	1400	1	Aberdeen	
366.7	818 824	0.8	Radio, LL, Paris		211.3		1 1.25		
864.1	024	1	PorBon (normal)						1
		•		-	••	•			



SHORT-WAVE STATIONS OF THE WORLD

(N.B.-Times of Transmission given in parentheses are approximate only and represent G.M.T.)

Metres.	kc/s.	Call Sign.	Station.	Tuning Positions.	Metres.	kc/s.	Call Sign.	Station.	Tuning Positions.
62.56 58.31	$\frac{4,795}{5.145}$	VE9BY OKIMPT	London, Ont. (Canada). (Sun. 06.00) Prague (Czechoslovakia). (Taes. and Fri.		31.54	9,510	GSB	Empire Broadcasting	
		ì	19.30)		31.48 31.38	9,530 9,560	W2XAF DJA	Schenectady, N.Y. (U.S.A.). (Relays WGY) Zeesen (Germany). (Daily 22.00)	
50.26 50.0	$\frac{5,970}{6,000}$	HVJ RW59	Vatican State, Rome. (Daily 19.00) Moscow. (Relays Komitern Stn.)		31.35	9,570	WIXAZ	East Springfield, Mass. (U.S.A.). (Relaus	
50.0	6,000	EAR25	Barcelona, Radio Club (Spain) (Sat 20 00)	ı	31.3	9,580	HBL	Radio Nations, Prangins (Switzerland).	1
49.83 49.67	6,020 $6,040$	DJC W1XAL	Zeesen (Germany) Boston, Mass. (U.S.A.)		1	1		(800, 22.00-22.45)	·····
49.64	6,040	W4XB	Miami Beach, Florida (U.S.A.)		31.29 31.28	9,585 9,590	GSC W3XAU	Empire Broadcasting Philadelphia, Pa. (U.S.A.). (Relays WCAU)	
49.58 49.5	6,050 6,060	GSA W3XAU	Empire Broadcasting Philadelphia, Pa. (U.S.A.). (Relays		31.28	9,590	VK2ME	Sydney (Australia). (Sundaus)	
	•	1	WCAU1	 	31.25	9,598	CTIAA	Lisbon (Portugal). (Tues. and Fri. 22.00-	
49.5 49.5	6,060 6,060	VQ7LO W8XAL	Nairobi (Kenya Colony). (Daily 16.30) Mason, Ohio (U.S.A.). (Relays W.LW)		31.0	9,675	T14NRH	Heredia (Costa Rica). (Daily 22.00 and	
49.43	6,069	VE9CS	Vancouver, B.C. (Canada)	1	30.0	10,000	EAQ	02.00) Aranjuez (Spain). (Daily 22.30, Sal. 18.00)	ŀ
49.40	6,075	OXY	Skamleback (Denmark). (Relays Copen-		28.98 26.83	10,350	LSX	Buenos Aires (Argentina) (Daily 90 20)	
49.34 49.22	6,080	W9XAA	Chicago, Ill. (U.S.A.). (Relays WCLE)		20.03	11,180	CT3AQ		
49.2	6,095 6,098	VE9GW ZTJ	Bowmanville, Ont. (Canada). (Daily 20,00) Johannesburg (S. Africa). (Weekdays 09.00)	. I	25.63	11,705	FYA	Pontoise (France). (Colonial Stn. E-W.	
- 1			14.00 [Sat. 14.30] and 17.00, Sun. 13.00	*****************	25.6	11,720	VE9JR	daily 20,30) Winnipeg (Canada). (Daily 14,30)	
49.18	6,100	W3XAL	and 16.30.) Bound Brook, N.Y. (Relays WJZ)		25.57 25.53	$\begin{bmatrix} 11,730 \\ 11,750 \end{bmatrix}$	PHI GSD	Eindhoven (Holland)	
49.18 49.1	6,100 6,110	W9XF VUC	Downers Grove, III (II S A)		25.5	11.760	DID	Zeesen (Germany)	
49.02	6,120	W2XE	Calcutta, India. (Daily 13.00) Wayne, N.J. (U.S.A.). (Relays W. ABC)		25.45 25.4	11,790 11,810	W1XAL 2RO	Boston, Mass. (U.S.A.)	
48.86	6,140	W8XK	East Pittsburg, Pa. (U.S.A.). (Reloys		25.36	11,830	W2XE	Prato Sineraldo, Rome. (16.15-23.30) Wayne, N.J. (U.S.A.). (Relays WABC)	· · · · · · · · · · · · · · · · · · ·
47.97	6,250	HJ3ABF	Bogota (Colombia), (Daily 15.00)		25.36 25.28	11,830 11,865	W9XAA GSE	Chicago, Ill. (U.S.A.). (Relays WCFL)	
48.05 48.0	$\frac{6,243}{6,250}$	HKD CN8MC	Barranquilla (Colombia). (Weekdays 23.15) Casablanca (Morocco). (Relays Rabat)		25.27	11,870	W8XK	East Pittsburg, Pa. (U.S.A.), (Relaye)	
47.0	6,382	HCIDR	Quito, Ecuador. (Daily 01.00)		25.25	11,880	FYA	KDKA(21.19-03.00)	
46,69 45.38	6,425 6,610	W3XL RW72	Bound Brook, N.J. (U.S.A.). (Relays W JZ) Moscow. (Relays Stalin Stn.)		25.0 23.38	12,000	RNE	Moscow, (Relays R.V.1) Rabat (Morocco), (Sun. 12.30)	
45.0	6,667	FM8KR	Constantine (Algeria). (Mon. and Fri		19.84		CNR HVJ	Rabat (Morocco). (Sun. 12.30) Vatican State, Rome. (Daily 10.00)	
45.0	6,667	TGW	22.00) Guatemala City (Central America). (Daily	1	19.81 19.73	15,140	GSF	t.mpire Broadcasting	**************
43.75	6.860		(03,00)	i	19.73	$15,200 \\ 15,210$	DJB W8XK		
43.0	6,970	EAR110	Madrid. (Tues. and Sat 22 30)		19.68	15,244	FYA	ADK J 15 00=91 181	
41.7	7,195	VSIAB	Singapore (Malay States), (Sun. and		19.64	15,270	W2XE	Wayne N I (II S A) (Politica III (DC)	· · · · · · · · · · · · · · · · · · ·
40.3	7,443	нво	Wed. 15.30) Radio Nations, Prangins (Switzerland)		19.57	15,330	W2XAD		
38.47	7,797	нвр	(800, 22.00-22.45)	- 11	16.89	17,760	DJE	Zeesen (Germany)	· · · · · · · · · · · · · · · · · · ·
		1	Radio Nations, Prangins (Switzerland). (Sat. 22.30-23.15)	- 11	16.88 16.87	17,770	W3XAL	Eindhoven (Holland)	
37.33 37.04	8,936 8,110	CNR HCJB	Rabat (Morocco). (Sun. 21.00) Quito (Ecuador)		16.87	17.780	W9XAA	Chicago, Ill. (U.S.A.). (Relays WCFL)	· · · · · · · · · · · · · · · · · · ·
33.50 31.58	8,955	TGX	Guatemala City (S. America)		16.87 16.86	17,790	W9XF GSG	Downers Grove, Ill. (U.S.A.)	• • • • • • • • • • • • • • •
81.55	9,500 9,510	PRBA VK3ME	Rio de Janeiro (Brazil). (Daily 21.30) Melbourne (Australia). (Wed. and Sat.		13.97	21.470	GSH	Empire Broadcasting	· · · · · · · · · · · · · · · · · · ·
	,		10.00) (Australia). (Wea. and Sat.		13.92 12.30	21,540	W8XK VE9GW	East Pittsburg. (12.00-19.00)	· · · · · · · · · · · · · · · · · · ·
12.50 22,550 VESGW Bowmanville, Ont. (Canada)									

THESE PERFORMANCE IMPROVING DIFFERENCES WITH ERIE RESISTORS

- Eries are consistent: they give you the consistent accuracy of scientific production. Only by specialisation can such quality be made.
- Prices are stable; the exclusive "impregnating" process obviates all the troubles caused by heat, humidity and age, ordinarily associated with resistances of all kinds.
- Brics are silent: having the lowest noise-level of any carbon resistance. They are also absolutely non-inductive.



Always ask definitely for Erie Resistors. Your dealer has all values ready for selection in assorted kits. WRITE FOR COLOUR CODE CHART.



THE

RADIO RESISTOR CO.

1, Golden Sq., Piccadilly Circus, London, W.1



NEWS for the **NEW** YEAR.

Having shown the public that we know how to design and manufacture loud speakers of exceptional performance, we now take pleasure in announcing the first of the

Hartley-Turner KIT SETS

Two models, of $7\frac{1}{2}$ and 12 watts undistorted output; the L.F. Amplifier linear from 32 to 13,000 cycles; distortionless detector and variable selectivity for high quality local reception and pleasing quality from the best of the continentals.

These sets were designed to do full justice to the HARTLEY-TURNER loud speaker, and are such as will give keen enjoyment to the most discriminating listener.

Complete constructional details for either set will be sent for 2/6, and complete sets of guaranteed and tested parts will be ready in a week or two.

Have you read "New Notes in Radio"? We have been told that it is the most interesting treatise on loud speakers that has appeared. The second edition will be sent for 1½d. stamp.

HARTLEY - TURNER RADIO LIMITED, THORNBURY ROAD, ISLEWORTH, MIDDIESE.

Telephone: Hounslow 1854.

NEWS of the WEEK

Current Events in Brief Review

New Zealand Decides

SPONSORED radio programmes will be forbidden in New Zealand after March 31st next.

A World's Record

RHODESIAN amateur has A RHODESIAN amarca in just effected communication with a colleague on the West Coast of U.S.A., using telephony with an input of only 9.6 watts. This is believed to be a world's record for low power speech transmission.

Lucerne Plan: Sweden's Version

SWEDEN, it appears, intends to place its own interpretation on the Lucerne Wavelength Plan. The new wavelength list issued by the Post Office announces that Motala will work on a wavelength of 1,354.4 metres instead of the allotted wave of 1,388.9 metres, while Boden and Ostersund will be the beautiful the list. change places in the list.

Broadcasting Snail Races

SNAIL backers are revealing great interest in the broadcast snail races from Radio LL, Paris, to which we referred last week, and it is understood that further contests are to be arranged with the possibility of snail sweep-

The snail races in the "Escargo-drome" in the Radio LL studio are the subject of running com-mentaries which are broadcast.

As Others Hear Them

"clever little instrument" A has made its appearance on the French market which will enable singers, orators and lecturers to hear their own voices "exactly as if they were among the audience." It is called the Vocal-phone. Our Paris correspondent says that several purchasers, having heard themselves on the apparatus, bave already modestly resigned.

His "Happy Day"

SOME 15,000 taxicabs, which just been equipped with wireless, have been barred from plying in the streets of New York until the apparatus is removed, reports the New York correspond-

ent of *The Daily Telegraph*.

It is stated that the police action followed an accident in which an elderly man was injured by a taxi in which the wireless set was playing "Happy Days are Here Again."

" R.S.E.A."

AMATEURS at Nairobi have formed the Radio Society of East Africa. It will be associated with the British Empire Radio Union, whose headquarters are in

Afternoons at Radio-Paris

AT present listeners to Radio-Paris must submit to silent afternoons, but an appeal is now being made for regular transmissions between 2 and 6 p.m. It is expected that the Programme Board will comply with the de-

Expensive Error

FINE of 500 pesetas has been A levied on an announcer of the Tarragona station for making an unfortunate mistake at the microphone during the recent Spanish elections. At the end of a programme, instead of playing the hymn of the new Republic on the studio gramophone, he inadvert-ently broadcast the old Royal Anthem. The fine was levied "to

International DX'ers Alliance

SPECIAL Short Wave transmissions for members of the International DX'ers Alliance are to be made as follows: DX'ers Alliance are to be made as follows:—

January 6th.—5-7 a.m. OA4B. Lima, Peru, 7126 kc/s, 42.11

January 14th and 28th .- 4-6 a.m. PAOASD, Amsterdam, 3770 kc/s,

79.6 metres, 50 kW.

All times given are G.M.T. Reports on PAOASD will be welcomed by Mr. W. R. Jacot, Euterpestraat 73, Amsterdam.

Wireless for the Blind

FOUR years ago, when making the first broadcast appeal on behalf of the "Wireless for the Blind" Fund, Mr. Winston Churchill foresaw a proud British boast: "All blind persons have wireless sets—it is the custom of the country." To-day, according to the Annual Report of the Fund, we are separated from the realisa-tion of this fact by 900 sets only,

The broadcast appeal by Mr. Lloyd George on Christmas Day has probably assisted largely towards the ultimate aim, and the Committee trusts that the supply of new wireless sets for the blind will in future be financed as the result of an annual appeal only.

Beam Station Design

AN Investigation into the Factors Controlling the Econo-omic Design of Beam Arrays' is the title of a paper to be read and discussed at the meeting of the Wireless Section of the Institution of Electrical Engineers on Wednesday next, January 3rd, at 6 p.m. at Savoy Place, London, W.C.2. The lecturer is Mr. T Walmsley, B.Sc.

The Wireless Thief

THAT the modern thief is up to date is once more proved by the escapade of seven safe raiders who looted the Unity Trust and Savings Bank in Chicago last week. While the deposit boxes were being opened one of the thieves stood by operating a short wave wireless set to pick up messages sent out to the police radio cars. The thieves were able to work for three hours before the radio signals revealed that the police were getting uncomfortably close on their track.

"Studio" Twelve Miles Up

BROADCASTING from the stratosphere can be managed on extremely low power, as was proved during the recent ascent of Messrs. Settle and Fordney in America. During their balloon flight they were able to speak to Washington, Pittsburgh, Akron, and other points quite clearly, their voices being relayed over the broadcasting networks. Their transmitter weighed only 12lb., and their receiver 8lb. Two-way speech was maintained until the balloonists had to drop their batballoonists had to drop their batteries to lighten the load.

The use of very low power is possible because of the absence of

ground reflection, while the changes in the angle of reflection from the Heaviside Layer greatly increase the transmission range.



RECORDING THE KING'S MESSAGE. By special permission of His Majesty, an H.M.V. record was made of the broadcast message on Christmas Day. The engineers are shown superintending the recording on the wax blank, one checking the volume while his companion examines the sound track through a magnifying glass.

atone for the nervous shock caused to the ex-subjects of Alfonso XIII."

Short Waves from Germany

ERMANY'S "World Wide" short wave station at Zeesen has now GERMANY'S "World Wide Short way states as They are as follows, the times given being G.M.T.:—

	-		-		
Far East:				БЈВ	5.35-7.00 a.m.
Africa.				DJA	13.00-16.00
25.51 m. 49.83 m.	, , .			DJD DJA	17.55-21.30 17.55-21.30
South Ameri		,,	,,	DJA	21.55-0.30
North Ameri		,,	,,	DJC	23.00-3.30

The omni-directional aerial is temporarily out of use.

Exorcising Static

THE city of Baden-Baden is carning the title of "The Radio Paradise," as being the first city in the world to be entirely freed from electrical interference with radio recention. A recent rewith radio reception. A recent re-port by the Post Office shows that during the past year filter compensators were supplied to 3,476 flat irons, 1,670 motors of less than ½ kW., 258 motors of higher power, 1,360 vacuum cleaners, 913 electrically heated pillows, 728 hair dryers, 198 massage machines, 185 fans, 56 hair cutters, and 18 X-ray installations. As a result, says a correspondent, only Nature is left to interfere with reception conditions.

"Empire Broadcasting" from Holland

SIX languages are now used at the microphone of the short-wave station, PHI, at Huizen, transmitting on 16.88 metres. This famous station, the successor to Eindhoven, has broken a silence of two and a half years. Transmissions, although intended primarily for the Dutch East and West Indies, are being picked up by short-wave listeners all over the world. The languages used are Dutch, Malay, English, French, German, and Spanish. Transmissions are on Monday,

Transmissions are on Monday, Thursday, and Friday from 12.30 to 2.30 p.m. (G.M.T.), and on Saturday and Sunday from 12.30 to 3 p.m. (G.M.T.).

Television Explained

VIII.—A Survey of Development

HE principal methods which have been proposed for achieving television and which have proved of sufficient value to find practical application have been briefly described in this series of articles, and it remains to consider the most probable trend of future development. Whatever methods are employed for transmission and reception, it is clear that very high frequencies are involved-many hundreds of times higher than we are accustomed to deal with in the highest quality sound transmission. So far as the purely electrical side of the problem is concerned, this need cause no special difficulty. It is quite possible, although not easy, to construct amplifiers with flat frequency characteristics up to at least 300,000 cycles.

The use of such high modulation frequencies necessitates the operation of the transmitter in the ultra-short waveband for two reasons-because modulation at much lower wavelengths is impossible, and because the frequency band occupied by the transmitter would be prohibitively great in any other band. Comparatively little is known about the properties of ultra-short waves, and the technique of transmission and reception is only in its early stages. Even if the purely television apparatus had reached such a stage that it could be operated by the unskilled and would give a picture sufficiently free from distortion to be of entertainment value, reliable television reception would hardly be a possibility on account of the lack of development in ultra-short wave apparatus.

The purely reception difficulties, of course, are not of great importance, and a determined attack by designers and experimenters would soon remove them. It is safe to say that were there sufficient incentive, the major problems of ultra-short wave working could be overcome within a year. Incentive is lacking at the moment, however, on account of the rarity of transmitters, and it is probable that develop-ment will proceed only slowly until the greater difficulties of television are overcome or until a regular service of high quality sound broadcasting takes place.

Television Apparatus

The greatest hope of good reception would appear to lie with the superheterodyne using a very high intermediate frequency, probably one corresponding to a wavelength no higher than 30 metres. Such a receiver could be made very stable in operation, and easy to control, while the high intermediate frequency would permit the passage of the high modulation frequencies which are so essential to television.

The problems of transmission and reception in themselves offer no special difficulty, therefore, and there is every sign that they will be solved by the application of known methods. The same can hardly be said of the television equipment, however, and so many different systems vie with one another that it is even difficult to pick out the one most likely to become the method of the future.

The system in widest use and upon which most work is being carried out is one which may be conveniently termed variable intensity scanning, in distinction



The introduction of drastic contrast in makeup is an important feature of successful presentation in the television studio of to-day.

to variable speed scanning which was described in Part VII of this series. Variable intensity scanning can be carried out in a variety of ways, of which the chief are the Nipkow disc, the mirror drum and the cathode ray tube. Its particular beauty, however, is that one is not confined at the receiver to the same type of apparatus as that used at the transmitter.

A drum may be used at the transmitter, but it is quite feasible to use disc, drum, or cathode ray tube at the receiver, according The greatest objection to this system, however, is that any developments in transmission which offer an improved performance through a variation in the number of scanning lines or pictures a second, throw all receivers out of date and necessitate extensive alteration if any intelligible picture is to be received.

At the present time, this objection is not of great importance on account of the

THE fundamental principles upon which the chief television systems are based have been dealt with in this series of articles, and some of the more prominent difficulties explained. The concluding article is devoted to a survey of the various methods, and an endeavour is made to gauge the trend of development.

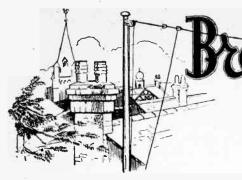
small number of receivers in use. easy to see, however, that were a television service of this type to be established which achieved any great measure of popularity it would probably represent the end of development. It should be pointed out, of course, that these remarks do not apply in their entirety to receivers employing cathode ray tubes, for slight modifications to these would render them capable of reception from improved transmitters.

For reasons of this nature, therefore, the variable speed scanning system is particularly attractive, since the receiving equipment consists of little more than the cathode ray tube, and synchronising apparatus appears to be unnecessary. Such a system is more nearly comparable to sound broadcasting, in which development can take place at either transmitter or receiver and without either being rendered useless. For some reason this scheme has attracted less attention than others, and it is not so highly developed. On account of the simplification to the receiving apparatus which it offers, however, it is to be hoped that work on it will continue, and that the final system of television will be either this or some other of equal simplicity.

In this series of articles, the transmissions have usually been assumed to take place with the aid of cinema films rather than by the televising of an actual scene. This has been done for the sake of simplicity, since the difficulties of obtaining adequate illumination at the transmitting end do not occur in the same degree. In cases where transmission of an actual subject, as distinct from a film, is required the difficulties of transmission are greatly enhanced, but it is of course by no means

impossible.

It will thus be apparent that one can hardly expect television broadcasting of a quality comparable with that of sound transmissions to take place in the near future. That such broadcasting will take place on the ultra-short wavelengths appears certain, and the difficulties here are certainly not insurmountable. chief problems lie in the television apparatus, and while there is no doubt that a solution will eventually be found, perhaps by methods now unknown, it will be a long time before anything approaching finality is reached.



Television "Mysteries"

SOME newspaper stories give one the impression that the folk at Broadcasting House wear masks, crawl about with noses to the ground, and attire themselves as members of the Ku Klux Klan. Television is now being invested with this arra of mystery, though I am assured by the engineers that there is no intention of concealing television tests from the public.

It so happens that the high definition experiments are being conducted on the ultra short waves, and are, therefore, not available to the general public, though they can be picked up by the many readers of The Wireless World who are known to have built up "The Ultra Short Wave Although no fixed schedule is observed, I can say that cinema films are transmitted nearly every evening from 9 to 10 p.m., and are picked up by engineers using cathode-ray receivers in various parts of the Metropolis.

A Broadcast Workers' Union?

THE fact that members of the B.B.C. staff received no extra pay for working on Christmas Day has led to a discussion as to whether the time has come when all engaged in broadcasting in this country should form themselves into a Union.

5550

There are now upwards of 2,000 people in this country who rely on broadcasting for their bread and butter; yet the monopoly which they serve has the power of absolute dictatorship.

Similar to Post Office Union

The Union of Broadcast Workers would presumably be run on similar lines to the Union of Post Office Workers, although it is probable that officers in the higher grades would belong to an association of their own.

It would not surprise me if an announcement on this important subject were made in the very near future. 6666

New Use for the Concert Hall

THE concert hall in Broadcasting House was turned into a polling station last week, when no fewer than 865 members of the staff recorded their votes in favour of four candidates for the position of staff representative on the Pensions Fund Committee. The winner was Mr. G. H. Dunbar, formerly Assistant to the Chief Accountant and now Assistant Manager of Publications.

The concert hall is being used more and more for staff meetings, which, fortu-nately, perhaps, are never broadcast. 9999

A Compliment from Abroad

THE B.B.C. studies the needs of its performers to a greater extent than certain broadcasting organisations abroad. I hear from Denmark that the Press in

Copenhagen has dropped heavily on the Danish Radio Board for its alleged refusal to provide the pianist, Victor Schioler, with a Danish piano. Apparently, it was insisted that he should use a German instru-

padcast Brevi

The Danish Press points out that the well-known Court pianist, Johanne Stockmarr, who has had similar requests refused in her own country, has been invariably provided with a Danish piano by the B.B.C.

Studying the Performer

Although the pianos at Broadcasting House are practically all of one well-known English make, the Corporation make it a rule to comply with the wishes of celebrated artistes whose performances are affected by the choice of instrument. 6 6 6

New Year's Eve

THE last programme of 1933 really begins at 10.30 p.m. on December 31st with a half-hour's recital by Paul Robeson. This will be followed at 11 o'clock with a panorama of recorded sound covering the year that is past. Blattnerphone and wax records of the great events of 1933 will follow each other in rapid succession until, at 11.30, listeners are switched through to the Watch Night service in St. Giles' Cathedral, Edinburgh. Then will follow the bells of Westminster Abbey, into which will be merged the chimes of Big Ben ushering in the New Year.

After midnight more chimes, this time from Canterbury Cathedral.

Sparing the Children Shocks

THE auditorium at St. George's Hall was empty during the pantomime broad-cast on Christmas Day. It had been sug-



CONDUCTING IN HEADPHONES. Stanford Robinson directing the theatre orchestra last week during the performance of "The Christmas Carol." It was necessary for the conductor to follow the cues in the various studios connected to the Dramatic
Control Panel. By Our Special Correspondent

gested that poor children should be invited, and the plan had proceeded a long way when it was abandoned with an explanation which, as usual, I graciously accept.

The B.B.C. did not wish to disillusion the children, who would have been appalled at the sight of "Sindbad" in a dress suit.

If Things Were as They Sound

Incidentally, what a pity it is that we adults were ever told of what goes on behind the scenes. It would be much nicer to believe that things are as they sound.

The point was well put in a cartoon in Simplicissimus, Munich, the other day. The announcer in the picture is saying: "I hear the clacking of the mill wheel and the rushing of the stream as I lie stretched on the grass in the shade of the fir trees. From the near-by village comes the echo of the sweet church bell, and on a twig beside me the nightingale pours forth her song. . . ."

Reality

The picture shows an extremely fat announcer reading from a script and simultaneously tapping a set of tubular bells. A lanky companion stands before the micro-phone with a wooden rattle, and, while blowing a whistle, empties a watering can into a pail. 6 6 6 6

North-Eastern Regional

A 1-kW portable transmitter will very soon be exploring the ground west of Newcastle for a site for the new North-Eastern regional station. 000

Forty Minutes of Philosophy

THE first National lecture during 1934 is to be given on January 2nd, when Professor S. Alexander, O.M., will treat of "Philosophy and Beauty." The talk will last from 9.20 to 10 p.m., and will go out from the National transmitters.

9 9 9 9

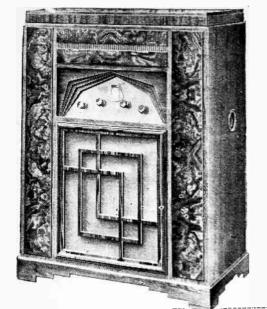
Historical Play Series

THE KING'S TRYALL" is the name of the historical play by Peter Cresswell, which is to be broadcast on January 28th. The subject is, of course, the trial of King Charles the First, and the play coincides with the actual date of the event in the year 1649.

By the way, as I said recently, the B.B.C. is "going historical" like the stage and the films, and this play is the first of a series of plays dealing with great events of the past. 00000

Now We Know

IT was solemnly announced in the Press last week that a site for the North Scottish Regional station had been chosen at Ardivot, mid-way between Elgin and Lossiemouth. I am now informed at Broadcasting House, with equal solemnity, that the report is absolutely untrue.



R.G.D.

Model 1201A.C.

"Supersonic" Radio-gramophone

A High-grade Instrument Incorporating Every Technical Refinement

set, the level at which the relay comes into operation can be adjusted, so that if one were not satisfied with the programmes of what might be termed the "Grade A" stations, the sensitivity of the relay could be increased to bring in a further batch of stations slightly lower in field strength. Another accessory which makes for easy tuning is the illuminated visual indicator below the main tuning dial. It is really included in the interests of good tonal

is connected in the anode circuit of this first stage, and as it is controlled by the A.V.C. circuit the reading gives an indication of signal strength as well as of the accuracy of tuning. A separate triode oscillator valve is employed, and the output is injected into the cathode circuit of the anode-bend first detector valve. When changing from medium to long waves a section of the grid leak in the oscillator circuit is switched out to ensure constancy of amplitude in the

O introduction is required for a pro-duct from the R.G.D. factory. For many years this firm has enjoyed an enviable reputation for the production of receivers, and more particularly radio-gramo-phones, of the highest class. Their latest proclass. Their latest product, the Model 1201 radio-gramophone, incorporates all the latest technical developments and

worthily upholds the reputation established

by its predecessors.

It goes without saying that the performance on the radio side from the point of view of range and selectivity is as high as it can be made with modern valves and circuits. On the L.F. side, resistancecoupled push-pull amplification has been adopted to obtain the best possible frequency response together with transient reproduction.

Automatic volume control is, of course, included, and a new feature is the use of an automatic relay to suppress background noise between stations. This device contributes considerably to the enjoyment of handling the set, particularly when in search of stations for their programme value. By means of a set screw at the back of the

moving-coil loud speakers Automatic record changer.

Circuit.—Band-pass coupled H.F. stage, anode-bend
1st detector, separate triode oscillator, I.F. amplifier with six tuned circuits, double-diode-triode second detector and A.V.C. valve, noise suppressor valve and relay, L.F. amplifier, R.C.C. coupled paraphase push-pull stage, push-pull triode output valves. Controls.—(1) Tuning with illuminated scale calibrated in wavelengths. (2) Volume control. (3) Tone control and suppressor relay switch. (4) Wave-range switch. (5) Mains on-off switch. Price.—95 gns. Makers.—Radio Gramophone Development Co., Ltd., 17/20, Frederick St., Birmingham, 1.

FEATURES.

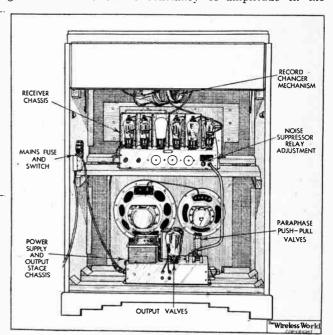
Visual tuning indicator. Six-watt output into dual

Twelve-valve radio-gramophone for A.C. Delayed A.V.C. Automatic noise suppressor.

quality, for in a set of such high selectivity the slightest deviation from accurate tuning will result in overemphasis of the higher frequencies.

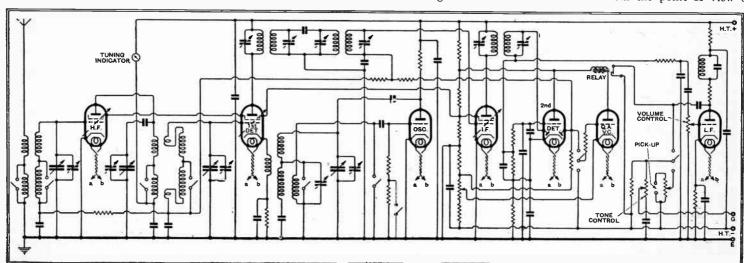
Including the rectifier there are no fewer than twelve valves in the circuit. The first stage amplifies the incoming signal at radio frequency and includes three tuned circuits, two of which are connected in the form of

a band-pass coupling to the first detector There is thus an unusually high degree of pre-detection selectivity which is conducive to the elimination of secondchannel interference. The tuning indicator



Layout of the interior of the cabinet. The massive construction and high-grade finish of the latter are outstanding features of the instrument.

output to the frequency changer valve. Six tuned circuits are associated with the single I.F. stage, a double band-pass filter being used for the input. The performance of the set both from the point of view of



Circuit diagram of receiver chassis which incorporates all stages up to and including the first L.F. stage.

R.G.D. "Supersonic" Radio-gramophone-

selectivity and quality is largely dependent upon the accurate alignment of the I.F. circuits. Special attention has been devoted to this point, and a cathode-ray method of reproducing the actual response curve has been developed. This test is made on the finished chassis before it is assembled in the cabinet, and every individual receiver is adjusted in this way.

Tone Correction

In order to obtain the degree of selectivity necessary to meet modern conditions a somewhat narrower band width has been adopted than is consistent with high quality of reproduction, but the necessary compensation of the high tones is effected by a tuned circuit in the anode of the first L.F. valve, which gives a rising characteristic in the upper register.

A double-diode-triode valve is used in the second detector stage, one diode being used for rectification and the other to supply the voltage for automatic volume control. The triode portion of the valve is used to amplify the control voltage, and a separate valve is detailed to amplify the audio frequency out-

The manual volume control is associated with this L.F. stage and also the tone control, which consists of a condenser and highresistance potentiometer in parallel with the grid leak to the output stages. The noise suppressor relay short-circuits this grid leak when the incoming signal falls below a pre-determined value. The relay is operated by a valve specially reserved for this purpose, which is controlled by the A.V.C. bias. Normally, the relay is saturated and the contacts are closed. When a signal arrives of sufficient strength to reduce the relay valve current to zero the contacts are released, and the push-pull stage comes into opera-

The push-pull output stages are included with the power supply circuits in the chassis at the bottom of the cabinet. The paraphase system of resistance-coupled pushpull has been adopted, and it is interesting to note that the phase-shifting potentiometer is included in the grid circuit.

The output valves are PP3/250's, and the output transformer feeds the speech coils of the twin loud speakers in series. One of the loud speaker fields is used to smooth the supply to the push-pull stages while the other smoothes the H.T. supply to the re-An additional stage of ceiver chassis.

smoothing between the rectifier and the loud-speaker windings ensures that hum due to ripple in the speaker fields is eliminated.

The B.T.-H. loud speaker units are of different sizes and have been specially matched to cover frequencies from below 50 to 7,000 cycles. The upper limit is determined by the set itself and has been fixed at 7,000 cycles to give reasonable immunity from background noise and heterodyne interference without appreciably affecting quality. At all events, there is no lack of brilliance in the general result, and we preferred to set the tone control slightly down from the position of maximum high-note response. The ristrie of power available provides an extraordinarily realistic and satisfying reproduction of the full orchestra, and passages for the double basses sound like the real thing. The bass reproduction is perfectly natural, and the massive construction of the cabinet precludes the reinforcement of any groups of frequency which are often a source of unnatural low-note On other types of transmission, such as the soprano voice, piano and ordinary speech, the results are equally effective, which indicates that there is not much amiss with the L.F. response either from the point of view of frequency response or transient reproduction.

Range and Selectivity

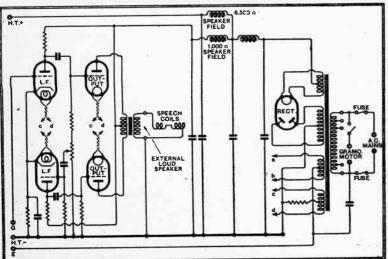
No effort is required on the part of the user to obtain the maximum possible results from the radio circuit. The automatic volume control does its work adequately, and the signal-to-noise ratio, even without the suppressor relay in operation, is exceptionally good for a set of such high overall The apparently effortless magnification. manner in which foreign stations are received in daylight is an indication of the reserve of amplification available. fewer than thirteen were logged on the medium-wave band during a single morning, where, with most sets, a maximum of five or six would be the most to expect.

There can be no question of the set's ability to give 9 kc/s separation. Even in Central London the only indication of the presence of the Brookmans Park Regional or National transmitters, when the set is 9 kc/s off tune, is an occasional sideband splash.

As a gramophone reproducer the Model 1201 has few rivals. It is fitted with the Garrard automatic record changer and a special

pick-up of R.G.D. design and manufacture, and the quality of reproduction on modern electrical recordings is hardly distinguishable from broadcasting.

Everything has been done make this the last word in radiogramophone design, and it is an instrument which can be confidently recommended to those who are in a position to demand nothing but the;



Circuit of power supply chassis and paraphase push-pull output stage.

CLUB NEWS

Electronic Music

Recent descriptions of electronic music in The Wireless World have stirred up so much interest among members of the Croydon Radio Society that the subject was made the topic of discussion, with a demonstration of the 'Electronde,' at the society's last meeting. The lecturers were Mr. Budd and Mr. Harwood. Hon. Secretary: Mr. E. L. Cumbers, 14, Campden Road, S. Croydon,

An Invitation to All

Practical evenings to assist the ordinary amateur to understand the construction and operation of his receiver are being arranged by the Catford Radio and Television Society. Members and non-members alike are welcome at the meetings. Full particulars are obtainable from the hon, secretary, Mr. H. W. Floyd, 38, Como Road, Forest Hill, S.E.23.

The New Valves Described

Members of the Smethwick Wireless Society obtained a comprehensive understanding of the new valves at their last meeting, at which Mr. Shore, of the Marconiphone Co., gave a lecture on "Multi Electrode Valves." Hon. Secretary: Mr. E. Fisher, M.A., 33. Freeth Street, Oldbury, nr. Birmingham.

Club Meetings in a Cinema

The Sidcup and District Radio and Television Club now holds its meetings in the committee room of the Regal Cinema, High Street, every Wednesday at 8 p.m. All wireless enthusiasts are welcome, and particulars of membership can be obtained from the honsecretary, Mr. W. F. Smith, 4, Rowley Avenue, Sidcup, Kent.

THE RADIO INDUSTRY

IS Master's Voice" and Columbia propose to deal with the great wavelength re-shuffle by providing users of existing sets (through their dealers) with printed cards bearing a replica of the present tuning scales and also showing relative positions of stations according to the new allocation.

When things have finally settled down, replacement tuning-dial strips will become available at a nominal cost.

<>>

Caricature sketches of eminent broadcast personalities, with their "potted" biographies, have been collected and issued in book form by Regentone, Ltd., of Worton Road, Isleworth, Middlesex. The title is "Hello, Mike," and free copies may be had for the asking.

A new Hivac valve, known as the "Driver+B," has recently been introduced. In a single bulb are contained the various electrodes of both driver and Class "B" output valves; a standard 7-pin base is fitted.

<> Actual or prospective users of the Belling-Lee mains disturbance suppressor may obtain free technical assistance by filling in a ques-tionnaire form, obtainable from the makers at Cambridge Arterial Road, Enfield, Middlesex.

Change of Address.—The Institute of Wireless Technology, from 72, Oxford Street, London, W.1, to 4, Vernon Place, Southampton Row, London, W.C.1. Tel.: Holborn 4879. ❖

Catalogues Received:

Mullard Wireless Service Co., Ltd., Mullard House, Charing Cross Road, London, W.C.2.—Booklet V.T.43, describing Mullard low-power transmitting valves, including those of the new screen grid type.

Lockwood Casework Manufacturing Co., 63, Longley Road, Harrow, Middlesex.—Notes on the design of Lockwood radio casework, with special reference to design from the acoustic point of view.

Reproducers and Amplifiers, Ltd., Frederick Street, Wolverhampton. — Moving-iron and moving-coil loud speakers, both energised and permanent magnet types.

Letters to the Editor:-

Stations that Lose Power

"Hill and Dale" Recording: Home Set Construction

The Editor does not hold himself responsible for the opinions of his correspondents

Do Transmitters Get Tired?

IT seems the general experience that a transmitter does decrease in range and signal strength after some time, and I have wondered whether a point debated some years ago between my brother and myself

has any bearing on the subject.

We were discussing the common experience in those days (of inefficient receivers), whereby it invariably happened that when a station was tuned in on a good aerial, neighbouring receivers experienced a loss of signal strength, which used to end in a battle of oscillation, till one of the receivers had to "give up" the station. Our theory then was that it was not the power absorbed in the aerial which decreased the signal strength, but that a receiver in tune (even when not oscillating) sends out signals at low power in opposite phase to the transmitter, cancelling out to that extent the power of the transmitter.

It seems to me that if this were the case (the theory can probably be easily exploded!) this would explain the gradual loss in signal strength, as more receivers used a new transmitter, while the fact that ship transmissions are not troubled could be explained by the fact that the numbers of receivers presumably do not vary greatly, in addition to the fact that receivers are not clustered together, but widely separated.

It would be very interesting to hear what the technical people have to say to such a

fantastic theory. Wembley.

W. CROFT.

MR. DINSDALE'S quite intriguing letter in the December 15th issue of The Wireless World on the problem of stations that lose power calls, I think, for considerable comment and criticism. I have been closely associated with the radio communication industry for a number of years, and, like your correspondent, spent some years as a sea-going operator, yet I find it impossible to reconcile his assertions with the results of my own experience and observations.

Mr. Dinsdale states categorically that (1) the signals of transmitting stations, within a few weeks or months of their opening, fade slowly until they can no longer be heard, or heard only with difficulty.

(2) The phenomenon "affects all types of radio stations—spark. c.w., telegraph, or broadcasting on any wavelength."

(3) "The initial range of the station when first opened slowly decreases after a few months, and is never regained at any subsequent date unless major changes are made in equipment."

With regard to (1) and (2), I maintain that there is insufficient data available to justify such a sweeping statement, and particularly would I call attention to the phrase "within a few weeks or months" (the italics are mine). It is a very significant phrase. The next statement (3) calls for really drastic comment, for it is a complete misstatement of fact. If Mr. Dinsdale had written that the initial range of the station when first opened apparently slowly decreases, I do not doubt that he could fur-

nish evidence which could be made to substantiate his claim, but the further assertion that the range "is never regained at any subsequent date unless major changes are made in equipment " is definitely incorrect, especially so in respect of long wave highpower transmitters whose performance over long-established commercial channels is known to be subject to a regular cyclic variation. The same is also true of communication over short-wave channels, although here there are additional difficulties in the way of reaching a useful determination of the performance of the transmitter, not the least being a reliable optimum time schedule during which a transitional wavelength should be employed.

On the medium waveband particularly, and all wavebands in general, I think Mr. Dinsdale will find the loss of power of a transmitting station-or, rather, the apparent loss of power-is due to a completely different cause than that which he suggests, viz., electrolytic actions in the vicinity of the earth plates. The gradual reduction of apparent range noted (as distinct from transient fluctuations due to existing meteorological conditions) is readily explained by the gradual increase in the congestion of the ether and by the fact that the rate of increase of congestion has always kept ahead of the rate of development of selective receivers. And here lies the elucidation of the mystery of why stations seem to lose range—it is the resultant effect of ether congestion plus inadequate selectivity of receiving stations. If Mr. Dinsdale will consider the matter I think he will find that his own experience of the range constancy of ship transmitters supports this view, remembering that the congestion of the ether on the high seas has not increased materially for several years, due partly to the slump in shipping and partly to the reduction of interference through the progressive withdrawal of spark sets.

No, sir; the constant renewal of the ship's earth has no bearing on the performance of the transmitter, and likewise the possibility of electrolytic action at the earth plates of land stations affecting their performance may also be ruled out.

York. JOHN R. O. JOLLY.

Alternatives to the Disc Record

I HAVE read with interest the correspondence which you have published concerning gramophone recording.

Recording on either film or tape would require apparatus of such cost that its use would be prohibited to many people. Any system which has not a universal application would not be an economical proposition to the recording companies. Films would not be convenient for those without electricity supply mains, and would be out of the question for portables.

Correspondence, which should be as brief as possible, should be addressed to the Editor, "The Wireless World," Dorset House, Stamford Street, S.E.I, and must be accompanied by the writer's name and address

I would suggest, however, that the old "hill and dale" method of recording offers possibilities for improvement on the present system. By this method it is possible to extend the frequency range up to 8 or 9,000 c/s and put the lower frequencies in at their correct strength. It is not possible at present to give the full range of loudness from pp to ff at anything like it should be. "Hill and dale" recording would overcome this difficulty and would also practically overcome needle scratch. The length of playing per record would be greatly improved owing to the much narrower groove.

It should be no more difficult commercially to press a record of this type than at present. A start could be made by producing both types for recordings of standard works. With two types of recordings in use it would not be an expensive matter to have two pick-ups on the motor board or an interchangeable sound box for non-

electric machines.

It would be interesting to know whether the recording companies have such a scheme in view, and whether they consider that it would be practical.

WILLIAM W. POPE.

Newcastle-on-Tyne, 2.

["Hill and dale" recording is now receiving close attention for gramophone and talking picture requirements. The new wide range system of Western Electric employs this method.—ED.]

One Good Reason for Building Your Own

FOR the last six weeks I have been trying to buy a receiver for myself and another for a present. During this time I have been asked to test seven receivers of four different makes, varying in price from 20 guineas to 52 guineas. Only one of these functioned properly. Of the others one was completely silent, another was silent on the long waves, one had the controls jammed and a loud speaker rattle. two were intermittently silent, and one had a faulty valve.

I suggested to my dealer that someone in my household was possessed of the evil eye, but he assured me that my experiences were nothing out of the ordinary. Six out of the last eight sets of a famous make which he had received have had to be returned to the factory. He also said his wholesaler had thirty faulty sets returned in one day.

It does not look as if the wireless trade has progressed far in the last two years. At that time several of my family gave receivers as Christmas presents. One of these "went on fire," and another had a comprehensive breakdown that put it out of action for two months. Two more gave so much trouble that the unfortunate recipients could not afford to keep them in repair.

I used to wonder why you devoted so much space to specification for homebuilt receivers, but I am wiser now. Protection has given us good motor cars, but it looks as if Free Trade is necessary for a good wireless set.

LOW BROW

Manchester.

NEW APPARATUS REVIEWED

Latest Products of the Manufacturers

A HANDY WORKSHOP TOOL

ALTHOUGH the construction of a wireless receiver to-day can be undertaken with quite a limited complement of tools there are many odd jobs common to this class of work that will be so much easier if just the right tool for the purpose is available. And an ideal combination tool to have handy for such occasions is the "Eclipse" 4S tool outfit.

This consists of a nickel-plate holder and

a set of sixteen tools comprising saw blades of various pitches of teeth, slotting tools, files, cutting and slitting knives, and sundry other attachments. The outfit in a compact metal case costs 5s.

A useful feature of the tool is that when used as a screwdriver, for sawing or for scraping, the blade is in line with the holder, but is set at an angle for such operations as slotting and cutting, thus providing clearance for the hand when working on the bench. To facilitate working in confined spaces several of the saw blades are tapered.

Only the highest grade steel is used throughout, and the makers are James Neill and Co. (Sheffield), Ltd., Composite Steel Works, Napier Street, Sheffield, 11.

FERRANTI D4 AND LP4 VALVES

THE D₄ and the LP₄ appear in the Ferranti list as A.C. valves for in each case the filament consumption is one amp.



Two Ferranti A.C. triodes; the D4 and the LP4.

at four volts. Both are triode valves, the D4 being a general purpose type and indirectly heated, whilst the LP4 is a power valve with a directly heated filament. The rated characteristics of the D4 are: A.C. resistance, 12,500 ohms and amplification factor 41.3, giving a mutual conductance of 3.3 mA. per volt. Its usual function is that of a detector or oscillator in superheterodyne receivers, but it will serve equally well as the input valve in a two-stage amplifier.

The specimen D4 sent in for test when measured at 100 volts on the anode and with

zero grid bias showed an A.C. resistance of 14,000 ohms, an amplification factor of 39.5, and a mutual conductance of 2.8 mA. per volt. With the maximum anode potential of 200 volts and the rated working grid bias of -3 volts, its A.C. resistance increased to 17,500 ohms and the amplification fell to 39.1, giving a mutual conductance of 2.2 mA. per volt. Under these conditions the anode current was 3.5 mA. It has a five-pin base, and the price is 13s. 6d.



"Eclipse" 4S tool outfit.

In view of the heavy anode current passed by the LP4 without a grid bias potential, even with but 100 volts on the anode, it was not deemed wise to attempt measurements under these conditions, so the valve was tested only with the normal working potentials. Using the stated grid bias resistor of 750 ohms, the equivalent grid bias potential with 250 volts on its anode was found to be -33 volts, the anode current then being 44 mA. The measured A.C. resistance of the valve was 1,100 ohms, its amplification 4.65, and the mutual conductance 4.2 mA. per volt.

The optimum load is about 4,000 ohms, and the A.C. power output 2.5 watts. It costs 16s. 6d., and the makers are Ferranti, Ltd., Hollinwood, Lancashire.

UNIVERSAL CONTROLLER

THE Universal Controller is a French instrument marketed in this country by M. Benoit, 4, Manor Gardens, Gunnersbury Avenue, London, W.3, and provides eleven different ranges, those for current measurement being o-3 mA., o-30 mA., o-300 mA., o-1.5 amps., and o-7.5 amps; whilst the voltage ranges are o-1.5, o-7.5, o-30, o-150, o-300, and o-750. These apply to D.C. and A.C., so that actually twenty-two separate

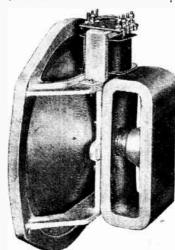


ranges are available. Sockets are fitted on the lower edge of the case for selecting these ranges. The resistance is 333 ohms per volt. A small rectifier is incorporated, and a pushbutton switch located at the top of the case brings this into use for A.C. measurements. It necessitates two separate scales, and these are arranged one above and one below a parallax mirror, the upper, the A.C. one, being marked in red. As the scales are divided into 150 divisions, converting scale reading to actual values, involves a little mental exercise, but on the D.C. ranges this is rendered less arduous, for there are two additional scales of 0-3 and 0-7.5, but it is obviously impossible to provide separate scales for every range.

The scale length is approximately 2\structering in: a knife-edge pointer is fitted, and the movement is adequately damped. Compared with sub-standard measuring instruments, the Universal Controller shows good agreement throughout, and the average error is of the order of \(\tau\) per cent. at full scale. A slight alteration is being made to the case in future models, but the internal construction will be the same. The price is \(\theta\)9.

"SOUND" P.M. LOUD SPEAKER

THIS is a recent product of Sound Sales, Ltd., Tremlett Grove, Junction Road, London, N.19, and is notable for several departures from current commercial practice



"Sound Sales" permanent magnet moving coil loud speaker.

in loud speaker construction. Probably the most interesting innovation lies in the form of suspension employed at the periphery of the cone. The edge is cut radially into a number of segments which give adequate lateral support with greater freedom of movement than the usual moulded corrugations. As a result, the fundamental resonance is lower than usual, and the bass response generally is much above the average. At 50 cycles there is a very useful output, which is quite free from distortion at normal volume levels. There is no isolated resonance in the upper register, but a general increase is noticeable between 2,000 and 4,000 cycles. Above 5,000 cycles the output tails off fairly rapidly.

The cone is supported in a cast aluminium frame which is machined to give accurate centring of the diaphragm. Due to the non-magnetic nature of the chassis, full use is made of the flux available from the permanent magnet, and the efficiency is good.

A universal output transformer for triodes, pentodes, and Class "B" valves is included, and the price of the unit is 40s.

Readers' Problems

Double De-sensitising

A READER, referring to the possibilities of using a single potentiometer as a more-than-usually drastic H.F. volume control, asks for suggestions as to how the system may be applied to his own batteryfed three-valve receiver. Simple variation of S.G. valve bias is insufficient to cope with the excessively strong signals received from the local station.

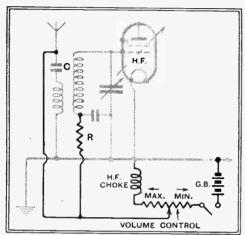


Fig. 1.—One potentiometer combining two functions. Volume is regulated by controlling both bias and aerial input.

Assuming that the ordinary method of controlling the bias of a variable-mu H.F. valve is at present in use, it should not be a difficult matter to arrange a more effective control by adopting the circuit arrangement shown in Fig. 1. As the potentiometer slider is moved from the end of the resistance element marked "max." towards "min." negative bias is increased, and at the same time the amount of resistance shunted across the aerial circuit is progressively reduced. With the potentiometer slider at the "minimum" position the position the aerial is virtually short-circuited through the grid bias battery, which has negligible resistance.

In order that sensitivity may not be affected noticeably at the "maximum" position, an H.F. choke must be interposed as shown, and also the grid decoupling resistance R must be of high value-say 50,000 ohms, in place of the more usual 5,000 ohms.

Further, to prevent a virtual short-circuit of the bias battery in the "minimum" position, a fixed condenser C must be inter-

The Wireless World INFORMATION BUREAU

THE service is intended primarily for readers meeting with difficulties in the construcmeeting with difficulties in the construction, adjustment, operation, or maintenance of wireless receivers described in *The Wireless World*, or those of commercial design which from time to time are reviewed in the pages of *The Wireless World*. Every endeavour will be made to deal with queries on all wireless matters, provided that they are of such a nature that they can be dealt with satisfactorily in a letter torily in a letter.

Communications should be addressed to The Wireless World Information Bureau, Dorset House, Stamford Street, London, S.E.I, and must be accompanied by a remittance of 5s. to cover the cost of the service. The enquirer's name and address should be written in block letters at the top of all communications.

posed in the aerial circuit if not already fitted; o.oor mfd. will do.

Half a Push-pull Stage

SOME time ago we commented on the experiences of a reader who found that the removal of one of his push-pull output valves had the effect of producing motorboating, although the set still went on working. It was pointed out that this state of affairs is quite usual, the motor-boating being explained by the fact that signalfrequency anode currents are allowed to pass through the source of H.T. supply, and thus give rise to L.F. reaction.

Another reader has now noticed that the removal of one valve gives rise to motorboating, but on replacing this and taking cut the other, the set works almost normally, without any sign of instability. Again, this effect is not abnormal; with one of the valves inoperative, serious feed-back in a positive (or pro-reaction) sense is taking place, while with the other removed the sense of reaction is reversed:

Improving the "Baby Super"

THE user of a Wireless World "Baby Super," described in August, 1932, asks whether it would be worth while replacing the present pentode frequency changer valve by the latest type of Heptode or Pentagrid.

It is to be anticipated that a great improvement in performance would result from this change; the necessary modifications are of a comparatively simple nature, and all the existing coils, etc., could still be used. As shown in Fig. 2, alterations are confined to the circuits directly associated with the detector-oscillator valve.

As the oscillator coil assembly used in the original set has a reaction winding of which both the extremities are led out to separate

THESE columns are reserved for the publication of matter of general interest arising out of problems submitted by our readers. Readers requiring an individual reply to their Rectairs requiring an intuitiatal reply to their technical questions by post are referred to "The Wireless World" Information Bureau, of which brief particulars, with the fee charged, are to be found at the foot of this page.

the I.F. transformer primary will no longer be used as an oscillator "feed" condenser, it will be joined directly across the primary by joining terminals 2 and 3 as shown.

With regard to the bias resistance for the

Heptode valve it is worth while, in a set of this nature, to try the effect of different values within the limits shown.

1 H.F. or 2 H.F. ?

A LTHOUGH the sensitivity of a receiver with two H.F. stages is vastly greater than that with one, the difference is seldom so outstanding as to place the two types in entirely different classes.

This remark is prompted by a question from a reader who proposes to add another H.F. stage to his receiver, and who apparently thinks that, without taking any special precautions, the present H.F. amplification, estimated at eighty times, will be increased to $80 \times 80 = 6,400$ times.

In practice it is hardly so simple as that. Comparatively seldom is it possible to obtain full amplification from each of the stages of a two-stage set; more often than not, instability sets a much lower limit, and it becomes necessary to "tap down" of the connections on the tuning coils or to sacrifice amplification in some other way. Again, reaction is not often used in 2-H.F. receivers, and its absence tends to make the comparative sensitivity of these sets somewhat less.

We say this merely to sound a note of

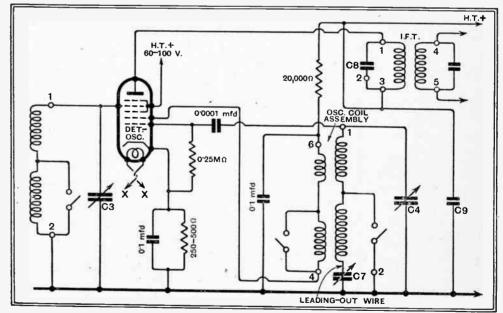


Fig. 2.—Modernising the A.C. "Baby Super" by fitting a Heptode. Values of new components are given, while existing parts bear the original reference numbers.

terminals, it becomes possible to employ a series-connected circuit instead of the parallel-fed arrangement which has been more generally adopted with Heptode valves. As the trimming condenser across

warning and not in any way to belittle the advantages of two H.F. stages. The extra stage makes a world of difference, but its inclusion calls for much more care in screening and decoupling.

MISCELLANEOUS ADVERTISEMENTS

CHARGE FOR ADVERTISEMENTS in these THE

columns is

12 words or less, 3/- and 3d. for every
additional word.

Each paragraph is charged separately and name and address

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The proprietors retain the right to refuse or withdraw advertisements at their discretion.

Postal Orders and Cheques sent in payment for advertisements should be made payable to ILIFFE & SONS Ltd., and crossed

Co. Notes being untraceable if lost in transit should not be sent as remittances.

The proprietors are not responsible for clerical or printers errors, although every care is taken to avoid mistakes.

For particulars of Box Number Advertisements and Deposit System see previous issues.

RECEIVERS AND AMPLIFIERS, ETC.

PUBIL-PULL, D.C. Amplifiers, with 2 P.P.3/425's in output, carriage paid.—Kay, 167 City Rd. 2 P.P.3/425's in output, carriage paid.—Kay, 167 City Rd. 2 P.P.3/425's in output, complete with 500v. line booster, brand new; £14, carriage paid.—Ward, 2nd Floor 45 Farringdon St. E.C.

ARMSTRONG 1934 Universal 4v. Chassis, incorporating 3 tuned circuits, 9 kilocycles separation, practically superheterodyne performance, full vision tuning, combined switching, 1½ watts output; 75/-, with valves 114/-; both models fully guaranteed; 7 days trial; demonstration any time.—Phone; Gulliver 3105. Armstrong Co., 100, King's Rd., N.W.1. [4348]

A MPLIFIERS.—2-stage transformer, coupled push-pull output, on 22in, pressed steel chassis, cadmium plated and cellulose plated. 4 Marcon: valves, 16 watts anode dissipation, with provision for 200 volts 50 milliamps H.T., and 4-volt 6 amp. heater current for radio unit if used; ideal for demonstration or I'A. work; original price 30 guineas, my price £8, carriage paid; eash with order—L. Eastwood. Sound Engineer, 70, Pitfield St., Old St., N.1.

ACCUMULATORS-BATTERIES.

100 Accumulator Chargers, ¼ amp., 2-6v., incorportilated case, with mains flex; 13/11; postuge 6d; 1 aup., 21/.—Arden Agency, Wollaston, Wellingborough. [4099]

MAINS EQUIPMENT.

HOYNE'S Transformers and Chokes the Best Obtainable, perfect insulation, regulation and reliability.

HOYNE'S Transformers, used by many well known set manufacturers after testing all others.

HOYNE'S Transformers, fitted with tapped and screened primaries, filaments all centre tapped, stout cast aluminium clamps and clearly marked Bakelite terminal strips are fitted to all models.

HOYNE'S Components are Guaranteed for One Year; built to your own specification at very competitive prices.

Duilt to your own specification at very competitive prices.

Hoyne's Components.—The components you will eventually use, start right; a dud cannot pass the floyre test.

HOYNE'S A.V.C. Straight Four, 450-0-450v. 120 m.a., 4v. 2-5a., 4v. 5-6a., 18/v. post 1/3; choke, 2611.

120 m.a., 140 ohms, 9/6, post 9d.

HOYNE'S A.V.C. Three, 275-0-275v. 60-70 m.a., 4v. 2-5a. 4v. 4a., 12/6, post 1/-; choke. 30 henry 50 m.a., 4v. 5a., 4v. 4a., 12/6, post 1/-; choke. 30 henry 50 m.a., 4v. 3a., 4v. 1a., 4v. 1a., 4v. 6a., 24 v. post 1 3; weight 10lb.; 10 henry choke. 6/-, post 6d.; 20 henry choke, 7 6, post 6d.; 20 henry choke, 7 6, post 9d.; with extra 4v. 1-2a., 4v. 2-4a., 10/-, post 9d.; with extra 4v. 1-2a., 4v. 2-4a., 4v. 1-2a., 4v. 2-4a., 12/6, post 1/-; winding, 13/6, post 1/-.

HOYNE'S.—250-0-350v. 120 m.a., 4v. 2-3a., 4v. 4-6a., 4v. 1a., 4v. 2-4a., 4v. 4v. 4v. 1a., 4v. 1a., 4v. 2a., 4v. 2a.

9d.

HOYNES, 200v. 200 m.a., 4v. 2-4a., 4v. 1-2a., for H.T.8: 13/6, nost 1/-.

HOYNES Chokes, very generous, cores, cotton interleaved, fitted with east aluminium clamps and terminal strips: 30H., 60 m.a., 900 ohms, 6,6, post 9d.; 30H., 127 m.a., 400 ohms, 8/6, post 1/-.

HOYNES Chargers and Eliminators to your Specifications; keenest prices
HOYNES Chargers and Eliminators to your Specifications; keenest prices
HOYNES Line Transformers (auto-wound), tapped 0-100-110-200-220-240v., 60 watt, 8,6, post 9d.; 120 watt, 10/s, post 1/s.

M. J. HOYNE, Offices and Works, 8a, Gladstone Rd., Wimbledon, S.W.19. Tcl.; Liberty 3303. [4415]

"DULCI" Unused D.C. Eliminators, 25 milliamps output 13/-; Westinghous rectifiers, H.T.6, H.T.7, H.T.8, H.T.9, 10/-; H.T.10, 11/3; T.C.C. 8 mf. electrolytics, 3/9; B.T.H. pick-up tone arms, 3/-; post paid, cash with order or co.d.—Ward. 2nd Floor, 45. Farringdon St., E.C. (new address).

A. C. or D.C. Chargers for 2 to 200 Cells at Low Prices; state requirements; dynamos and rotaries in stock, all sizes; Brown's Generometer, battery superseders for H.T. for 2v. or 6v. input, 37/6 and 52/6; television and sewing machine universal motors, 25/v: lists.—Electricity Radios, 218, Upper Thames St., E.C.4. [0398]



EVERYMAN A.C. SUPER Cash or C.O.D. Carriage Paid

£14 - 0 - 0

or 12 Monthly Payments of £1-5-9.

KIT "C" At for Kit

and PETO - SCOTT TWIN DE LUXE CABINET.

TWIN DE LUXE CABINET.

KIT 6A 22 Author's Kit of First Specified Parts, including ready-drilled and assembled Plymax Guassis, and Westector W.26, less values and cabinat valves and cabinet

Kit "B" As for Kit with specified valves only. CASH or C.O.D. £ 18-8-6 Deposit £3-8-6 and 11 onthly Payments of or Deposition Paym Monthly Paym £1-10-0.

Carriage Paid. £20-13-6 or Deposit £4-13-6 and 11 Monthly Payments of £1-12-0.

- EXCLUSIVELY SPECIFIED -

Two Cabinets in one, since the top londspeaker portion and bottom set section are entirely separated, being so designed that they are each complete in themselves, yet placing the speaker portion on top of the set section, gives you immediately an extremely attractive table consolette.

Complete, as illustrated 45/on right, Cash or C.O.D. Carr. and Packing 2,6 extra-Or Easiway, deposit 8/- and 11 monthly payments of 4/-.

Loudspeaker section 25/-

PLYMAX CHASSIS

as used by the Author, Ready drilled 11/6 and assembled,

A.V.C. STRAIGHT 4

RECEIVER KIT
Author's Kit of FIRST SPECI-FIED PARTS for Receiver Unit including Metal Chassis, less cashinet and speaker.
Cashinet and speaker.
Cashinet Paid, £12-15-6

POWER UNIT KIT. Author's Kit of FIRST SPECIFIED PARTS, excluding valve Cash of C.O.D. Carriage Paid. \$6-12-6 Or 12 monthly payments of 12 3.

COMPLETE KIT

Comprising Receiver and Power Units of FIRST SPECIFIED PARTS complete with all specified valves, and Baker's S.P.D. Black Cone Speaker, but less cabinet. Or Deposit £6-8-0 and balance in 11 monthly payments of £2-8-0.

Cash or C.O.D.

NEW MONODIAL

KIT 'A.'—Author's Kit of First Specified Paris for RECEIVER PORTION ONLY, including Peto-Scott assembled and drilled Plymax Chassis, Panel, less cabinet and valves

POWER UNIT KIT Author's Kit of FIRST SPEC-IFIED PARTS for POWER UNIT ONLY but with Ply-max Chassis and Valves Cash £9.0.0

Cash or C.O.D. Carriage Paid.

£11-12 Deposit£1.12.0 and or Deposit £1.12.0 and 1 monthly payments of 20

COMPLETE KIT comprising complete SET and POWER UNIT PORTIONS with specified valves, Cash or C.C.D. Earling Paid. \$27.18.6 or £5.18.6 Deposit and 11 monthly payments of £2.4.0.

VORTEXION TRANSFORMERS FOR A.V.C. THREE in stock.

IM MEDIATE DELIVERY

CASH—C.O.D.—H.P.

FOREIGN ORDERS. We have a special department for Overseas orders. Despatch by return is made in most cases. To expedite delivery customers should send full cash with order including sufficient for postage. All orders carefully executed and expertly packed by special export staff.

PETO-SCOTT CO. LTD

77, CITY POAD

PETO-SCOTT CO. LTD.
77, CITY ROAD, LONDON, E.C.1.
West End Showrooms: 62, High Holborn, London, W.C.1.

Mains Equipment-Contd.

VORTEXION Lead Again.

VORTEXION A.C./34, used by author in construction of A.V.C. Three, as illustrated; 18/-.
VORTEXION.—Please note brown lead omitted in blue print, is screened primary connection and should be carthed to chassis.
VORTEXION. Wimbledon, for 99.9% reliable transformers.

Vortexion, windeten, for 35.5% towners.

If You Haven't Tried Them Yet Ask Someone Who Has, or call and inspect complimentary letters.

UARANTEED 12 Months, and within 5% normal and 2½ super models, near shrouding, with detachable leet, as used by Government Departments, etc., etc. VORTEXION.—New Monodial transformer, 200-250, 50 eveles, 245-0-425, 120 m.a., 4v. C.T. 3a., 4v. C.T. 1a., 4v. C.T. 6a, screen primary, open type, 20; shronded, 22/-; super shrouded, 26/-; weight 14lb., carriage 2; extra; 10 henry choke, 5/6, post 9d.; 20 henry, 3,6.

carriage 2. exta; 10 benry choke, 5/6, post 9d.; 20 benry, 8,6, VORTEXION for A.V.C. Straight Four, 200-250 input, 450-0 4500, 120 m.a., 4v. 2.5a, C.T., 4v. 5-6a, C.T., with screened primary, shrouded in cast aluminium to prevent hum, super model 10-volt primary taps; 30/-. VORTEXION 26h, 120 m.a. Choke, 140 ohms, in die cast shrouding to match; 12/6. VORTEXION.—5-watt Monodial A.V.C. model, 400-0-400, 120 m.a., 4v. 5a, 4v. 3¹/₂a., 4v. 2a., 4v. 1a., super settened, 20/-; shrouded, 24/-. Al.1. Secondaries Center Tapped.

ORTEXION.—250-0-250 60 m.a., 4v. 1 to 2a., 4v. 2 to 4a., open type, 1576; shrouded, 12/6; post, 9d. VORTEXION Transformers, tested with 2,000 volts between windings.

VORTEXION.—Ferrocart III, 250-0-350, 60 m.a., 4v. 2.5, C.T., 4v. 3,5, C.T.; open type 13/6, shrouded

 $V_{1\ to\ 2,\ 4v.\ 2\ to\ 4;\ upen\ type\ 14/6,\ shrouded\ 16/6;}^{16\ ;\ post\ 9d.}$

V 1 to 2, 4v. 2 to 4; open type 14/6, shrouded 16/6; post 1/-.

VORTEXION.—350.0-350. 120 m.a., 4v. 2 to 5a., 4v. 2 to 4a., 4v. 2.5a.; open type 14/6, shrouded 16/6.

VORTEXION.—400 or 450 or 500v. 120 m.a., 4v. 2 to 5. 4v. 2 to 5. 4v. 2.5a.; open type 19/-. shrouded 23/-. VORTEXION.—400 or 450 or 500v. 150 m.a. 4v. 4a., 4v. 2. 5. 4v. 2, 4v. 2, 4v. 2, core size 23/x 11/4in., a superb bob. 2% regulation, 25/-; shrouded with terminals, less terminals, 30/-; open type, 26/-; post 1/3.

VORTEXION Auto Transformers to B.E.S.A. Specification. 100, 110, or 120v. to 200, 220 or 240 volts, 60 watts, 9., post 94.; 120 watts, shrouded 12/6, open type 10.6, post 1/-; 200 watts, poen 14/6, shrouded 16/5, post 1/-; 200 watts, poen 14/6, shrouded 16/5, post 1/-; 2.000 watts. 24/10.

VORTEXION 600-watt Transformers; £4/10, carriage free.

free York 30h. at 60 m.a. Chokes, 5/6; 40h. at 60 m.a., 200 ohms, 10/6 open type, 12 6 shrouded.

VORTEXION Transformers Made to Your Specification; price according to wattage, 6v. filaments same price unless wattage grossly exceeded; special quotations by return.

VORTEXION (S. A. BROWN), 182, The Broadway, Wimbledon, S.W.19, Tel.; Liberty 2814. [4189

SERADEX Mains Equipment, new list now ready.

FERADEX Variable Resistances for Television, etc., type H.A., 150 ohms, as specified for "Practical Mechanics Telediscovisor," also televisors described in Amatem Wireless," and "Television"; 9/11, post paid: tow illustrated leaflet just issued.

SERADEX Pitter Condensers, models from £2/12/6; send for lists; a better job at a lower price.

SERADEX Pitter Condensers, new list available shortly; type B, 400v. working, non-inductive, 0.5 mfd., 1/4; 1.0 mfd., 1/6; 1×1 mfd., 2/6; 2 mfd., 2/3; 4 mfd., 4/5; 4/4 mfd., 7/3.

A DVERTISEMENT of Trever Pepper, 575, Moseley Rd., Birmungham, 12.

TANTALUM for A.C. Chargers, H.T. and L.T.—Black-well's Metallurgical Works, Ltd., Garston, Liverpool. [5348]

CABINETS.

R ADIO-GRAM Cabinets; fully illustrated list free; re-markable values.—Gilbert, Cabinet Maker, Swindon,

R ADIOGRAM Cabinets, manufacturers' elearature.— Brunswick (Model 70), 45/-; (Model 90), 70/-; Zeta-vox (Model A.C.), 50/-; new, clean goods.—H. L. Smith and Co., Ltd., 289, Edgware Rd., London, W.2. [4313]

GRAMOPHONES, PICK-UPS, ETC.

HANDSOME Mahogany Cabinet, fitted Garrard electric motor, B.T.H. pick-up, will convert any set to radic-gram, records storage space.—Phone: Speedwell 7995, [4334]

LOUD-SPEAKERS.

LOUD-SPEAKERS.

30 /-!!!—B.T.H. R.K. moving coil speakers, 6in, cone, new and unused, guaranteed; these speakers are the type as used in cinema sound equipment, suitable for public address work; weight 30lb., and vastly superior to the cheap speakers now on the market, 100 volts, 150 volts, and 200 volts D.C.

27 /6 !!!-6-volt D.C. speakers, as above; £2/7/6 speakers as above for 100-250 volts A.C., complete with field rectifier.

B.T.H. Transformer, brand new, ratios 1-1, 2-1, 20-1, and 30-1 microphone; 7/- ca-b.

M.AGNAVOX D.C.144, 2.500 and 6.500 ohms, 17/6; Erringe paid, eash with order or c.o.d.—Ward, 2nd Floor, 45, Farringdon St., E.C. (New address). [420]

RADIO AGENCIES Offer New Set Manulacturers' Surplus: all goods carriage paid, cash with order, cr. c.o.d. Moving coil speakers, Magnavox X core, 7½in. cones, 100-190 D.C., 2.500 ohms (40-76 m.a.), or 190-280 D.C., 6.500 ohms (29-43 m.a.), at 18/ each, Seniors, 9½in. cones, same voltages, at 25/ (U.S.A.); Rola's 7½in. cones (list 35/), at 18/-; Seniors, 9in. cones, list 47/6 at 25/-, in following voltages: 2,000, 2,500 6.500 ohms; on all speakers state if power or pentode transformer, all incorporate humbuckers; also few duals, Class "B" and perman int magnets.—Radio Agencies, F4/No. 21, Upper Marylebone St., London, W.1.

Leud-Speakers.-Contd.

FOR Sp. akers Refer Previous Advertisement. - K.C. Radio Electric, 14, Handel St., London, W.C.

FOR Speakers Pefer Previous Advertisement.-H.D. Radio Electrical Service, 9, Kingly St., London. W.1.

DYNAMOS, ETC.

ROTARY Converters, 220 volts D.C. to 200 volts A.C., capacities up to 0.44 K.V.A.; from £4/10.—Mile Engineering Works, Mile Rd, East Dulwich, S.E.22. Thone: Sydenham 4422.

VALVES.

EPTON Leads Again!—Bargains in Lissen. Tungsram, Triotron, Dario, valves.—H.210. H.L.210, L.G.210, H.R.210, 3/3; P.220, P.215, Z.D.2, 4/3.—Epton 93, New Rd., Chingford, E.4.

A MERICAN Valves!—Brand new R.C.A. and Arcturus, 224s, 247s, 255s, 151s, 10/6; 227s, 245s, 280s, 7/6; cash with order, or c.o.d.—Norman Michel, 51, St. Matthew's Parade, Northampton. [4318]

Matthew's Parade, Northinpton.

A J.I. Types of Brand New American Valves in Stock first class makes, guaranteed; 247, 235, 224, 244, 236, 18, 19, 15, 242, 238, 46, 59, 89, 2A, 7 12/+; 80, 45, 226, 227, 8/+; 250, 281, 210, 17/6; post paid, cash with order or c.n.d.—Watd, 2nd Floor, 45, Farringdon St., E.C. tnew address1.

SPECIAI, Offer.-Valves by world-famous Continental manufacturers, fully guaranteed, screen grid, variable mu screen grid, high magnification screen grid, low magnification screen grid, I, HL, L; all the above standard mains type, 4/6 each.—Premier Supply Stores, 20-22, High St., Clapham, S.W.4. Macaulay 2188

COMPONENTS, ETC., FOR SALE.

R

SELECTED Parts for Sale, as new, any c.o.d. or "Wire-less World" deposit system, which we recommend if in doubt as to the splendid value offered; we take risk of damage in transit to customers; goods tested for callers

nd guaranteed.

RADIOPHONE 2-gang with drive complete, less cover, 8-fc, Colvern S.W. intermediates, 4/9; Dubilier, 2×2, 500v. working, 1-9 each to clear; Lewcos extenser, oscilator, 3/6; Varley P.P. pentede choke, 10/-; pair Verley, P.P. transformers, separate, G.B., 25/-; Varley Nicore 1,

P. I. L.T. chokes second-hand, 2/6; Gecophone L.F. choke, 3 -; Wearite antimobo units, 2/6; Teisen multi ratio output transformer, 9/15/22-1, 6/-.

POLAR STAR 3-gang Senior, new, 14/6, with drive, new, 8/9; with drive and fittings, 12/9; Polar 2-gang Uniknobs, complete, 9-; Polar disc drive, with No. 4 condensor, 4.6 pair; Lotus 4-gangs, sew, fully screen-drimmers, top. 15/- pairs Polar 0.0005 thumb drive, new. S.M. complete, 12/6; Ready Radio 0.0005 extensers, 2/6, new.

new.

O'MOND P.M., 65/- model, 35/-: B.T.II. P.M. Junior, 25/-; Polar Star superhet, condenser, 3-gang, 14/9.

ETERLING Shrouded 30II 30 m.a. Chokes, 4/6: Telsen Power grid 40II, 6 m.a. choke, 4/6; 40II 4 m.a., 3/-; Igranic C.40 choke, 5 : Bulgin 32H choke, 4/
EPECIAL Offer of 5v. and Rectifier (valve) Chassis, from Yagerphone all guaranteed, new and very well made; chassis only 50 -; with valves, 80/-; carriage lorward.

made; chassis only 50 -; with valves, 80/-; carriage lorward.

B.T.H. Junior Speaker, 6in. corrugated cone, with separate and the separate separate

ohms, 10/6.

H. El.SBY Non-inductive Bakelite Condensers, new, 250v.

H. Working, 4 mf. 3 '-; 2mf. 2 '-; R.I. Q.P.P. inout
transformers, 9/6; second-hand; Ferranti large safety
boxes, 9/6; Amplion B.A. cone speaker, in solid cak,

boxes, 9/6; Amplion B.A. Cone 2,200
18×18, 15 -.

L AMPLUGH Senior D.C. Speakers, 8½in. cone, 2,200
ohms, 13/6.

T.O.C. 0.01, mica, type M., 1/-; T.C.C. 4×4 mf., 3/6;
H.M.V. 4×4 mf., 3/-; T.C.C. 4×4×1×1×1/2 mf., 4 6;
H.M.V. ditto, 3,6; all 250v. working.

GUITCASE Type Cases, in best crocodile leather, 14×14
x8, ample room for 12in. turntable and pick-up

RYALL'S RADIO, 33, Chancery Lane, London, W.C.2 (nearest Tube, Chancery Lane; 'bus 67 passes door, or train to Savoy St.). Holborn 3529. Open Saturday afternoon. Close 7 p.m., Saturday 6 p.m. Thursday closed 1, o'clock.

\mathbf{R} .

PREMIER.

PREMIER SUPPLY STORES Offer the Following Set Manufacturers' Surplus New Goods at a Fraction of the Original Cost, all goods guaranteed perfect, carriage paid over 5/-, under 5/- postage 6d. extra (Ireland, car-riage forward).

riage lorward).

ELIMINATOR Kits, including transformer, choke.
Westingbouse metal rectifier, T.C.C. condensors, resistances and diagram, 120v. 20 m.a., 20/-; trickle charger
8/- extra; 150v. 30 milliamps, with 4v. 2-4 amps. C.T.
L.T., 25/-; trickle charger, 6/6 extra; 250v. 60 milliamps,
with 4v. 3-5 amps. C.T. L.T., 30/-; 200v. 100 milliamps,
with 4v. 3-5 amps. C.T. L.T., 37/6; 150v. 50 milliamps,
with 4v. 3-5 amps. C.T., L.T., 37/6; 150v. 50 milliamps,
27/6.

T.C.C. Condensers, 750v. working, 2 mf., 3/6; 4 mf. 6/-, 4 mf. 450v. working 4/-, 250v. working 1 mf. 1/3, 2 mf. 1/9, 4 mf. 2/6; aqueous electrolytic, 440v. working, 4 mf. 3/-, 8 mf. 3/6.

A LI. the Following Lines 6d. each or 5/- per dozen: 4. AL the Following Lines 6d. each or 5/- per dozen: 4. and 5-pin chassis mounting valve holders: shielded screen grid or pentode leads, 1-watt wire end resistances, any value: 0.1 condensers: on-off switches, push-pull; polar ganging devices: 0.02 condensers, 0.5 condensers, 0.01 condensers, 0.2 condensers, 0.5 condensers,

(This advertisement continued in second column.)

Components, etc., for Sale.-Contd.

Components, etc., for Sale.—Contd.

(This advertisement continued from first column.)

POLAR 3-gang 0.0005 Condensers, split end vanes, totally screened disc drive; 6/11.

A MSCO Triple-gang, 0.0005 Condensers, with trimmers, 4/11.

T.C.C. Electrolytic Condensers, 100 volts working, 15 mfd., 1/3; 6 mf. 50v., 1/.

PREMIER Chokes, 40 m.a., 25 hys., 4/; 65 m.a., 30 hys., 6/: 150 m.a., 30 hys., 10/6.

PVE Chokes, 20 or 32 hys., 4/: Premier multi-ratio output transformers, giving 15 different ratios; 7/6.

HIGH Inductance Chokes, resistance 2,500 ohms, 80 henrys, 60 m.a.; 5/6.

WESTINGHOUSE Metal Rectifiers, 120v. at 20 m.a., 6/6; 200v. at 30 m.a., 8/6; 200v., 60 m.a., 10/.

ARLEY Pick-up, complete with arm and volume control; 12/6.

RITISH RADIOPHONE Wire Wound Potentiometers.

Prof. 12/6.

British Radiophone Wire Wound Potentiometers, with mains switch incorporated, 5,000 ohms, 10,000 ohms, 50,000 ohms, 10,000 ohms, any value; 3/6.

KOLSTER BRANDES Gramophone Motors, dual type, can be worked by clockwork or mains, induction type 103-250 volts, 25/-; complete with all fittings and turntable.

SPECIAL Offer.—Microphones by prominent manufac-turer, high sensitivity, uniform response, complete with stant, transformer and battery; listed £3/15, our

price 18/6.

PREMIER British Made Meters, moving iron, flush mounting, accurate; 0-15, 0-50, 0-100, 0-250 milliarps, 0-1, 0-5 amps, all at 6/-.

ORMOND Condensers, 2-gang, semi shielded, 2/6; wire wound potentiometers, 15,000 ohms, 1/6.

PECIAL Offer of Mains Transformers, manufactured by Philips, input 110-115v, or 200-250v, output 180-0-180 volts, 40 m.a., 4v. 1a., and 4v. 3a., 4/6; 200-0-200v, 4v. 1a., 4v. 3a., 4/6.

A LL Premier Guaranteed Mains Transformers have enabled the properties of the provided of the provided

A graver terminal strips with terminal connections, input 200-256 volts, 40-100 cycles, all windings paper interleaved.

PREMIER H.T.8 Transformers, 250v. 60 m.a., rectified, with 4v. 3-5a., C.T., L.T., and screen primary, 15/-; with Westinghouse rectifier, 25/-.

PREMIER H.T.9 Transformer, 300v. 100 m.a., rectified, with 4v. 3-5a. C.T., L.T., and screened primary, 15/-; with Westinghouse rectifier, 26/-.

PREMIER H.T.10 Transformer, 200v. 100 m.a., rectified, with 4v. 3-5a. C.T., L.T., and screened primary, 15/-; with Westinghouse rectifier, 26/-.

PREMIER H.T.10 Transformer, 200v. 100 m.a., rectified, with 4v. 3-5a. C.T., L.T., and screened primary, 15/-; with Westinghouse rectifier, 26/-.

PREMIER H.T.10 Transformer, 200v. 100 m.a., rectified, with 4v. 3-5a. C.T., L.T., and screened primary, 15/-; with Westinghouse rectifier, 26/-.

DOUBLE Spring Motors, made by Garrard, play five sides of 10in. record, complete with turntable and all fittings; 17/6.

SPECIAL Offer.—Accumulator chargers, input 200-250v. and the side of the silver oxide rectifier employed charger may be used during broadcast; 9/6 each.

CENTRALAB Potentiometers: 50,000. 250,000 and 50,000 ohms, 2/- each; ditto, wire wound, 200 ohms and 400 ohms, 1/-.

A FEW More Only.—Western Electric 4211E's and 4211D's, 15/-; 421's, 43; callers only.

WESTERN ELECTRIC Mains Transformers: 500-0-250 anns. 4v. 2-5 amps., 4v. 2-

PREMIER Mains Transformers, output 250-0-250 volts, 60 m.a., 4v. 3-5a., 4v. 2-3a., 4v. 1-2a. (all C.T.), with screenel primary, 15/-.

PREMIER Mains Transformers, output 350-0-350 volts, 90 m.a., 4v. 3-5a., 4v. 2-3a., 4v. 1-2a. (all C.T.), with screenel primary, 15/-.

PREMIER Mains Transformers, output 400-0-400 volts, 100 m.a., 4v. 4-5a., 4v. 2-3a., with screened primary, 15/-.

100 m.a., 4v. 4.5u., 4v. 2-3a., with screened primary, 15/..

PREMIER Auto Transformers, 100-110/200-250 volts or vice verse, 60-wait, 7/9; 100-wait, 10/..

SPECIAL Offer of Manufacturers' Type Transformers, any input, output 250-250 volts, 60 m.a., 4v. 1a., 4v. 3a. (both C.T.), 8/6; H.T.8 transformer, with 4v. 3-4a. (C.T.), 8/6; with rectifier, 18/6.

MAGNAVOX D.C.144, 2,500 ohms, 17/6; D.C.154, 2,500 ohms, 17/6; D.C.152 Magna, 2,500 ohms, 37/6; all complete with humbucking coils; please state whether power or pentode required; A.C. conversion kit for above types, 10/.; Magnavox P.M. 7 in. cone, 18/6.

BULGIN 3 amp. Mains Switch, 1/.; lever switches, 2, 3 cr. 4 way, 3 pole, 1/- either type.

WESTERN ELECTRIC Mains Transformers, 300-0.300, 60 milliamps, 4v. 1-2 amps., 4v. 2-3 amps., 8/6.

GRAMPION P.M. Loud-speakers, 9in. cone, handles 4 watts, 18/6.

W watts, 18/6.

GRAMPION M.C. Loud-speakers, 2,500 olim feld, 9in. cone, handles 6 watts, 21/-.

H.M.V. Condenser Blocks, 4×4×1×1×0.5, 250v. working, 3/6; ditto, 400v. working, 5/6.

Ell.IOT First-grade Moving Coil Meters, 0-30. 0-50, 0-100, 0-150 milliamps, projecting types, 15/- each; 0-100, 0-150 milliamps, flush types, 17/6 each.

H.T.I. Induction Type (A.C. only) Electric Gramophone Motors, 100-250v.; 30/- complete.

MPLION Moving Coil Speakers, type E.M.644, dual fields, 2,500 and 5,000 olms (100 and 200v.), with output transformer, 12/6; A.C. conversion kit for this speaker. 10/- extra.

output transformer, 12/6; A.C. conversion kit for this speaker, 10/e extra.

WESTERN ELECTRIC Condensers, 250v, working, 1 mid, 6/d, 2 mid, 1/·; 500v, working, 1 mid, 1/·.

T.C.C. Condensers, 250v, working, 4/4×1 mid, 3/6; G×4×2×2×2 mid, 375v, working, 6/11; 4×4×1, 6/·.

SPECIAL Offer of Wire Wound Resistances.—4 watts any value up to 15,000 ohms, 1/·; 8 watts, any value up to 15,000 ohms, 1/·; 50 watts, any value up to 10,000 ohms, 1/·; 25 watts, any value up to 50,000 ohms, 2/6; 50 watts, any value

FOR New Year's Bargains, see last week's advertisement.

Mains Radio Development Co., 4-6, Muswell Hill Rd.,
London. N.6. [4345]

NEW Edison Bell Condensers, 0.003, 0.004, 0.0015,
0.0004 to 0.0009, 2/6 per dozen, post paid.—Leach.

II, Coronation St., Blackpool. [4336]

Components, etc., for Sale.—Contd

Components, etc., for Sale.—Contd

Components, etc., for Sale.—Contd

Couthern Radio's Wireless Bargains.—Set manufa turers' guaranteed surplus.

Variable Condensers.—Lotus 2-gang 0.0005 comple with dial, knob, escutcheon, 8/6; fully screen with dial, knob, escutcheon, 8/6; fully screen with trimmers, and boxed; Lotus Dybleok single variable condensers, 0.0005, complete with dial, oscutcheon, etc., 4/9 (list 9/6); liydra block condensers, new, 16 mfc 2+2+8+2+1+1, 1.000 volt test, 7/- each; 4 mfd. 2/6; acch; block condensers, 1,500 volt, with terminals, 10 mfc 12+2+8+2+1+1, 8/5; 20 mfd. (2+2+2+2+2+2+1+1).

Speakers, Dermanent magnet speakers, 7in. cone, 28/6 (listed 49/6); D.C. vains energised, 2,500 to 6,50 ohms, complete with humbucking coils and transformer 16/6 (list 49/6); D.C. vains energised, 2,500 to 6,50 ohms, complete with humbucking coils and transformer 16/6 (list 39/6); D.C. vains energised, 2,500 to 6,50 ohms, complete with humbucking coils and transformer 16/6 (list 39/6); D.C. vains energised, 2,500 to 6,50 ohms, complete with humbucking coils and transformer 16/6 (list 39/6); D.C. vains energised, 2,500 to 6,50 ohms, complete with humbucking coils and transformer 16/6 (list 39/6); D.C. vains energised, 2,500 (list 25/15); Blue Spuc. 100U, 13/6 (list 39/6) (list 25/1); Blue Spuc. 100U, 13/6 (list 39/6) (list 25/1); Blue Spuc. 100U, 13/6 (list 39/6).

Ready Rablo 500 Soils A Kits, complete with cabinet M.C. speaker, less vaives, £2/5; with 3 Mullard valves (P.M.12A. P.M.2). £3/5 (list 26/17/6).

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