

The Wireless World

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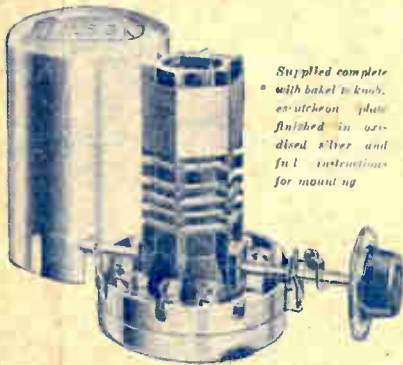
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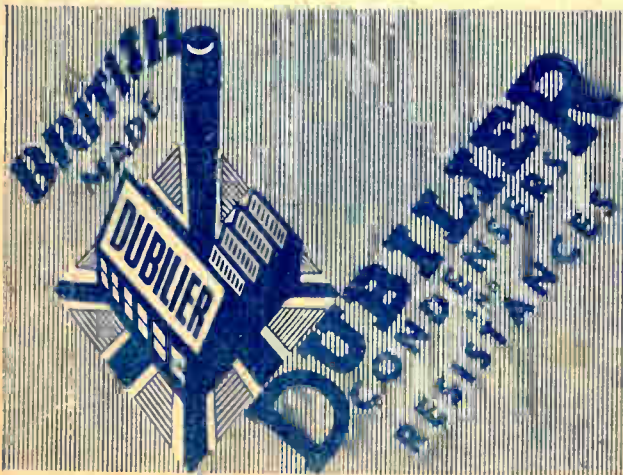
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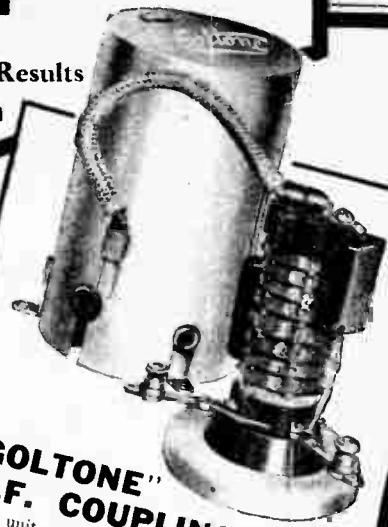
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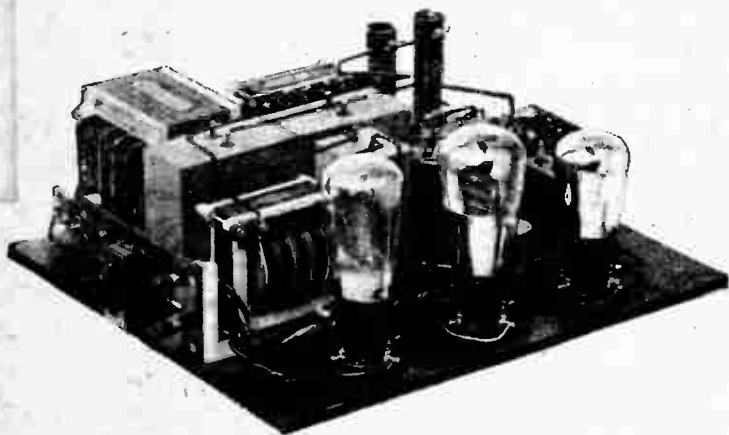
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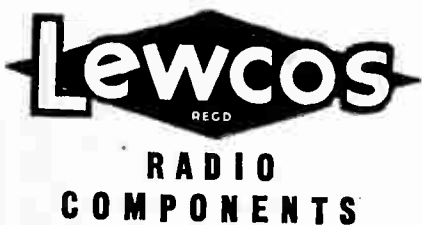
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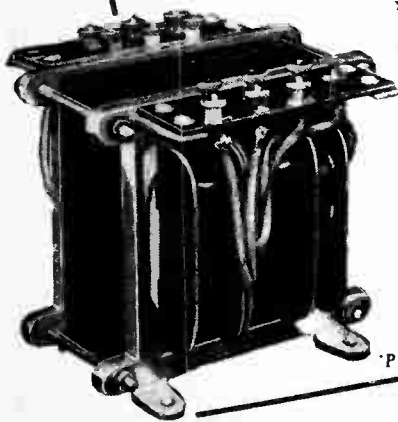
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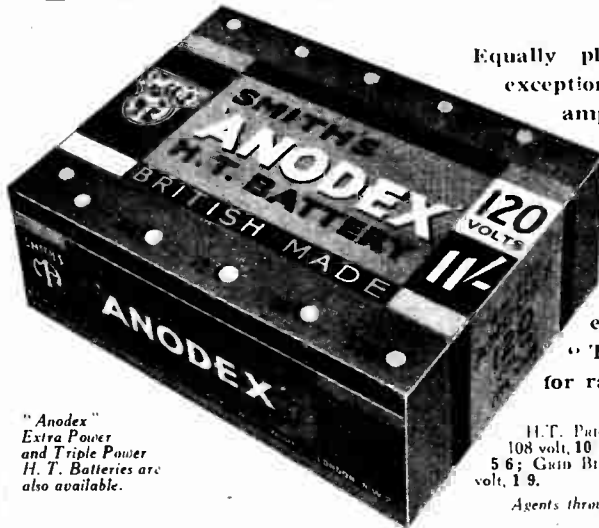
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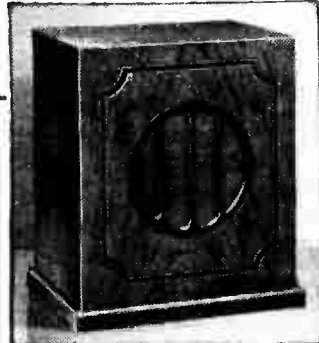
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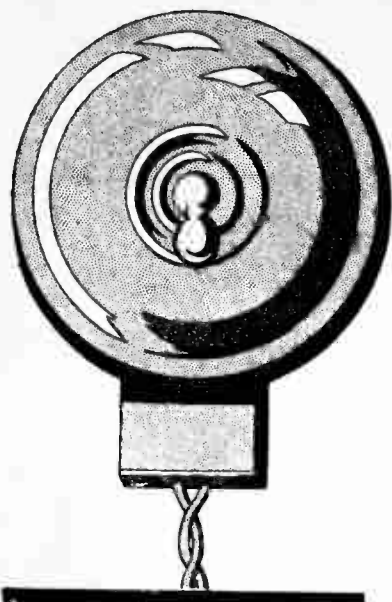
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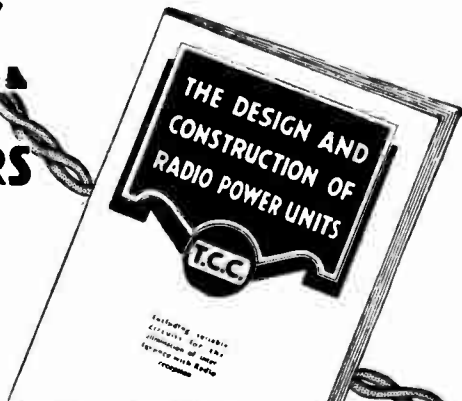
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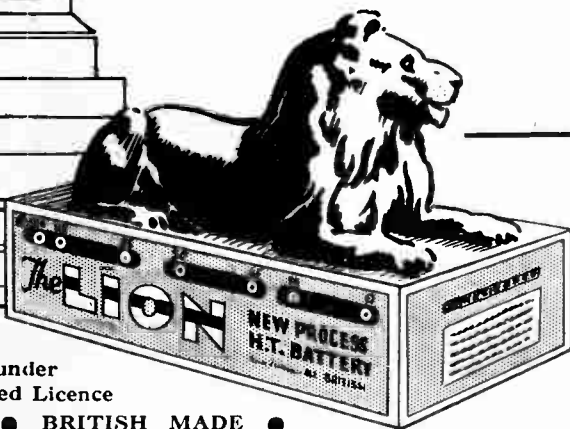
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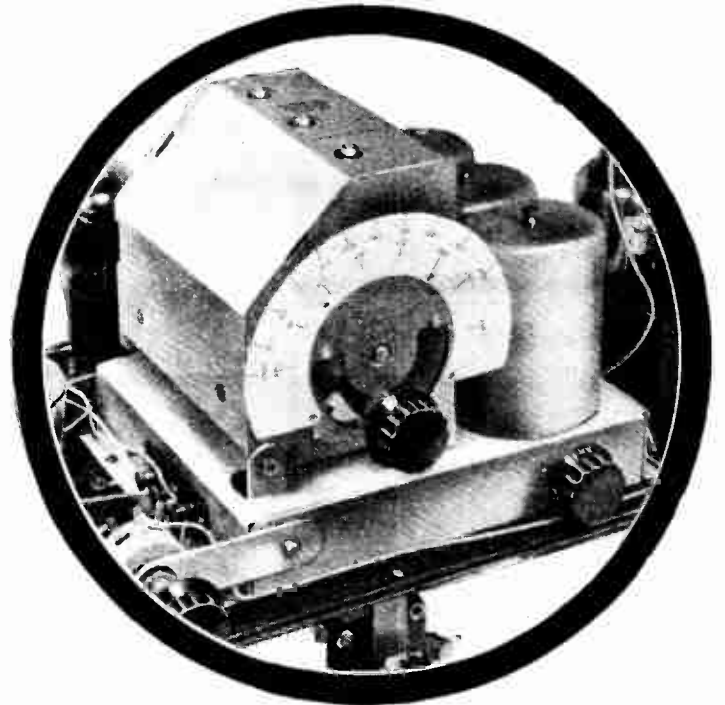
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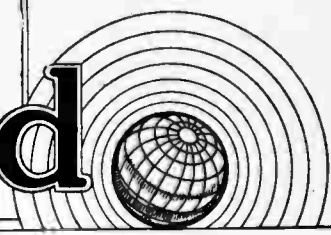
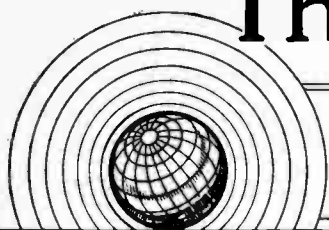
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The Wireless World

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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 Question of Quality

Public Demonstrations Needed

A FEW months ago the Correspondence columns of *The Wireless World* provided the platform for a long and almost heated debate on the subject of frequency range and quality, the argument centring round the very vexed question of how far the frequency range must be extended before we can approach the ideal of faithful reproduction of the original transmission. Although from its very nature this discussion produced no positive conclusions, yet it was extremely interesting and informative, and must have opened the eyes of many readers to a better appreciation of the importance of frequency range in quality reproduction.

"Good Quality"

There is, however, another aspect of the question of quality which deserves much wider consideration than is given to it at present. No one will deny that electrical reproduction, both of broadcast transmissions and gramophone records, is capable of giving very satisfying results; results which in some cases may not approach perfection but which, nevertheless, are entitled to be described as "good quality." But, if a committee of judges of good quality were to take upon itself the task of going round and listening to individual sets throughout the country, we are afraid that the proportion of reproductions which would be accepted as coming within the category of good quality would be comparatively small. After ten years of broadcasting this may seem to be an unkind and rather pessimistic opinion to express, but we cannot help feeling that such an opinion would not

be found to be an exaggeration of the position.

There are several causes which contribute to this unfortunate state of affairs; in very many instances the receivers in use are not themselves to blame; they may be quite capable of a good performance, but are being used under unsatisfactory conditions. An even more likely explanation of poor quality is that the users of the apparatus themselves have never been aroused to a consciousness of the limitations of the reproductions they have become accustomed to listening to.

Comparison Needed

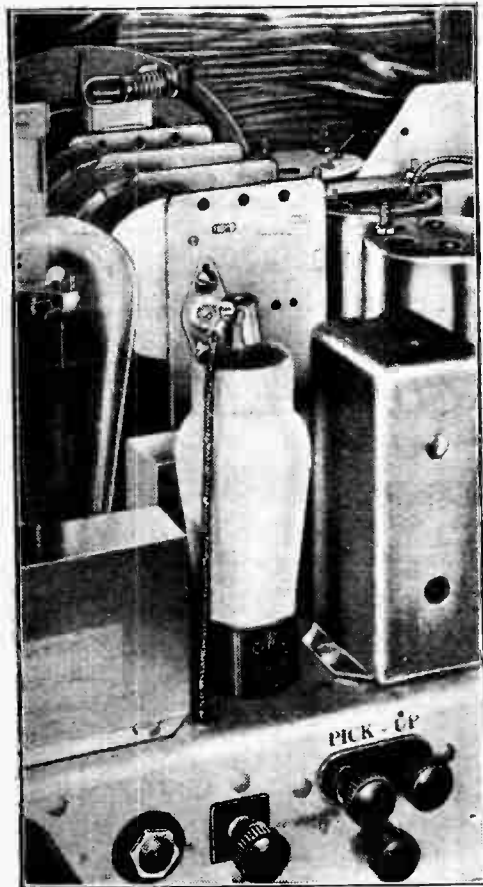
It is only by comparison that we can hope to bring about a general education of the public to an appreciation of a better standard. To achieve this result there appears to us to be only one straightforward method to adopt, and that is to give the public frequent opportunities for listening to the reproduction of really good quality, so that when next they switch on their own sets the feeling of dissatisfaction will be so great that something will be done about it.

As a start, we would like to see co-operative efforts made by the wireless industry aided, perhaps, financially by the B.B.C., to equip every railway station waiting room with a modest but good quality installation, and so facilitate the education of the public to a higher standard of quality reproduction. There are other convenient places where such an installation could be put up, but railway station waiting rooms would be a very good beginning because they are, on an average, of the same dimensions as living rooms at home, and, therefore, suitable for equipment with receivers the equivalent of those supplied for domestic use.

Practical Automatic Volume Control

The Application of Different Systems

By W. T. COCKING



Automatic volume control in a typical American design, showing the special 55 type valve developed in that country.

THE broad principles of automatic volume control have previously been explained in this journal,¹ and it may be said that such controls fall into two distinct classes—that in which a single detector valve is employed to provide both the L.F. signal and the automatic bias, and that in which two separate valves are used for the two functions. Each method has its own sphere of usefulness, and either may prove more convenient than the other under particular circumstances, for the choice of type of automatic volume control depends largely upon the design of the receiver.

The diode type of control, with which a single valve performs the two functions of providing the L.F. signal and of supplying the bias potentials, will be considered first, since it is the simpler to understand and to get into operation. As a concrete example, we will take a typical superheterodyne of modern design and suppose that it consists of a variable- μ H.F. stage, a screen-grid first detector, and a variable- μ I.F. stage, the volume control being a potentiometer controlling the bias of both variable- μ valves. The second detector will be of the power grid type, worked with a signal input of some 1 volt.

As the first step towards a conversion to A.V.C., let us replace the grid detector by a diode of the type shown in Fig. 1, and assume that the lead "A" is not connected and that the normal volume control is retained. The sensitivity of the set will immediately fall by the amount of amplification obtainable from a power grid detector; that is, it will fall to about one-twentieth to one-thirtieth of its normal value. It is obvious, therefore, that we shall have to add another stage of amplification to make up for the loss.

If the set were originally arranged so that the power grid detector fed the output stage directly, this extra amplification will usually be added in the form of an intermediate L.F. stage. Should the receiver already include such a stage, however, then it is probable that an additional I.F. valve would prove more satisfactory.

From our experience with the unmodified receiver, we know that the variable- μ valves are biased to about 5 volts for the reception of the stronger of distant stations, and that they need some 50 volts bias when the set is tuned to a strong local transmitter. With automatic control, the bias must be provided by the detector, and as a rough approximation we may assume that the bias voltage obtainable is equal to the detector input. It is immediately obvious that the control cannot keep

volume constant. If a variation of bias between 5 and 50 volts be needed for certain stations, in order to provide this bias the detector input must vary between the same figures, which means that the sound output from the loud speaker will also vary. Actually, of course, the matter is to some extent relieved by the fact that working the detector at an abnormally high input means that less bias voltage will be required. In practice, therefore, the variation between a distant and local station might be between 5 and 30 volts instead of between 5 and 50 volts. The perfec-

tion of the action also depends upon the number of controlled stages, and the greater the number of controlled valves the more nearly perfect will be the results. It is usually desirable to control the first detector, therefore, as well as the amplifying stages, and so we can definitely settle upon employing a variable- μ valve at this point.

The I.F. Stage

The next point to consider is the stage immediately preceding the diode. As the detector may easily require an input of some 30 to 40 volts on a local station, the I.F. stage must be designed to give this output. An examination of valve curves reveals that a variable- μ type will not do this if it be biased negatively by more than about 3 volts. The normal bias for maximum sensitivity will be 1.5 volts, so that there is very little latitude for control in this stage, and in most cases we shall have to operate the valve with a fixed bias. Were two I.F. stages used, however, the control would be better, and the maximum detector input would be smaller, with the result that it might be possible to control the pre-detector stage. In general, full control is impossible with a diode A.V.C. system if distortion is to be avoided, and it is the common practice to feed back to it only a portion of the available bias voltage.

We are now in a position to sketch out the modified receiver, and this will take the form shown in Fig. 2. It will be seen that only the H.F. and the first detector valves are controlled, and that the

THE great disparity between the signal strengths of the numerous stations now available with selective receivers and the bugbear of fading have led to the development of systems whereby the sensitivity of the set is automatically controlled. In this article the two rival systems—the diode and the square law control—are discussed and the particular advantages of each are shown.

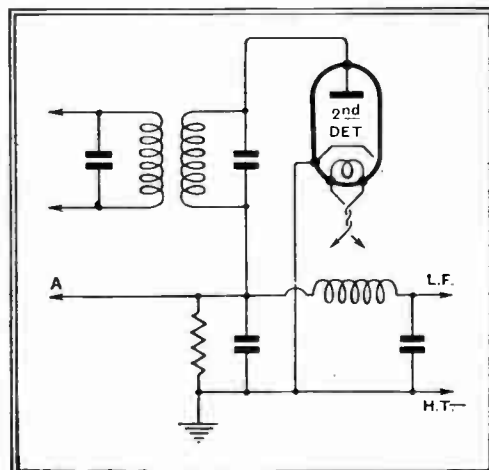


Fig. 1.—The diode detector provides one of the simplest types of A.V.C., for the bias may be tapped off from the point "A."

¹ Automatic Volume Control, *The Wireless World*, August 12th, 1932; Automatic Gain Control, *The Wireless World*, September 23rd and 30th, 1932.

Practical Automatic Volume Control— manual volume control takes the form of a potentiometer governing the input to the L.F. amplifier. The speed of operation of the control depends upon the values assigned to C and R, and, provided that their product remains constant, the actual values are unimportant.

The speed of control is important. If it be too slow the sensitivity of the set rises

however, provide very effective decoupling, so that this usually needs little consideration.

The Double Diode

An arrangement of the type of Fig. 2 is capable of very good results, and there are several variations which can be introduced without affecting the general method

amplifier in the usual way, no use being made of the D.C. potential developed across the load resistance. The other anode is fed in parallel through a condenser, but in this case the L.F. currents which appear as a result of the rectification in this circuit are not used, and the D.C. potential across the load is employed for the bias. At first sight there is little difference from the normal arrangement,

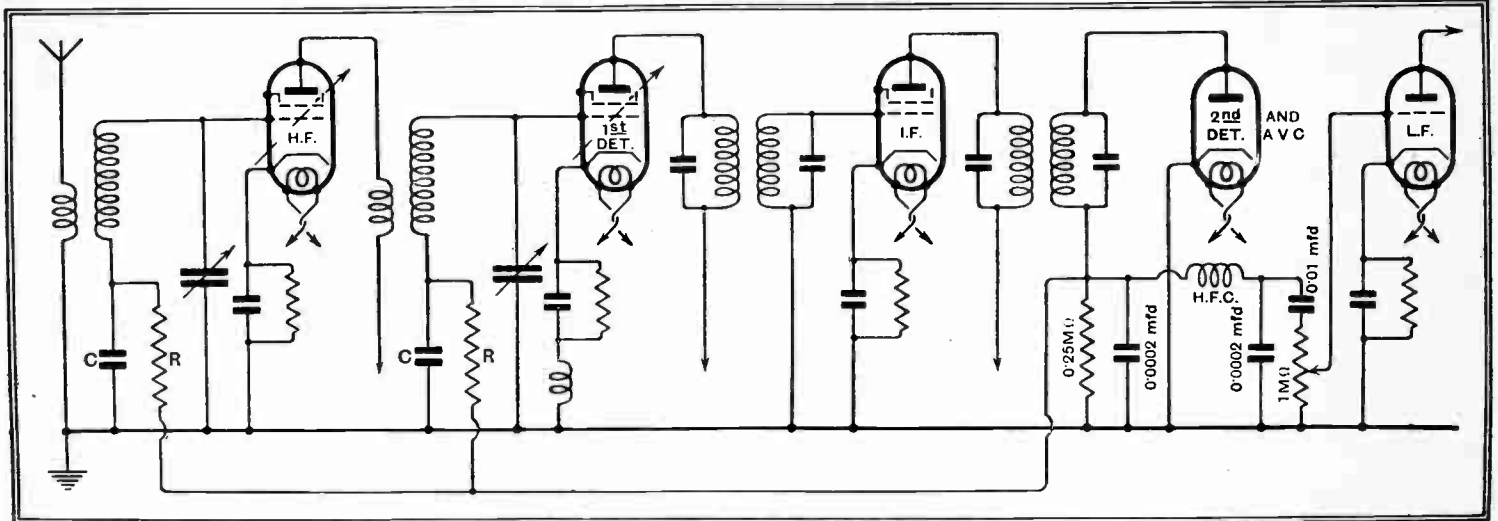


Fig. 2.—The application of a diode control to a modern superheterodyne. It should be noted that the I.F. valve is not controlled.

only slowly when tuning off a powerful station, and weak adjacent stations may be passed over. More important still, the sensitivity only decreases slowly on tuning in to a local station, so that momentary blasting may occur. If the operation be too fast, however, there is a possibility that the bias, and hence the amplification, may be affected by low notes in the desired transmission, and that distortion may thus appear.

In general, the optimum speed has been found to be about one-tenth to one-

of operation. Instead of the single diode shown, it is possible to employ a double diode, such as the Mazda AC/DD, and obtain full-wave rectification. The circuit of the detector portion is shown in Fig. 3, and it will be seen that the input is applied in push-pull to the diode. It is important that the inputs to the two halves be equal, otherwise the fundamental frequency of the H.F. output will not be balanced out, and it should be pointed out that the true electrical centre of the input coil may not be identical with the mechanical centre.

One of the disadvantages of all normal type diode A.V.C. systems is that they are always in operation. If it be desired to listen to a weak station, for which the full amplification of the set is needed, then less volume will be obtained from a set fitted with diode A.V.C. than from one with no such control. This is readily understandable when it is remembered that any signal on the detector, no matter how small, must result in some increase in bias to the early stages and some reduction of their amplification.

It is possible, however, to avoid this effect, and a simple method of doing this, which is particularly applicable with a valve such as the AC/DD, is shown in Fig. 4. It will be seen that one anode is connected normally to act as a diode, and the L.F. output from this circuit is fed to the L.F.

and we are employing two anodes to do the work of one.

If we bias the A.V.C. anode negatively, however, there will be no rectification in this circuit until the signal input exceeds a certain value; but the other anode, not being biased, will always act normally. The result of this is that the automatic volume control will not be operative until the detector input exceeds a certain predetermined figure. The aforementioned disadvantage, therefore, can readily be overcome, and a diode control of this type need cause no loss of sensitivity on weak signals.

It will be obvious that there are many receivers to which the diode control is inapplicable. A diode must be used with a high load impedance, and this makes it difficult to obtain any high degree of tone correction in the coupling between the diode and the first L.F. stage. Tone correction, however, cannot be fitted in the coupling to the output stage, in most cases, if amplitude distortion in the preceding valve is to be avoided. Unless two L.F. stages are used as well as the output stage, therefore,

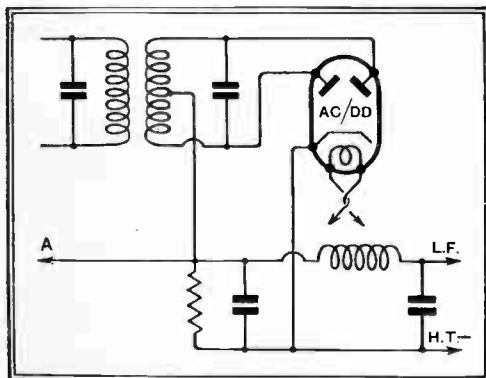


Fig. 3—The practical circuit of a full-wave diode control differs from the simple type only in needing a centre-tapped secondary to the I.F. transformer.

twentieth of a second. A speed of one-tenth of a second may be obtained by giving the condensers C, of Fig. 2, values of 0.1 mfd. when the resistances R are each of 1 megohm. The faster speed will be found with the same capacity condensers by using 0.5 megohm resistances. These components, as well as determining the time constant of the circuit, serve the purpose of decoupling the grid circuits of the controlled valves. The values adopted on the score of the time constant,



The Mazda AC/DD—the first British valve designed for full-wave detection and A.V.C. The bulb has been broken away to show the electrodes.

tone correction with a diode detector becomes rather difficult.

It will be further apparent that a linear detector is not the best for the provision of the automatic bias voltages. If distortion is to be avoided, of course, a linear

Practical Automatic Volume Control—detector must be used for demodulation, but a square-law detector is greatly superior for automatic volume control. With a linear detector, such as the diode, doubling the detector input merely doubles the bias voltage, but with a square-law detector, doubling the input quadruples the bias, and a much more perfect

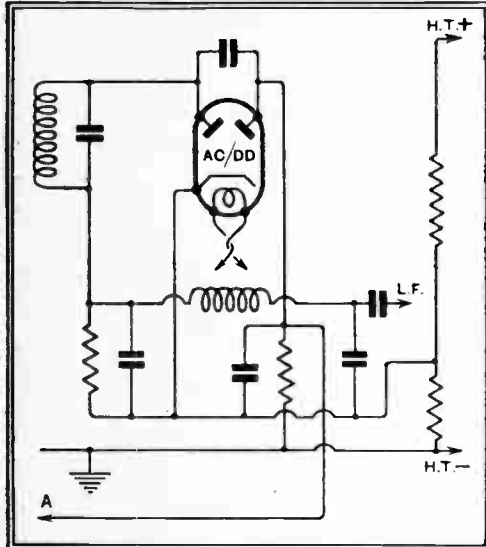


Fig. 4.—A method of diode control in which operation does not commence until the signal reaches a certain value.

control is possible. Moreover, the usual types of square-law detector operate with quite small input voltages, so that it becomes possible to control the last I.F. stage, and we get still a further gain.

A Comparison

This is well brought out by the curves of Fig. 5, which are calculated on the basis of a linear rectifier and two controlled stages for curve A and a square-law detector and three controlled stages

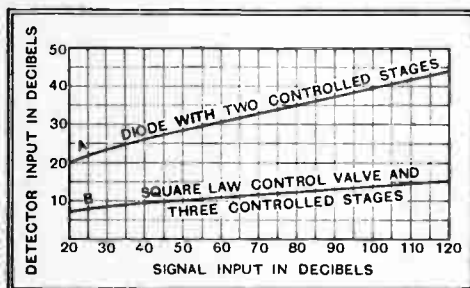


Fig. 5.—The above curves show the action of two types of control in a typical receiver. The superiority of the square-law type is evident.

for curve B. With the diode type of control the input can only vary 22 decibels for a 5 db change of output, whereas with a square-law detector and three controlled stages, the input can vary 65 db for the same change of output. Put into the more familiar voltage ratios, this means that if the detector input is not to rise to more than 1.778 times its normal value, the input to the set from the aerial must not rise more than 12.59 times with the diode control, whereas it can rise to 1.778 times with the square-law control.

It may be argued that this comparison is not quite fair to the diode, since with the square-law control there are also three controlled stages. It will be clear, however, that in the example chosen the comparison is a good one, for the possibility of using an extra controlled stage is one of the advantages to be derived from the

employment of the low input square-law detector. In a receiver of different type, of course, the superiority might not be so marked, and there are undoubtedly cases where the diode is preferable, if only on account of its greater simplicity and the need for fewer components.
(To be concluded.)

DISTANT RECEPTION NOTES

AS correspondents have pointed out recently in *The Wireless World*, interference from spark signals is still a great nuisance at times upon the medium waveband. The two worst patches are from 500 to 550 metres and from 200 to about 240 metres. Down near the bottom of the band the number of broadcasting stations that can be interfered with by even a single spark transmitter is large owing to the great spread of a transmission consisting of heavily damped waves when the parallel capacity in the tuned circuits of the receiving apparatus is reduced to a comparatively small amount.

Spark signals apart, there has been very little serious interference with distant transmissions. Atmospherics have never been more than intermittent background noises; few stations of importance have suffered from heterodynes, and fading has not been troublesome on wavelengths above 300 metres.

Best Stations To-day

Conditions have been almost ideal for reception of the long-wave stations, and these have come in well at all times. Motala is the only one of the long-wave stations that is not giving a first-rate account of itself so far as signal strength is concerned, though Oslo still suffers badly from heterodynes of Russian origin.

One of the best stations within the limits of the medium waveband is Katowice, which can now be relied upon at any time after about four o'clock. Bratislava and Bordeaux Lafayette are also outstanding amongst the less well-known stations.

Munich has shown considerable variations in its strength; one wonders if experiments are in progress with the new transmitter. Vienna has been generally good, and Florence is nearly always well received. Prague shows colossal strength, and Langenberg can be received at any time when it is working. Rome is generally good, but I do not find Stockholm so reliable. Madrid Union Radio is rather often interfered with, and strength is not so great as could be desired. Leipzig and Toulouse continue to furnish fine volume. Lwow is not quite at its best, but Brno is generally worth trying for.

Reliable Performers

The two Brussels stations never fail to oblige when called upon, and Strassbourg is giving excellent reception. Milan has nights when it is not up to the mark, but, as a rule, this station is well received. Poste Parisien and Breslau are both immensely strong, though Göteborg is not well received.

Genoa is sometimes good. Heilsberg, Turin and Frankfurt are all well heard, and Toulouse PTT often comes in well. When sparks are not troublesome Trieste, Nürnberg and Fécamp provide good volume. Valencia seems to be returning to strength

once more, for loud speaker reception from this station has been possible on several recent evenings.

Transatlantic Reception

Conditions for transatlantic reception grow better and better. A good many people, I imagine, must hear American stations without realising that they are doing so, for there are several that can be picked up by 11 p.m. if the required dial settings are known. One of the most reliable for early reception is WCAU on 256.3 metres, and I have no doubt that this station is frequently mistaken for either Toulouse PTT or Hoerby. Similarly, WJJD on 265.4 metres may be mistaken for Lille. He uses exactly the same wavelength, and may be heard as soon as the French station closes down. I notice that one correspondent suggests that this station may not have been previously heard in this country. Actually, I have past records of reception from WJJD as well as recent ones. Other good Americans at the moment are WIOD, WHAM, WPG, KMOX, WTAM, WTIC, WBZ, KDKA, WENR, WGY, WJZ, WLW and WEAF.
D. EXER.

For the "Straight Three"

AN attractive but quite inexpensive oak cabinet, specially designed for *The Wireless World* "Straight Three," has been submitted for approval by the Apollo Gramophone Co., Ltd., of 4-5, Bunhill Row, London, E.C.1. Ample space is provided



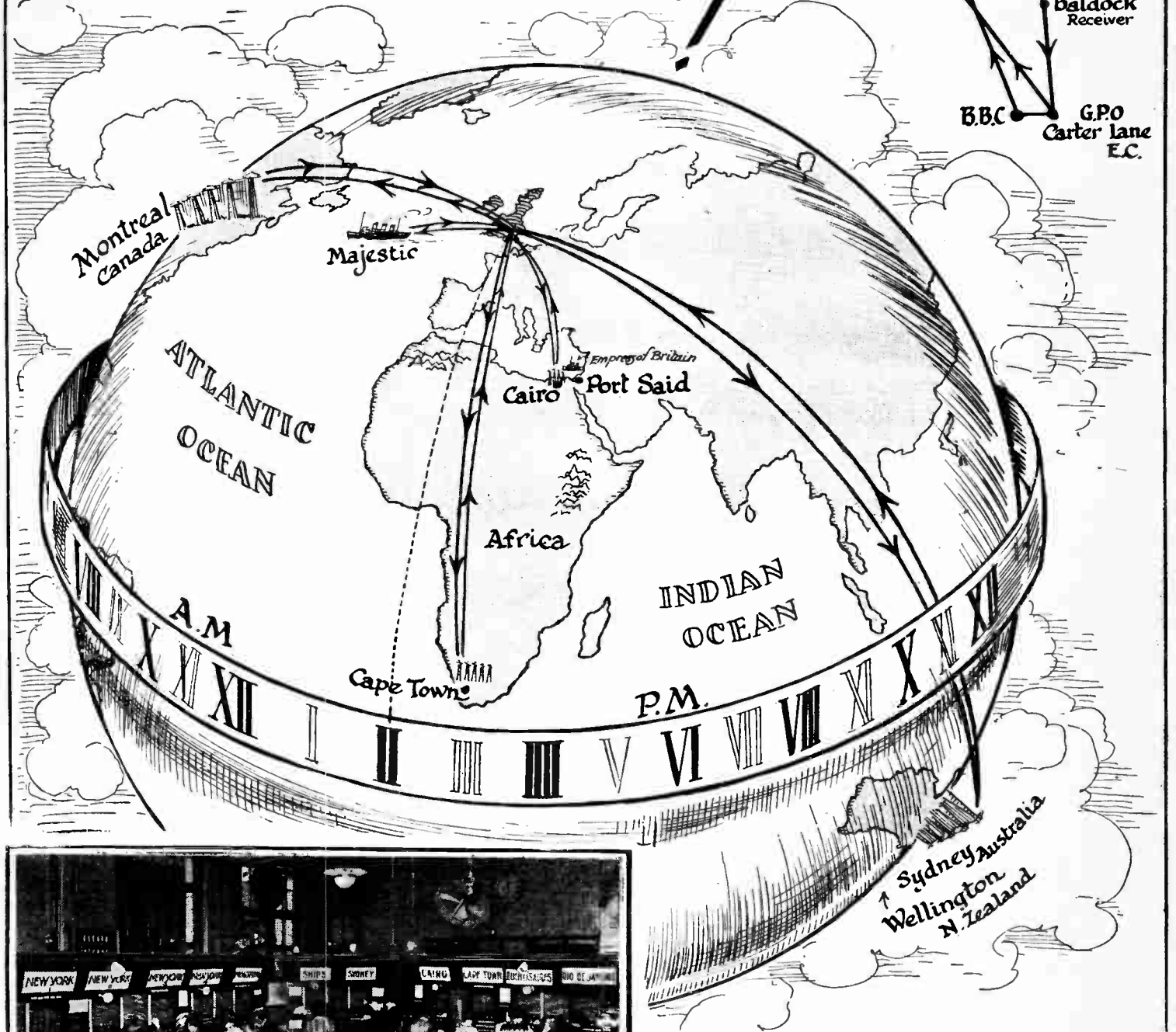
Apollo cabinet for the "Straight Three."

for batteries, even of a larger size than are likely to be used with the set. A wooden "chassis," ready drilled, is included at the particularly low price of 18s.

As an undrilled chassis is available the cabinet will be found equally suitable for housing other types of set.

The Empire Broadcast

How it was done



The Post Office international telephone exchange at Carter Lane, London, E.C., round which the whole Empire programme revolved. Picked operators handled the calls. The messages were passed through to the B.B.C. control room at Broadcasting House.

HISTORY can offer no precedent to the great broadcast on Christmas Day when wireless girdled the British Empire. The exchange of greetings was organised by the B.B.C. and made possible by the use of the Post Office beam telephone circuits and the ship-to-shore service.

The programme opened at 2 p.m. (G.M.T.), and thereafter listeners were wafted to the R.M.S. Majestic in mid-Atlantic; the cities of Canada, Australia, New Zealand, South Africa; then to the Empress of Britain in Port Said Harbour; and finally to Sandringham, where His Majesty the King broadcast a personal message to all his subjects.

The globe shows at a glance how the historic Empire broadcast was carried out. The time factor played a large part, for it will be seen that at 2 p.m. (G.M.T.) Christmas Day was coming to an end in Australia while Canada was saluting the happy morn.

Outstanding Battery Set Development

Pentodes in Quiescent Push-pull

By E. YEOMAN ROBINSON

(Chief Engineer, the Mazda Valve Laboratories)



THE heart of many a conscientious set designer is broken when he tries to develop a battery set which will do justice to his ideals of quality of reproduction, for, whilst engineering knowledge tells him that a power output of about one watt is necessary, common-sense dictates that no H.T. battery is obtainable at a reasonable cost which will supply this power. Even with a high-efficiency pentode the drain on the H.T. battery for the power output valve would be about 20 milliamperes.

Moving-coil Output

Several methods of reducing the drain due to the power valve on the H.T. battery have been developed in the Mazda Radio Valve Laboratories. In one method about to be described two high-efficiency pentodes are operated in push-pull and are biased such that when no signal is received the H.T. consumption is negligible, and when a signal is received the anode current consumption is proportional to the amplitude of the signal. The result is amazing. A power output of 1.3 watts is obtained with a total H.T. consumption of only about 6 milliamperes at 120 volts H.T. This remarkable result opens up a new era in battery set design. A moving-coil loud speaker can be used, and a battery set can be built to give a performance comparable with that of a mains set. The method is termed "the quiescent operation of pentodes in push-pull."

Let us investigate how this high power output is obtained. When a valve is used normally a signal is applied to the grid, as shown at A, Fig. 1. The bias G is given a value such that the greatest possible grid swing can be accommodated, i.e., without the grid being carried positive during one half-cycle or beyond the cut-off point Q during the other half-cycle. The anode current when a signal A is applied is shown at B.

In quiescent push-pull operation two

valves are used; one valve amplifies one half-cycle whilst the other valve functions as an amplifier during the succeeding half-cycle, each valve being substantially inoperative during the period when the complementary valve of the system is amplifying signals. The circuit arrangement for effecting this is shown in Fig. 2. The mechanism is illustrated in Fig. 3. Fig. 3 (a) shows the operating conditions of one valve. The valve is biased to P₁, i.e., substantially at the cut-off point. When a signal as represented at A₁ is applied to the grid, only alternate half-waves are amplified and the anode current is as shown by the full line B₁ (Fig. 3 (b)). The current in the complementary valve is shown by the dotted line C₁. These currents are combined by the output transformer to produce an A.C. current in the secondary winding as shown at D (Fig. 3 (c)).

The mean anode current is shown by the dotted line E₁ in Fig. 3 (b), from which it will be seen that the H.T. consumption is proportional to the received signal. With a strongly modulated signal the anode current is high; with a weakly

modulated signal the anode current is low; whilst in the intervals or pauses in a programme the current is negligible. Contrasting this with single-valve operation, as illustrated in Fig. 1, it will be seen that in this case the H.T. current is constant

whatever the value of the signal, and even when very weak signals are received the drain on the H.T. batteries continues. Since the output stage must be able to accommodate a peak signal corresponding to a 80-100 per cent. modulation, and the average modulation is only of the order of 15-20 per cent., the saving in anode current with quiescent push-pull operation is very great.

The use of triodes in push-pull is well known, but in practice it is found that although efficient operation can be obtained, only a very small

power output is available unless the grids are carried to high positive potentials. This introduces serious distortion unless a specially designed input circuit is used. There is also considerable difficulty in matching the triodes, since all the valve constants must be matched. By employing pentodes both these difficulties are overcome. A high power output can be obtained without running into grid current, and it is only necessary to balance the anode current of the valves at the bias point. Further, this balance can be easily obtained by adjusting the screen voltage of one valve.

Current Depends upon Signal

When a single triode output valve is used the maximum theoretical efficiency is 50 per cent. (i.e., the ratio of power output to power dissipated at the anode), but in practice the efficiency obtained is only about 20 per cent. With a single pentode the maximum theoretical efficiency is again 50 per cent., and with certain Mazda pentodes an efficiency of approximately 45 per cent. is realised in practice.

HERE is important news for the battery set user. An output push-pull system is described which is capable of giving 1½ watts speech—generous moving-coil volume—for the remarkably small consumption of 5 to 6 mA., which is well within the discharge capabilities of the smallest H.T. battery. This development will evoke widespread interest and open up a new era in battery set design, for it means that those listeners unprovided with lighting mains can now enjoy the volume and quality of reproduction previously associated only with mains receivers. A constructional set including pentodes in quiescent push-pull will be described shortly.

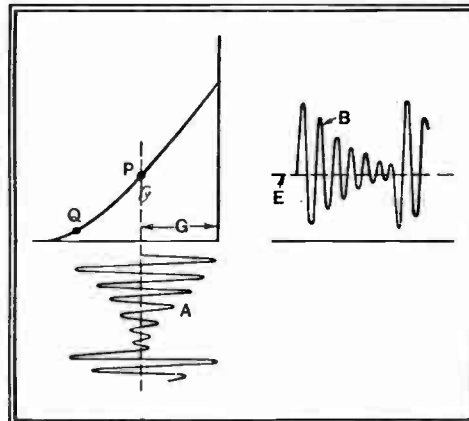


Fig. 1.—The process of amplification when a valve is biased to the centre of the linear portion of the characteristic.

Outstanding Battery Set Development—

With high-efficiency pentodes operated in quiescent push-pull the theoretical efficiency is practically 80 per cent., and an actual efficiency is realised of well over 60 per cent. But this increase in efficiency, great though it is, is overshadowed by the

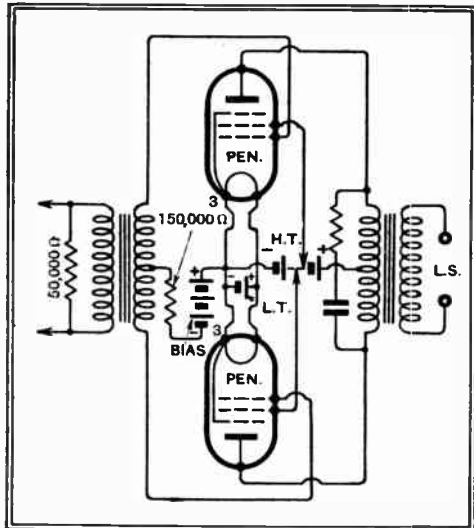


Fig. 2.—Two high-efficiency pentodes in quiescent push-pull. They are biased back to a high value and the anode currents are equalised by taking separate tappings for the screening grid feeds.

saving due to the fact that the average modulation of a broadcast signal is only 15-20 per cent., and the "waiting time," i.e., the time during programmes when there is no signal, is considerable. The H.T. consumption of pentodes in quies-

Output Stage.	Current.
Triode.	55 mA.
High-efficiency pentode.	24 mA.
Quiescent push-pull pentodes.	6-7 mA.

cent push-pull depends, therefore, on the volume of sound at which the speaker is operated and the type of programme. It is higher for dance music than for a symphony concert.

In Table I the H.T. consumption which would be required to give a maximum undistorted power output of 1.3 watts is given for a triode, a high-efficiency pentode, and two high-efficiency pentodes in quiescent push-pull, when an H.T. voltage of 120 is available. The figures for the quiescent pentodes include the screen current and are the average over an evening's programme.

Matching the valves

Let us refer again to the circuit of Fig. 2. From a study of this it will be seen that several features have been introduced which have been found to be essential for the successful operation of pentodes in quiescent push-pull. First, a resistance of 150,000 ohms is included in the lead to the centre tap of the secondary winding of the input transformer. The purpose of this resistance is to prevent parasitic oscillations being generated by the pen-

todes. Since the pentodes are connected in push-pull and high-gain valves are used, parasitic oscillations will be produced on peak signals, giving an unpleasant distortion, unless this anti-parasitic oscillation resistance is employed.

Secondly, the primary of the transformer must be shunted with a resistance of approximately 50,000 ohms. If this resistance is omitted it will be found that when the anode circuit of the detector valve is broken, either by disconnecting the H.T. lead or by pulling the detector valve out of its socket, a large voltage surge is produced in the secondary of the transformer. This surge may put a high instantaneous positive potential on the control grids of the pentodes, with the result that the pentodes may be damaged or the filaments even burnt out by reason of the high space current taken by the valve. The resistance across the primary of the transformer reduces considerably any danger from surge. It cannot be too strongly stressed that if this resistance is omitted and the H.T. circuit of the detector valve be broken the pentodes will probably be damaged. The value of the resistance will depend upon the make of transformer employed. It is therefore advisable to keep to the following rule:—

Do not break any circuits in the set or pull the detector valve from its socket unless the filaments have been switched off. Switch the set on and off by breaking the filament circuit.

The primary of the output transformer is fitted with a resistance-capacity filter for the purpose of keeping the load impedance in the anode circuits substantially constant throughout the audio-frequency range. In this connection it should be mentioned

adjusting the screen voltages. In setting up the circuit the recommended bias should be applied and the screen voltages adjusted so that the feed current of each valve is approximately 2 mA. when Mazda Pen. 220A valves are employed, and 1.25 mA. when Mazda Pen. 220 valves are used. In order to provide the necessary gradation in screen volts it is desirable, but not essential, to use an H.T. battery which is tapped in 3-volt steps.

A 120-volt H.T. battery will have a voltage of approximately 126 when first purchased, and at the end of its useful life will have a voltage of 95 to 100. Throughout the life of the H.T. battery the voltage on the anodes and screens will therefore gradually fall. To avoid frequent resetting of the bias, the bias battery should be discharged at the same rate

	Pen. 220.	Pen. 220A.
H.T. voltage	120	120
Bias voltage (recommended)	-6.8	-14.5
Max. undistorted power output (milliwatts)	690	1,300
Plate-to-plate load for M.U.P.O. (ohms)	40,000	18,000
Grid swing per valve (R.M.S.)	4.85	10.6
Quiescent anode current (mA.) (two valves)	2.5	3.5 to 4.0
Average anode current when operating (two valves)	3.0 to 4.5	5.0 to 6.0

as the H.T. battery by means of a discharge resistance. The average consumption of the Mazda Pen. 220 and Pen. 220A valves, when used in quiescent push-pull, is given in Table II. With this information and the knowledge as to the H.T. consumption of the rest of the set, the value of the discharge resistance can be computed.

There is one further minor point for providing perfect balancing: the outer grid of the pentode is connected to one end of the filament. For identification purposes, on the Mazda valve, the filament pin to which this grid is connected

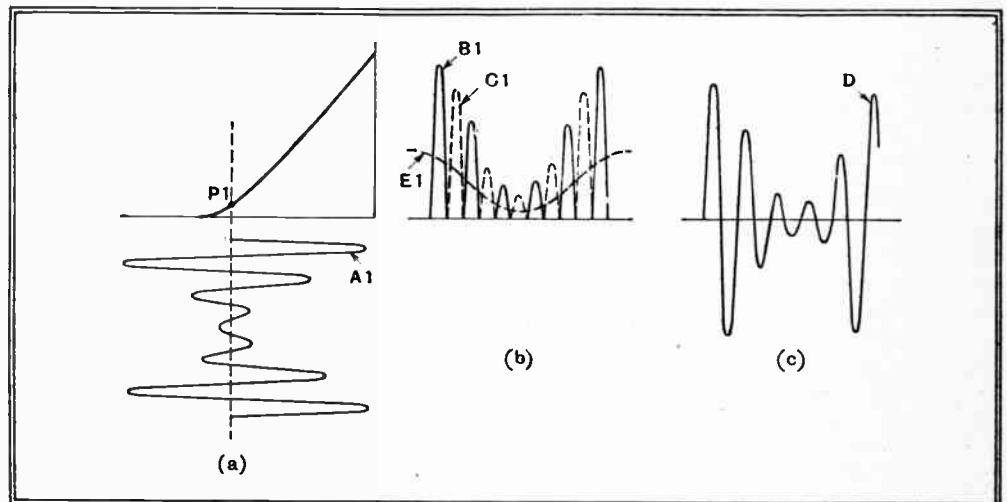


Fig. 3.—(a) A single pentode biased back nearly to cut-off point. (b) The anode current waves for two valves which are combined together by the output transformer to give the type of output shown at (c).

that, owing to the great increase of impedance with frequency of moving-iron speakers, these instruments cannot satisfactorily be used with pentodes in quiescent push-pull.

The pentodes are given a common bias, and the quiescent currents are balanced by

is marked with the figure "3" on the base. This pin should always be connected to the negative L.T. accumulator and negative H.T. battery. Thus a little care is necessary in wiring up the sockets of the output pentode valves to see that pin No. 3 is connected correctly.

Outstanding Battery Set Development—

Fig. 4 shows the maximum power output obtained from two Mazda Pen. 220A valves in quiescent push-pull plotted against load impedance when 120 volts H.T. is employed. Second harmonic distortion is negligible; third harmonic distortion limits the load resistance which can be employed. The percentage third harmonic distortion obtained is also shown in the figure. From these curves

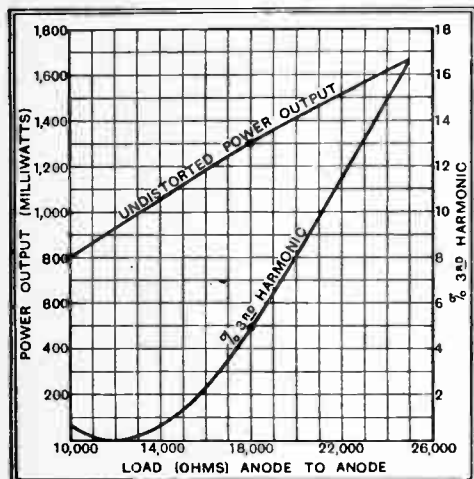


Fig. 4.—Curves showing undistorted power output and third harmonic distortion for two Pen. 220A valves in quiescent push-pull, working into various loads.

it will be seen that with a load of 18,000 ohms the power output obtainable is 1.3 watts, whilst the third harmonic distortion is 5 per cent. When no signal is received the total feed current of the two valves is 4 mA. When a continuous signal of constant and maximum amplitude is received, the anode current consumption for the two valves is 16 mA., but on ordinary broadcast reception the average consumption is only 6 to 7 mA. This figure has been determined by leaving sets running for a whole evening's programme with an ampere hour meter connected in the anode circuit. The performance of the Mazda Pen. 220 and Pen. 220A valves is summarised in Table II.

Output and Input Transformers

A word of warning is necessary with regard to the selection of the output transformer for use in this circuit. The calculation for the ratio of the transformer is different from that used for normal push-pull, because with large inputs only one valve is operating at a time, the other valve being inoperative during the major portion of the half cycle. When only one valve is in operation the output transformer acts as a 1:2 step-up transformer, so that the equivalent speaker load across the whole primary—that is, the plate-to-plate load, is four times the actual working load per valve. Referring once more to Table II, it will be seen that the recommended plate-to-plate load for the Mazda Pen. 220A valve is 18,000 ohms; the actual load in the anode circuit of the valve is, however, one-quarter of this, namely, 4,500 ohms.

It is not generally realised that some output transformers are very inefficient,

and although there is ample power available with two Mazda Pen. 220A valves for operating a moving-coil speaker, disappointing results will be obtained if the output transformer is of low efficiency, especially when the H.T. battery has run down in voltage. As a rough guide, the primary resistance of a transformer primary, measured from plate to plate, should be not more than 500 ohms when Mazda Pen. 220A valves are employed, and 800 ohms when the Pen. 220 valves are used. If the transformer is otherwise correctly designed these figures will permit a transformer efficiency of approximately 85 per cent. to be obtained.

The best value of the filter for limiting

the rise in load impedance will depend on the high notes lost in the receiver due to side-band cutting, etc. It will thus vary according to the receiver and to the tone requirements of the user. As a rough guide a filter consisting of a 0.01 microfarad condenser and a 20,000-ohms resistance will be found satisfactory. If the reproduction is a little harsh, the resistance should be reduced, and if it is too mellow the resistance should be increased or may even be eliminated.

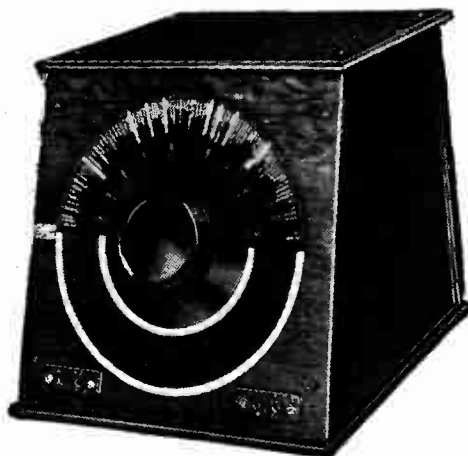
The push-pull input transformer must be of high ratio to avoid overloading of the detector. A 10:1 ratio is a recommended value, giving a 5:1 step-up to each grid of the pentode valves.

In Next Week's Issue

The Wireless World STATION FINDER

Gives a Direct Answer to the Question:
"What Station Is That?"

A SWING of the indicating dial, and the name of the station that is being received is clearly shown on a large printed scale. Compare this with any of the usual methods of identification, which involve several operations and cross-references, and, as an example, take the well-known practice of calibrating a 0-100 or 0-180 tuning dial in wavelengths.



Simple enough for the beginner: accurate enough for the most critical.

After a lengthy preliminary calibration, identification is secured only after four operations: (a) accurate reading of scale to at least half a division, (b) transfer of reading to calibration chart, (c) estimation of corresponding wavelength, (d) reference to station-wavelength list.

The use of dials marked in wavelengths, even if the indications be correct and can be read with sufficient accuracy, involves operations (a) and (d). Similar cross-references are also necessary with most other devices.

The *Wireless World* Direct-Reading Station Finder, designed for home assembly, can be put together in an hour, and is as simple in operation as in construction. Although it is an electrical

device, intended for external connection in the aerial circuit of almost any receiver without internal alteration, no valves or batteries are needed. It will double the interest of long-distance reception, and, while being simple enough for the new reader who has not previously undertaken the assembly of apparatus, will appeal equally to the experienced amateur.

It is seldom that initial adjustments will take more than five minutes, as the Station Finder is almost self-calibrating. Although it is a precision instrument, designed to have an average error not exceeding one-half of 1 per cent., the essential components cost less than a pound.

LIST OF PARTS

- 1 Variable condenser, 0.0005 mfd. Log. mid-line
Cydon, Type D5
 - 1 Semi-variable condenser, 0.00007 max.
Cydon, Type ST70
 - 1 Special dial, 4in. diameter
Cydon
 - 1 Station Finder coil assembly
Tunowell
 - 2 Twin socket strips, "A1, A2"; "blank."
Belling-Lee
 - 1 Cabinet
Myers-Hunt Cabinet Co., Ltd.
- Screws: 6 1/2in. No. 4 R/hd., 2 1/2in. No. 6 R/hd.
Two lengths sleeving; 2 yds. No. 22 tinned copper wire.

THE BROADCASTER RADIO AND GRAMOPHONE TRADE ANNUAL FOR 1933

THE second edition of this invaluable book contains most of the features which proved of such service in last year's publication, with several important additional sections, including tabulated data, giving the total number of householders in each district and the number of houses on A.C. and D.C. supply, respectively. Localities where the mains supply is on standard synchronous frequency are also specially indicated.

There is a useful series of Abacs which should prove of great assistance in radio servicing. The main provisions of the Import Duties Act of 1932 and the R.G.2 (Radio-Gramophone) Agreement for the use of "key" patents are also given, the book is, in fact, filled with valuable information which will undoubtedly prove of service to the radio and gramophone trade alike.

Pp. 232. Published by the "Broadcaster and Wireless Retailer," London, and supplied (to the trade only) for 5s. post free.

Practical HINTS AND TIPS

AIDS TO BETTER RECEPTION

WHEN operating a "quality" set which gives a large undistorted output, it is almost invariably found that the volume control setting which is satisfactory for reproduction of music is quite unsuitable when speech is being transmitted. Volume will be excessive, and the speech will appear altogether unnatural.

Tone Control for Speech

The obvious thing to do, of course, is to make suitable adjustments of volume for each type of transmission. This is satisfactory enough, but there is an alternative plan—that of reducing apparent loudness of speech by attenuating the lower audible frequencies. It may seem a retrograde step even to suggest such a scheme, which, of course, amounts to nothing more than the deliberate introduction of frequency distortion. But it is a fact that this plan often gives better intelligibility at average volume than is attainable by other means, and is one which is widely adopted by critical listeners.

Various methods of introducing bass attenuation have been discussed from time to time in this journal. Users of the "Monodial Super" and similar receivers based on this design may be interested to know that the scheme in question may be applied very simply to their receivers. Bass response may be reduced at will by shunting the coupling condenser in the tone-corrector valve grid circuit with a considerably smaller condenser. The component in question, numbered C15 in the original description,

plan entirely practical a switch should be fitted in order that the extra condenser may be thrown in or out of circuit at will.

OF all the faults to which a wireless receiver is liable, the most annoying are those of an intermittent nature. Like the traditional aching tooth, they are apt to cure themselves suddenly at the very moment when it is decided to make a

Tracing Intermittent Cracklings

determined effort to remove the source of trouble. Clearly, patience is needed, and, unless one happens to be particularly lucky, the location of the fault is likely to take some time.

It will be assumed that the aerial has been temporarily disconnected, and, from the fact that intermittent cracklings still occur, it has been rightly deduced that they are due to the receiver itself, and not to interference from external sources. Instead of disconnecting components and testing them separately, it is generally quicker to localise the trouble by applying a series of short-circuits to the receiver, working in a logical sequence and rather in the manner usually adopted when tracing hum in a mains-driven set.

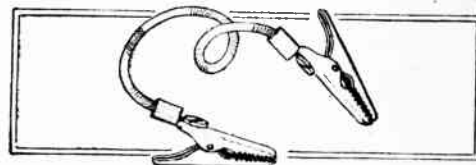
If it be decided to follow this plan, the method of procedure illustrated diagrammatically in Fig. 1 will usually be found best. Although a simple battery-operated H.F.-det.-L.F. set is taken as an example, the scheme is clearly applicable to any type of receiver.

Almost invariably it will be best to make

as a point is reached where the "short" has no effect, it may be deduced that the fault lies between that point and the last at which silence was obtained.

Referring to the diagram, if noises persist after bridging the L.F. transformer secondary terminals (points A and B), it will be proved definitely that the fault is due either to the output valve, the loud speaker, the source of H.T. supply, or, just possibly, to the G.B. battery.

But, on the other hand, if complete silence be obtained, we know that all these components are free from blame and that the fault lies nearer to the input or "aerial" end, and that investigations



A handy connecting link for applying short-circuits without disturbing existing wiring.

must be carried a stage farther. This is done by "shorting" the detector grid leak (E, F); a recurrence of noise will indicate a faulty detector valve, H.F. choke, or L.F. transformer, while silence shows once more that the defect is still nearer to the aerial and that the short-circuit must be transferred to points M, N. Deductions will still be made in a similar manner.

Short-circuiting with Safety

In addition to the testing points mentioned, others are shown in the diagram; these may be regarded more or less as alternatives, to be used when they are more accessible, or even to narrow down the field of search. Points C, D are virtually almost equivalent to A, B, while both K, L and G, H are in parallel with E, F. It is worth while pointing out that defects—particularly in H.F. circuits—are often more readily perceptible when the set is tuned to a fairly strong carrier wave while tests are being made.

It will be fairly obvious that this method of testing offers the great advantage that none of the internal wiring of the receiver need be disturbed. If, at the worst, results are not entirely conclusive, the fault will have been localised in a single circuit, or, at any rate, in a small section of the receiver.

As an aid to making tests of this nature, a length of flexible insulated wire with a crocodile clip at each end is most useful, as it enables the appropriate points to be bridged with a minimum of trouble and without the need for unscrewing inaccessible terminals, etc.

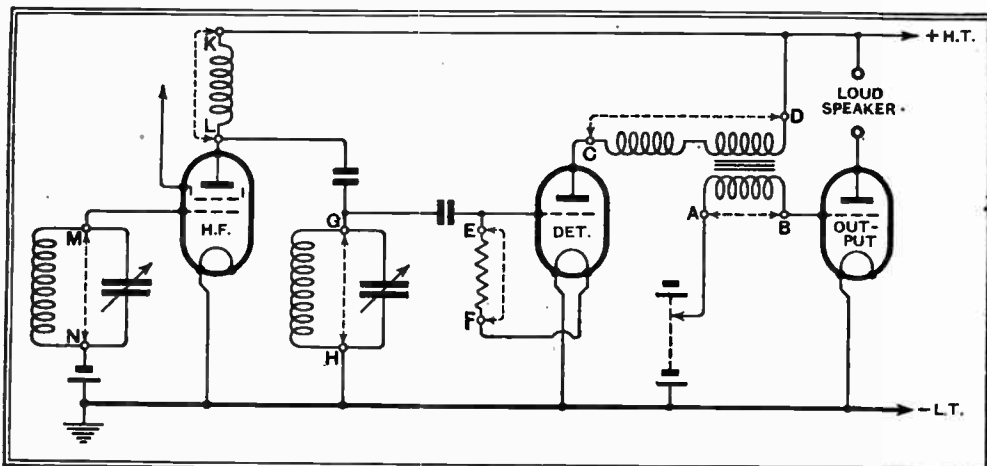
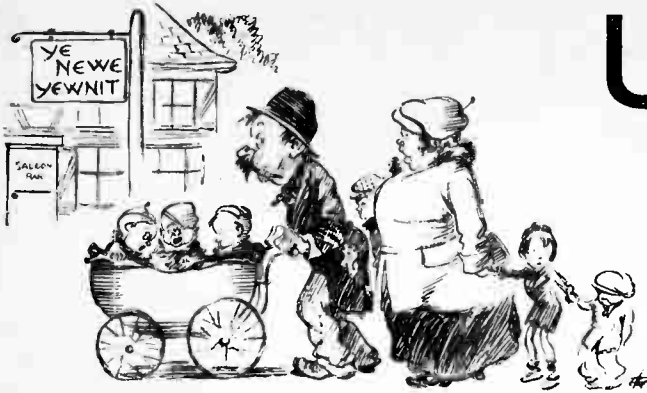


Fig. 1.—Where temporary short-circuits should be made when localising intermittent faults by a process of elimination.

has a value of 0.01 mfd.; the parallel-connected capacity may be of anything between 0.005 mfd. and 0.001 mfd., the best capacity being found by trial. A semi-variable condenser is very satisfactory for the purpose, and to make the

a start at the output end of the receiver and to work backwards, "shorting" each grid circuit in the sequence shown in the diagram. If the noises cease as a result of a "short," it may be assumed that all succeeding circuits are in order. As soon



Arriving at the new unit.

A Hot-water Unit

I HAVE had to complain previously of the looseness of technical expression adopted by many so-called wireless experts, but little did I think that I should find the same sort of thing existing in the parent science of electrical engineering, or that I should have to reprove a member of the Institute of Electrical Engineers for his conduct in this respect.

It so happened that, pursuing my policy of making my house an all-electric, all-radio one, I recently decided to install an electrical system of constant hot-water supply. I wrote asking for all details concerning running costs, etc., and in reply I received a long, meandering letter from the resident engineer of the Supply Company to the effect that, so far as running costs were concerned, it had been found that the hot-water consumption of a family of six for baths and all other purposes worked out at about 3s. a week.

Quite naturally I wrote back, asking what multiple or sub-multiple of a kilowatt-hour was "the consumption of a family of six," as I had never previously heard of this new electrical unit. I expressed interest in my letter as to the manner in which this new unit was arrived at, for, as I explained, I could point to families of a dozen or more whose hot-water consumption per year worked out at considerably less than the *daily* requirements of many families of one, and, if expressed in electrical terms, would be rather smaller than the power consumption of a flash-lamp bulb. So far, the learned M.I.E.E. has vouchsafed no reply to my letter, but I am living in hope.

Time, Gents, but—

I SCARCELY expected that my appeal for help in the matter of clock movements would meet with such a magnanimous response not only on the part of the general public, but also of the many manufacturers and vendors of these useful commodities. Among the latter I am particularly indebted to Messrs. Ferranti, Messrs. Garrard, and Messrs. Hancocks for their very "timely" reminders of the existence of clocks other than those of the scullery variety. May I extend my cordial thanks, also, to those members of the public who have so kindly written to me on the subject.

UNBIASED

By
FREE GRID

Alas, all has not run as smoothly as it might have done. So much have I missed the homely "tick" of the ordinary

pendulum movement, which I slung out of my study in favour of a new electric instrument, that I have been unable to concentrate on my work. To restore my peace of mind, I have, therefore, been compelled to purchase a cheap spring-driven movement and fit it in the clock case at the back of the electric "works." Naturally, this device requires winding up periodically, and so one of the greatest advantages of a mains-driven clock is lost to me.

A Synthetic Tick

Surely it is not beyond the ingenuity of our manufacturers to turn out an electric clock with a small extra motor or other device for the express purpose of creating a synthetic "tick." I feel sure that it is the ghostly, "creeping" silence of these mains-driven timepieces—as the auctioneers like to call them—that is preventing many people from buying them; consequently, there would be a large market for an instrument of the type I have mentioned.

I notice from catalogues that electric clocks are now obtainable, not only with Westminster chimes, but with an alarm movement as well, everything being electrically driven, and so the thing I ask for should be quite a small task for a manufacturer's technical department to tackle. If they can't devise electrical apparatus for producing a realistic "tick," the least they can do is to put in a clockwork movement for this purpose, and couple it to a small mains-driven motor which, by quite a simple mechanism, could be made to wind it up automatically every time it ran down.

It will be remembered that a gramophone motor operating on this principle was put on the market two years ago. I feel sure that, if electrical clockmakers followed suit, their enterprise would not go unrewarded.

At any rate, I would guarantee the purchase of at least one Elec-Tick clock.

For Services Rendered

I HAVE received many "touching" letters since the publication of the New Year's Honours List last Monday, but I regret to say that responsibilities entailed in the upkeep of my position forbid me to reply in the "concrete" manner I should like.

Troubles of a Gas Manager

"OH, what a tangled web we weave, when first we practise to deceive" is an old maxim beloved by schoolmasters and other persecutors of the young; but the truth of it has never been brought home to me so forcibly as the other day when I received an S.O.S. from a friend whom I had not seen since pre-broadcasting days. He is manager and engineer of the gas-works in a provincial town some sixty miles or so from London, and by an odd chance his establishment adjoins the local electric light works. He is provided by his directors with an excellently appointed residence on the premises, and naturally all lighting and heating are done by gas, as anything electrical in his house would be as poor an advertisement for the stuff he sells as the sight of a doctor buying a bottle of patent medicine.

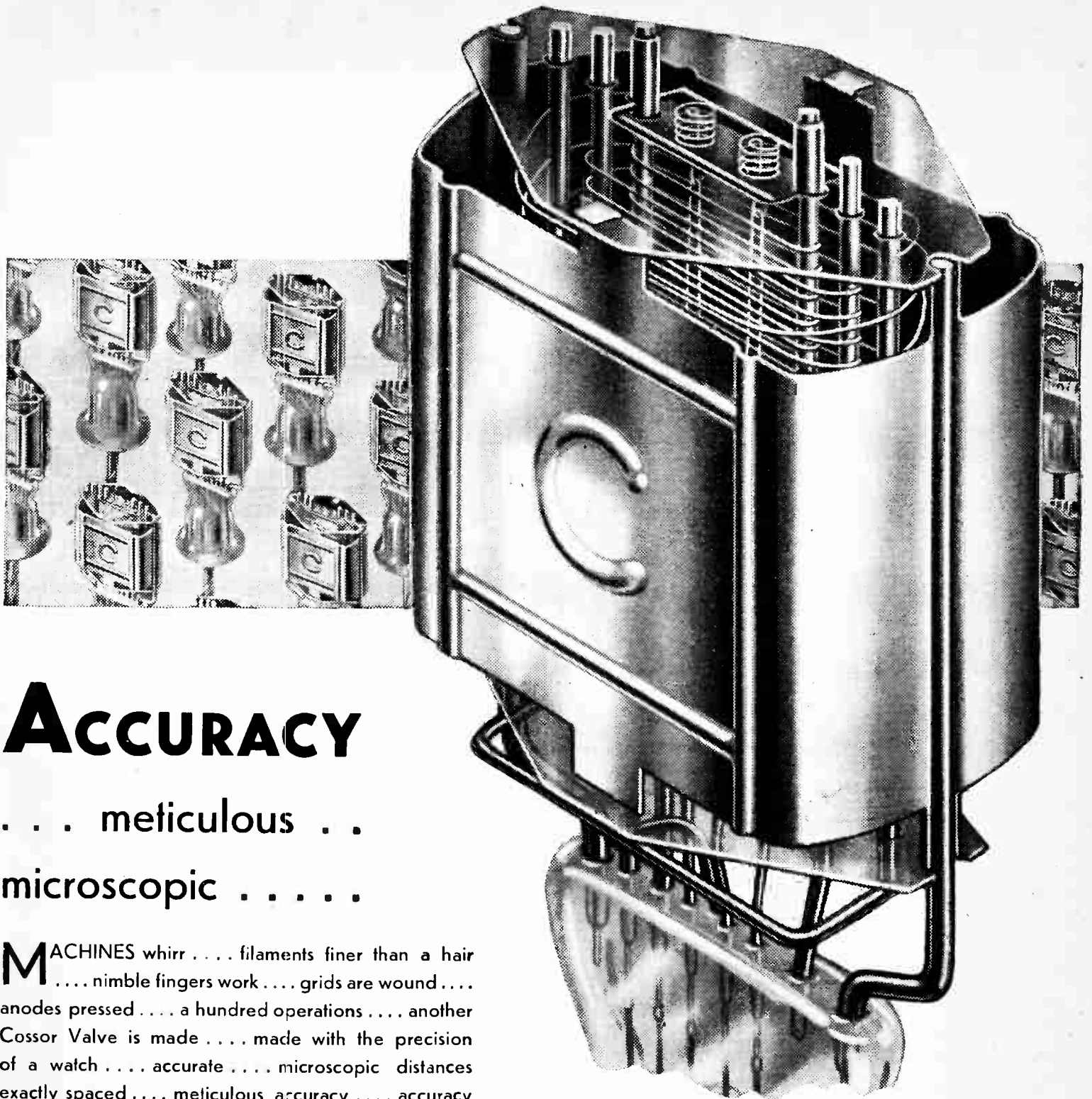
In order to enjoy the very acme of quality, coupled with good volume, he had built himself an all-mains set with a four-hundred-volts-on-the-plate type of output



Fame of colossal undistorted output had spread.

valve. The electric light manager next door, being a kindly man, had supplied him with a carefully concealed power lead, and he had himself skilfully hidden his mains set, deceiving visitors with an ostentatiously displayed three-valve battery receiver apparently coupled to his loud speaker.

Unfortunately for him, the fame of the colossal undistorted output which he obtains (apparently) from this humble three-valve set has spread throughout the town, so that he is literally besieged by visitors demanding the circuit from him. Up to the present he has staved them off with the old excuse that the circuit is a secret which he has promised not to divulge, but he realises that he can't keep this up for long, and has, therefore, sent for me to suggest a plan for getting him out of his trouble. It seems to me that a hurried departure from the town is the only way to avoid disaster. Any suggestions in this matter would be as welcome to him as the sight of land to a cross-Channel passenger.



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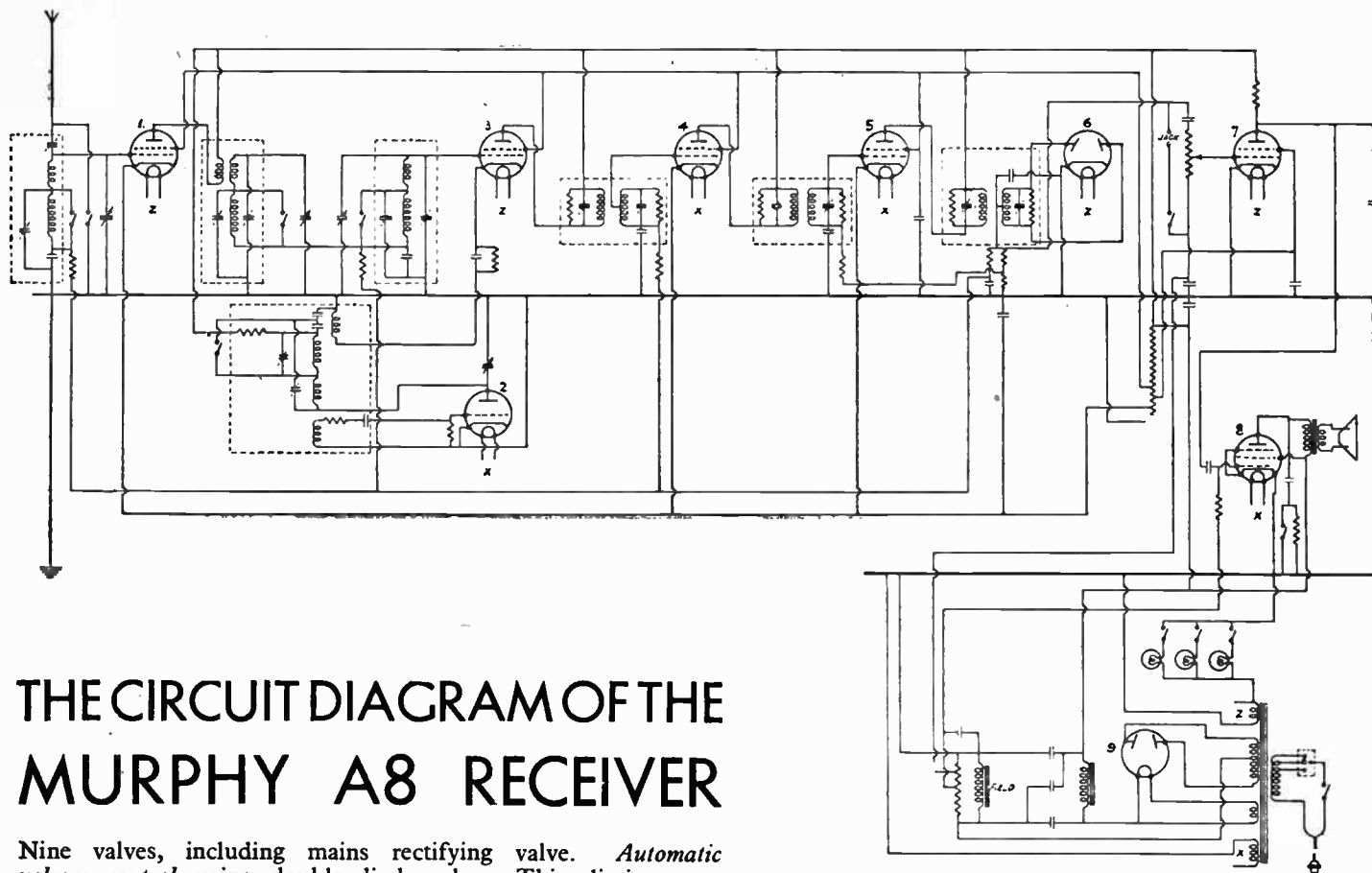
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Nine valves, including mains rectifying valve. *Automatic volume control*, using double diode valve. This eliminates to a great extent fading on distant stations, and forms a necessary control of volume when receiving the local stations. Manual volume control also fitted. This controls both radio and gramophone record reproduction. Single dial tuning. Scale illuminated and calibrated in wavelengths.

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| 3-VALVE ALL ELECTRIC, with Pedestal - | £15 - 5 |
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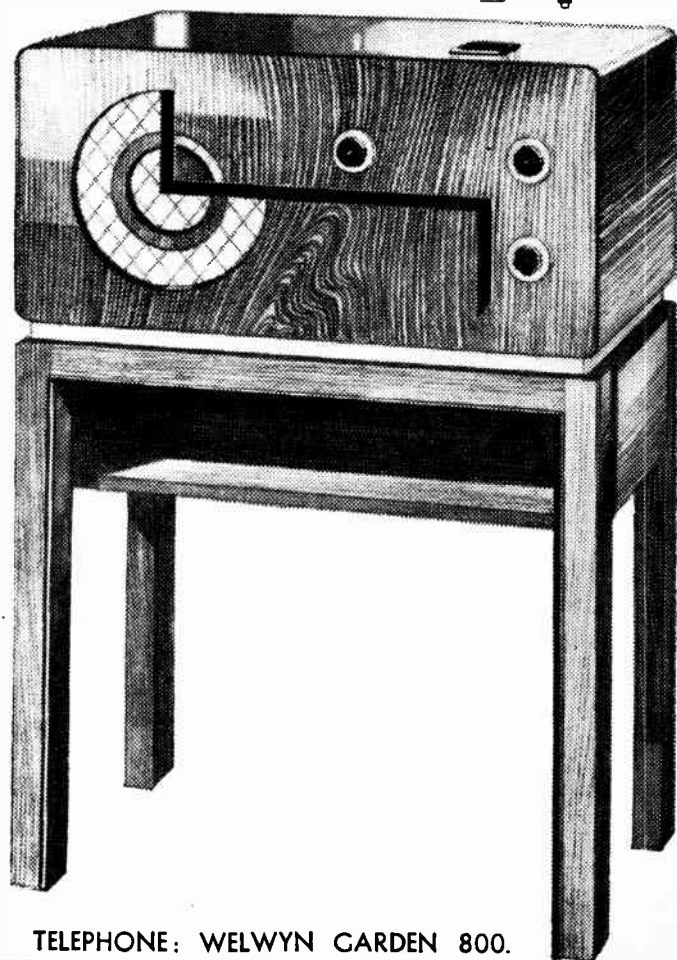
Nett cash with order.

★ All Murphy sets are obtainable on Hire Purchase Terms.

Any Murphy dealer will be pleased to give you a free copy of my booklet on the A8 if you would like one to read. It deals with Amplification, Ease of Control, Quality of Reproduction, Selectivity, and all the various points which arise in designing such a powerful set as the A8.

Frank Murphy

B.Sc., A.M.I.E.E., A.I.Rad.E.,
Chartered Elect. Engineer.



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PROGRAMMES FROM ABROAD



Broadcasting Stations
Arranged in Order of
Wavelength

Times and Details of
Full Week's Foreign
Transmissions

Metres.	Kc.	kW.	Station.	Tuning Position.	Metres.	Kc.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania) ..		450.4	666.7	10	Odessa, RV13 (Russia) ..	
1875	160	8.5	Hilversum Holland). (Exchanges wavelengths with Huizen every three months.)		447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.); Aalesund (0.35 kW.); Rjukan (0.15 kW.); Notodden (0.08 kW.) (Norway) (relays Oslo); Rome, IRO. (S.-W. Station, 2RO on 25.4 m.)	
1796	167	40	Lahti (Finland) ..		441.2	680	50	Stockholm, SASA (Sweden) ..	
1725	174	75	Radio Paris, C.F.R. ..		435.4	689	55	Belgrade (Yugoslavia) ..	
1635	183.5	60	Zeesen (Königswusterhausen) (Germany). (Generally relays Berlin.) (S.-W. Stn. DJA on 31.38 m.)		430	698	2.5	Madrid, EAJ7 (Union Radio). (After 7.0 p.m.)	
1600	187.5	10	Irkoutsk, RV14 (Russia) ..		424.3	707	2	Madrid, EAJ2 (Radio Espana). (Up to 7.0 p.m.)	
1554.4	193	30	Daventry National. (S.-W. Stn. G5SW on 25.53 m.)		424.3	707	1.3	Moscow, Imini Stalina (Russia) ..	
1538	195	7	Ankara (Angora) (Turkey) ..		419.5	715	1.5	Berlin, No. 1, Witzleben (Germany) ..	
1481	202.5	100	Moscow, RV1 (Old Komintern) (Russia) ..		416.4	720.5	5	Rabat (Morocco) ..	
1446	207.5	13	Eiffel Tower, FL, Paris ..		413	725	8)	Athlone (Irish Free State) ..	
1412	212.5	120	Warsaw I (Poland) ..		408.7	734	16	Katowitz (Poland) ..	
1380	217.5	100	Novosibirsk, RV6 (Russia) ..		403.8	743	25	Sottens (Radio Suisse Romande) (Switzerland)	
1350	222.2	0.5	Tunis-Kasbah (Tunisia) ..		398.9	752	25	Midland Regional ..	
1348	222.5	30	Motala (Sweden). (Relays Stockholm)		394.2	761	12	Bucharest (Roumania) ..	
1304	230	100	Moscow, WZSPS (Trade Union) (Russia) ..		389.6	770	120	Leipzig (Germany) ..	
1260	238	10	Baku, RVS (Russia) ..		389.6	770	10	Archangel, RV36 (Russia) ..	
1229.5	244	0.6	Boden (Sweden). (Relays Stockholm)		385.1	779	8	Toulouse (Radiophonie du Midi) (France) ..	
1200	250	5	Stamboul (Turkey) ..		385.1	779	10	Stalino, RV26 (Russia) ..	
1200	250	21	Reykjavik (Iceland) ..		381	788	16	Lwow (Lemberg) (Poland) ..	
1170	256	25	Tashkent, RV11 (Russia) ..		376.4	797	50	Scottish Regional (Falkirk) ..	
1154	260	7.5	Kalundborg (Denmark). (Relays Copenhagen)		372.2	806	1.5	Hamburg (Germany) ..	
1117	268.5	40	Moscow, Popoff RV58 (Russia) ..		370.1	810.5	0.8	Radio, LL, Paris ..	
1105	271.5	35	Minsk Koloditschi, RV10 (Russia) ..		368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (relays Lahti); Kharkov, RV20 (10 kW.) (Russia) ..	
1083	277	60	Oslo (Norway) ..		367.6	816	0.7	Fredrikstad (Norway). (Relays Oslo) ..	
1071	280	10	Tiflis, RV7 (Russia) ..		364.1	824	1	Bergen (Norway) ..	
1035	290	36	Kiev, RV9 (Russia) ..		363.6	825	13	Algiers (Algeria) ..	
1000	300	100	Moscow (Russia) ..		360.6	832	60	Mühlacker (Stuttgart) (Germany) ..	
938	320	20	Kharkov, RV4 (Russia) ..		355.9	843	50	London Regional (Brookmans Park)	
849	353.4	4	Rostov-on-Don, RV12 (Russia) ..		352.1	852	7	Graz (Austria). (Relays Vienna) ..	
840	357	18.5	Budapest (Hungary) ..		348.8	860	7.6	Barcelona, EAJ1 (Spain) ..	
835	359	100	Leningrad (Russia) ..		348.8	860	10	Leningrad, RV70 (Russia) ..	
825	363.6	50	Sverdlovsk, RV5 (Russia) ..		345.2	869	11.5	Strasbourg, PTT (France) ..	
779	385	10	Petrozavodsk, RV29 (Russia) ..		341.7	878	35	Brno (Brunn) (Czechoslovakia) ..	
770	389	0.6	Ostersund (Sweden). (Relays Stockholm)		338.2	887	15	Brussels II, Velthem (Belgium). (Flemish Programme.)	
760	395	1.3	Geneva (Switzerland). (Relays Sottens)		335	896	5	Cadiz (Spain) ..	
720	416.6	20	Moscow, RV2 (Experimental) (Russia) ..		334.4	897	1.9	Poznan (Poland) ..	
690	434.6	1.5	Oulu (Uleaborg) (Finland) ..		331.5	905	50	Milan (Italy). (Relays Turin) ..	
680	441.2	0.6	Lausanne (Switzerland). (Relays Sottens)		328.2	914	60	Poste Parisien (France) ..	
575	521.5	1.2	Samara, RV16 (Russia) ..		325	923	60	Breslau (Germany) ..	
574.7	522	2.5	Ljubljana (Yugoslavia) ..		321.9	932	10	Göteborg (Sweden). (Relays Stockholm)	
569	527	0.25	Freiburg-im-Breisgau (Germany). (Relay Stn.)		318.8	941	0.5	Sofia (Bulgaria) ..	
568.1	528	2	Grenoble (France) ..		318.8	941	0.25	Dresden (Germany). (Relays Leipzig)	
566	530	0.25	Hanover (Germany). (Relays Hamburg)		318.8	941	1.5	Naples, INA (Italy). (Relays Rome) ..	
563	533	16	Wilno (Poland). (Relay Station) ..		315.8	950	1.6	Marseilles, PTT (France) ..	
560	536	0.25	Augsburg (Germany). (Relays Munich)		312.8	959	1.7	Cracow (Poland) ..	
560	536	0.7	Hamar (Norway). (Relays Oslo) ..		312.8	959	10	Genoa, IGE (Italy). (Relays Turin) ..	
560	536	1.5	Kaiserslautern (Germany). (Relays Munich)		309.9	968	1	Cardiff ..	
558.6	537	1	Tampere (Finland). (Relays Helsinki)		307	977	0.7	Radio Vitus (Paris). (S.-W. Stn. on 43.75 m.)	
550	545	18.5	Budapest No. 1 Lakihegy (Hungary) ..		307	977	0.5	Falun (Sweden) ..	
542	554	3	Palermo (Italy) ..		307	977	0.75	Zagreb (Yugoslavia) ..	
542	554	10	Sundsvall (Sweden). (Relays Stockholm)		304	986	13	Bordeaux Lafayette, PTT (France) ..	
533	563	60	Munich (Germany) ..		301.5	995	50	North National (Manchester) ..	
525	571	15	Riga (Latvia) ..		298.8	1004	11	Tallinn (Esthonia) ..	
517	580	15	Vienna (Rosenhügel) (Austria) ..		296.1	1013	7	Huizen (Holland). (Up to 4.40 p.m.)	
509	589	15	Brussels No. 1, Velthem (Belgium). (French Programme.)		296.1	1013	20	Huizen (Holland). (After 4.40 p.m.) (Exchanges wavelengths with Hilversum every three months.)	
509	589	10	Astrakhan, RV35 (Russia) ..		293.5	1022	0.7	Limoges, PTT (France) ..	
501.7	598	10	Nijni Novgorod, RV42 (Russia) ..		293.5	1022	2.6	Kosice (Czechoslovakia) ..	
500.8	599	20	Florence, IFI (Italy). (Relays Turin)		291	1031	10	Viipuri (Viborg) (Finland). (Relays Helsinki)	
493.4	608	1.2	Trondheim (Norway) ..		288.3	1040	50	Scottish National (Falkirk) ..	
488.6	614	120	Prague, No. 1 (Czechoslovakia) ..		288.3	1040	—	British Relay Stations (Bournemouth, Plymouth) ..	
486.2	617	10	Onfa, RV22 (Russia) ..		286	1049	0.8	Montpellier (France) ..	
480	625	50	North Regional (Manchester) ..		283.6	1058	0.5	German Relay Stations (Berlin, Magdebourg, Stettin) ..	
480	625	10	Ivanovo-Voznesenk, RV33 (Russia) ..		283.6	1058	0.5	Innsbruck (Austria). (Relays Vienna) ..	
472.4	635	60	Langenberg (Germany) ..		282.2	1063	2	Lisbon CT 1AA (Portugal). (Short-wave Station on 31.25 m.)	
465.8	644	1.5	Lyons la Doua, PTT (France) ..		281.2	1067	0.75	Copenhagen (Denmark) ..	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland) ..		278.8	1076	13.5	Bratislava (Czechoslovakia) ..	
453.2	662		San Sebastian, EAJ8 (0.6 kW.), Salamanca, EAJ22 (1.0 kW.) (Spain); Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (relays Heilsberg); Klagenfurt (0.5 kW.) (Austria) (relays Vienna); Porsgrund (0.7 kW.) (relays Oslo); Tromsø (0.1 kW.), Bodö (0.5 kW.) (Norway); Upsala (0.15 kW.) (Sweden) (relays Stockholm).		276.5	1085	60	Heilsberg (Germany) ..	

BROADCASTING STATIONS ABROAD (In Order of Wavelength).

Table with columns: Metres, Kc., kW., Station, Tuning Positions. Lists various international broadcasting stations and their technical specifications.

PRINCIPAL SHORT-WAVE STATIONS.

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

Table with columns: Metres, Kc., Call Sign., Station, Tuning Positions. Lists principal short-wave stations with their call signs and transmission times.

FOREIGN SUNDAY PROGRAMMES

JANUARY THE EIGHTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

- NATIONAL** Violin recital. Military Band concert. "Songs of the Sea." gramophone recital. Orchestral concert. Pianoforte recital. Service from St. Martin-in-the-Fields. Chamber music.
 - LONDON REGIONAL** Orchestral concert. Violin recital. Orchestral concert from Eastbourne.
 - MIDLAND REGIONAL** Orchestral concert. London Regional programme.
 - NORTH REGIONAL** Orchestral concert. National and London Regional programmes.
 - WEST REGIONAL** Welsh Service from Capel Gomer, Swansea.
 - SCOTTISH REGIONAL** Professor Tovey's Sunday Concert from Usher Hall. Choral programme.
 - BELFAST** National programme.
- ### ABROAD
- BRUSSELS (No. 1)** Gala concert by the Radio Orchestra, conducted by Franz André.
 - COPENHAGEN** The Radio Orchestra, conducted by E. Reesen.
 - HAMBURG** Viennese operetta music relayed from the Musikhalle.
 - POSTE PARISIEN** Sponsored concert.
 - ROME** Musical comedy: "Il Capitan Fracassa," by Mario Costa.
 - STRASBOURG** Concert by Les Cigales de Haguenau.
 - WARSAW** Popular concert by the Station Orchestra.

ALGIERS
363.3 metres; 13 kW.—7.0 p.m., Dance Music. 7.30, Famous Opera Singers on Gramophone Records. 8.0, Light Music by the Station Orchestra. 8.25, Accordion Solos. 8.35, Concert by the Station Orchestra. Soloists: Mlle. Viguier (Soprano), M. Huck (Baritone), and M. Néri (Cello). Overture, Sigurd (Reyer); Soprano and Baritone Duet; Entr'acte and Waltz from Coppélia (Delibes); Baritone Solo: La coupe du Roi de Thule (Diaz); Cello Solo: Kol Nidrei (Bruch); Soprano Solo: Les roses di Soudi (Morisson); Musique pour Guignol (Gabriel Marie); Baritone Solo: Prologue to I Pagliacci (Leoncavallo); La Hussarde (Gatue); Soprano Solo: Bonsoir (Guillemin). 9.30, Dance Music, relayed from the Hotel Aletti. 10.0, News Bulletin. 10.5, Dance Music (contd.).

BARCELONA
RADIO-BARCELONA: Call EAJ1, 349 metres; 8 kW.—11.0 a.m., Chimes from the Cathedral and Weather Forecast. 1.0 p.m., Light Music on Gramophone Records. In an interval at 1.30, Theatre Notes. 2.0, Film Review, followed by Concert by the Station Sextet. 3.0, Programme for Hospitals and other Benevolent Institutions, with Gramophone Records. 4.0 to 5.30, Interval. 5.30, Part Relay of an Opera from the Gran Teatro del Liceu. In the interval, Talk in Catalan. 9.0, Concert of Request Gramophone Music. 10.45, Chess Lesson. 11.0 (approx.), Close Down.

BARI
270 metres; 20 kW.—9.45 a.m., Agricultural Report. 10.5, Bible Reading. 10.20, Sacred Music from the Church of San Domenico. 12 Noon, Giornale Radio. 12.10 to 1.15 p.m., Concert of Light Music. In the intervals at 12.55, Weather, and at 1.0, Time and Announcements. 4.20 to 5.50, Gramophone Records of Variety Music. Sports Notes in the intervals. 7.0, Giornale Radio. Sports Notes and Announcements. 7.30, Time and Announcements. 7.35 (approx.), Vocal and Instrumental Concert. In the interval, Reading. 9.30, Light Music, relayed from the Gran Caffè del Levante. 9.55, News Bulletin.

BASLE.—See Schweizerischer Landessender.
BELGRADE
430.4 metres; 2.8 kW.—5.55 p.m., Time and Programme Announcements. 6.0, Concert of Light Music by the Station Orchestra. 7.3, Recital of Christmas Carols by a Church Choir. 7.30, Wireless Hints. 8.0, Choral Concert (contd.). 8.30, News, followed by Variety Music on Gramophone Records. 9.20, Concert of Light Music, relayed from the Balkan Hotel.

BERLIN
KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.0 a.m., See Berlin (Witzleben). 11.55, News Time Signal. 1.0 p.m., See Berlin (Witzleben). 1.20, Songs by Prize Canaries, relayed from Leipzig. 1.50, Talk on Great Philosophers—Leibniz. 2.20, Reading of Poems (Gottfried Benn). 2.30, Septet in E Flat, Op. 20, for Violin, Viola, Cello, Clarinet, Horn, Bassoon and Bass (Beethoven). 3.30, See Leipzig. 4.15, Concert of Light Music by the Erich Orchestra, from the Esplanade Hotel. 5.15, Talk on Das Lied von der Erde (G. Mahler), with Illustrations by Agnes Lenbach (Contralto). 5.45, The Younger Generation speaks—A Discussion on the Correspondence on the Debate "Is there any Point in Tolerance?" 6.30, Rural Programme. Song Recital, Reading and Address. 7.30, See Langenberg. 9.5 (approx.), Weather, News and Sports Notes. 9.45, Weather for Shipping, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BERLIN
WITZLEBEN, 419.5 metres; 1.5 kW.—10.30 a.m., Variety Concert from the Winter Garden. 12.30 p.m., The Centenary of Max Albert, the Designer of the Modern Zither. Programme arranged by the German Zither Association, relayed from the Märkische Museum. 1.0, Talk The Gifted Child and his Mother. 2.0, Orchestral Concert, conducted by Eugen Sonntag: Overture, Die Hochzeit des Camacho (Mendelssohn); Einzug und Anzug der wilden Jagd, from the Symphony, Im Walde (Raff); Mazurka in B flat (Gólar); Slav Rhapsody in G Minor (Dvorak); Suite, From Finland (Palmgren). 3.30, See Leipzig. 4.15, Orchestral Concert. 4.30, Talk: European Educational Systems of the Future. 4.55, Political Dialogue: Versailles. 5.20, Sonata in E Flat, Op. 18, for Violin and Pianoforte (Richard Strauss), by Mauritz van den Berg and Bruno Seidler-Winkler. 5.50, Dorothea Hofer-Bernburg recites her own Humorous Poems. 6.20, Sports Notes. 6.30, La Princesse de Trébizonde—Operetta (Offenbach), relayed from the Municipal Opera House, Charlottenburg. In an interval at 8.25 (approx.), News and Sports Notes. After the Opera, Second News and Running Commentary on the Second Half of the Water Polo Match, Berlin versus Magdeburg, relayed from Magdeburg, followed by Dance

Music relayed from the Zoo. 11.0 (approx.), Close Down.

BERNE.—See Schweizerischer Landessender.
BEROMUNSTER.—See Schweizerischer Landessender.
BODEN.—See Stockholm.
BODO.—See Oslo.

BORDEAUX-LAFAYETTE
304 metres; 13 kW.—12.0 Noon, Concert relayed from Paris (Ecole Supérieure), 447.1 metres.—2.0 p.m., Relay from Paris, or Relay of a Local Festival. 3.0, Concert arranged by the Conservatoire Concert Society, relayed from Paris (Ecole Supérieure). 7.0, Radio Journal. 7.25, Sports Notes. 7.40, Talk for Ex-servicemen. 7.55, Lottery Results. 8.0, Gramophone Records of Ninon Vallin. 8.30, Gala Programme for Children by the Joyeux Noveux Orchestra and Soloists. After the Programme, Amusement Guide and Time.

BRATISLAVA
279 metres; 14 kW.—3.0 p.m., Talk. 3.15, Folklore Programme. 4.0, Concert from Brno. 4.30, Talk. 4.45, Concert by the Station Orchestra: Overture, Orlando Paladino (Haydn); Concerto in B Flat for Violin and Cello, with Orchestral Accompaniment (Vranický); Symphony No. 1 in C, Op. 21 (Beethoven). 6.0, Talk. 6.10, Taragato Solos. 6.20, Choral Concert. 6.30, Talk. 6.45, Song Recital. 6.55, Concert of Operetta Music. 7.40, Popular Music on Gramophone Records. 8.0 till Close Down, See Prague. 10.9 (approx.), Close Down.

BREMEN.—See Hamburg.
BRESLAU
325 metres; 60 kW., and **GLEIWITZ,** 253 metres.—9.0 a.m., Catholic Service. 10.20, Reading (Erwin Lehend). 11.0, See Berlin (Witzleben). 1.0 p.m., News Bulletin. 1.10, Recitation (Hanns Martin Elster). 1.30, Talk: Hunting in Germany. 2.15, New Year Songs by Children for Children. 2.45, Concert of Light Music by the Station Orchestra, conducted by Franz Marszalek. 4.45, Sunday Sports Review. 5.25, Pianoforte Recital by Siegfried Schultze; Impromptu, Op. 90 (Schubert); Noveltta in D (Schumann); Two Intermezzi, Op. 118 (Brahms); Three Pianoforte Pieces, Op. 15 (Wladizero). 5.55, An Appeal for the Silesian Winter Relief Fund. 6.5, Talk: Silence is Golden. 6.30, Weather Forecast. 6.35, Max Hermann-Neisse reads his Lyrics. 7.0, Military Band Concert. 9.10, Time, Weather, News, Sports Notes and Programme Announcements. 9.40, Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BRNO
342 metres; 35 kW.—3.0 p.m., Concert by the Station Orchestra, conducted by Jan Janota. 4.30, See Prague. 5.0, German Transmission: Sonata Recital: Sonata for Violin and Pianoforte, Op. 18 (R. Strauss); Pianoforte Sonata in F Minor, Op. 5 (Brahms). 6.0, See Prague. 7.0, See Moravska-Ostrava. 8.0, See Prague. 10.0 (approx.), Close Down.

BRUSSELS (No. 1)
I.N.R., 569 metres; 15 kW.—10.0 a.m., Concert by the Little Station Orchestra, conducted by P. Leemans. 11.0, Gramophone Records. 11.30, Chopin Pianoforte Recital on Gramophone Records. 12.0 Noon, Concert by Mickey's Club Jazz Attraction. 1.0 p.m., Le Journal Parlé. 1.10, Concert, conducted by André Felleman, relayed from the Grand Hotel, Antwerp. 1.30, Consultation—Radio Sketch (Donnay). 1.40, Concert (contd.). 3.0, Chant de la Cloche (d'Italy), by the Société de Lassus de Mons. Gramophone Records in the interval. 5.0, Popular Music on Gramophone Records. In the interval at 5.30, Football Report. 6.0, Concert by the Little Station Orchestra, conducted by P. Leemans. 6.30, The Adventures of Bonzo—Radio Sketch (Leroy). 6.50, Pianoforte Recital by Suzanne de Meyere; Jeux d'eau (Gavelli); Poissons d'or (Debussy); Soirée dans Grenade (Debussy); L'Isle Joyeuse (Debussy). 7.15, Religious Address. 7.30, Wireless Notes and Music Review by Paul Gilson. 8.0, Gala Concert by the Radio Orchestra, conducted by Franz André, soloists: Maurice de Groote (Bass), Constant Bremers (Pianoforte), and Paul Gason (Saxophone); Overture, Die Fledermans (Joh. Strauss); Catalan Caprice (Albeniz); Malaguena (Albeniz); Concerto for Pianoforte and Orchestra (Gershwin). 8.45, La Parole est à la défense—Radio Sketch (Lauville). 9.0, Concert (contd.): Prelude for Orchestra and Organ (Bachmannov); Selection from Victoria and her Hussar (Abraham); Bass Solos: (a) The Volga Boatman, (b) Old Man River (Kern); Potpourri of the Latest American Jazz Hits (André and Candrice); American Negro Spirituals: (a) Deep River, (b) I got a robe, (c) Swing Low, (d) I want to be ready; Symphonic Suite (Bert); Burlesque (Poot); Railway (Brusselmanns); Saxophone Solos: (a) Liebesleid (Kreiser), (b) Perpetuum mobile (Strauss); Hungarian Dance (Brahms). 10.0, Le Journal Parlé. 10.10, Concert by Willie Lewis. 12.0 Midnight, Close Down.

BRUSSELS (No. 2)
I.N.R., 338.2 metres; 15 kW. Programme in Flemish.—10.0 a.m., Gramophone Concert of

Classical Music. Iberia (Albeniz); Valse triste (Sibelius); L'apprenti sorcier (Dukas); Quartet in G Major, Op. 18, No. 2 (Beethoven). 11.0, Concert by the Station Orchestra. 12 Noon, Concert, conducted by André Felleman, relayed from the Grand Hotel, Antwerp. Breydel-marche (Jan Pouliez); Overture, Banditenstreiche (Suppé); Tango, Nur ich allein (Zwysen); Fantasia No. 3 for Pianoforte (Benoit); Quartet for Four Cellos (Zwysen); Sound Film Potpourri (Abraham); Foxtrot, Crazy People (Leslie-Monaco); Potpourri of Song-Hits (Schneider). 1.0 p.m., Le Journal Parlé. 1.10, Mickey's Club Jazz Concert. 5.0, Second Concert arranged by Mickey's Club Jazz. 5.15 (in an interval), Sports Notes. 6.20, Pianoforte Recital of Waltzes by Jef van Hoof, played by the Composer. 7.0, Gramophone Concert of Light Music. 7.15, Religious Talk. 7.30, Le Journal Parlé. Music Talk by Paul Gilson. 8.0, Les Vingt-huit Jours de Chirette-Operetta (Roger-Tavari) from the Luna Theatre. In the intervals, Talk and Journal Parlé. After the Programme, Light Music on Gramophone Records. 12 Midnight (approx.), Close Down.

BUCHAREST
394 metres; 12 kW.—11.0 a.m., Gramophone Records of Light Music. 11.45, News and Time Signal. 12 Noon, Gramophone Records (contd.). 3.0 p.m., Programme for Peasants. 4.0, Concert of Light Music and Romanian Music by the Marco Orchestra. 5.0, News and Time Signal. 5.10, Humorous Programme. 5.25, Concert by the Marco Orchestra (contd.). 6.0, Educational Talk. 6.40, Light Music on Gramophone Records. 7.0, The Armoure—Opera in Three Acts (Lortzing). In the intervals, News.

BUDAPEST
550 metres; 18.5 kW. Programme also relayed on 840 metres from 2.0 to 2.45 p.m. and 6.10 to 11.0 p.m.—10.0 a.m., Catholic Service, followed by Time, Weather, Tide Report and Orchestral Concert. 1.0 p.m., Gramophone Concert. 2.0, Agricultural Talk. 2.45, Broadcast for Schools. 3.30, Time and Weather, followed by Military Band Concert. 4.35, Programme by Karl Lykas. 5.0, Concert by the Hungarian Gesellschaft der Musikfreunde. 6.10, The Taming of the Shrew—Play (Shakespeare). 8.15, Concert of Gigan Music. 9.0, Sports Results. 9.30, Cabaret Concert, relayed from the Café New York.

CASSEL.—See Frankfurt.

COPENHAGEN
281 metres; 0.75 kW; and **KALUNDBORG,** 1,153 metres; 7.5 kW.—11.0 a.m., Concert by Carl Rydahl's Instrumental Ensemble. 12 Noon, Talk in English; Shavian Wit. 12.20, Talk in German. 12.40, Talk in French. 1.25, Gramophone Records of Popular Music. 1.55, Programme for Children. 2.25, Ninth Concert from the Axelborg Studio. The Radio Orchestra, conducted by Emil Reesen. Soloist: Albert Höberg (Songs). Overture, Aladdin (Hornemann); Minuet and Finale from the London Symphony (Haydn); Flower Waltz, from the Nutcracker Suite (Tchaikovsky); Dance from Maskerade (Carl Nielsen); Songs; Overture, Le Cheval de Bronze (Auber); Waltz, Sphärenklänge (Joseph Strauss); Ballet Music from La Belle Hélène (Offenbach); Gallon, Bouquet royal (Lumbye). 4.0 (also on Skamlebaek, 31.51 metres), Divine Service from the Christiansborg Cathedral. 5.20, Talk. 5.50, Weather and News. 6.15, Time Signal, and Sports Notes. 6.30, Talk: The Difficult Child. 7.0, Town Hall Chimes. 7.2, Concert by the Radio Orchestra, conducted by Emil Reesen: Overture, The Nuremberg Doll (Aden); Three Pieces for Strings from Aquatella (Glazunov); Scenes pittoresques (Massenet); Bachanale from The Seasons (Glazunov). 7.45, Talk: Scenes from Holberg's Comedies. 8.45, Modern Saxophone and Pianoforte Music. 9.10, News Bulletin. 9.20, Duet in D for Two Violins (de Bériot). 9.40, Gramophone Records of Opera Arias. 9.55, Dance Music from the Wivex Restaurant. 11.0 (in an interval), Town Hall Chimes. 11.30 (approx.), Close Down.

CORK.—See Dublin.
DANZIG.—See Heilsberg.
DRESDEN.—See Leipzig.

DUBLIN
Call 2RN, 413 metres; 1.2 kW.; and **CORK,** 224.4 metres.—8.30 p.m., Time Signal. 8.32, Amy Ellard's Instrumental Trio. 8.45, Traditional Fiddle, by T. J. Small. 9.0, He who would build—played by Dorothy Day and Company. 10.3, Bass Solos by M. O'C. Maguire. 10.15, Trio. 10.30, Gramophone Recital of Operatic Music. 11.0, Time Signal, News, Weather Report, and Close Down.

FECAMP
222 metres; 10 kW.—12 noon, Radio Gazette. 12.30 p.m., News Bulletin. 12.45, Variety Programme. 4.0-8.0, Programme in English by the I.B.C. 4.0, Concert of Old Popular Songs: After the Ball; Two Little Girls in

JAN. 8th

SUNDAY

continued

Blue; The Galloping Major; My Old Dutch; The Future Mrs. Atkins; Daisy Bell; Burlington Bertie from Bow; The Man who Broke the Bank at Monte Carlo; Chorus: Pot-pourri of Songs by Haydn Wood; Quartets: (a) Nellie Gray, (b) Home Sweet Home; Chorus (a) March of the Men of Harlech, (b) Selection from Maritana, (c) Lionel Monkton's Memories. 5.0, Programme for Children. 5.30, Octet Concert: Serenade (Schubert); Melody (Gluck); La Fileuse (Raff); Moment musical (Schubert); The Lark (Tchaikovsky); Wiegand (Grieg); Serenade from Les Millions d'Harlequin (Drigo). 6.0, Children's Club Concert. 6.30, Concert of Sea Shanties: Blow the Man Down; The Merchant Ship; Tom's gone to Hilo; Shenandoah; The Drunken Sailor; A Dollar and a Half a Day; The Hog's Eye Man; One More Day; On the Banks of Sacramento; A-rovin'; Rio Grande. 7.0, Concert of Light Music: Old Music Hall Memories; Daisy Bell; The Man who Broke the Bank at Monte Carlo; Lily of Laguna; A Little of what you Fancy; My Old Dutch; I'm One of the Ruins Cromwell Knocked About a Bit; Two Lovely Black Eyes; The Spaniard that blighted my Life; I stopped, I looked, I listened; Another little Drink; Captain Gajah; Burlington Bertie from Bow; Down at the Old Bull and Bush; 8.0, Concert of Opera and Operetta Music. 9.0 till Close Down, Programme in English by the I.B.C. 9.0, Concert of Popular Music: Please Mr. Hemingway; Let's put out the lights and go to sleep; A bed-time story; Let's all sing like the Birdies sing; Dreaming; You are my Everything; Moon. 9.30, Concert: The Sergeant of the Line (Sanderson); The Bandleiro (Stuart); Rocked in the Cradle of the Deep (Knight); Orchestra: The Phantom Brigade (Myddelton); Stonecracker John (Coates); Till the Sands of the Desert grow cold (Ball); The Wolf (Whiting). 10.0, Orchestral and Vocal Concert: March from Tannhauser (Wagner); Songs: (a) O Star of Eve, from Tannhauser (Wagner), (b) Mephistopheles' Serenade (Gounod); Hungarian Dance No. 5 (Brahms); Songs: (a) The Floral Dance (Moss), (b) The Lute Player (Albton); Selection from The Swan Lake (Tchaikovsky). 10.30, Concert of Variety Music: On the Air; Moonlight on the Riviera; Moon; I guess I'll have to change my Plans; Round the Bend of the Road; A Bedtime Story. 11.0, Concert: (Honious Devon (German); Young Tom o' Devon (Russell); Up from Somerset (Sanderson); Devonshire Cream and Cider (Sanderson); Drake goes West (Sanderson); The Floral Dance (Moss); Linden Lea (Vaughan Williams). 11.30, Music by a Mandoline Band: Waltz, The Blue Danube (Strauss); Czardas (Monti); Mandolinata (de Pietro); Tesoro Mio (Bacucci). 11.45, Quintet Concert: The Wedding of the Birds (Peterson); The Song of Songs (Moya); By the Waters of Minnetonka (Lienance); Wrap your Troubles in Dreams (Crosby). 12.0, mid-night, Voed Duets: He's that kind of a Pal (Ager); I may be wrong (Ruskin); There'll never be another Mary (Yellow); Sitting by a Window (Conrad); There's Another good Man gone wrong (Bennett); Looking for love (McLough); We're Uncomfortable (Butler). 12.30 a.m. (Monday), Concert of Irish Music: Savoy Irish Medley (arr. Somers); Phil the Fluter's Ball (French); Father O'Flynn (Stanford); Danny Boy (Weatherly); Mountains of Mourne (French); Innis Farrell (Aitken); By the waters of Killarney (Carlo). 1.0 a.m., Vaudeville Programme: The Vacuum Cleaner; I toddles in; Selections from (a) Bow Belts; (b) The Cat and the Fiddle; In Sunny Seville; Taking the Cake; The Landlady; Back to Gay Paree; Lord Lovat's Lament; Lea Rigs; Crazy Song; Song in your Soul. 2.0, Dance Music: Love is like that; I owe you; Great Day; They all fall in Love; Swingin' in a Hammock; Falling in love again; Adeline; Absence makes the Heart grow fonder; Don't tell her what happened to me; A Californian Serenade; I believe in you; Over the Hills and far away; If you haven't got love; Music; My future just passed; Good-night. 2.57, T.B.C. Good-night Melody. 3.0 (approx.). Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW., and CASSEL, 245.9 metres.—12 Noon, See Langenberg. 1.0 p.m., Programme arranged by the Wiesbaden Board of Agriculture. 1.10, Rural Programme—Two Talks. 2.0, A Play for Children. 3.0 p.m., Concert by the Wiesbaden Municipal Orchestra, relayed from the Kurhaus Wiesbaden. Conductor: Herbert Albert: Overture, Masaniello (Amber); Theme and Variations from the Suite, Op. 65 (Tchaikovsky); Torch Dance in E Flat (Moszkowsky); Selection from Hansel and Gretel (Humperdinck); Prelude to Prince Methusalem (Joh. Strauss); Waltz, The Blue Danube (Joh. Strauss); Tone Pictures from The Gipsy Princess (Kalmán); Festmarsch (Richard Strauss). 5.0, Talk, arranged by the Frankfurter Zeitung. 5.25, Variety Interlude. 5.55, Talk. 6.20, Sports Notes. 6.30, Concert. 7.0, Programme to be announced. 7.50, Fourth Sunday Concert of the Frankfurt Orchestral Society, relayed from the Saalbau; Fifth Symphony in B Flat (Bruckner), by the Station Symphony Orchestra, conducted by Hans Rosbaud. 8.50, Guard Fire and Light—a Radio Sequence.

9.25, Time, Weather, News and Sports Notes. 9.45, Serenade. 11.0 (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

Call ha (in Morse); 372 metres; 1.5 kW. Relayed by Bremen, 276 metres; Flensburg, 218 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—11.5 a.m. (from Flensburg), Concert from Das Deutsche Haus. In the interval, Shipping Notes. 1.0 p.m., Stadler vor der Stadt—Radio Sequence (Walter Hans Giese). 2.0, Programme for Children: Talk with Music and Reading. 2.30, Fairy Tales from our own Times. 2.50, Karl Dittmer in a Recital of Songs by Georg Vollerthun, The Composer at the Piano. 3.15, Unemployed Actors in Scenes from Goethe's Egmont and Faust, with Orchestral and Organ Music. 4.0, Demonstration in Commemoration of the Occupation by Lithuanian Troops of the German City and District of Memel, 10th January, 1922, relayed from the Schiller Theatre—Programme of Music and Addresses. 4.45, Mecklenburg Programme of Readings and Songs. 5.30, Humorous Programme—a Musical and Literary Sequence. 6.30, Talk: Ice-Hockey. 6.40, Sports Notes. 6.55, Weather Report. 7.0, Concert of Viennese Operetta Music, relayed from the Musikhalle. Soloists: Erna Kroll-Lange (Soprano) and Bernhard Jaksehat (Bartitone); Melodies from A Waltz Dream (Strauss); Waltz from The Merry Widow (Lehar); Aria from The Count of Luxembourg (Lehar); March from The Merry Peasant (Fall); Melodies from The Dollar Princess (Fall); Song from Der Rastbinder (Lehar); Rhenish Songs from The Merry Peasant (Fall); Eva's Song from Eva (Fall); Waltz from Der liebe Augustin (Fall). In the interval, News. 9.0, Time, Weather and News. 9.10 (approx.). Dance Music from Berlin (Witzleben).

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW.; and DANZIG, 453.2 metres.—10.30 a.m., The Mystic's Intimacy with God—Radio Sequence (Erich Jenisch). 11.0, See Berlin (Witzleben). 1.0 p.m., Chess Lesson. 1.30, Programme for Children. 2.0, Talk. 2.30 (from Danzig), Choral Concert. 3.0, Concert by the Small Station Orchestra. In the interval at 3.45 (approx.), Sports Notes. 4.30 (from Danzig), Talk on Glass Painting—Now and in the Past. 5.0, Pianoforte Recital by Hertha Klawnow. Eight Preludes, Op. 11 (Scriabin); Nocturne in E Minor (Chopin); Fantasia-Improvisation, Op. 66 (Chopin); Concert Etude in D Flat (Liszt). 5.30 (from Danzig), Humorous Programme: Readings and Recitations. 6.0, Ariadne auf Naxos—a Drama (Brandes), with Music by Benda, relayed from Königsberg Castle. 6.50, Sports Notes. 7.0, Programme to be announced. 7.30, See Langenberg. 9.0, News and Sports Notes. 9.15 (approx.). Dance Music from Berlin (Witzleben). 11.30 (approx.). Close Down.

HILVERSUM

Announced HUIZEN, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—11.55 a.m. to 4.40 p.m., Programme of the Catholic Radio Society (K.R.O.). 11.55 a.m., Concert by the K.R.O. Orchestra, conducted by M.v.t. Woud. 12.40 p.m., Talk. 1.0, Concert (cont'd.). 1.50, Film Review. 2.10, Extracts from a Religious Play (Witte). 3.55, Programme for Invalids. 4.40 to 7.25, Programme of the Christian Radio Society (N.C.R.V.). 4.40, Sacred Concert by a Mixed Vocal Quartet. 5.30, Divine Service from a Church in Leyden, followed by Sacred Music on Gramophone Records. 7.25 till Close Down, K.R.O. Programme. 7.25, Talk. 7.50, Football Results. 7.55, Concert by the K.R.O. Orchestra, conducted by Johan Gerritsen. Nibelungenmarsch (Sommer); Overture, Erlenhölzchen (Kühnau); Shepherd's Hey (Grainger); Molly on the Shore (Grainger); Selection from The Rose of Stamboul (Fall). 8.25, Relay from the Sportpalast, Berlin. In the interval at 8.50, News. 9.40, Concert by the K.R.O. Orchestra, conducted by J. Gerritsen. Soloist: A. Alvin (Violin). Overture, Ruslan and Ludmilla (Glinka); Concerto in A Minor for Violin and Orchestra, Op. 82 (Glazunov). 10.10, Violin Recital by A. Alvin: Prelude and Allegro (Clément-Baudouin); Sarabande and Tambourin (Leclair); Sicilienne and Rigodon (Francoeur-Kreisler). 10.20, Epilogue by the Choir. 10.40 (approx.). Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 1,675 metres; 8.5 kW.—8.10 to 9.40 a.m., Programme of the

Workers' Radio Society (V.A.R.A.). 8.10, Horticultural Talk. 8.40, Legal Talk. 8.55, Football Report. 8.58, Organ Recital. 9.20, Address. 9.40 to 10.10, Interval. 10.10, Divine Service by the Liberal Protestant Radio Society (V.P.R.O.). 11.40 to 4.40 p.m., Programme of the Algemeene Vereeniging Radio Orchest (A.V.R.O.). 11.40, Time and Concert by the Wireless Orchestra, conducted by Nico Treep, with Choral Interludes. 1.40, Literary Talk. 2.10, Concert relayed from the Concertgebouw, Amsterdam. The Orchestra, conducted by Edward van Beinum. Soloist: Ferdinand Hellmann (Violin). Fantasia for Violin and Orchestra (Suk); Third Symphony in D Minor (Bruckner). 3.40, Le Malade Imaginaire (Moliere). 4.25, Sports Notes and Gramophone Records of Light Music. 4.40 to 7.40, V.A.R.A. Programme. 4.40, Programme for Children. 5.40, Concert of Light Music conducted by Hugo de Groot. 6.30, The Adventures of Messrs. Wakker and Toppenduit. 6.50, Orchestral Concert, conducted by Hugo de Groot. 7.40 till Close Down, A.V.R.O. Programme. 7.40, La Marquis—Opera in One Act (Adam). 8.40, Reading. 9.0, Concert by the Wireless Orchestra, conducted by Nico Treep. 9.40, Light Music on Gramophone Records. 10.10, Concert by Kovacs Lajos and his Orchestra. 11.40 (approx.). Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—5.30 p.m., Humorous Items. 6.0, Announcements and Popular Music on Gramophone Records. 6.25 to 10.0, See Warsaw. 10.0, Dance Music.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres; 54 kW.; and HELSINKI, 368.1 metres.—3.0 p.m., Gramophone Concert of Variety Music. 4.10, Talk. 4.35, Duets by Elsa Frilander and Helmi Frilander-Salonius. 4.59, Time and Weather. 5.10, History Talk. 5.40, Concert by the Radio Orchestra, conducted by Erkki Linko. 6.10, Talk. 6.35, Sonata, Op. 12, for Pianoforte (Sibelius). 7.0, Popular Concert. 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

473 metres; 60 kW.—11.5, Talk on Music. 11.25, Religious Address. 11.45, Review of the Week's Music. 12 Noon, Tchaikovsky Concert by the Station Orchestra, conducted by Kühn. Overture-Fantasia, Romeo and Juliet; Ballet Music from The Queen of Spades; Suite from The Swan Lake; Italian Caprice. 1.30, Shorthand Dictation. 1.50, Talk on Chess. 2.25, Talk: What everybody should know about his Radio Set. 2.45, Talk: Books of Reminiscences by Women. 3.5, Talk: America—in the Biggest Warehouse of the World. 3.30, See Leipzig. 4.15, Military Band Concert from the Zoo-Saal, Düsseldorf: March, Sempre salvator (Patsch); Waltz, Wine, Woman and Song (Strauss); Overture, Die schöne Galathee (Suppé); Selection from Rigoletto (Verdi); March, Unsere Garde (Fürster). 5.5, Talk: The Seventieth Birthday of Paul Scheerbart. 5.30, Talk: Towns of the Rhineland and Westphalia—Hamm. 6.0, An Entertainment. 6.45, Sports Notes. 7.0, Gertrud Bundernagl Memorial Programme on Gramophone Records, with Talk by Paul Heinrich Gehly. 7.30, Wilhelm Busch Programme on the Twenty-fifth Anniversary of his Death. 9.5, News and Sports Notes. 9.30, Dance Music from Berlin (Witzleben). 11.0 (approx.). Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW.; and DRESDEN, 319 metres.—11.0 a.m., Concert by the Leipzig Symphony Orchestra. 1.0 p.m., Weather and Time. 1.5, Talk: The Programme of the Week. 1.25, Agricultural Hints. 1.35, Concert of Folk Songs by the Halle Workers' Choral Society, conducted by Herbert Schulze. 2.0, The Alchemist—A Radio Play (Hans Henning). 3.30, Der Struwwelpeter, Op. 28 (Fritz Reuter), by the Leipzig Symphony Orchestra, conducted by Theodor Blumer. A Mixed Choir, and Soloists. 4.15, Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer. 5.30, Talk, with Illustrations: A Phonetic Laboratory. 6.30, Topical Programme on Gramophone Records. 7.15, Concert of Mozart Opera Music by the Leipzig Symphony Orchestra, conducted by Willy Stelten. Soloists: Elisabeth Gerö (Soprano) and Heinz Damm (Tenor). Pieces from Figaro, The Magic Flute, Il Seraglio, Idomeneo and Der Schauspielerdirektor. In the interval: Don Juan (E. Th. A. Hoffmann), arranged as a Musical Piece for Radio by Dietrich von Oppen. 9.15, News Bulletin followed by Dance Music. 11.0 (approx.). Close Down.

LINZ.—See Vienna.

MADRID

ARANJUEZ (EAQ), 30.43 metres; 20 kW.—11.30 p.m., Variety Music. 11.45, Humorous Talk. 12 Midnight, Popular Concert. 12.35 a.m. (Monday), Talk. 12.40, Light Music. 1.0 (approx.). Close Down.

MADRID

UNION RADIO; Call EAJ7, 424.3 metres; 2 kW.—8.0 to 9.0 a.m., Topical Review. 2.0 p.m., Chimes, Time Signal, Theatre Notes and Concert by the Artys Orchestra. 4.0 to 7.0, Interval. 7.0, Chimes, Agricultural Talk and Dance Music, relayed from the Ritz Hotel. 8.30 to 9.30, Interval. 9.30, Chimes and Time Signal. 9.35 (approx.), Cello Recital by Ricardo Buaedela, followed by an Interlude by Ramon Gomez de la Serna and Light Orchestral Music, with Songs by Fernando Cortes. 12.0 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—3.0 p.m., See Brno. 4.30 to 7.0, See Prague. 7.0, Cabaret Programme by the Station Orchestra and Soloists. 8.0 till Close Down, See Prague. 10.0 (approx.). Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—4.0 p.m., News. 4.10, Concert. 5.30, Symphony Concert of Music by Weber, Hoffmann and Mendelssohn. 8.0, Talk in English: A Lonely Mother. 8.55, Time. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserlautern, 560 metres, and Nürnberg, 239 metres.—9.0 a.m., Organ Recital by Gustav Schoedel. Soloists: Marya Neitzel (Mezzo-Soprano) and Erich Müller Ahrenberg (Bartitone). 9.45, Chimes from Our Lady's Church. 10.0, Lecture-Recital by Josef Pembaur: Brahms' Ballads and Rhapsodies. 11.0, See Leipzig. 12.5 p.m., Time, Weather and Programme Announcements. 12.15, Agricultural Talk. 12.35, Popular Music on Gramophone Records. 1.30, Elementary Chess Lesson. 2.15, Concert of Music by Emeran Rieder, with the Composer at the Piano. Poldi Rizek-Rohr (Soprano), Rudolf König (Tenor), and Fritz Mühlhölz (Zither). 2.40, Programme for Children. 3.0, Grave and Gay from Wilhelm Busch. 3.35, Concert of Light Music, conducted by Erich Kloss. In the interval, Songs by Prize Canaries. 4.30, Robinson shall not die—Play in Three Acts (F. Förster). 5.45, Song Recital by Lotte Leonard (Soprano). 6.10, Talk, illustrated by Gramophone Records: The Music of Speech. 6.40, Concert by the Station Orchestra. 8.15, Weather, Sports Notes, and Notes on the Coming Winter Sports' Contests at Innsbruck. 8.35, Ski Heil. A Winter Sports' Programme. The Small Station Orchestra, the Station Choir, a Group of Children, Rudolf König and Josef Schweiger (Songs and Duets), Karl König (Tenor), and other Soloists. 9.20, Time, Weather, News and Sports Notes. 9.45, Dance Music from Berlin (Witzleben). 11.0 (approx.). Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredriksstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres; and Rjukan, 447.1 metres.—9.20 a.m., Chimes. 9.30, Divine Service. 4.15 p.m., Concert of Light Music relayed from the Continental Hotel, conducted by Willy Johansen. 5.15, Trio for Flute, Oboe and Clarinet (Beethoven). 6.15, Weather and News. 6.30, Recitations. 7.0, Time. 7.1, Part Relay of Hulda—Opera (Franck). 8.40, Weather and News. 9.0, Topical Talk and Recitations. 9.45, Dance Music on Gramophone Records. 11.0 (approx.). Close Down.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—9.25 a.m., Bible Reading. 9.40, Sacred Music. 10.5, Agricultural Notes. 11.45, Giornale Radio. 12 Noon to 1.0 p.m., Concert of Light Music. In the interval at 12.30, Time, Announcements and Weather. 4.30 to 5.30, Concert by the Sunny Band Quartet, relayed from the Olympia Tea Rooms. 7.0, Announcements and Giornale Radio. 7.20, Sports Notes and Light Music on Gramophone Records. In the interval at 7.30, Time and Announcements. 8.0, Relay from the Teatro Massimo Vittorio Emanuele. In the intervals: Talk, Announcements and News.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW.—1.0 to 2.0 p.m., Orchestral Concert. 5.45, Le Journal Parlé. 6.45, Programme for Children. 7.20, Weather Report. 7.30, Gramophone Concert: Overture, Ruy Blas (Mendelssohn); Concerto for Violin and Orchestra (Mendelssohn); Selection from The Merry Wives of Windsor (Nicolai); Contrast (Robrecht); La creulle berceuse (Botfel); La

JAN. 8th

SUNDAY

continue

poupée d'Arlequin (Darcy); Le Temps (d'Anjou); Mimosa (Jones); Echo du valloin (Saint-Servan); Pinsonnette et Pinsonnet; Lied aus der Heimat (Kötter); Intermezzo. Curley (Powel); Piece (Rosen); Zouave March. 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—9.45 a.m., Bible Reading and Sacred Music on Gramophone Records. 10.0, News and Press Review. 10.5 to 12.45 p.m., Sponsored Concerts. 12.45, Chansonnettes by Paul Weill. 1.15, Interlude. 1.30, Sponsored Programme. 2.0 to 6.45, Interval. 6.45, Le Journal Parle. 7.0, Agricultural Talk. 7.15, Sports Review. 7.30, Catholic Review. 8.0, Light Music on Gramophone Records. 8.30, Interval. 8.45, Sponsored Concert with Gramophone Records. 10.15, Organ Recital. 10.30, Concert by the Alexander Scriabin Orchestra, relayed from the Berry. 11.0, News Bulletin.

PARIS

RADIO PARIS; Call CFR, 1,725 metres; 75 kW.—7.45 a.m., Light Music on Gramophone Records. 8.0, Press Review and Weather. 8.30, Physical Culture. 10.0, Elementary Book-keeping Lesson. 10.20, Advanced Book-keeping Lesson. 10.40, Spanish Lesson. 11.30 to 12.0 Noon, Programme in English by the I.B.C., Concert of Imperial and Broadcast Records: While we danced at the Mardi Gras, by Jack Payne and his Band; The Flies crawled up the Window, by Bobbie Comber; Waltz, The Blue Danube (Joh. Strauss), by Eugene's Magyar Cigány Band; Maenshi, by Tom Burke; Selection of Leslie Sturri Songs, Part II, for Soloists, Chorus and Orchestra; Same Old Moon, by Roma's Accordion Band; Cherry Fireside Memories, Part II, by Mellow and Rich; Marching along together, by The Rhythm Rascals. 12.0 Noon, Religious Address. 12.20 p.m., Choral in A Minor (Frank), on Gramophone Records. 12.30, Billquet. 12.45, Press Review, News and Weather. 1.0, Concert of Light Music. 1.30, Variety Music on Gramophone Records. 2.0, Light Music on Gramophone Records. 3.0, Concert of Light Music. 4.0 to 5.0, Programme in English by the I.B.C., Tea-Time Variety Hour, Mr. S. H. C. Williams announcing. 5.0, Orchestral Concert. 5.30 to 8.0, Programme in English by the I.B.C. 5.30, Concert on behalf of the Philco Radio and Television Corporation of Great Britain, Limited, Announcer, Mr. Glynn Williams, Foundation Member No. 20 of the International Broadcasting Club. 6.30, Concert, Miss Faith Shipway announcing. 7.0, Con-

cert on behalf of the Gaumont British Picture Corporation, Mr. S. H. C. Williams announcing. 8.0, Music Hall Programme, The Orchestra conducted by Maurice André, Soloists: M. Rezor and Mme. Lina Tyber. In the intervals at 8.30, News, Weather and Sports Notes, and at 9.15, Press Review and News. 10.50, Late Concert. 11.0 (approx.), Close Down.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by W8XK, on 48.86 metres and 25.27 metres.—9.0 p.m., Cowboy Tom, from New York. 9.15, Programme to be announced. 9.30, Vesper Services from Shadyside Presbyterian Church, Pittsburgh. 10.30, Pages of Romance, from New York. 11.0, Time Signal. 11.1, Temperature Report. 11.2, Weather Report. 11.5, Teaberry Sport Review. 11.10, Press News Reeler. 11.14, Temperature Report. 11.15, Westinghouse Concert. 11.45, The Fireflies. 11.59, Time Signal. 12.0 Midnight, The Chatterbox. 12.30 to 2.15 a.m. (Monday), New York Relay. 12.30 a.m., Great Moments in History. 1.0, Russian Gaigies. 1.30, Jingle Bells. 2.0, Euna Jettick Melodies. 2.15, Programme to be announced. 2.50 to 3.30, New York Relay. 2.30, Walter Winchell. 2.45, Those Five Girls. 3.0, Talk by Edna St. Vincent Millay. 3.15, Jubilo, Singer of the Lonesome Road. 3.30, Jean Wald and her Orchestra. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.15, Press Last Minute News. 4.22, Alexander Roy (Tenor). 4.30, Hotel Bismarck Orchestra, from New York. 5.0, Time Signal and Good-night.

PORSGRUND—See Oslo.

PRAGUE

483.6 metres; 120 kW.—11.35 a.m., Brass Band Concert, conducted by Jaroslav Latsky. 12.30 p.m., Agricultural Talk. 12.45, Talk. 12.55 to 3.0, Interval. 3.0, See Brno. 4.30, Talk: Reminiscences of Brazil. 4.45, Light Music on Gramophone Records. 5.0, German Transmission: Folk Songs and Legends from Bohemia. 6.0, Popular Concert. 7.0, See Moravská-Ostrava. 8.0, Time Signal. 8.1, Symphony Concert by the Station Orchestra, conducted by Hermann Scherchen. 9.0, Time Signal. 9.1, News. 9.20, Variety Music on Gramophone Records. 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW; **LAUSANNE**, 680 metres; and **GENEVA**, 760 metres.—8.55 a.m. (from Lausanne), Chimes. 9.0, (from Lausanne), Protestant Service, relayed from the Church of St. Laurent. 10.0 (from Geneva), Popular Music on Gramophone Records. 11.0 (from Geneva), Readings. 11.30, News Bulletin and Weather Forecast. 11.40 (from Geneva), Light Music on Gramophone Records. 1.0 to 2.30, No Transmission. 2.30, Concert by the Conservatoire and Pasdeloup Orchestras, relayed from Paris. 5.0 (from Geneva), Popular Music on Gramophone Records. 5.30 (from Geneva), Catholic Address. 6.0 (from Geneva), Harpsichord Recital by Charles Koldier. 6.30 (from Geneva), Popular Music on Gramophone Records. 6.40 (from Lausanne), Wireless Notes. 7.0 (from Geneva), Dramatic Programme. 7.45, Concert by the Station Orchestra. 9.0, News Bulletin and Weather Forecast. 9.15 (approx.), Close Down.

RIGA

525 metres; 15 kW. 6.5 p.m., Popular Concert. 7.0, News. 7.20, Popular Songs in Dialect. 7.40, Light Music. In the interval at 8.0, Weather and News. 8.30, Dance Music. 10.0 (approx.), Close Down.

RJUKAN—See Oslo.

ROME

Call 1R0, 441 metres; 50 kW. Relayed by Naples, 319 metres; and 2R0, 25.4 metres.—9.10 a.m., News, Sports Notes and Amusement Guide. 9.30, Agricultural Talk. 9.45, Religious Programme. 10.0 to 11.0, See Turin. 11.30, Orchestral Concert. 12 Noon (in an interval), Time and Announcements. 12.30 to 1.30, Concert of Light Music. 2.45 (Naples), Programme for Children, followed by Weather and Sports Notes. 3.0, Football Results. 3.15, Programme of Variety Music. 4.0, Concert conducted by Nicolai Malko, relayed from the Augusteo. Soloist: Ruda Firkusny (Pianoforte). Sports Notes in the interval. 6.30, Football Report, Announcements and News. 7.0, Time and Announcements. 7.30, Sports Notes. 7.45, Il Capitano Fracassa Musical Comedy in Three Acts (Mario Costa). News after the Programme.

SALZBURG. See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 379.5 metres; 50 kW. Relayed at intervals by W2XAF, on 31.48 metres and by W2XAD on 19.55 metres.—9.0 p.m. till Close Down, New York Relay. 9.0 p.m., Tudent Programme with Jane Froman. 9.15, Wildroot Institute. 9.30, International Radio Forum. 9.45, Trio Charmante. 10.0, Sun Oil Programme. 10.15, The Revellers. 10.30, Big Ben's Dream Drama. 10.45, Musical Programme. 11.0, Catholic Hour. 11.30, Our American Schools. 12 Midnight, Balkan Melodies. 12.15 a.m. (Monday), Wheatena-ville. 12.30, Orchestral Gems. 1.0, Chase and Sanborn Hour. 2.0, Our Government by David Lawrence. 2.15, American Album of Familiar Music. 2.45, Olman and Arden in Pianoforte Duets. 3.0, Romances. 3.15, L'Heure Exquise. 3.45, Sunday at Seth Parkers'.

SCHWEIZERISCHER LANDESENDER

BEROMUNSTER, 459 metres; 60 kW; **BASLE**, 244.1 metres; and **BERNE**, 245.9 metres.—9.0 a.m. (from Berne), Catholic Address. 9.45 (from Berne), Concert of Old Chamber Music played on Old Instruments: Detlev Grümmer (Viola d'amore and Violin), Willy Freund (Violin), Walter Zurbrugg (Viola) and Volkmar Kohlshütter (Cello and Viola da Gamba). 10.30 (from Berne), Rudolf von Tavel reads from his Unpublished Novel, Niklaus Mannels Jugendjahre. 11.0, Concert by the Radio Orchestra. 11.28, Time and Weather. 11.30, News. 11.40, Concert (cont'd). 12.30 p.m. (from Berne), Music by a Pensioner Orchestra. 1.0 (from Berne), Talk: Rabbit Breeding. 1.30 to 2.30, Interval. 2.30, Concert by the Conservatoire Orchestra, relayed from the Conservatoire, Paris. 4.0 to 4.5 (approx), Weather. 5.30 (from Berne), Talk: French Literature from 1820 to 1930: Flaubert, Zola, The Comcours, Daudet and de Maupassant. 6.0, Time, Weather and Sports Notes. 6.10 (from Berne), Pianoforte Cabaret, with Verse (Peter Paul Althaus and Kurt Weiler). 6.40 (from Berne), Talk: Five Film Personalities. 7.10 (from Berne), Talk on the following Transmission. 7.15 (from Berne), Mese Mariano—Opera in One Act (Giordano), relayed from the Municipal Theatre, Lucerne. 8.5 (in the interval), Weather and News. 8.25 (from Berne), La veglia—Opera in One Act (Pedrollo). 9.15, Sports Notes. 9.25 (approx.), Close Down.

SOTTENS—See Radio-Suisse Romande.

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STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—10.0 a.m., Divine Service. 11.45, Weather. 2.0 p.m., Mandoline Concert of Light Music. 2.30, Talk: Life in the Tonga Islands. 3.0, Concert of Light Music conducted by Giovanni Stefani. 3.45, Reading in Norwegian. 4.5, Programme for Children. 5.0, Evensong. 6.15, Weather and News. 6.30, Recital of Finnish Songs by Hanna Grauffelt. 7.0, Comedy in Three Acts (O. Rydqvist). 8.15, Concert by the Station Orchestra. Soloist: Gunnar Heyman (Songs). Selection from The Dollar Princess (Fall); Waltz (C. Morena); Overture, Maid of Artois (Balie); Overture, The Flying Dutchman (Wagner); Aria from The Flying Dutchman (Wagner); Les Préludes (Liszt); Songs: (a) Thomas the Rhymer (Loewe), (b) Drei Wanderer (Hertmann); Overture, Benvenuto Cellini (Berlioz). In the interval at 8.45, Weather and News. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—9.30 a.m., Orchestral Concert, conducted by Maurice de Villiers. 10.45, Protestant Address. 11.30, Catholic Service in German. 12 Noon, Gramophone Records. Concerto for Violin and Orchestra (Beethoven); Die Ehre Gottes in der Natur (Beethoven). 12.45 p.m., News. 1.0, Time Signal. 1.1, French Operetta Music on Gramophone Records. 2.0, Agricultural Talk in German. 2.15, Talk in German: Women and Handicrafts. 3.0, Concert, relayed from the Conservatoire, Paris. 5.0, Dance Music. 6.0, Medical Talk in French. 6.15, Sports Talk. 6.30, Chamber Music Concert. 7.30, Time Signal. 7.31, News Bulletin. 7.45, Concert by the Mixed Choir, Les Cigales de Haguenau, conducted by Georges Bruxer, relayed from the Salle de la Domane, Haguenau. 8.45, Lottery Results. 8.50, Alsatian Programme of Literature and Music, including D'r Moerder-Sketch (Gründer) and D' Familii Protzweyer—One Act Farce (Gründer). 10.30, Dance Music from the Savoy. 12 Midnight (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW; and FREIBURG, 570 metres.—9.30 a.m. (from Freiburg), Evangelical Service. 10.20 (from Mannheim), Quintet in F for Two Violins, Two Violas and Cello (Bruckner). 11.0, See Leipzig. 12 Noon (from Freiburg), Talk: The Advantage of Wooden Buildings. 12.25 p.m., Gramophone Concert of Old Music. 1.0, Gramophone Concert of Wind Instrument Music—

JAN. 8th

SUNDAY

continued

Marches, Waltzes, Polkas, and Rheinländer. 2.0, See Frankfurt. 3.0, Orchestral and Choral Concert, conducted by Gustav Görlich: Part I, Schubert Music, Part II, Old Viennese Dances. 5.0, Sports Notes. 5.15, (from Karlsruhe), Accordion Music. 5.35, From the Works of Contemporaries—Readings (Johanna Wolf, Heminie Mayerhuser, Anna Scheiber, August Sapper and K. Bühner); Tone Poems (Hans Brehme and Erich Ade). 6.30, Famous Variety Artists and Cinema Stars on Gramophone Records. 7.30, See Langenberg. 9.0, Time, News, Weather and Programme Announcements. 9.30, Theodor Etzel Memorial Programme: Fables, with Introductory Talk by Martin Lang. 9.50 Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—12.15 p.m., News Bulletin. 12.30, Catholic Address and Music. 1.0, Amusement Guide. 1.5, Operetta Melodies for Orchestra: Airs from Le Voyage en Chine (Bazin); The Land of Smiles (Lehar); Les mousquetaires au couvent (Varnes); Le Roi Pansole (Honnegger); and Eva (Lehar). 1.50, Songs. 1.40, Agricultural Report. 1.45, Protestant Address and Music. 2.15, News Bulletin. 2.20, Music by a Viennese Orchestra. 2.45, Concert of Opéra Comique Music. 3.15, News and Racing Results. 3.20, Orchestral Music. 3.45, Popular Songs. 4.0, Bal Musette. 4.15, Racing Results and News. 4.20, Sound Film Music. 4.30, Dance Music. 5.0, Operetta Music for Orchestra: Selection from Les Cloches de Corneville (Plamondon); Java and Melody from Louis XIV (Paris and van Parys). 5.15, News Bulletin. 5.20, Songs. 5.30, Instrumental Solos. 5.45, Orchestral Music. 6.0, News Bulletin. 6.15, Opera Music for Orchestra: Dance from Samson and Delilah (Saint-Saëns); Prelude to and Melody from Pelléas et Mélisande (Debussy). 6.30, Operatic Music: Pieces from Mignon (Massenet), Tosca (Puccini), and Mirella (Gounod). 6.45, Suite Iberia (Albeniz), by a Symphony Orchestra. 7.0, Military Music. 7.15, News Bulletin. 7.25, Commercial Bulletin. 7.30, Accordion Music. 7.45, Music by a Viennese Orchestra. 8.15, Operatic Music: Airs from Tamihäuser (Wagner), Faust (Gounod), and Boris Godunov (Mussorgsky). 8.30, Violin Solos. 8.45, Music by an Argentine Orchestra. 9.0, Concert of Italian Music. 9.30, Instrumental Solos. 9.45, Sound Film Music. 10.0, Melo-

odies for Hawaiian Guitar. 10.15, North African News. 10.30, Programme in English by the I.B.C. Popular Songs with Pianoforte Accompaniment: Selection from The King of Jazz (Whiteman); She was only a Somebody's Daughter (Weston); I certainly don't need You (Hillman); Fantasia on Popular Melodies (Ray); Miss Hoodigan's Christmas Cake (McVicker); Phil the Fluter's Ball (French); Selection from Puttin' on the Ritz. 11.0, Programme of Popular Music. 11.20, Music by a Symphony Orchestra: Concerto in F (Gershwin); Nocturnes (Debussy). 12 Midnight, Weather and Announcements. 12.15 a.m. (Monday), Music from Pelléas et Mélisande (Debussy). 12.30 a.m., Close Down.

TRIESTE

247.7 metres; 10 kW.—8.40 a.m., See Turin. 8.55, Mass from the Cathedral of San Giusto. 10.0 to 10.20, Agricultural Report. 11.30 till Close Down. See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayed by Milan, 331.5 metres; Cenoa, 312.8 metres; and Florence, 500.8 metres.—6.40 to 8.55 a.m., Giornale Radio. 9.40, Agricultural Report. 10.0, Mass from the Church of the Annunciation. Florence. 11.0 to 11.15, Bible Reading. 11.30 to 12.20 p.m., See Rome. In the interval at 12 Noon, Time and Announcements. 12.30 to 1.30, Variety Concert. 2.30, Gramophone Records of Light Music, with Football Report. 3.0, Concert of Light Music. 4.0, See Rome. 5.0, Giornale Radio and Sports Notes. 5.10 to 5.15, Football Report. 6.0, Announcements. 6.5, Variety Concert on Gramophone Records. In the interval at 6.30, Time and Announcements. 7.0, Giornale Radio, Sports Notes and Light Music on Gramophone Records. 7.30, Relay of an Opera from a Theatre. In the intervals: Talk and Theatre Notes. Giornale Radio after the Programme.

VIENNA

517 metres; 15 kW. Relayed by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 246 metres, and Salzburg, 218 metres.—9.30 a.m., String Quartet in C Minor, Op. 51, No. 1 (Brahms). 10.0, Talk: The Cultivation of the Land. 10.30, Concert by the Vienna Symphony Orchestra, conducted by Rudolf Nilius. Soloist: Marcel Dick, 11.45, Orchestral Concert, conducted by Karl Anderleth. 2.0, Time, Programme Notes and Announcements. 2.5, Book Re-

view. 2.30, Goldberg Variations for Piano forte (Bach), played by Paul Emmerich. 3.20, Talk: An Expedition into Central China. 3.50, Orchestral Concert. 5.40, Adam Müller-Guttenbrunn Programme on the Tenth Anniversary of his Death—Talk and Readings. 6.10, Time, Programme Announcements and Sports Notes. 6.20, Pianoforte Recital by Claudio Arrau: Variations in F, Op. 34 (Beethoven); Ballad in A Flat (Chopin); Etude in F (Chopin); Scherzo in B flat Minor (Chopin); Voiles (Debussy); Feux d'artifice (Debussy). 7.0, Variety Programme. 8.10, News. 8.25, Dance Music.

WARSAW

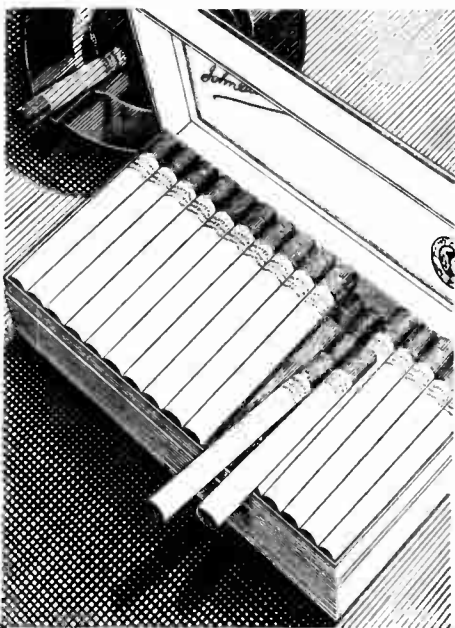
1,411 metres; 120 kW.—11.15 a.m., Beethoven Concert, by the Philharmonic Orchestra, conducted by Wolfstal. Soloist: J. Wagner (Pianoforte); Overture, Egmont; Pianoforte Concerto in E Flat; Symphony in F Major. In the interval, Talk for Women. 1.0 p.m., Agricultural Talk. 1.20, Light Music on Gramophone Records. 1.40, Agricultural Talk. 2.0, Christmas Carols by the Mixed Choir of the Church of St. Croix and the Station Orchestra, conducted by Jean Maklakiewicz. Soloists: H. Azarowicz (Soprano), St. Kowalski (Tenor), J. Korolkiewicz (Baritone), and L. Urstein (Pianoforte). 3.0, Programme for Young People. 3.25, Popular Music on Gramophone Records. 3.45, Talk on the Polish Language. 4.0, Oetel in F Major, for String Quintet, Clarinet, Bassoon and Hunting Horn. In the interval, News. 4.55, Programme Announcements. 5.0, Dance Music from the Café Ziemiańska. 6.0, Miscellaneous Announcements. 6.25, Dramatic Reading. 7.0, Popular Concert by the Station Orchestra, conducted by J. Fzimiński. Soloists: Alex. Junowicz (Flute), J. Glowinski (Flute), and L. Narkiewicz (Harp); March from Sigurd Jorsalfar (Grieg); Solweig's Song from the Peer Gynt Suite; Selection from Olav Trygvason (Grieg); Berceuse and Prelude (Jännefelt); Liebeslied from Die Walküre (Wagner); España (Chabrier); Selection from L'Enfance du Christ (Berlioz); Selection from Cavalleria rusticana (Mascagni); Serenata (Toselli); Suite espagnole (Lacôme); Mazurka (Lewandowski). In the interval, Sports Notes. 8.30, Arias and Songs by P. Igirosami (Soprano), accompanied by N. Vameseser (Guitar) and L. Urstein (Pianoforte). 9.0, Dance Music. 9.55, Weather Forecast and Police Report. 10.0, Dance Music from the Oaza. 11.0, Close Down.

WILNO

563 metres; 16 kW.—5.0 p.m., See Warsaw. 6.0, Lithuanian Literary Programme. 6.15, Miscellaneous Items. 6.25 till Close Down, See Warsaw. 11.0 (approx.), Close Down.

ZÜRICH.—See Schweizerischer Landessender.

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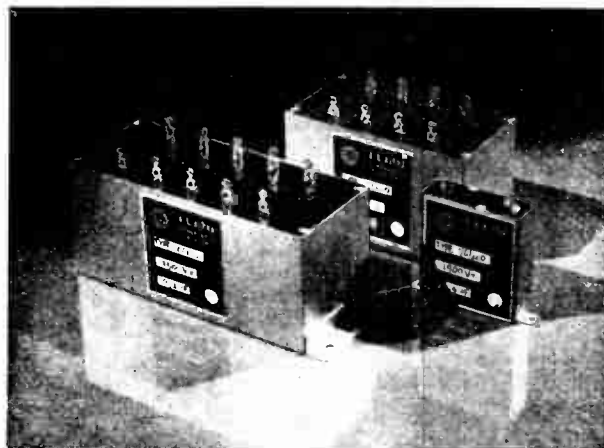
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MONDAY

JANUARY THE NINTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Orchestral programme. Chamber music. Recital of Schubert songs. Mr. G. K. Chesterton: "New Books." A play. "The Country of the Blind," from a story by H. G. Wells, adapted for broadcasting. Violoncello recital. Serenade concert.
LONDON REGIONAL	Orchestral programme. Gramophone recital. Organ recital. Instrumental concert. Promenade concert from Queen's Hall.
MIDLAND REGIONAL	Gramophone recital. Organ recital. Orchestral concert.
NORTH REGIONAL	Orchestral music. Organ music. Ballad concert. Mr. F. W. Brooks: "Six Centuries of Village Life."
WEST REGIONAL	Orchestral concert from National Museum of Wales. Welsh interlude. The Music of Eric Coates, orchestral concert.
SCOTTISH REGIONAL	National and London Regional programmes. Orchestral concert.
BELFAST	Recital of gramophone records. Orchestral concert. Dance music. Vaudeville programme.
ABROAD	
BARI	"Il Tabarro" and "Gianni Schicchi," opera by Puccini.
COPENHAGEN HAMBURG	Selections from Gluck's operas. Oratorio: "The Seasons" (Haydn), by the Philharmonic Choir and Orchestra, conducted by G. Wendel.
HUIZEN STRASBOURG	Choral and orchestral concert, from Rotterdam. Concert by the Noudant Concert Society, relayed from Metz.

ALGIERS
363.3 metres; 13 kW.—7.10 p.m., Shipping News. 7.15, Weather Forecast and Agricultural Notes. 7.20, Topical Talk. 7.35, Wireless Notes. 7.40, Light Music on Gramophone Records. 7.55, News Bulletin. 8.2, Symphony, La Reine (Haydn), by the Station Orchestra, conducted by Hubert Guillet. 8.30, Book Review. 8.45, Suites and Ballet Music by the Station Orchestra: Suite from The Swan Lake (Tchaikovsky); Divertissement (Lalo); The Nutcracker Ballet (Tchaikovsky). 9.50, News Bulletin.

BARCELONA
RADIO-BARCELONA, Call EAJ1, 349 metres; 8 kW.—7.30 p.m., Exchange Quotations. Talk in Catalan, Request Gramophone Records, and News Bulletin. 9.0, Chimes. Weather, Exchange Quotations and Market Prices. 9.5, Humorous Review of the Week's Events in Verse. 9.15, Recital of Sardanias by the Cofra Barcelona. 10.0, Literary and Musical Programme. 10.30, Concert by the Station Orchestra. In the interval at 11.0, News. 11.15, Dance Music relayed from the Hollywood Bar. 12 Mid-night (approx.). Close Down.

BARI
270 metres; 20 kW. 7.0 p.m., Agricultural Report, Tourist Report and Announcements. 7.20, Giornale Radio and Weather. 7.30, Time and Announcements. 7.35 (approx.), Two One-Act Operas (Puccini): (a) Il Tabarro. (b) Gianni Schicchi. Talk and Announcement in the Interval. News after the Programme.

BASLE.—See Schweizerischer Landessender.

BELGRADE
420.4 metres; 2.8 kW.—5.55 p.m., Time and Programme Announcements. 6.0, Russian Song Recital by a Russian Students' Choir. 7.0, Programme from Zagreb (307 metres). 7.40, Concert of Light Music by the Station Orchestra. 8.20, Variety Music on Gramophone Records. 8.40, News, followed by Cigány Music from the Potrosicka Zadruga Restaurant.

BERLIN
KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.55 a.m., Nauen Time Signal. 12.35 p.m., News. 1.0, Popular Gramophone Concert, relayed from Berlin (Witzleben). 2.0, Programme for Women. 2.30, Weather and Exchange. 2.45, Book Review. 3.0, Educational Talk. 3.30, See Berlin (Witzleben). 4.15, Talk: Napoleon III, on the Sixtieth Anniversary of his Death. 4.30, Brahms Song Recital by Hildegard Karmann. 4.55, Talk for Civil Servants. 5.25, Making Music with Invisible Partners. 5.55, Weather for Farmers, followed by Wireless Hints. 6.0, English Lesson. 6.30, A Poem. 6.35, Concert from Berlin (Witzleben). 7.5, See Frankfurt. 7.40, Talk by Hans Reinmann. 8.0, American Gramophone Records, with Introductory Talk and Commentary by Frank Warschauer. 8.30, Talk: European and American Ways of Living. 9.10, Weather, News and Sports Notes. 9.45, Weather for Shipping, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BERLIN
WITZLEBEN, 419.5 metres; 1.5 kW.—3.30 p.m., Orchestral Concert of Light Music, conducted by Berthold Goldschmidt: Little Overture (Lopatnikov); Dance Suite (Rohrer); Hensatic Suite (Schedler); Dances for Small Orchestra (Beckerath); Concert March (Goldschmidt). 4.30, Sociological Review. 4.50, Programme for Young People. 5.10, Sonata in C for Viola and Pianoforte (Honegger), by Hildegard Heinitz and Dr. Ernst Wolff. 5.30, Reading (Slefan George). 5.55, The Witzleben Station informs its Listeners. . . . 6.0, Talk on the Musical Programmes of the Station, by Hans von Benda. 6.15, Orchestral Concert of Light Music, relayed from the Eden Pavilion. 7.0, See Breslau. 8.0, Talk: Ten Years Ago To-day. 8.20, Talk on Heinrich Zille (on his Seventy-fifth Birthday). 9.0, Weather, News and Sports Notes, followed by Dance Music. 11.0 (also relayed by Zeelen on 31.38 metres). Orchestral Concert, conducted by Dr. Gustav Havemann: Symphonic Poem, The Saint (Homola); Symphonic Poem, for Tenor, Orchestra, and Organ, Schlemihl (Reznick).

BERNE.—See Schweizerischer Landessender.
BEROMUNSTER. — See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BORDEAUX-LAFAYETTE
304 metres; 13 kW.—7.30 p.m., News, Exchange and Market Prices. 7.40, Popular Music on Gramophone Records. 7.55, Lottery Results. 8.0, Health Talk. 8.15, Chardades. 8.20, News. 8.30, Instrumental Concert.

BRATISLAVA
279 metres; 14 kW.—4.10 p.m., Concert by the Station Orchestra. 4.30, Talk on Graphology. 4.20, Popular Music on Gramophone Records. 5.0, Violin and Pianoforte Recital by G. Nahlovsky and F. Kafenda: Sonata, Op. 59

(d'Indy); Sonata (Respighi). 6.0, See Prague. 6.5, Technical Talk. 6.25, See Brno. 8.0, See Moravská-Ostrava. 9.0, See Prague. 9.15 (approx.). Close Down.

BREMEN.—See Hamburg.

BRESLAU
325 metres; 1.5 kW.; and **GLEIWITZ**, 253 metres.—12.5 p.m., Weather Forecast. 12.10, Gramophone Concert of Light Music. 12.45, Time, Weather, News, and Exchange. 1.5, Gramophone Concert of Light Music. 1.45, Sponsored Programme with Gramophone Records. 2.10, Market Prices and Exchange. 2.40, Book Review. 3.0, A University Student speaks about his University. 3.20, Concert of Light Music, conducted by Max Kaden: Roman Triumphal March from Messalina (Raida); Friedemann-Bach Suite (Leuschner); The Wedding of the Doves, from The Birds (Braunfels); Waltz, The Blue Danube (Joh. Strauss); Jazz Potpourri, Hörst und staunt (Dostal). 4.30, Agricultural Prices, followed by Reading (Hans Hellmuth Richter). 5.0, Talk: Intellectual Tendencies of the Day. 5.20, English Lesson. 5.45, Programme to be announced. 6.0, Talk: Careers for Educated Young People. 6.10, Weather Forecast, followed by Light Music from Berlin (Witzleben). 7.0, The Lost Son—Ballad for Radio by Max Hermann, with Music by Karl Szuka. 8.5, See Frankfurt. 9.0, Time, Weather, News, Sports Notes, and Programme Announcements. 9.25, Answers to Correspondents on Technical Questions. 9.35, Reading: Fährten in Schnee (Paul Richard Scholz). 10.5 (approx.), Close Down.

BRNO
342 metres; 35 kW.—3.10 p.m., See Bratislava. 4.10, Variety Music on Gramophone Records. 4.20, Literary Talk: New French Publications. 4.40, Concert of Polkas by Smetana by the Station Orchestra. 5.0, Gymnastics. 5.15, See Prague. 5.25, German Transmission: News, Elementary French Lesson and a Moravian Christmas Tale. 6.0, See Prague. 6.5, Elementary English Lesson. 6.25, Russian Cabaret Programme. 7.15, Edvard Tregler Memorial Concert relayed from the Stadium: Sonata in C Minor; Pianoforte Solos: (a) Gstaeco Polka, (b) Pianoforte Pieces—First Series, (c) Scherzio; Ave Maria for Voice, Harp, French Horn and Organ. 8.0, See Moravská-Ostrava. 9.0, See Prague. 9.15 (approx.), Close Down.

BRUSSELS (No. 1)
I.N.R., 509 metres; 15 kW.—12 Noon, Concert by the Little Station Orchestra, conducted by P. Leemans. Overture, Raymond (Thomas); Basque Rhapsody from Raimundo (Pierné); Réverie (Debussy); Selection from Aida (Verdi); Pianoforte Solos: (a) Hot Piano (Piaques), (b) Chinaman (Doulez); Nocturne from Cocorico (Ganne); Tango,

Serenade of Love (Romberg); Selection from Yes (Yvain). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Concert: Overture and Melodies from Véronique (Messager); Overture, Le Caid (Thomas); Polka Rondo for Flute, La Volière (Dourad); Pastorale and Bourrée (Billant); Sérénade Breçaise (Lucien); Sixth Barcarolle (Faure); First Waltz (Durand-Monton); Overture, The Grand Duchess of Gênes (Offenbach). 2.0, Educational Programme. 5.0, Dance Music from the St. Sauveur Palais de Danse. 6.0, Talk: Gliding in Belgium. 6.15, Viola Recital by Mr. Van Hout: Sonata for Viola and Pianoforte (Lorettelli-Gevaert); Ballad for Viola and Pianoforte (Schubert-Van Hout). 6.40, Concert by the Station Orchestra, conducted by P. Leemans. 7.15, Talk: Wallon Art. 7.30, Theatre Review and Cinema Review. 8.0, Concert by the Radio Orchestra, conducted by Charles Walpot. Soloist: Mr. Clovis (Tenor), March Lorraine (Ganne); Overture, Si j'étais roi (Adam) Waltz, Ange d'amour (Waldteufel); Selection from Il Trovatore (Verdi); Tenor Songs: The Blue Pavilion (Armandola). 8.45, Answers to Correspondence. 9.0, Concert (cont'd.). Ballet Suite (Siede); Tenor Songs; Selection from Dédé (Christine). 9.30, Asile de Nuit One Act Comedy (Maurey). 9.45, Concert (cont'd.). Mamma del Rio (Lueches); Fox-trot, S'posin (Blas); Sing your Sinners. 10.0, Le Journal Parlé. 10.10, Dance Music from the St. Sauveur Palais de Danse. 11.0 (approx.). Close Down.

BRUSSELS (No. 2)
N.I.R., 338.2 metres; 20 kW.—Programme in Flemish. 12 Noon, Concert of Light Music on Gramophone Records. 1 p.m., Le Journal Parlé. 1.10, Orchestral Concert, conducted by P. Leemans: Reboieras (Ladiva-Lyvas); Overture, Le Fils du Mandarin (Cui); Three Dances from Nell Gwynn (German); Violin Solo: Serenade (Voss); Selection from The Desert Song (Romberg); Waltz, For You (Burke); Tango, Nina Mia (Beltrán Alfonso); Fox-trot, Castilian Nights. 2.0, Educational Programme. 5.0, Orchestral Concert, conducted by Charles Walpot: Overture, Martha (Flotow); Waltz, Roses from the South (Joh. Strauss); Selection from The Count of Luxembourg (Lehar); Salut d'amour (Elgar); Italian Caprice (Tchaikovsky). 5.45, Programme for Children. 6.30, Gramophone Concert: Melody (Gluck); Mazurka, Op. 19, No. 2 (Wieniawsky); Concert Waltz (Glazunov); Entry March of the Boyards (Halvorsen); Spanish Dance (Granados-Kreiser); Polonaise from Eugene Onegin (Tchaikovsky); Mazurka, Op. 33, No. 4 (Chopin); Christmas Eve (Rimsky-Korsakov); Marche slave (Tchaikovsky). 7.15, Talk. 7.30, Le Journal Parlé. 8.0, Concert by Les Bons Vivants, relayed from Watteren. Conductor: A. Moortgat. Selection

from Mignon (Thomas); Selection from Lakmé (Delibes); Serenade for Horn and Flute (Tittl). 8.45, Talk by M. J. Hofmann. 9.0, Concert (cont'd.): Overture, Stradella (Flotow); Selection from La Juive (Halévy); Scènes alsaciennes (Mussenet); Waltz for Flute (Genin). 10.0, Le Journal Parlé. 10.10, Concert of Light Music on Gramophone Records. 11.0 (approx.), Close Down.

BUCHAREST
394 metres; 12 kW.—4.0 p.m., Concert of Romanian Music by the Luca Orchestra. 5.0, News and Time Signal. 5.10, Talk. 5.25, Concert by the Luca Orchestra (cont'd.). 6.0, Talk: The Romanian Plain. 6.40, Light Music on Gramophone Records. 7.0, Concert of Chamber Music: Trio, Op. 40, for Pianoforte, Horn and Violin (Brahms). 7.30, Talk. 7.45, Chamber Music (cont'd.): For String Quartet, Op. 51 (Brahms). 8.15, Concert of Russian Music by a Balalaika Orchestra and the Zapanoje Choir. 8.45, News Bulletin.

BUDAPEST
550 metres; 18.5 kW.—Programme also relayed on 840 metres from 6.30 to 11.0 p.m. 4.0 p.m., Concert of Cigány Music. 5.0, German Lesson. 5.30, Gramophone Concert: Selection from To-night or Never (Spoliansky); Song (Léonor-Kithly); Song from Congress Dances (Heymann); How do you do, Mr. Brown? (Abraham); Song (Gross); Fiesta (Samuels); Sag was sagt der Don zur Donna in Sevilla (Gilbert); Song (Kondor); Song (Fröss); Song (Kádas); Svib's Letter (Jacobi); Song (Malsiner); Somewhere in the World (Heymann-Gilbert); Havana (Stohart-Salver); Melody (Sullivan). 6.40, Concert by the Philharmonic Society, conducted by Ernest Dohnányi. Soloist: Emerich Ungar (Pianoforte); Selection from Benvenuto Cellini (Berlioz); Second Suite (Bartok); Pianoforte Concerto in E Minor (Chopin). 8.0, Time, Weather and News, followed by Concert of Light Music, relayed from the Café Ostende.

CASSEL.—See Frankfurt.

COPENHAGEN
281 metres; 0.75 kW.; and **KALUNDBORG**, 1,153 metres; 7.5 kW.—11.0 a.m. to 1 p.m., Concert from the Hotel d'Angleterre. 2.20, Talk for the Housewife. 2.30, Orchestral Concert, conducted by Emil Reesen. Overture, The Siege of Corinth (Rossini); Slav Dance (Dvorak); Waltz, Barcarolle (Waldteufel); Mazurka, La Scandinave (Ganne); Selection from Les Cloches de Corneville (Planquette); Military March No. 3 in E flat (Schubert); Reading; Prelude to The Little Match Girl (August Enna); Cradle Song for Strings (Johs. Andersen); Dance (Louis Glass); Selection from Tosca (Puccini); Overture, A Carnival in Venice (Thomas). 4.40, Exchange and Market Prices. 4.50, Talk. 5.20, English Lesson. 5.50, Weather and News. 6.15, Time Signal. 6.16, Medical Talk. 6.30, Talk: Insects and Mankind. 7.0, Town Hall Chimes. 7.2, Gluck Concert by the Radio Orchestra, conducted by Laury Gröndahl. Soloists: Anna Tibell (Songs). Overture, Alceste; Aria from Orpheus and Euridice; Ballet Music; Orpheus Aria; Ballet Music from Paris and Helen; Aria from Alceste; Overture, Iphigénie in Aulis. 8.0, Recital of Handworkers' Songs, with Readings. 9.0, Talk: Greenland Expeditions. 9.10, News and Report of the Workers' Radio Society. 9.30, Recital for Two Pianofortes (Saint-Saëns): (a) Variations on a Theme by Beethoven. (b) Polonaise in C Minor, Op. 77. 10.5 (approx.). Close Down.

CORK.—See Dublin.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN
Call 2RN, 413 metres; 1.2 kW.; and **CORK**, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report, and Variety Music on Gramophone Records. 6.0, Popular Music on Gramophone Records. 6.15, Programme for Children. 7.0, Light Music on Gramophone Records. 7.20, News Bulletin. 7.30, Time Signal. 7.31, Gaelic Talk. 7.45, Talk for Farmers, by E. J. Sheehy. 8.0, Fiddle and Accordion Selections by Messrs. Harpur and Bates. 8.30, Baritone Solos by Mat Dunleavy. 8.45, An Irish Suite by the Station Sextet. 9.10, Violoncello Solos by Angela L. Carew. 9.30, A Light Musical Hour with the Station Sextet and Mabel Thrift (Soprano). 10.30, Time Signal, News, Weather Report, and Close Down.

FECAMP
223 metres; 10 kW.—12 Noon, Light Music on Gramophone Records. 12.30 p.m., News Bulletin. 12.45, Concert of Variety Music. 7.0 p.m., Popular Music on Gramophone Records. 7.30, Radio Gazette. 7.50, Parisian News. 8.0, News Bulletin. 8.30, Light Music on Gramophone Records. 9.0, Symphony Concert, relayed from the Chanteleur Brasserie, Amiens. 10.0 p.m. till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: Without my Gal; Just like in a Story Book; It must be true; Sing Holly, go Whistle, Hey, Hey; Molly; Cupid on the Cake; Topsy Turvy Talk; Come and have a Cuddle on the Common; What have I done?

JAN. 9th

MONDAY

continued

Tiddle-iddle-um-pum; Moaning for You; My Heart belongs to the Girl who belongs to somebody else; Cheerio, Cheerio, chin chin; Lizzie; The Chant of the Jungle; Time on my Hands. 11.0, Gilbert and Sullivan Programme: Strange Adventure from the Yeomen of the Guard; Kind Sir, you cannot have the Heart, from The Gondoliers; Brightly dawns our Wedding Day, from The Mikado; When a Merry Maiden marries, from The Gondoliers; A Man who would woo, from The Yeomen of the Guard; A Regular Royal Queen, from The Gondoliers; There lived a King, from The Gondoliers; Now let the Loyal Lieges, from The Gondoliers. 11.30, A Piano Entertainment; Keyboard Kapers; Life is a Crossword Puzzle; A Shower of Notes; Down the River. Selection of Popular Songs: The World is so small; Jack of Clubs. 12 Midnight, Concert on behalf of the Philco Radio and Television Corporation of Great Britain, Ltd. 12.30 a.m. (Tuesday), Dance Music; Sing a little Jingle; How's your Uncle?; Guilty; At your command; I believe in you; The Queen was in the Parlor; Smile, daro ya, smile; Life's Desire. 1.0, Light Music by a Quartet, with Songs: Serenade (Heykens); Two Songs: (a) Forget-me-not (Kaper), (b) That Dear Old Song (Love); Selection from The Gipsy Princess (Kalmann); Two Songs: (a) Lay my head beneath a Rose (Falkenstein), (b) The Song of Songs (Moya); Serenata (Toselli). 1.30, Trio Concert: Cavatina (Raff); The Angel's Serenade (Braga); Pizzicato from Sylvia (Delibes); Selection from Cavalleria rusticana (Mascagni); Chanson triste (Tchaikovsky); Ave Maria (Gounod); Narcissus (Nevin). 2.0, Dance Music: You were my Salvation; In a Japanese Garden; Without a Song; A Cottage for Sale; Confessin'; You taught me all I know; Dancing with Tears in my Eyes; That's where the South begins; After your Kiss; That Night in Venice; Time will tell; Pretty Kitty Kelly; Come to me; Melody from Viktoria and her Hussar; The Pick Up; Pardon, Madame. 2.57, I.B.C. Good-night Melody. 3.0, Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW.; and CASSEL, 245.9 metres.—5.25 p.m., Film Review for 1932. 5.50, English Lesson. 6.15, Time, Announcements, Weather, and Economic Notes. 6.30, Axel Egebrecht Speaks about his Book, The Modern Girl. 6.45, Who it is.—Literary Puzzle No. 7. 7.5, Fourth Monday Concert of the Frankfurt Orchestral Society by the Station Symphony Orchestra, conducted by Hans Rosband; Soloists: Georg Kulenkampff (Violin) and Emanuel Feuermann (Cello). Concerto in A Minor, Op. 102, for Violin and Cello (Brahms). 7.40, Talk: Germany's Castles and Fortresses an Expression of the National Character. 8.5, A Thousand Years are like a Day—Radio Sequence inspired by the Ancient Castle of Dreieichenhain (Alfons Paquet). 9.0, Concert, Part I: Old French Organ Music, by Karl Breidenstein. Part II: Tenorae factae sunt—Motet for Three-part Choir and String Orchestra (Zeilinger). 9.20, Time, Weather, News, and Sports Notes. 9.45, See Munich. 11.0 (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.

HAMBURG

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 218 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—6.5 p.m., Review of New Books. 6.55, Weather Report. 6.50, Max Jungnickel reads from his own Works. 7.0 (from Bremen), The Seasons—Oratorio (Haydn), by the Philharmonic Choir and Orchestra, conducted by Georg Wendel. Soloists: Annemarie Sotmann (Soprano), André Krenchbitz (Tenor), and Paul Lohmann (Bass). 9.30, Time and News Bulletin. 9.50, See Report. 10.0, Concert relayed from the Ostermann Restaurant.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres, 60 kW.; and DANZIG, 453.2 metres.—12.5 p.m., Gramophone Concert. Overture, The Flying Dutchman (Wagner); Selection from Carmen (Bizet); Carnival Overture (Dvorak); The Emperor Waltz (Strauss); Puccini Potpourri. Songs: Sapphic Ode (Brahms); Mainacht (Brahms); Echo der Welt (Zimmer); Oskar Straus Potpourri (Dostal); Viennese Folk Music (Komzak); Lincke March Potpourri. In the interval at 12.20 p.m., Announcements, 1.30 to 2.0, Interval. 2.0, Exchange Rates and Market Prices. 3.0, Charlotte Wüstenhöfer reads from her own Works. 3.30, See

Breslau. 4.50, Book Review. 4.50, Talk—Your Wireless. Set. 5.15, Agricultural Prices. 5.25 (from Danzig), Talk: Danzig Writes. 5.50, Memorable Days of the Week. 6.0, Song Recital by Fritz Liebeck. Si tra i cippi (Blüdel); Come ragazzo di sol (Caldara); Vittoria, vittoria (Carissimi); Aria from Simone Boccanegra (Verdi); Aria from Sicilian Vespers (Verdi). 6.30, English Lesson for Beginners. 6.55, News. 7.5, The Maid of Orleans—St. Joan in Poetry, programme arranged by Friedrich Burschell. 8.10 (from Danzig), Chamber Music. Ella Mertins (Pianoforte), Max Dowiden (Violin), and Johannes Hanemann (Cello). Trio in B, Op. 8 (Brahms); Trio, Op. 90 (Dvorak-Domyky). 9.0, Weather, News and Sports Notes.

HILVERSUM

Announced HUIZEN, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.)—11.10 a.m., Variety Music on Gramophone Records. In the interval at 11.40, Police Notes. 12.10 p.m., Organ Recital by Jan Zwart: Triumphant March (Lemmens); Invocation (Lemmens); Fanfare (Lemmens); Cantilene nuptiale (Dubois); Grand Chœur (Dubois); Offertoire (Dubois); Grand Chœur after Handel (Guilmant); Marche ténébreuse and Chant scénique (Guilmant); Scherzo symphonique (Guilmant); Andante with Variations (Renz); Toccata (Renz); Funeral Largo (Renz); Drie Toccata (Bach); Aria in F (Bach); Toccata in F (Bach); Psalms 84, 73 and 100 (Zwart). 1.40, Programme for Schools. 2.15, Gardening Talk. 2.55, Dress-making Lesson. 3.40, Bible Reading and Sacred Music. 4.40, Popular Music on Gramophone Records. 4.55, Sacred Songs and Violin Solos. 5.55, Popular Music on Gramophone Records. 6.10, Answers to Correspondence. 7.10, Police Notes. 7.25, Religious News. 7.40, Concert of Sacred Music by the Little N.C.R.V. Orchestra and the Women's Choir. 8.40, Talk. 9.10, Concert of Music by Little-known Dutch Composers of the Eighteenth Century by Prof. W. de Boer (Violin) and M. Marcel v. Gool (Pianoforte); Bourree; Sacred Song; Tempo di minuetto; Air; Pavane and Rondo; Sarabande; Folk Dance and Song; Gavotte. 9.45, News. 9.55, Concert by the Little N.C.R.V. Orchestra, conducted by P. v. d. Hurk: Overture, Fra Diavolo (Anber); Selection from Carmen (Bizet); Aubade printanière (Lacombe); Selection from La Bohème (Puccini). 10.40, Popular Music on Gramophone Records. 11.10 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 1,875 metres; 8.5 kW.—Programme of the Workers' Radio Society (V.A.R.A.). 11.40 a.m., Concert by the De Notenkrakers Orchestra, conducted by D. Wims: March (Holzmann); Waltz, Souvenir de Baden (Komzak); Hungarian Dances (Brahms); Serenade to Ninon (Lacombe); Melody (Holmud); Selection from Lilac Time (Schubert-Berte); Gramophone Records: Gipsy Waltz (Kotelyay); Songs my Mother taught me (Dvorak); Zingara (Chaminade); Russian Rhapsody (Michiels); Gipsy Melodies (Borganov); Russian Dance (Tchaikovsky); Gramophone Records: March' es mir nicht so schwer (Stravsky); Wenn du liebst (Weezel); Puppe und Hainpflanzel (Armandola); Song from Der Rastelbinder (Lehar); Kleine Kantippe (Königsberger). 1.40, Interval. 2.10, Song and Pianoforte Recital by L. Fuld and M. C. Steyn; Berceuse from Jocelyn (Godard); Immer nur lacheln (Lehar); Can't you hear me say I love you? Gramophone Records: Torna a Sorrento (de Curtis); Russian Song: Yous noirs; Melody. 2.40, Recitations. 3.10, Popular Music on Gramophone Records. 3.40, Concert of Light Music by the De Flicherijnters Orchestra, conducted by H. de Groot. 4.20, Programme for Young People. 4.50, Concert by the V.A.R.A. Orchestra, conducted by H. de Groot: Three Melodies (Joh. Strauss); (a) Overture, Der Waldmeister, (b) The Emperor Waltz. (c) Selection from Die Fledermas; Gramophone Records: A Night in Venice (Joh. Strauss); Waltz, Dorfschwalben aus Oesterreich (Jos. Strauss); Two Melodies (E. Strauss); (a) Bahn frei!, (b) Waltz, Myrthen Stränsschen; Three Melodies (Joh. Strauss); (a) Waltz, Perpetuum mobile, (b) Waltz, Seil umschlungen Millionen, (c) Russian March. 6.20, Talk on Traffic. 6.40, Talk on Music. 7.35, S.O.S. Announcements. 7.40, Topical Talk. 8.0, Choral and Orchestral Concert, relayed from Rotterdam; Morgenstunde (Bruch); Jubilate Amen (Bruch); Adventlied (Schumann); Exultate, jubilate (Mozart); Beim Sonnenuntergang (Gade). 9.15, News. 9.25, Pianoforte Solo: Chaconne (Bach-Busoni). 9.45, Choral and Orchestral Concert (cont'd): Miriam's Song of Victory (Schubert). 10.10, Talk on Music. 11.10, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.5 p.m., Announcements and Opera Music on Gramophone Records.

6.25, Announcements. 6.30 to 9.0, See Warsaw. 9.0, Answers to Technical Correspondence. 10.0, Talk in Modern Greek. New Year's Eve in Poland. 10.35, Dance Music.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres; 54 kW.; and HELSINKI, 368.1 metres.—5.25 p.m., Vocal and Instrumental Concert: Aria from La Favorita (Donizetti); Movement for Violin from the Suite Op. 15 (Sclaloro); Two Songs (Merikanto); East-Bothnian Dances Nos. 5 and 6 (Kaula); Two Songs (Merikanto); Spanish Suite for Violin (Niin); Aria from Hérodiade (Massenet). 6.10, Talk. 6.35, Orchestral Concert: Overture, Phédre (Massenet) Song from La Juive (Halévy). 7.0, Talk. 7.20, Orchestral Concert (cont'd): Waltz, Wiener Bonbons (Joh. Strauss); Piece (Leopold). 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

473 metres; 60 kW.—12 Noon, Orchestral Concert, conducted by Eysoldt: Huldigungs-marsch (Liszt); Scènes pittoresques (Massenet); Selection from The Bartered Bride (Smetana); Romance (Rubinstein); Erotica (Grieg); Waltz, Königskinder (Löh); Chorus and Prelude from Das Pensionat (Snippe); Overture, Der lustige Krieg (Strauss). 1.0 p.m. (in an interval), News. 1.30, Meat Market Prices. 2.30, Exchange and Time Signal. 2.50, Programme for Children. 3.20, Readings for Young People. 4.0, Concert, conducted by Wolf. Overture, Oberon (Weber); Two Waltzes (Dvorak); Selection from the Music to A Midsummer Night's Dream (Mendelssohn); Selection from Hérodiade (Massenet); Serenade, Granada (Albeniz); Paso doble, Sevilla (Alfonso); Potpourri, Reminiscences of Offenbach (Fetras). 5.5, Review of New German Novels. 5.25, Talk for Women. 5.45, Weather, Time, Exchange and Sports Notes. 6.0, Talk: The State and Industry—Taxation. 6.20, Topical Talk. 6.30, Talk: Sickness Insurance. 6.55, First General News. 7.0, Concert, relayed from Dusseldorf. The Düsseldorf Chamber Orchestra, conducted by Dr. Alfred Fröhlich. Soloists: Dr. Alfred Poell (Baritone), Clemens Jørgensen (Organ), Fritz Schattberg (Bassoon) and Paul Thiele (Clarinet). Organ Solos: (a) Movement from an Organ Concerto, (b) Andante from the Harpsichord Concerto in C (Vogler); Movement from the Concerto for Bassoon in F (Weber); Overture, To the Story of the Lovely Melusina (Mendelssohn); Der Einsame—Old Norwegian Folk Song for Baritone and Orchestra (Grieg); Movement from the Clarinet Concerto No. 2 (Spohr); Overture, Die Zerstörung von Jerusalem (Loewe); Baritone Solo: Greisingesang (Schubert); The Sixth Symphony (Schubert). 9.10, News and Sports Notes. 9.30, Report on the Six Days' Racing, relayed from the Westfalenhalle, Dortmund. 9.45, Dance Music, relayed from London. 11.0 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW.; and DRESDEN, 319 metres.—12.15 p.m., Soloist Concert on Gramophone Records: Polonaise in A for Pianoforte (Chopin); Soprano Solo, The Rattle of Spring (Sinding); Waltz in A for Violin (Brahms); Saxophobia (Wiedeaft); Baritone Solo, Prinz Eugen (Loewe); Cello Solo: La Classe (Popper); Trumpet Solo from Boccaccio (Snippe); Pianoforte Solo: Liebesträume (Liszt); Bravour Variations for Soprano (Mozart-Adam); Fugue in A for Violin (Tartini-Kreisler); Valse Caprice for Balalaika (Porgorelov); Xylophone Solo, The Skaters (Waldteufel); Harp Solo: Am Springbrunnen (Albert Zabel); Variations for Pianoforte on a Theme from The Merry Widow (Lehar); Exchange Quotations after the Programme. 4.0, Art and Film Notes. 1.30, Talk on Unemployment. 1.45, H. H. Honben reads from his Book: Columbus. 2.10, Dialogue for the Housewife. 2.35, Economic Notes. 3.0, Concert by the Leipzig Symphony Orchestra, conducted by Willy Steffen: Overture, Simplicity (Joh. Strauss); Selection from The Barber of Seville (Rossini); Waltz, Tirilala (Oscar Straus); Sclizges Waldesgehömis (Kienzl); Entracte and Ballet Music from Rosamunde (Schubert); Suite, Nepomuk, Op. 49 (von Moellendorf). 4.30 to 4.35, Weather and Time. 4.50, Exchange Quotations. 5.0, Educational Talk. 5.30, Talk: A Thousand Years of German Literature—The Beginning of Drama. 5.50, Talk: Wagner's Mother, Johanna Rosina Wagner, on the Eighty-fifth Anniversary of her Death. 6.5, Talk: The Menace to Danzig. 6.35, Concert of Popular Music by the Chartoffax-Estudantina Mandoline Orchestra. Soloist: Fred Rülfer (Zither). Fantasia on Lehar's Merry Widow (Maciocchi); Ein Liedlied (arr. Jorgo Chartoffax); Argentine Folk Song, Sorrela (arr. Jorgo Chartoffax); Zither Solos: (a) Grösse an das Partal (Bernhard Seifert), (b) Serenade, An die Freude (Koll-

maneck); Overture, Oberto Conte di S. Bonifacio (Verdi); Italian Fantasia (Lavitrano); Zither Solos: (a) First Movement from the Concerto in D (Mücken-schreiber), (b) Im Märchenhellsch (Müll-hölzel). 7.35, An Imaginary Conversation with Schopenhauer (Franke Rinta). 8.20, Bunter Abend—The Leipzig Symphony Orchestra, conducted by Hilmar Weber, the Emde Orchestra, Curt Baumgarten, Guido Giardini, Max Mensing and Alfred Simon. 9.15 (in an interval), News. 11.0 (approx.) Close Down.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—6.0 p.m., Serbo-Croatian Lesson. 6.30, Talk on Hygiene. 7.0, Programme relayed from Zagreb, 30 metres. 9.0, Time, Popular Music on Gramophone Records, and News Bulletin.

LWOW

381 metres; 16 kW.—6.0 p.m., Talk on Mazepa. 6.15, Miscellaneous Items. 6.30 See Warsaw. 9.0, Humorous Talk. 9.15 Dance Music, relayed from the Bagatel Variety Theatre. 9.55, See Warsaw. 11.0 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m. Radio Gazette for Lyons and the South East. 8.30, Instrumental Concert, conducted by Charles Strony. Programme of Music by Bach, Saint-Saëns, Debussy and Maurel. After the Concert, News Bulletin.

MADRID

ARANJUEZ (EAQ), 30.43 metres; 20 kW.—11.30 p.m., Variety Music. 11.45, Radio Chronicle. 12 Midnight, Concert of Popular Music. 12.35 a.m. (Tuesday), Sports and Bull-fighting Notes. 12.65, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO, Call EA7J, 424.3 metres; kW.—7.0 p.m., Chimes, Exchange Quotation and Request Gramophone Records. 8.0 Sports Notes. 8.15, News Bulletin. 8.30 (approx.), Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—3.10 p.m., See Bratislava. 4.10, See Prague. 4.50, Variety Music on Gramophone Records. 5.0, Travel Talk. 5.15, Talk for Workers. 5.25, See Prague. 5.30, German Transmission: Talk and Reading. 6.0, See Prague. 6.5, See Brno. 7.1, See Prague. 8.0, Concert of Light Music by the Station Orchestra. 9.0, See Prague. 9.0 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 160 kW.—4.0 p.m., News. 4.10, Concert. 5.30, Classical Concert. 8.0, Talk in English: The Doctrines of Marx and Lenin. 8.55, Time. 9.0, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—4.0 p.m., See Stuttgart. 5.15, Sports Notes. 5.35, Programme for Workers. 5.55, Time, Weather, and Agricultural Notes. 6.5, Talk on German Literature—the Romantics. 6.25, Concert by the Original Tegernsee Trio: March, Oesterreich Wachtparade (Tischy); Tegernsee Ländler; Viennese Song, Aus der Lalmgrub'n d'stelt ein altes Haus (Strecker); Concert, Fantasia, Ein Abend am Traunsee (Franz Niedermayr); Viennese Song, Seidts, Leitl', so war's anno Dreissig (Domanig-Röll); March, Tempo, tempo (Rühl). 6.50, Introductory Talk to the following Relay. 7.0 (from Kaiserslautern), The Bartered Bride—Opera in Three Acts (Smetana), relayed from the Palatinate Opera House. 9.2, Time, Weather, News, and Sports Notes. 9.45, Serenade, conducted by Erich Kloss. 11.0 (approx.), Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredrikstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres; and Rjukan, 447.1 metres.—6.0 p.m., Announcements, Weather and News. 6.30, Talk: Magnus Hreinesson. 7.0, Time. 7.0, Variety Programme, relayed from Bodø (453.2 metres). 8.10, Political Review. 8.4, Weather and News. 9.0, Topical Talk. 9.1, Variety Concert by The Singing Five. Soloists: Yngvar Wang (Saxophone) and Aag Amundsen (Pianoforte). 9.45 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tourist Report, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. 7.20, Variety Music on Gramophone Records. 7.30 (in an interval), Time and Announcements. 7.45, Chamber Music. Schiavo de Gregorio (Pianoforte), Silvia Delisi (Soprano), A. Ruggieri (Cello) and Rosa Magliani Nicolosi (Violin). Suite in Old Style for Pianoforte (Schiavo de Gregorio); Soprano Solos: (a) Chanson triste (Duparc), (b) Mandoline (Debussy); Sonata in G for Cello (Boccherini); Three Pieces for Violin with Pianoforte Accompaniment (Schiavo de Gregorio); Review of Books; Soprano Solo; Tropick (Mussorgsky); Cello Solos: (a) Aria (Ferro), (b) Spanish Dance (Popper); Suite for Pianoforte and Violin (Schiavo de Gregorio). After the Concert, Gramophone Records of Popular Music. 9.55, News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres: 13 kW.—5.45 p.m., Le Journal Parle. 7.20, Weather Report. 7.30, Lecocq Operetta Programme: Selection from La Fille de Madame Angot. Le Coeur et la Main, and La petite Mariée. 8.30, Variety Programme. 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—7.0 p.m., Dance Music on Gramophone Records. 7.30, Sponsored Concert. 8.0, Talk: A Thought for the Week. 8.5, Talk on Paris. 8.15, Interval. 8.30, Sponsored Concerts. 10.40, News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (cont'd). 7.45, Gramophone Records. Selection from Les Erynnies (Massenet). 8.0, Press Review and Weather. 12 Noon, Concert by the Radio Paris Orchestra. Overture, The Siege of Corinth (Rossini); Selection from Don Carlos (Verdi); Intermezzo (Ponchielli). 12.30 p.m., Popular Music on Gramophone Records. 1.0, Exchange, News and Weather. 1.5, Concert by the Radio Paris Orchestra. Selection from His Life for the Czar (Glinka); Selection from Eugene Onegin (Tchaikovsky); Selection from Monna Vanna (Février); Ballet Music from L'Arlequin (d'Ollone); Ballet Music from La Fête chez Thérèse (Hahn); Ballet Music from Maimouna (Grovez). 1.30, Exchange. 2.0, Exchange and Announcements. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Elementary Bookkeeping Lesson. 6.50, Film Review. 7.0, Review of New Books. 7.20, Concert by the Radio Paris Orchestra. Selection from Les Trois Sultanes (Bussier); Cortège des éléphants sacrés (Delmas); Deriviches tourneurs (Delmas); Danse des Bayadères (Delmas). 7.45, Commercial Prices and News. 7.50, Gardening Talk. 8.0, Le Procès de Marie Victoire—Play (Maeterlinck). 8.30, News and Weather. 9.15, Press Review and News. 9.30, Gramophone Concert. Overture, Coriolanus (Beethoven); Gramophone Records by Georges Colin; Concerto in G for Harpsichord, Violin and Cello (Bach); Minuet from the Symphony in E (Mozart); Solweig's Song from Peer Gynt (Grieg); Le Cygne (Saint-Saëns); L'anneau d'argent (Chaminade); Si j'étais jardinier (Chaminade); Bulgarian Suite (Vadigeroz).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—9.0 p.m., Work-a-day Thoughts. 9.5, Business News. 9.15, Programme to be announced. 9.30, Weather Report. 9.32, Market Reports. 9.45, Welfare Fund Talk. 9.50, David Lawrence Dispatch. 9.55, KDKA Artist Bulletin. 9.58, Programme Announcements. 10.0, Programme to be announced. 10.15, Dromedary Caravan, from New York. 10.30, The Singing Lady, from New York. 10.45, Little Orphan Annie. 11.0, Time Signal. 11.1, Temperature Report. 11.2, Teaberry Sport Review. 11.7, Press News Reeler. 11.14, Weather Report. 11.15, Johnny Hart in Hollywood, from New York. 11.30, Westinghouse Watchmen. 11.45 to 3.15 a.m. (Tuesday), New York Relay. 11.45, Today's News by Lowell Thomas. 12 Midnight, Peppercorn Amos 'n' Andy. 12.15 a.m., Tastyest Jesters. 12.30, Five Star Theatre, Marx Brothers. 1.0, El Toro All Star Revue. 1.30, Time Signal and Soloist. 1.45, Country Doctor. 2.0, Sinclair Minstrels. 2.30, Jack Frost Melody Moments. 3.0, Alice Joy. 3.15, Bridge School of Air, by E. Hall Downes. 3.30, Samuel Di Primio (Tenor). 3.45, Bradley Kincaid. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News. 4.20, Jimmy Joy and his Orchestra. 5.0, Salt and Peanuts. 5.15, Hotel Bismarck Orchestra, from New York. 5.30, Time Signal and Good-night.

PORSGRUND.—See Oslo.

PRAGUE

485.6 metres; 120 kW.—3.10 p.m., See Bratislava. 4.10, Talk: Petroleum. 4.20, Talk: Women Doctors. 4.30, Programme for

JAN. 9th

MONDAY

continued

Children. 4.50, Light Music on Gramophone Records. 5.5, Agricultural Report. 5.15, Talk for Workers. 5.25, German Transmission. News and Reading from his own Works by Max Brod. 6.0, News. 6.5, See Brno. 7.15, Short-hand Lesson. 7.35, Richard Strauss Song Recital by Lida Maskova. 8.0, Time Signal. 8.1, See Moravská-Ostrava. 9.0, News. 9.15 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS; 403 metres; 25 kW.; LAUSANNE, 680 metres; and GENEVA, 760 metres.—5.0 p.m. (from Lausanne), Programme for Children. 5.30 (from Lausanne), German Lesson. 6.0 (from Geneva), Weather Forecast, News Bulletin and Announcements. 6.30 (from Lausanne), Lesson in Metallurgy for Apprentices. 7.0, Werther—Opera in Four Acts (Massenet), on Gramophone Records. 9.0, News Bulletin and Weather Forecast. 9.15 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather. 8.40, Musical Programme and Announcements. 9.0, Chimes. 9.2, News Bulletin. 9.30, Reading. 10.0, Popular Concert by the Station Quartet, with Songs.

RIGA

525 metres; 15 kW.—6.5 p.m., Orchestral Concert, conducted by Medins: Dances from Prince Igor (Borodin); Petite Suite (Debussy); Suite, Aphrodite (Février). 7.0, News. 7.20, Latvian Songs. 7.40, Orchestral Concert: Selection from Faust (Gounod); Overture, Ruslan and Ludmilla (Glinka); Echoes from South America (Himmiston); Waltz, Künstlerleben (Joh. Strauss). In the interval at 8.0, Weather and News. 8.30, Dance Music. 9.30 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call 1RO, 441 metres; 50 kW. Relayed by Naples, 319 metres; and 2RO, 25.4 metres.—7.15 to 7.30 a.m., Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Sextet Concert: Marella (Blankenburg); Selection from Marcella (Giordano); Venice—Serenade in Italian Style (Févet); Amore e ritmo (Nissim and Montagnini); Violin Solos: (a) Valse triste (Sibelius), (b) Humoresque (Dvorak), (c) Introduction and Tarantella (Sarasate); Waltz Suite, Telegrammen (Joh. Strauss); A Wedding Day on Troldhaugen (Grieg); Joyous Silhouettes (Hamud). In the interval at 12.30, Giornale Radio and Exchange. 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.30, Concert by the Rome Quartet, relayed from the Royal Philharmonic Academy. 6.10 (Naples), Shipping and Sports Notes. 6.15, Agricultural Report, Announcements and Giornale Radio. 7.0, Time, Announcements and Light Music on Gramophone Records. 7.20, Review of Books. 7.30, Sports Notes and Tourist Report. 7.45, Concert of Light Music. 9.55, News Bulletin.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 60 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAD on 19.56 metres.—7.30 to 11.0 p.m., New York Relay. 7.50, Revolving Stage. 10.15, Paul Wing, the Story Man. 10.30, Flying Family. 10.45, Slow River. 11.0, New Kenmore Orchestra. 11.30, Musical Interlude. 11.40, New York State Department Talk. 11.45, Chandu, the Magician. 12 Midnight, Stock Reports. 12.15 to 3.30 a.m. (Tuesday), New York Relay. 12.15, Wheatena Ville. 12.30, Sojourn in Songland. 12.45, The Goldbergs. 1.0, Soconyland Sketch. 1.30, Voice of Firestone. 2.0, A and P. Gipsies. 2.30, Buick Programme. 3.0, Carnation Programme. 3.30, WGY Players in One Man's Family.

SCHWEIZERISCHER

LANDESENDER

BEROMUNSTER; 459 metres; 60 kW.; BASLE, 244.1 metres; and BERNE, 245.9 metres.—11.28 a.m., Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40, Variety Music on Gramophone Records. 12.35 p.m., Weather and Exchange. 12.40 to 2.30, Interval. 2.50, Dance Music on Gramophone Records. 3.30, Concert by the Radio Orchestra. 4.0, Popular Music on Gramophone Records. 4.50, Weather Report. 4.55 to 5.30, Interval. 5.30 (from Zürich), Talk: The Swiss-German Dictionary. 6.0, Time and Weather. 6.15 (from Zürich), Educational Talk. 6.45 (from Zürich), Talk. 7.0 (from Zürich), Concert by the Tonhalle Orchestra, conducted by Dr. Volkmar Andreae, relayed from the Tonhalle. Soloist: Eduard Erdmann (Pianoforte). 9.0 (approx.), Weather and News.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA; 436 metres; 55 kW. Relayed by Boden, 1,220.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—4.5 p.m., Accordion Music. 4.30, Reading. 4.50, Popular Music on Gramophone Records. 5.45, Talk. 6.15, Weather and News. 6.30, Talk. 7.0, Variety Programme. 7.30, Book Review. 8.0, Choral Concert, relayed from Halmstad (216 metres). Conductor: Felix Körling. 8.30, Reading of Modern Swedish Poetry. 8.45, Weather and News. 9.0, Orchestral Concert: Overture, Hans Heiling (Marschner); Waltz from Der Rosenkavalier (R. Strauss); Selection from Madam Butterfly (Puccini); Lullaby from Ivan the Terrible (Rimsky-Korsakov); Blues from Johnny spielt auf (Krenek); Selection from Iolanta (Tchaikovsky). 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Gramophone Concert of Classical Music. 12.45 p.m., News. 1.0, Time Signal. 1.1, Exchange. 1.10, Quintet Concert, relayed from Bordeaux-Lafayette. 4.30, Quintet Concert relayed from Radio Coloniale (Paris) (25.2 metres). 5.30, French Lesson given in German. 5.45, Literary Talk in French. 6.0, Orchestral Concert, conducted by Maurice de Villers: Marche Lorraine (Ganne); Waltz, Dorfschwalben aus Oesterreich (Jos. Strauss); Overture, La Dame blanche (Boieldieu); Cello Solo: Chants Russes (Lalo); Basque Rhapsody (Piencé); Selection from La Navarraise (Massenet); Suite from Le Roi s'amuse (Delibes); Waltz and Polonaise from Eugene Onegin (Tchaikovsky). 7.15, Topical Talk in French. 7.30, Time Signal. 7.31, News Bulletin. 7.45, Dance Music: March (Heymann); Foxtrot (Heymann); Foxtrot, Stamp It (Allouche); Waltz, One Kiss in the Night (Ivergolds); Foxtrot, The Old Kitchen Kettle (Woods, Campbell, and Connelly); We're a Couple of Soldiers (Woods); Tango, S.O.S. d'amour (Hajos); Foxtrot, Shake your Hip (Bee); Slow Foxtrot, What'll I do, Baby (Packay); Foxtrot Rumba, Marta (Simons). 8.35, Lottery Results. 8.45, Concert by the Soudant Concert Society, relayed from Metz. Soloist: Jacques Thibaud (Violin); Chaconne (Vitali); Concerto (Mendelssohn); Sonata in G (Léku); Violin Solos: (a) Chant de Roxane (Szymanovsky), (b) Malaguena (Albeniz), (c) Habanera (Ravel), (d) Tambourin chinois (Kreisler). 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER; 360.5 metres; 60 kW.; and FREIBURG, 570 metres.—12.15 p.m., Time, News, Weather and Programme Announcements. 12.50, Concert from Langenberg. 1.0, Sponsored Concert. 1.30, Spanish Lesson. 2.0, Elementary English Lesson. 4.0 (from Mannheim), Concert by the Philharmonic Orchestra, conducted by Hans Leger. Soloist: Sophie Karst (Soprano). Overture, Iphigénie en Aulide (Gluck); Selection from Rigoletto (Verdi); Aria from Il Trovatore (Verdi); Selection from Madame Butterfly (Puccini); Soprano Solo: Waltz from La Bohème (Puccini); Ballet Music from Rosamunde (Sennbert); Overture, Faust (Spohr). 5.15, Time, Weather and Agricultural Notes. 5.25, Agricultural Talk. 5.50, See Frankfurt. 6.15, Time and News. 6.30, Gramophone Records of Famous Coloratura Sopranos. 7.5, to 9.20, See Frankfurt. 9.20, Time, News, Weather and Programme Announcements. 9.30, See Langenberg. 9.50, Advanced Chess Lesson. 10.15, Serenade from Munich. 11.0 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI; 385 metres; 8 kW.—6.0 p.m., News Bulletin. 6.15, Music by an Argentine Orchestra. 6.30, Operatic Music: Melodies from La dame blanche (Boieldieu), The Battered Bride (Smetana), and Griseldis (Massenet). 6.45, Music from El amor brujo (Fallá) by a Symphony Orchestra. 7.0, Talk for Tourists. 7.15, News and Market Prices. 7.25, Local News. 7.30, Songs. 7.45, Oneretta Music: Orchestral Pieces from Miss Decima (Andran), Brummel (Hahn), and Le Pré aux Cleres (Herold). 8.0, Operatic Music: Arias from Mirella (Gottsch), Sapho (Mussenet), and The Pearl Fishers (Biscl). 8.15, Military Band Music. 8.30, Operetta Music. 8.45, Accordion Solos. 9.0, Mozart Concert: Turkish March; German Dances; Air from Il Soraglio; Overture, Figaro; Air from Don Giovanni; Arias from Così fan tutti; Overture, The Magic Flute; Minuet. 9.20, Tangos, followed by Bal Musette. 10.15, North African News. 10.30, Programme of Variety Music. 11.0, Light Music. 11.30, Programme in English by the I.B.C. Orchestral and Vocal Concert: Selection from Congress Dances (Haymann); Just because I lost my heart (Abraham); Come to me (de Sylva); Gavotte, Stephanie (Czibulka); Serenade (Heykens); Guilty (Kahn); Blues

in my heart (Mills); Old Vienna Moon (Lehert). 12 Midnight, Weather and Announcements. 12.5 a.m. (Tuesday), Military Music. 12.15, Light Orchestral Music: One hour with you (Whiting); Franz Liszt Music (Moreno); Potpourri of Lehar Music. 12.30, Close Down.

TRIESTE

247.7 metres; 10 kW.—6.0 to 6.30 p.m., See Turin. 6.30, Orchestral Concert from the Caffè Dante. 7.0 (approx.) till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayed by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—6.0 p.m., Variety Music on Gramophone Records. In the intervals at 6.25, Tourist Report, and at 6.30, Time and Announcements. 7.0, Giornale Radio, Weather and Light Music on Gramophone Records. 7.20, Review of Books. 7.30, Chamber Music. 8.20, A Comedy in One Act. 9.0 (approx.), Orchestral Concert: Overture, The Siege of Corinth (Rossini); Malaguena (Albeniz); Prelude to Loreley (Catalani); Suite, I fantocini (Leocop); Delitto e castigo (Pedrollo); Overture, Die schöne Galathée (Suppé). 10.0, Giornale Radio.

VATICAN CITY

19.84 metres (Morning) and 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 Tuorattion in Italian.

VIENNA

517 metres; 15 kW. Relayed by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218 metres.—4.0 p.m., Concert by the Friedl Schick Orchestra: Waltz, Dolores (Waldteufel); Overture, Die Fledermaus (Joh. Strauss); Tchaikovsky Potpourri (Urbach); Waltz from Das Veilchenmadel (Hellmesberger); Two Pieces (Pecina): (a) Waltz, Ich hab' dich geliebt, schöne Frau, (b) Foxtrot, Sei ein bisschen lieb zu mir; Selection from A Kiss in Spring (Kálmán); Pasodoble, Spanish Gipsy Dance (Marquina-Mohr). 5.5, Talk: Goethe and Dejacroix. 5.25, Talk: Books of Reference in connection with the Week's Talks. 5.30, Talk: Setting the Unemployed on the Outskirts of Towns. 5.55, English Lesson. 6.20, Time, Weather, and Programme Announcements. 6.30, Talk: Changes in the Political World in our Time. 7.0, Orchestral Concert of Old Viennese Music, conducted by Fred Krenzl; Soloists: Berta Kiurina (Soprano) and Albert Feller (Tenor). 9.0, Announcements and Weather. 9.15, Dance Music by the Clement Serenaders, relayed from the Graben Café.

WARSAW

1,411 metres; 120 kW.—11.10 a.m., Light Music on Gramophone Records. 12.20 p.m., Weather Report. 2.10, News Bulletin. 2.15, Economic Report. 2.25, Traffic Report. 2.35, The Letter Box—Answers to Correspondents. 2.50, Popular Music on Gramophone Records. 3.25, Elementary French Lesson. 3.40, Talk on Economics. 4.0, Soprano and Violin Recital. Soloists: B. Pryzman-Kizyzer (Soprano), Stanislaus Dymnek (Violin), and L. Urstein (Pianoforte). Violin Solos: (a) Cavatina (Raff), (b) Meditation from Thaïs (Massenet); Soprano Solos: (a) Aria from Sadko (Rimsky-Korsakov), (b) Aria from Werther (Massenet); Violin Solos: (a) Romance (Ambrosio), (b) La Précieuse (Coteperrin-Kreisler); Soprano Solos: (a) L'ombra da Carmen (Trindelli), (b) Les larmes in aveuglé (Tchaikovsky), (c) Bolero (Niewiadomski), (d) Chante-moi une chanson (Deuski); Violin Solos: (a) Réverie (Wronski), (b) Cracovianna (Statkowski), (c) Caprice viennois (Kreisler). In the interval, News. 4.55, Programme Announcements. 5.0, Light Music from the Caffè Italia. In the interval, News. 6.0, Miscellaneous Items. 6.20, Agricultural Correspondence. 6.30, On the Horizon. 6.45, Radio Journal. 7.0, Die Moderne Eva—Operetta in Three Acts (Gilbert). In the intervals, Sports Notes and Radio Journal. 9.0, Answers to Correspondence. 9.15, Dance Music from Lwow. 9.55, Weather Forecast and Police Report. 10.0, Dance Music from the Adria. 11.0 (approx.), Close Down.

WILNO

563 metres; 16 kW.—6.0 p.m., Talk in Lithuanian. 6.15, Sports Notes. 6.30 till (Close Down, See Warsaw. 11.0 (approx.), Close Down.

ZAGREB

307 metres; 0.75 kW.—6.20 p.m., Review of New Books. 6.35, Medical Talk. 7.0, Yugoslav Concert by the Zagreb Quartet and Marta Grill-Pospisil (Contralto). 7.45, Sonata Recital by Vladimir Rajacic (Pianoforte); Sonata in D (Haydn); Sonata in A (Mozart). 8.25, Recital of Songs and Operetta Arias. 9.0, News, Weather and Snow Report. 9.10, Dance Music from the Grill Room. 10.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender.

TUESDAY

JANUARY THE TENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

- NATIONAL** Tango orchestral concert. Sonata recital. Mr. V. C. Clinton Baddeley reading from *Dombey and Son* (Charles Dickens). Military Band concert. Promenade concert from Queen's Hall. Choral concert of Gipsy songs.
- LONDON REGIONAL** Orchestral concert. A play, "The Country of the Blind," from a story by H. G. Wells.
- MIDLAND REGIONAL** Organ recital. Orchestral concert. Military Band programme.
- NORTH REGIONAL** Banjo, mandoline, and guitar orchestral concert. Liverpool Philharmonic Society concert from Liverpool.
- WEST REGIONAL** National programme.
- SCOTTISH REGIONAL** Lessons in Scottish Country Dancing, with Musical Illustrations, by Mr. J. M. Duthie. Orchestral concert.
- BELFAST** Light programme of gramophone records. Orchestral concert.

ABROAD

- BARI** Choral and orchestral music, conducted by B. Grimaldi.
- HEILSBURG** The Königsberg Opera House Orchestra.
- HILVERSUM** The Maastricht Municipal Orchestra, conducted by H. Hermans.
- LANGENBERG** Symphonic Suite for Orchestra and Soprano, by Josef Haas.
- WARSAW** Concert of Italian music by the Station Orchestra.

ALGIERS
363.3 metres; 13 kW.—7.10 p.m., Shipping News. 7.15, Weather Forecast. 7.20, Concert of Italian Opera Music. 7.55, News Bulletin. 8.0, Time Signal. 8.2, Chamber Music: Violin Solo, Chaconne (Bach); Prelude and Fugue for String Quartet (Kaminsky). 8.40, News. 8.45, Algerian Review. 9.0, Light Music on Gramophone Records. 9.15, Concert of Oriental Music. 9.50, News Bulletin.

BARCELONA
RADIO-BARCELONA; Call EAJ1, 349 metres; 8 kW.—7.30 p.m., Exchange Quotations and Talk on Art. 8.0, Request Gramophone Records. 9.0, Chimes, Weather, Transmission for Sailors, Exchange Quotations and Market Prices. 9.10, Part Relay of an Opera from the Gran Teatro del Liceo. In an interval at 11.0, News Bulletin. 12.0 Midnight (approx.), Close Down.

BARI
270 metres; 20 kW.—4.30 to 5.30 p.m., Piano-forte Recital by Clotilde Mola. 7.0, Agricultural Notes, Tourist Report and Announcements. 7.20, Giornale Radio and Announcements. 7.30, Concert conducted by Biagio Grimaldi. Part I—Choral Music: Psalm No. 138 for Four Part Choir (Bach); Three Country Songs for Four Part Choir (Montanari); (a) O villano, stinola quel noi!, (b) Dove vai o Marinella!, (c) La Gianna; Tre giorni son che Nina, for Four Part Choir (Pergolesi); La gallina, Humorous Piece for Three Part Choir (Rossi). Part II—Orchestral Music: Overture, Gloria (Frontini); Selection from Falstaff (Verdi); Ondine in festa (Cardoni); Pastoral Suite (Scasola); Réverie (de Michelis); Prelude to the Third Act of David (Galli); Intermezzo from The Jewels of the Madonna (Wolff-Ferrari). 9.30, Musical Programme from the Gran Caffè del Levante. Literary Notes in an interval. 9.55, News Bulletin.

BASLE.—See Schweizerischer Landessender.

BELGRADE
430.4 metres; 2.8 kW.—5.55 p.m., Time and Programme Announcements. 6.0, Recital of Yugoslav Songs. 6.30, Variety Music on Gramophone Records. 7.15, Concert by the Station Orchestra. Soloists: Helene Lenhart (Songs) and Emanuel Böhm (Xylophone). Overture, Semiramis (Rossini); Aria from The Barber of Seville (Rossini); Waltz Song, Parla (Arditi); Xylophone Solos: (a) Concert Polka, La belle Victoria (Seel), (b) Jongleur Galop (Dittrich); Aria from A Waltz Dream (O. Straus); Three Songs (Schimatschek); Aria from The Countess Maritza (Kálmán); Xylophone Solos: (a) Parla (Eberlein), (b) Erinnerungen an den Zirkus Renz (Peter); Dance from The Queen's Kereheli (Joh. Strauss); Melody (Translatour); Waltz Intermezzo, Champagne Galop (Lumby). 8.45, News, followed by Gipsy Music from the Rudnicain Restaurant.

BERLIN
KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.55 a.m., Nauen Time Signal. 12.35 p.m., News. 1.0, Guessing Competition on Gramophone Records, relayed from Berlin (Witzleben). 2.0, Programme for Young People. 2.30, Weather and Exchange. 2.45, Reading from Leberecht Hühnelein (Seidel). 3.0, Two Talks for Women. 3.30, See Leipzig. 4.10, Topical Talk. 4.30, Songs from Des Knaben Wunderhorn (Mahler), by Dr. Schlottmann. 4.55, Talk on Political Economy. 5.25, Talk on Beethoven's First Symphony. 5.55, Weather for Farmers and Announcements. 6.0, Talk: Catholicism and Protestantism: a comparison and a contrast. 6.30, A Poem. 6.35, Political Press Review. 7.0, See Hamburg. 7.55, Concert relayed from Vienna. 9.5, Weather, News and Sports Notes. 9.45, Weather for Shipping, followed by Dance Music from Hamburg. 11.0 (approx.), Close Down.

BERLIN
WITZLEBEN, 419.5 metres; 1.5 kW.—6.0 p.m., Topical Talk. 6.10, Concert by the Station Orchestra, conducted by Bruno Seidler-Winkler: Concerto for Pianoforte and Orchestra (Rudolph Schmidt); Symphonic Poem, Langemarck (Paul Beyer); Overture, Egmont (Beethoven). 7.0, Variety Programme. 8.30, Dialogue between Gustav Lindemann and Julius Petersen on Goethe's Faust, Part II. 9.0, Weather, News and Sports Notes, followed by Old Dance Music from Hamburg. 11.0 (approx.), Close Down.

BERNE.—See Schweizerischer Landessender.
BEROMUNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.
BODO.—See Oslo.

BORDEAUX-LAFAYETTE
304 metres; 13 kW.—7.30 p.m., News and Exchange. 7.40, Variety Music on Gramophone Records. 7.55, Lottery Results. 8.0, Talk: The Use of Resinous Products in the Household. 8.15, News. 8.30, Le roi d'Ys—Opera in Three Acts (Lalo).

BRATISLAVA
279 metres; 14 kW.—3.10 p.m., See Moravská-Ostrava. 4.10, Popular Music on Gramophone Records. 4.50, Concert of Light Music from the Museum Café. 5.45, Slovak Grammar Lesson. 6.0, See Prague. 6.20, See

BRNO. 7.0, Concert by the Bratislava Symphony Orchestra, relayed from the Slovak National Theatre: Third Symphony (Brahms); Concerto for Cello and Orchestra (Dvořák); Symphonic Poem, Toman and the Wood-Fairy, Op. 40 (Novak). 9.0, See Prague. 9.15, Concert of Gipsy Music from the Elizabeth Café. 10.0 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU
325 metres; 1.5 kW., and GLEIWITZ. 253 metres.—12.5 p.m., Weather Forecast. 12.10, Gramophone Concert: Overture, Hansel and Gretel (Humperdinck); Prologue to I Pagliacci (Leoncavallo); Scherzo (Moszkovsky); Guitar (Moszkovsky); Shadow Dance from Dinorah (Meyerbeer); Selection from Martha (Flotow). 12.45, Time, Weather, News, and Exchange. 1.5, Gramophone Concert: Selection from Samson and Delilah (Saint-Saëns); Waltz, Wiener Blut (Joh. Strauss-Szreite); Selection from Indigo (Joh. Strauss); Soprano Aria from Der Obersteiger (Zeller); Selection from Zur goldenen Liebe (Benatzky); Jazz Fantasia, Arabesque (Grothe). 1.45, Sponsored Programme, with Gramophone Records. 2.10, Market Prices and Exchange. 2.40, Programme for Children. 3.10, Soprano Song Recital by Elfride Boehm: Two Songs in Folk Song Style (Lengard); (a) Und die Rosen, die prangen, (b) Verirrt; Four Songs (Mittmann); (a) Selenschuit, (b) Winter, (c) Mädchenbebet, (d) Mein Blut; Two Songs (Ebel); (a) Kinderlied, (b) Flieder; Two Songs (R. Trunk); (a) Stilles Lied, (b) Frühlingssonne; Serenade (Erfurt). 3.40, Concert of Light Music by the Station Orchestra, conducted by Franz Marszalek: March, Märkische Heide (Lincke); Waltz (Löhr); Melody (Löhr); March Intermezzo, Puppen-reveille (Pretsch); Selection from The Land of Smiles (Lehar). 4.30, Agricultural Prices, followed by Review of New German Novels. 4.50, Hermann Kesser reads his Story, Der entscheidende Augenblick. 5.20, Programme to be Announced. 6.0, An interview with a Labour Bureau Secretary. 6.30, Weather Forecast, followed by Gramophone Concert of Alpine Folk Music. 7.0, Mechanical Music, now and in Olden Days—Recital, with Commentary. 8.0, News Bulletin. 8.10, A Voyage into Whiteness—a Winter Sports Play in Silesian Dialect (Ernst Schenke). 9.10, Time, Weather, News, Sports Notes, and Programme Announcements. 9.30, Political Press Review. 9.55, Theatrical Review. 10.10, Dance Music on Gramophone Records. 10.25, See Hamburg. 12 Midnight (approx.), Close Down.

BRNO
342 metres; 35 kW.—3.10 p.m., See Moravská-Ostrava. 4.10, Variety Music on Gramophone Records. 4.20, See Prague. 4.50, Esperanto Lesson. 5.0, Talk on Music. 5.15, Talk for Workers. 5.25, German Transmission; News

and Two Agricultural Talks. 6.0, See Prague. 6.5, Talk by Dr. J. Skutil; My Trip to the Caucasus Mountains in 1932. 6.20, Brass Band Concert. 7.0, Reading of Czech Poems, with Introductory Talk. 7.30, Concert by the Station Orchestra, conducted by Jan Janota: Overture, The Ruins of Athens (Beethoven); Ballet Music from Les Petits Riens (Mozart); Serenade for Strings, Op. 6 (Suk). 8.30, Review of Newly-Released Gramophone Records. 9.0, See Prague. 9.15, Popular Music on Gramophone Records. 10.0 (approx.), Close Down.

BRUSSELS (No. 1)
I.N.R., 509 metres; 15 kW.—12 Noon, Gramophone Concert of French Music: Marche militaire (Saint-Saëns); Overture, La princesse jaune (Saint-Saëns); Ma belle amie est morte (Gounod); Allegro vivace from Roma (Bizet); Air from Patrie (Padalino); Scherzo from Romeo and Juliet (Bellini); Plainte du Clocher (Balay); Marche joyeuse (Charbrier). 12.40 p.m., Violin Recital by Mlle. Daphné Carapata (of C.N.R.V., Vancouver, Canada): Il Trillo del Diavolo (Tartini-Kreiser); Hebrew Melody (Joseph Achron). 1.0, Le Journal Parlé. 1.10, Concert by the Little Radio Orchestra, conducted by M. Leemans: Overture, Le Fils du Mandarin (Cui); Ballet Music from Feramos (Rubinstein); Petite Suite for Pianoforte (Borodin); Suite for Little Orchestra (Akinenko). 5.0, Third Symphony in C Minor, with Organ (Saint-Saëns), on Gramophone Records. 5.30, Programme for Children, arranged by the Catholic Radio Society. 6.5, Literary Talk. 6.15, Pianoforte Recital of Persian Music by M. Feridoun Kham Farzaneh. 6.45, Concert of Lalo Music by the Little Radio Orchestra, conducted by M. Leemans: Selection from Le Roi d'Ys; Allegretto and Concerto for Cello; Scherzo; Romance from the Concerto for Violin; L'Eschavez; Divertissement. 7.15, Weekly Review of the Catholic Radio Society. 7.30, Talk for Women. 8.0, Concert by the Radio Orchestra, conducted by M. Kumps: Symphony in C (Dukas). 8.45, Talk on Frans Aseel the Poet. 9.0, Concert (cont'd.): Prélude à l'après-midi d'un faune (Debussy); Le Festin de l'araignée (Roussel); Symphonic Variations (Boellmann); Viennese Rhapsody (Schmitt). 9.45, Poems by Y. Hugo, E. Rostand, and P. Fort (on Gramophone Records). 10.0, Le Journal Parlé. 10.10, Request Gramophone Records: Scherzo-Waltz (Charbrier); Selection from Orpheus in the Underworld (Offenbach); Choral Piece and Triumphant March from Aida (Verdi); Czardas (Grossmann); Norwegian Dances (Grieg). 10.40, Musical Programme: Poèmes juifs (Millaud); Oriental Fantasia, Islaney (Arrau). 10.55, Christus Cineit, 11.0 (approx.), Close Down.

BRUSSELS (No. 2)
I.N.R., 338.2 metres; 15 kW.—Programme in Flemish. 12 Noon, Orchestral Concert, con-

ducted by P. Leemans: March from The Victor (Heymann); Waltz (Lincke); Potpourri of Opera Music (Schreiner); Piano-forte Solo: Caprice in F Minor (Benoit); Anvil Chorus from Il Trovatore (Verdi); Dance Suite from The Bartered Bride (Smetana); Romanian Sketches, in the Transylvanian Mountains (Dreyer); Waltz (Read); Californian Serenade (Gilbert-Nicholls); Selection from Monsieur Beaucaire (Messager). 1 p.m., Le Journal Parlé. 1.10, Gramophone Concert of Folk Music from Poland, Hungary, Russia, Spain, Catalonia, Italy, Palestine, and Flanders. 5.0, Concert by the Station Orchestra, conducted by Franz André: March, Spornmint (Turina); Overture, Semiramis (Rossini); Waltz, Morgenblätter (Joh. Straus); Intermezzo (Siede); Suite, Sahara (Ackermans). 5.45, Programme for Children. 6.30, Der Freischütz—Opera (Weber) (Concert Version) on Gramophone Records. 7.15, Review of International Politics. 7.30, Le Journal Parlé. 8.0, Concert by the Station Orchestra, conducted by Franz André; Spanish March, Bolero (Hügel); Waltz, Je t'aime (Waldteufel); Gramophone Records: Now is the Month of Maying (Morley); A Farmer's Song; Two Russian Folk Songs (arr. Nekrasov), and Circassian Song (Tscherepnin); Selection from Viktoria and her Hussar (Abraham); Gramophone Records of Light Music: Potpourri, Bitte recht freundlich (Ralph). 9.0, Reading from Wat nu kleine man (Fallada). 9.15, Humorous Programme by the Three Keddys, with Music for Two Pianofortes and Two Accordions. 10.0 (in an interval), Le Journal Parlé. 11.0 (approx.), Close Down.

BUCHAREST
394 metres; 12 kW.—4.0 p.m., Concert of Light Music and Romanian Music by the Motzoi Orchestra. 5.0, News and Time Signal. 5.10, Talk. 5.25, Concert by the Motzoi Orchestra (cont'd.). 6.0, Educational Programme. 6.40, Popular Music on Gramophone Records. 7.0, Concert by the Station Orchestra, conducted by T. Rogalski and Soloists: M. Koganoff (Violin), and Mme. Aen de Barbu (Songs); Overture, Die Brant von Messina (Schumann); Concerto in B Minor for Violin and Orchestra (d'Ambrosio); Songs: (a) Aria from Don Giovanni (Mozart), (b) Aria from Cavalleria Rusticana (Mascagni), (c) Cécilie (Strauss), (d) Two Songs (Mars). 8.0, Talk. 8.15, Concert (cont'd.); Symphony No. 6 in C (Schubert). 8.45, News Bulletin.

BUDAPEST
550 metres; 18.5 kW.—Programme also relayed on 840 metres from 6.45 to 11.0 p.m. and 5.10 to 11.0 p.m. 6.15 French Lesson. 6.45, Concert arranged by the Franz Liszt Society, relayed from the Academy of Music: The Budapest Concert Orchestra and the Women's Choir of St. Stephen's Basilica; Conductor, Imre Stéfania; Soloist, Claudio Arrau (Pianoforte); Pianoforte Concerto in C Minor (Beethoven); Dante Symphony for Full Orchestra and Choir (Liszt); Pianoforte Concerto in E Flat (Liszt). 8.40, News Bulletin. 8.50 (approx.), Dance Music from the Hotel Gelbert, with Song Refrains by Nikolaus Vlg. 10.0, Gipsy Band Music, relayed from the Café Spolariu.

CASSEL.—See Frankfurt.

COPENHAGEN
281 metres; 0.75 kW., and KALUNDBORG, 1,153 metres; 7.5 kW.—11 a.m. to 1.0 p.m., Concert from the Bellevue Strandhotel. 2.0, Instrumental Concert. Soloist: Volmet Holbüll (Songs). Overture, Der Schanspiel-direktor (Mozart); Minuet from the Music to Le Bourgeois Gentilhomme (Lully); Gavotte, Adagio and Pantomime from the Music to Les petits riens (Mozart); Selection from The Tales of Hoffman (Offenbach); Songs; Overture, La dame blanche (Boieldieu); Minuet and Tambourin (Poise); Serenade (Bachmannov); Strophic (Bartholdy); Minuet for Strings from Bérénice (Lühd); Ballet Music from Elverhøj (Kuhlau). 4.0, Programme for Children. 4.40, Exchange and Fish Market Prices. 4.50, Talk: A Hundred Years of National Economy. 5.20, German Lesson. 5.50, Weather Forecast. 6.0, News. 6.15, Time Signal. 6.30, Talk for Workers. 7.0, Chimes from the Town Hall. 7.5, Concert by the Station String Orchestra, conducted by Emil Reesen: Prelude to Le Déloge (Saint-Saëns); Acuerelas Valencianas (Chavarrri); Strathspey and Quickstep from Scenes from the Scottish Highlands (Bantock). 7.30, Monna Vanna—Drama in Three Acts (Maeterlinck). 9.0, News Bulletin. 9.15, Concert of French Music. The Station Orchestra, conducted by Emil Reesen. Overture, Le Roi d'Ys (Lalo); Suite, The Nursery (Inghelbrecht); Prelude and Serenade from Namouna (Lalo); Gipsy Dance, Gigue and Finale from Henry VIII (Saint-Saëns). 10.0, Dance Music from the Palace Hotel. In the interval at 11.0, Time and Chimes from the Town Hall. 11.30 (approx.), Close Down.

CORK.—See Dublin.
DANZIG.—See Heilsberg.
DRESDEN.—See Leipzig.

DUBLIN

Call 2RN, 413 metres; 1.2 kW.; and **CORK**, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. 6.0, Variety Music on Gramophone Records. 6.15, Programme for Children. 7.0, Popular Music on Gramophone Records. 7.15, British Market Report and News Bulletin. 7.30, Time Signal. 7.31, Gaelic Talk. 7.45, The Story of the Irish Trade Mark, by Cearbhall O'Dhaluigh. 8.0, The Augmented Station Orchestra, under the direction of Dr. V. O'Brien. 8.30, Talk. 9.20, Uilleann Pipes, by Leo Rowsome. 9.40, Contralto Solos by Margaret McNulty. 9.55, The Augmented Station Orchestra. 10.30, Time Signal, News, Weather Report, and Close Down.

FECAMP

223 metres; 10 kW.—12 Noon, Light Music on Gramophone Records. 12.30 p.m., News Bulletin. 12.45, Popular Concert. 7.0, Local News and Agricultural Notes. 7.15, Variety Music on Gramophone Records. 7.30, Radio Gazette. 7.50, Parisian News. 8.0, Popular Music on Gramophone Records. 8.15, Programme arranged by the Tour de Garde. 8.30, Concert relayed from **Le Havre**, 10.0 p.m. till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: That's you Baby; Peace of Mind; Wouldn't it be Wonderful?; Why can't you?; On top of the World; My sweeter than sweet; Always the Same Sweet Pal; Tain't no Sin; Big City Blues; I'll be getting along; I'm the Medicine Man for the Blues; Little Pal; Louise; My Fate is in your Hands; Chiquita; Ro-ro-rolling along. 11.0, Organ Recital: Bird Songs at Eventide (Coates); Les millions d'Harlequin (Drigo); Extracts from the Four Indian Love Lyrics (Woodford-Finden); Ballet égyptien (Luigini); A Palace of Dreams (Waller); The Londonderry Air (Traditional). 11.30, Vocal Duets: A Dicky Bird told me so (Bourne); I must be dreaming (Shermann); Let's dream a little longer (Lambert); Daybreak (Evans); Pianoforte Solo: One Night alone with you (Jeffreys); Song: Sonny Boy (Johnson); In the Lane of Sweet Dreams (Lockwood); Sally of my Dreams (Kernell); Why? (Wilson). 12 Midnight, Concert on behalf of the Philco Radio and Television Corporation of Great Britain, Ltd. 12.30 a.m. (Wednesday), Dance Music: At last I'm in love. Congratulations: The March of the Grenadiers; Where the Sweet Forget-me-nots remember; Red hot Rhythm; He's so unusual; The Wedding in the Ark; The March of the Chocolate Soldiers. 1.0, Selections from Films and Shows, by the Decolans. The King of Jazz (Ager-Yellen); High Society Blues (Hanley); On with the Show (Nicholls, arr. Somers); Sunnyside Up (Brown-Henderson); The Good Companions (Graham Eyton). 1.30, The "Frisco Serenaders: Viva la liberta (Pietro); Minuet (Boecherri); Finger Tricks (de Pietro); Wandering around (Pepper); Up with the Lark (Lee); Bullfion (Curzon); Faust Medley (Gomoll); Bits and Pieces (arr. Grimshaw). 2.0, Dance Music: To-day I feel so happy; You are my Heart's Delight; We're all Good Pals at last; Song of Happiness; When it's Springtime in the Rockies; There's a Good Time coming; Soldier on the Shelf; One Night alone with you; Sitting at a Table laid for two; The Changing of the Guard; Try; When the Circus comes to Town; Around the Corner; Over the Garden Wall; Somewhere in Old Wyoming; A Quiet Little Corner. 2.57, I.B.C. Good-night Melody. 3.0, Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW.; and **CASSEL**, 245.9 metres.—5.25 p.m., Dialogue on Social Service. 5.50, Talk by Hans Esdras Mutzenbecher: My Work for Opera in Helsinki. 6.15, Time, Programme Announcements, Weather, and Economic Notes. 6.30, Concert by the Station Orchestra, conducted by Reinhold Merten. Soloist, Emil Franz (Xyphoid); French Comedy Overture (Kéler-Béla); Slav Rhapsody (Friedemann); Waltz, Die Welt im Sonnenschein (Gilbert); In Wind and Weather (Geldard); Selection from Le Docteur Piccolo (Lecocq); Valse brillante (Neumann); Triumphant March (Joseph). 7.20, Mrs. Meurig-Morris versus the Daily Mail—an English Spiritualist Lawsuit (adapted for Radio by Dr. Richard Müller). 8.40, Pianoforte Recital by Hans Eisenstadt; Pianoforte Suite for the Left Hand (Niederste-Scher); Romance and Prelude in E flat, the Special Studies for the Left Hand only (Max Regner). 9.0, Time, Weather, News and Sports Notes. 9.30, Organ Recital from Leipzig. 10.30 (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.

HAMBURG

Call ha (in Morse). 372 metres; 1.5 kW. Relay by Bremen, 270 metres; Flensburg, 218 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—6.0 p.m. (from Bremen), Agricultural Talk. 6.25, Weather Report. 6.30 (from

JAN. 10th

TUESDAY

continued

HANOVER, Recital of Music for Two Piano-fortes by Gertrud Halsen and Friederike Halfeld: Sonata in C (Mozart-Grieg); Suite (Arensky): (a) Romance, (b) Waltz; Danse macabre (Saint-Saëns). 7.0, Soldiers on the March—Literary Radio Sequence (Kurt Hotzel). 7.50, Reynard the Fox—Play after the Old North German Epic, arranged by Hans Balzer. 9.10, Time and News Bulletin. 9.30, The Sea—Symphonic Sketches (Paul Gilson), by the Station Male Voice Choir and Orchestra, and Karl Wüstenhagen (Elocutionist). 10.20, Ice Report. 10.25, Old Dance Music.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW.; and **DANZIG**, 453.2 metres.—12.5 p.m., Gramophone Concert: Concert Waltz (Glazunov); Königgrätzer Marsch (Pieke); Song from La Bohème (Puccini); Song from The Girl of the Golden West (Puccini); Potpourri from Verdi's Operas (Charlie); Unter den Freiheitsflagge (Blum); Vergissmännchen (Baumgart-Bessel); Verzeihe mir (Baumgart-Bessel); Schubert Potpourri, Hoch das Bein (Leuschner); Am Lagerfeuer (Siede); Im Ziegenmager (Oscheit); Vom Keller bis zum vierten Stock (Brüning-Markgraf); March, Hoch Heidecksburg (Herzer); Potpourri, First-Christel (Janu); Russian Potpourri, Troika and Volga (Ljuschakov); Auf Wiederhören (Weninger); Frohsinn-Marsch (Hanschild). In the interval at 12.20, News. 1.30, Sponsored Programme with Gramophone Records. 2.0, Exchange Rates and Market Prices. 2.30, Musical Programme for Children. 3.0, Concert by the Small Station Orchestra, conducted by Eugen Wileken: Overture, I Pagliacci (Czibulka); Offenbach Potpourri (Urbach); Waltz, Street Singers of Paris (Ohlsen); Serenade (Oelschlegel); Hungarian Rhapsody (Reindl); Overture, The Queen's Kecher (Joh. Strauss); Waltz, Etincelles (Waldteufel); Romanza lyrica (Becece); Nixenquäntler (Heykens); Selection from Die Fäselingssee (Kálmán). 4.45, Book Review. 5.15, Agricultural Prices. 5.30, Talk for Workers. 6.0, Shortland Dictation. 6.30, Recital of Fifteenth and Sixteenth Century German Minnelieder, Sung to the Lute by Hermann Munk; Elend hat mich umfangen (1460); Gott g'seg'n dich, laub! (Fifteenth Century); All mein Gedanken, die ich han (1460); Ich spring in diesem Rinne (1460); Der Mond der steht am höchsten (1549); Es steht ein Lind in jenem Tal (1549); Ich armes Kenzlein klein (1549); Mit Lieb bin ich umfangen (Steurlein); Sie gleicht wohl einem Rosenstock (1545); Es taget vor dem Walde (1544). 7.0, News and Weather. 7.10, Concert by the Königsberg Opera House Orchestra, conducted by Ludwig Leschetizky: Overture, Masaniello (Auber); Serenade from Don Juan's Last Adventure (Paul Graener); Die Heintzelmännchen (Mottl); Selection from The Jewels of the Madonna (Wolf-Ferrari); Russian Folk Melody (Liadow); Selection from Die Bajadere (Kálmán); Streifzug durch Operetten von Johann Strauss (arr. Sehlügel). In the interval, Topical Review. 8.40, Talk on Heinrich von Plauen. 9.10, Weather, News, and Sports Notes.

HILVERSUM

Announced **HILVERSUM**, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—11.55 a.m., till Close Down, Programme of the Catholic Radio Society (K.R.O.). 11.55, Concert by the K.R.O. Sextet: Little March (Fresco); Mazurka and Adagio (Fresco); Dutch Windmills (Heykens); Potpourri (Witte); Two Pieces (Heykens); Potpourri (Witte); Light Music on Gramophone Records. Quickstep (Lindern); Potpourri (Grit); Profiteur (de Jong). 1.40, Talk. 2.15, Talk for Women. 2.10, Dressmaking Lesson. 4.10, Concert by the K.R.O. Orchestra, conducted by Johan Geritsen: Overture, Mignon (Thomas); Ballet Music from The Old (Massenet); Meditation from Thais (Massenet); Selection from La Bohème (Puccini). 4.55, Variety Music on Gramophone Records. 5.10, Concert (cont'd.) with Soprano Solos by B. Pos Carlsofjort; Overture, Czar and Carpenter (Lortzing); Aria from The Barber of Seville (Rossini); Preludes to Carmen (Bizet); Selection from La Traviata (Verdi); Popular Music on Gramophone Records; Aria from The Creation (Haydn); Waltz from Der Rosenkavalier (R. Strauss); March from Aida (Verdi). 6.10, Esperanto Lesson. 6.30, Soprano Song Recital by B. Pos Carlsofjort; Maria Wiergenlied (Reger); Bin ich im Wald; Aria from Lakmé (Delibes). 6.50, Talk on Hygiene. 7.10, Police Notes. 7.25, Talk. 7.40, Concert by the Maastricht Municipal Orchestra, conducted by H. Hermans. Soloist: Mme. Boons-Drissen (Songs); Symphony No. 5 in E Minor, Op. 4 (Tchaikovsky); Songs (Rachmaninov); Songs (Teličepkin). 8.55, News. 9.10, Concert by the K.R.O. Boys, conducted by P. Lustenhouwer. 10.40, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

HORBÝ.—See Stockholm.

HUIZEN

1,875 metres; 8.5 kW.—Programme of the Algemeene Vereeniging Radio Omroep

(A.V.R.O.).—11.41 a.m., Concert by the Small Station Orchestra, conducted by Nico Treep: Overture, Frau Luna (Lincke); Ballet Suite from Sylvia (Delibes); La toupie (Gillet); Two Pieces (Friml); (a) Canzonetta, (b) Pantomime; Gramophone Records; Amber Potpourri (Urbach); In the Garden of Love (Hartung); Herzen und Blumen (Czibulka); Torna a Sorrento (de Curtis); Gramophone Records: Selection from Der Liebe Angustin (Fall); L'amour, l'amour toujours (Friml); Ein Wiener Mädel (Kálmán); Oh! Desdemona (Laerini); March Foxtrot (Kálmán). 1.55 p.m., Interval. 2.10, Popular Music on Gramophone Records. 2.40, Programme for Housewives. 3.40, Variety Music on Gramophone Records. 4.10, Concert by a Children's Choir, conducted by Jacob Hamel. 4.40, Programme for Children. 5.10, Talk. 5.40, Dance Music by the Kovacs Lajos Orchestra. 6.15, Cello and Pianoforte Recital by Carel van Leeuwen-Boonkamp and Willem Andriessen: Sonata in E Minor, Op. 38 (Brahms); Sonata (Debussy). 7.10, Elementary English. 7.40, Time, Weather and News. 7.45, Popular Music on Gramophone Records. 8.40, The Brothers Karamazov—Novel (Dostoevsky), arranged for Radio by Kommer Klein. 9.15, Concert by the Station Orchestra, conducted by Nico Treep. 10.40, News. 10.45, Concert by the Station Orchestra: Overture, Le mariage aux lanternes (Offenbach); Selection from The Grand Duchess of Gerolstein (Offenbach); Melody from The Merry Widow (Lehar). 11.10, Variety Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.0 p.m., Talk. 6.15, Announcements and Opera Music on Gramophone Records. 6.25, Sports Notes. 6.30 till Close Down, See Warsaw. 11.0 (approx.), Close Down.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres, 54 kW.; and **HELSINKI**, 368.1 metres.—6.5 p.m., Talk. 6.30, Concert by the Station Orchestra. 7.45, News in Finnish. 8.0 News in Swedish.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert, conducted by Eysoldt. Overture, Maritima (Wallace); Suite (Amadei); In meiner Heimat (Hildach); Wenn du kein Spielmann wärest (Hofmann); Selection from Le Postillon de Longjumeau (Adam); Ballet russe (Luigini); Lagunen-Walzer (Strauss); Intermezzo, Gang durch den Märchenwald (Meyer-Helmund); Intermezzo, Teepuppen-Parade (Noiret). 1.0 p.m. (in an interval), News Bulletin. 1.30, Sponsored Programme, with Gramophone Records. 2.30, Exchange and Time Signal. 2.50, Programme for Children. 3.20, Notes on the Broadcasts for Schools. 3.30, Talk on Geography. 4.0, See Munich. 5.15, Italian Lesson. 5.45, Weather, Time, Exchange and Sports Notes. 6.0, Agricultural Talk. 6.20, Wireless Notes. 6.30, The World on Gramophone Records—In Haiti. 6.55, First General News. 7.0, Blue Haze—A Radio Fantasy about a Smoker. 8.30, Symphonic Suite for Orchestra and Soprano (Josef Haas), the Station Orchestra, conducted by Busch-kötter, with Maria Sensitzer-Thömsen (Soprano). 9.15, News, Sports Notes, and Silent Night.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW.; and **DRESDEN**, 319 metres.—12.15 p.m., Songs of the Open Road on Gramophone Records. 1.0 to 1.15, Talk on Unemployment. 2.35, Exchange Quotations. 3.0, Talk: The Water Supply and its Importance to Health and Industry. 3.30, Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber, Soloist: Riele Quelling (Violin); Overture, Alceste (Gluck); Concerto in A for Violin and Orchestra (Mozart); Seheranzug in F (Haydn); Eco-saïnes in E flat (Beethoven). 4.30 to 4.35, Weather and Time. 4.50 to 5.0, Exchange Quotations. 5.0, Talk. 5.25, French Lesson. 5.50 Talk on the Gewandhaus Concert on January 12th. 6.0, Talk on German Art. 6.30, Concert. 7.20, Wilhelm Busch Programme on the Twenty-fifth Anniversary of his Death. 7.50, Concert from Vienna. 9.5, News Bulletin. 9.15 (approx.), Three Centuries of Organ Music: Recital on the Two Hundred and Fiftieth Anniversary of the Death of Silbermann, relayed from St. George's Church, Rötha; Variations on Unter der Linden grüne (Sweeluck); Hymn, O Lux beata Trinitas (Praetorius); Passacaglia in D Minor (Buxtehude); Concerto in A Minor (Vivaldi-Bach); Choral in A Minor (César Franck); Passa-mezzo (Fritz Reuter). 10.30 (approx.), Close Down.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—6.0 p.m., Talk on Geneva and Zürich. 6.30, Geographical Talk. 7.0, See Vienna. 9.0, Time, News and Concert of Light Music.

LOWO

381 metres; 16 kW.—6.0 p.m., Technical Talk. 6.15, Miscellaneous Items. 6.30, See Warsaw. 9.15, Concert of Light Music by the Sere-nada Mandoline Orchestra. 9.55, See Warsaw. 10.0, Concert of Light Music (cont'd.). 10.30 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South East. 8.30, Le Roy d'Ys—Opera (Lalo). After the Opera, News Bulletin.

MADRID

ARANJUEZ (EAO), 30.43 metres; 20 kW.—11.30 p.m., Variety Music. 11.45, Radio Chronicle. 12 Midnight, Popular Concert. 12.35 a.m. (Wednesday), Answers to Correspondence. 12.40, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—7.0 p.m., Chinese, Exchange Quotations, and Literary Talk: The Life and Work of Bécquer, followed by Request Gramophone Records. In an interval at 7.30, Talk by Joaquin España Cantos. 8.15, News Bulletin. 8.30 to 9.30, Interval. 9.30, Chimes, Time Signal, and Song Recital by Franer Mar (Baritone). 10.30, Concert by the Madrid Symphony Orchestra, conducted by Sesire Defaun, relayed from the Monumental Cinema; Le Chasseur maudit (César Franck); Siegfried Idyll (Wagner); Overture, The Mastersingers (Wagner); Second Symphony (Brahms); Fire Bird Suite (Stravinsky). In the interval: News Bulletin. 1.0 a.m. (Wednesday) (approx.), Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—3.10 p.m., Concert of Light Music. 4.10, See Prague. 4.50, See Brno. 5.0, Educational Talk. 5.15, See Brno. 6.0, See Prague. 6.20, See Brno. 7.0, See Bratislava. 9.0, See Prague. 9.15, Variety Music on Gramophone Records. 10.0 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—4.0 p.m., News. 4.10, Concert of Folk Music. 5.30, Symphony Concert. 8.0, Talk in French: Prisons in the U.S.S.R. 8.55, Time. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relay by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—4.0 p.m., Concert by the Station Orchestra, conducted by Georg von Loeben: Overture, Rübzahl (Weber); Allegro from the Fourth Symphony in B flat (Beethoven); Selection from A Masked Ball (Verdi-Paepke); Nocturne and Wedding March from A Midsummer Night's Dream (Mendelssohn); Waltz, Roses from the South (Joh. Strauss); First Suite from L'Arlésienne (Bizet). 5.15, Talk on the Choice of a Calling—Agriculture. 5.35, Technical Talk. 5.55, Time, Weather, and Agricultural Notes. 6.5, Talk on German Literature—Bavaria and the Austrians. 6.25 (from Nürnberg), Variety Concert by the Martin Schmidt Orchestra: Overture, Erlehnügel (Kublan); Waltz, Ever or Never (Waldteufel); Recitations: Poems grave and gay, in Lower Franconian Dialect; Operatic Potpourri (H. Manfred); Intermezzo, Der Liebesbote (Köpping); Talk: Items of Interest; Potpourri, Für meine Freunde (Komzak). 7.55, Talk: A River in Upper Bavaria. 8.20, Chamber Music by the Szanto Quartet: String Quartet in E flat, Op. 83, No. 2 (Haydn); String Quartet in G, Op. 111 (Brahms). 9.20, Time, Weather, News and Sports Notes.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relay by Fredriksstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres; and Rjukan, 447.1 metres.—6.0 p.m., Announcements, Weather, and News. 6.30, English Lesson. 7.0, Time. 7.1, Recitations. 7.30, Concert by the Station Orchestra: Overture, A Midsummer Night's Dream (Mendelssohn); Ballet Suite from Coppélia (Delibes); Meditation (Glazunov); Walter's Prize Song, from The Mastersingers (Wagner); Andalusian Romance (Sarasate); Resignation (C. Elling); Minuet (Brögger); Selection from Where the Lark Sings (Lehar). 8.40, Weather, News, and Topical Talk. 9.15, Talk: A Christmas Eve in the Tropics.

OSTERSUND.—See Stockholm.

PARIS

EIFFEL TOWER; Call FLE; 1,445.7 metres; 13 kW.—5.45 p.m., Le Journal Parlé. 7.20, Weather Report. 7.30, Pianoforte Recital

JAN. 10th

TUESDAY

continued

of Impromptus by Marie-Antoinette Pradier, Op. 42, No. 3 (Schuberl), Op. 90, No. 2 (Schubert), Op. 29 and 66 (Chopin), Op. 17 (Serubinn), 8.0, Concert by the Firmin Touché Quartet; Lark Quartet No. 8 (Haydn); Quartet, In Memoriam (d'Indy), 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—7.0 p.m., Sponsored Concert with Gramophone Records, 8.0, Film Review, 8.15, Interval, 8.30, Sea Music; Symphony Concert by the Station Orchestra; Tableaux maritimes (Lazzari); sur la mer lointaine (Moreau); Ocean Symphony (Rubinstein); Calm Sea and Prosperous Voyage (Beethoven); The Sea and Soudak's Voyage from Scheherazade (Rimsky-Korsakov); Les escaliers (Ibert), 10.30, News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture, 7.30, Weather and Physical Culture (cont'd), 7.45, Light Music on Gramophone Records, 8.0, Press Review and Weather, 12 Noon, Concert of Opéra-Comique Music by the Kretzky Orchestra; Overture, The Italian Girl in Algiers (Rossini); Selection from The Pearl Fishers (Bizet); Selection from Phryné (Saint-Saëns); Selection from Manon Lescaut (Puccini); Divertissement, Miarka (Georges), 1.0, Exchange, News and Weather, 1.5, Violin Recital by Annie Mesritz; Chaconne (Vivaldi); Rondo (Mozart); Tendresse (Clergue); Spanish Dance (Falla), 1.30, Exchange, 1.35, Concert of French Music by the Kretzky Orchestra; Overture, Patrie (Bizet); Ronde de nuit (Saint-Saëns); Napoli (Charpentier); Pavane pour une Infante défunte (Ravel); Scherzo Waltz (Chabrier), 3.45, Exchange and Market Prices, 4.30, Elementary English Lesson, 6.10, Agricultural Talk, 6.30, Market Prices, Weather, Agricultural Report and Exchange, 6.50, Theatre Review, 7.5, Talk on Picasso, 7.20, Concert by the Kretzky Orchestra; Serenade (Debussy); Recueillement (Gallon); Chant d'automne (Manfred); Berceuse slay (Manfred); Two Ungarics (Léoni), 7.45, Anglo-Saxon Press Review, Commercial Prices and News, 8.0, Variety Programme, 8.30, News and Weather, 8.40, Review by Zamacois, 8.45, Pianoforte Recital of Spanish Music by Léon Kartunn; Evocation and Malaga (Albéniz); Spanish Dance, Fandango (Granados); Ballet Music from La Vida Breve and Fire Dance (Falla), 9.15, Press Review and News, 9.30, Marc Delmas Concert, relayed from the Chopin Hall, 10.0, Gramophone Records; Overture and Selection from Romeo and Juliet (Tchaikovsky); La Nuit ensorelée (Chopin-Aubert).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA); 306 metres; 25 kW., Relay by W8XK on 48.86 metres and 25.27 metres.—9.0 p.m., Work-a-day Thoughts, 9.5, Business News, 9.15, Programme to be Announced, 9.30, Weather Report, 9.31, Johnny Muskrat, 9.32, Market Reports, 9.45, Pianoforte Interlude, 9.50, David Lawrence Dispatch, 9.55, KDKA Artist Bulletin, 9.58, Programme Announcements, 10.0, Programme to be Announced, 10.30, The Singing Lady, from New York, 10.45, Little Orphan Annie, 11.0, Time Signal, 11.1, Temperature Report, 11.2, Teaherry Sport Review, 11.7, Press News Reeler, 11.14, Weather Report, 11.15, Johnny Hart in Hollywood, from New York, 11.30, KDKA Dinner Concert, 11.45 to 12.30 a.m. (Wednesday), New York Relay, 11.45, Today's News by Lowell Thomas, 12 Mid-night, Pepsodent Amos 'n' Andy, 12.15, Balkan Melodies, 12.30, Murder Backstage, by the KDKA Players, 1.0 to 3.0, New York Relay, 1.0, Eno Crime Club, 1.30, Puzpiz Time and Adventures in Health, 1.45, Country Doctor, 2.0, Household Finance Programme, 2.30, Garcia Novelty Orchestra, 3.0, Morin Sisters, 3.15, Westinghouse Pioneers, 3.30, Will Ryshaneck and his Orchestra, 4.0, Time Signal, 4.1, Teaherry Sport Review, 4.11, Temperature Report, 4.12, Weather Report, 4.13, KDKA Artist Bulletin, 4.15, Press Last Minute News Flasher, 4.20, Bradley Kineaid, 4.30, Jimmy Joy and his Orchestra, 5.0, Salt and Peanuts, 5.15, Colton Club Orchestra, from New York, 5.30, Time Signal and Good-night.

PORSGRUND.—See Oslo.

PRAGUE

488.6 metres; 120 kW.—4.10 p.m., Talk on Economics, 4.20, Czech Lesson for Germans and German Lesson for Czechs, 4.50, Variety Music on Gramophone Records, 5.5, Market Prices, 5.15, Talk for Workers, 5.25, German Transmission; News and Song Recital by Irene Zoltan; Two Songs (Händel); Song from The Bartered Bride (Smetana); Song from Romeo and Juliet (Gounod); Song from Lucia di Lammermoor (Donizetti), 6.0, News, 6.5, Medical Talk, 6.20, See Brno, 7.0, See Bratislava, In the interval at 8.0, Time Signal, 9.0, Time Signal, 9.1, News, 9.15, See Bratislava, 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; LAUSANNE, 680 metres, and GENEVA, 760 metres.—5.0 p.m. (from Lausanne), Medical Talk, 5.30 (from Geneva), English Lesson, 6.0 (from

Lausanne), Weather Forecast, News Bulletin and Announcements, 6.20 (from Geneva), Answers to Correspondence, 6.30 (from Geneva), Concert of New Gramophone Records, 7.0 (from Geneva), Concert of Chamber Music by the Station Quartet, 8.0, Cabaret Programme by the Broadcasting Serenaders, 9.0, News Bulletin and Weather Forecast, 9.15 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW., 8.30 p.m., Weather, 8.40, Musical Programme, 9.0, Chimes, 9.2, News Bulletin, 9.30, Reading, 10.0, Vello Solos by Thorhallur Arnason, 10.15, Recitations, 10.35, Peer Gynt Suite (Grieg) on Gramophone Records.

RIGA

525 metres; 15 kW.—6.5 p.m., Concert by the Station Orchestra, conducted by J. Medins; Overture, Ruy Blas (Mendelssohn); Armenian Melody (Medins); Suite (Massenet); Scherzo Waltz (Mozzkovsky); Czech Daners (Ruzek), 7.0, News, 7.20, Jaseps Wilhtols Song Recital, 7.40, Concert (cont'd); Suite from The Tale of Czar Saltan (Rimsky-Korsakov); Suite from King Christian II (Sibelius); Overture, Der Freischütz (Weber), In the interval at 8.0, News and Weather, 8.30, Light Music, 9.30 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call 1R0, 441 metres; 50 kW., Relay by Naples, 319 metres, and 2R0, 25.4 metres.—7.15 to 7.30 a.m., Giornale Radio and Announcements, 11.30, Weather and Light Music on Gramophone Records, 12.0 Noon, Time and Announcements, 12.2 to 1.15 p.m., Orchestral Concert, In the interval at 12.30, Giornale Radio and Exchange, 3.45, Children's Radio Review, 4.10, Announcements, 4.15, Exchange and Giornale Radio, 4.30 to 5.15, Orchestral Concert; Madrilena (Tagliaberi); Waltz (Stolz); Selection from Aida (Verdi); Arietta (Palumbo); Prestissimo (Turini); Pianoforte Solo; Gavotte (Baeh-Saint-Saëns); Serenata a Frida (Baeragli); Melody (Petralia), 6.10 (Naples), Shipping and Sports Notes, 6.15, Atmospheric Signals, Agricultural Notes, Announcements and Giornale Radio, 7.0, Time and Announcements, 7.2, Talk on Astronomy, 7.15, Light Music on Gramophone Records, 7.30, Sports Notes and Tourist Report, 7.45, Violin Recital by Arrigo Serrato, Eighth Sonata in G for Violin and Pianoforte (Beethoven), 8.20, La dedica sul ventaglio—Comedy in One Act (Eugenio Peregò), Violin Recital (cont'd); Sonata in D Minor for Violin and Pianoforte (Schumann); Humorous Items, 9.30, Gramophone Records; Norwegian Dances (Grieg); Intermzzo from The Jewels of the Madonna (Wolf-Ferrari); Fêtes from Nocturnes (Debussy); Finale from the Classical Symphony in D (Prokofiev), 9.55, News Bulletin.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW., Relay at intervals by W2XAF on 31.48 metres, and by W2XAD on 19.56 metres, 7.45 p.m., Robert Kissing (Baritone), 10.15, Kimmeyville Club, 10.30, Smiling Ed McConnell, 10.45, Sekatory Hawkins, from New York, 11.0, Joe and Eddie—Comedy Sketch, 11.15, Musical Interlude, 11.30, With Gray McClinton in the Canadian North-West, 11.45, Chaudu, the Magician, 12 Midnight, Stock Reports, 12.15 a.m. (Wednesday) till Close Down, New York Relay, 12.15 a.m., Wheatona Ville, 12.30, Barbasol Programme, 12.45, The Goldbergs, 1.0, Blackstone Plantation, 1.30, Wayne King's Orchestra, 2.0, Ben Bernie's Elue Ribbon Orchestra, 2.30, Ed Wynn and the Fire Chief Band, 3.0, Lucky Strike Hour, 4.0 (approx.), Close Down.

SCHWEIZERISCHER

LANDESENDER

BERGMUNSTER, 459 metres; 60 kW.; BASLE, 244.1 metres, and BERNE, 245.9 metres.—11.28 a.m., Time Signal from Neuchâtel Observatory, 11.30, Weather and News, 11.40, Concert by the Radio Orchestra, 12.35 p.m., Weather and Exchange, 12.40 (approx.) to 2.30, Interval, 2.30, Concert by the Small Radio Orchestra, 3.0 (from Basle), Concert by the Radio Quintet, 4.0, Gramophone Concert of Cinema Organ Music, 4.30, Weather, 4.35 to 5.30, Interval, 5.30 (from Berne), Programme for Young People, 6.0, Time and Weather, 6.1 (from Berne), Notes on the broadcasts for schools, 6.15 (from Berne), Talk: Have the Last Few Years brought the Arctic any nearer to us? 6.45 (from Berne), Richard Strauss Song Recitals by Albert Seibert, accompanied by Willy Girsberger and the Radio Orchestra, 7.50 (from Berne), Die Gleitenden—One Act Play (Schützler), 8.30, Weather and News, 8.40, Concert by the Radio Orchestra, 9.15 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW., Relay by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—4.5 p.m. (from Boden), Talk: Among the Lapps and the Trolls, 4.45, Popular Music on Gramophone Records, 5.45, French Lesson, relayed from Malmö, 231 metres, 6.15, Weather and News, 6.30, Talk, 7.0, Concert by the Station Orchestra; Pomp and Circumstance (Elgar); Selection from The Beggar's Opera (Ansting); Two Pieces (P. Grainger); (a) Irish Tune from County Derry, (b) Mock Morris; Meditation from Thais (Massenet); Berceuse (Fucik); Selection from A Waltz Dream (O. Strauss); Polonaise from Eugen Onegin (Tchaikovsky), 8.15, Book Review, relayed from Malmö, 8.45, Weather and News, 9.0, Radio Play, 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Johann Strauss Concert on Gramophone Records, 12.45 p.m., News Bulletin, 1.0, Time Signal, 1.1, Exchange, 1.10 to 2.0, Popular Music on Gramophone Records, 4.45, Talk in French; Fishing in Cambodia, 5.0, Orchestral Concert, conducted by M. Roskam; En tapinois (Gillet); Romantic Suite, A Day in Venice (Seyn); Eley (Massenet); Overture, Tutti in Maschera (Pédrotti); Selection from Mignon (Thomas); Songs (Brahms); (a) Liebestreu, (b) Wiegenlied, (c) Feldeinsamkeit; Novelty March (Pelboud), 6.0, Medical Talk in German, 6.15, Topical Talk, 6.30, Orchestral Concert, conducted by Maurice de Villers; Overture (E. Bael); Suite from Les Erynnis (Massenet); Feuillots de voyage (Schmitt); Selection from La Rondine (Puccini); Bacchanale from Samson and Delilah (Saint-Saëns); Persian Dance (Giraud), 7.30, Time Signal, 7.31, News, 7.45, Popular Music on Gramophone Records, 8.25, Lottery Results, 8.30, Le Roi d'Ys Opera (Lalo), relayed from Lille (265.4 metres), 11.0 (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW., and FREIBURG, 570 metres.—11.0 a.m., Ballet Music on Gramophone Records, 12.15 p.m., Time, News, Weather and Programme Announcements, 12.30 p.m., Concert from Langenberg, 1.0, Sponsored Concert, 1.30, Advanced English Lesson, 3.0, Talk on Flowers, 3.30 (from Karlsruhe), Talk for Women; Vocational Prospects, 4.0, See Munich, 5.15, Time, Weather and Agricultural Notes, 5.25, Talk; Skiing, 5.50, Talk: A Hundred Years of English Democracy, 6.15, Time and News, 6.30, Old Dance Music on Gramophone Records, 7.0, Two Short Stories; (a) Von D. nach M. (Wilhelm Kuhl), (b) Ein lebendiges, ein wirkliches Pferd (J. F. Wittkop), 7.30, The Secret Marriage Opéra-Comique in Two Acts (Cimarosa); German Translation by W. Kleefeld, 9.0, Time, News, Weather and Programme Announcements, 9.20, Dance Music by the Stuttgart Philharmonic Dance Band, conducted by Harry Risch, Soloist: Max Mensing (Tenor), Tango, Eine kleine süsse schwarze Silhouette; Original-Tangogamilla; Foxtrot, Merkst du was? Tango, Es gibt zwei Augen; Pasodoble, O wie schön ist ein Feiertag; Boston, Alles geht vorbei; Foxtrot, Wenn ich Sonntags in mein Kino geh'; Tango, Einen Tag möcht ich bei dir sein; Foxtrot, Wenn ich einmal traurig bin; Waltz, Im Gasthaus zum goldenen Stern, 10.30 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0 p.m., News Bulletin, 6.15, Military Music, 6.30, Sound Film Music, 6.45, Impressions d'Italie—Suite (Charpentier), by a Symphony Orchestra, 7.0, Tangos, 7.15, News Bulletin, 7.25, Local News, 7.30, Music by a Viennese Orchestra, 8.0, Operatic Music; Arias from La Juive (Halévy), Siegfried (Wagner), and Samson and Delilah (Saint-Saëns), 8.15, Organ Music, 8.30, Songs, 8.45, Accordion Solos, 9.0, Extract from I Pagliacci (Leoncavallo), 9.30, Military Music, 9.45, Popular Songs, followed by Instrumental Solos, 10.15, North African News, 10.30, Concert; Bonsoir, chérie; Le Carillonneur (Daniderl); Overture, Semiramis (Rossini); Selection from La Traviata (Verdi); Two Arias from Madame Butterfly (Puccini); Waltz from Madame Pompadour (Fall), 11.0, Orchestral Concert; Bacchanale, from Tannhäuser (Wagner); Jubelouverture (Brahms); Selection from Maritana (Wallace), 11.30, Programme in English by the I.B.C.; Song and Dance Programme; Underneath the Arches (Flanagan); I'll always be true; Life's desire (Evans); Sweet Sixteen (Gilbert); We just couldn't say good-bye (Woods); If you should ever need me (Burke); Good-night Sweetheart (Noble); The Clouds will soon roll by (Brown), 12 Midnight, Weather and Announcements, 12.5 a.m. (Wednesday), Bal musette, 12.15, Military Music, 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—4.0 to 5.0 p.m., Variety Concert, Soloists: Ada Luzzatto (Pianoforte), Elettra Camanzi (Soprano), and Gino Pres-

san (Mandoline), Pianoforte Solo; Papillon (Schumann), Soprano Solos: (a) Sogni e canti (Mazzone), (b) Serenata gelata (Buzzi-Peccia), Mandoline and Pianoforte Pieces; (a) Gavotte (Lully), (b) Le bavolet flottant (Couperin), Pianoforte Solos: (a) Prelude (Liadov), (b) Consolation (Arensky), (c) Three Ecossaises (Chopin), Soprano Solos: (a) Aria from Der Roland (Leoncavallo), (b) Aria from Tilda (Cilea), Mandoline and Pianoforte Pieces; (a) Serenata (Cierce), (b) Andante religioso (De Angelis), (c) Cracoviak (Wiennawsky), 5.35 till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW., Relay by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—4.0 to 5.0 p.m., Orchestral Concert from the Sala Gay, Turin, 5.35, Giornale Radio, Agricultural Report and Announcements, 6.0, Variety Music on Gramophone Records, 6.25, Report of the Royal Geographical Society, 6.30, Time and Announcements, 6.35, Light Music on Gramophone Records, 7.0, Giornale Radio, Weather, and Light Music on Gramophone Records, 7.30, The Rose of Stamboul Operetta in Three Acts (Fall), In the intervals, Talk and Notes on Art, Giornale Radio after the Operetta.

VATICAN CITY

19.84 metres (Morning) and 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

517 metres; 15 kW., Relay by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218 metres.—4.0 p.m., Concert by the Josef Mayer Aichhorn; Hollywood March (H. Leopold); Overture, Berliner Luft (Lmcke); Waltz from The Gipsy Baron (Joh. Strauss); Selection from Waltzes from Vienna (Strauss-Bittner-Korngold); Foxtrot, Hab' nie gewünscht, wie schön du bist (Gerda); Marching Song, Mit meiner Zieh-, Zieh-, Ziehharmonika (Winston); Potpourri, Wiener Weisen auf Reisen (Recktenwald); Polka, Ein Tag im Wienerwald (Krenzhörger); Waltz, Bubbel, Konna (Zietzer); March, Eins, zwei, drei (Dostal), 5.15, Agricultural Talk, 5.40, Talk; Character and Destiny, 6.5, French Lesson, 6.25, Concert of Tyrolean Present Music, Erwin Schaller and Heinz Gejar (Violins) and Franz König (Cello), 6.55, Time, Weather, and Programme Announcements, 7.5, Concert by the Vienna Symphony Orchestra, relayed from the Musikvereinsaal, Conductor, Oswald Klabastala, Soloists: Ignaz Friedman (Pianoforte), Gertrude Rüniger (Contralto), and Adolf Fischer (Tenor), Pianoforte Concerto in B flat minor (Tchaikovsky); Symphony for Tenor, Contralto, and Orchestra, Das Lied von der Erde (Mahler), In an interval at 7.40, Weather and Announcements, 9.5, Announcements, 9.15, Dance Music by the Charly Gaudriot Jazz Band, relayed from Hübners Kurrtalon.

WARSAW

1,411 metres; 120 kW.—11.10 a.m., Light Music on Gramophone Records, 12.20 p.m., Weather Report, 2.10, News Bulletin, 2.15, Economic Report, 2.25, Anti-gas and Aircraft Drill, 2.30, News Bulletin, 2.35, Book Review, 2.50, Popular Music on Gramophone Records, 3.25, Talk for Teachers, 3.40, Talk, relayed from Craoov (312.8 metres), 4.0, Symphony Concert by the Philharmonic Orchestra, conducted by G. Fitelberg; soloist: R. Werner (Pianoforte); Variations (Noskowski); Concerto in A Major for Pianoforte and Orchestra (Mozart); Overture and Selection from Romeo and Juliet (Tchaikovsky), In the interval, News Bulletin, 4.55, Programme Announcements, 5.0, Light Music from the Café Gastronomie, In the interval, News Bulletin, 6.0, Miscellaneous Items, 6.20, Agricultural Notes, 6.30, Talk on Music, 6.45, Radio Journal, 7.0, Concert of Italian Music by the Station Orchestra, conducted by J. Oziminski; Soloists: W. Jakubczyk (Clarinet), L. Matusz (Tenor), and L. Urstein (Pianoforte); Marche bohémienne (Pilsnec); Interlude and Bulerque (Colotta); Mazurka Intermezzo (Cabella); Habanera, Soir de fête a Havane (Pillipucci); Ballet Music from La Gioconda (Ponchielli); Tenor Solos: (a) Vorrei morir! (Tosti), (b) L'ultima Serenata (Tabelle), (c) Lasciatu dir tu m'ami (Pizzi), (d) Good-bye (Tosti); Selection from Tosca (Puccini), In the intervals at 8.0, Sports Notes and Radio Journal, 8.10, Concert (cont'd); Concerto for Clarinet and Orchestra (Busoni); Overture, The Thieving Magpie; Tenor Solos: (a) Napphe e Sorrento, (b) Piscatore e Pussicco (Tagliaberi), (c) Canta pe me (Curtis); Selection from Loreley (Catalani); March from Aida (Verdi), 9.0, Literary Talk, 9.15, Dance Music, 9.55, Weather Forecast and Police Report, 10.0, Dance Music from the Café Ziemienska, 11.0, Close Down.

WILNO

563 metres; 16 kW.—6.0 p.m., Talk in Lithuanian, 6.15, Talk on Wireless, 6.30, See Warsaw, 7.0, Request Gramophone Records, 8.0, See Warsaw, 8.10, Cello and Pianoforte Recital of Sonatas, 9.0 till Close Down, See Warsaw, 11.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender.

WEDNESDAY

JANUARY THE ELEVENTH

PRINCIPAL EVENTS OF THE DAY:

ALGIERS
313.3 metres; 13 kW.—7.10 p.m., Shipping News. 7.15, Weather Forecast and Agricultural Notes. 7.20, Light Music. 7.30, Film Review. 7.45, Suite from Daphnis et Chloé (Ravel). 7.55, News Bulletin. 8.0, Time Signal. 8.2, Talk: The Season in Algiers. 8.15, Dance Music, relayed from the Hotel St. George. 8.45, Popular Music on Gramophone Records. 9.0, Le Luthier de Crémone—Comedy in One Act (Coppée). 9.30, Songs from Operetta. 9.50, News Bulletin.

BARCELONA
RADIO-BARCELONA; Call EAJ1, 349 metres; 8 kW.—7.30 p.m., Exchange Quotations. Request Gramophone Records and News Bulletin. 9.6, Chimes. Weather, Exchange Quotations and Market Prices. 9.5, Concert by the Station Orchestra. 10.0, Hannele—Drama, by Gerhart Hauptmann, in Catalan. In an interval at 11.0, News. 12.0 Midnight (approx.). Close Down.

BARI
270 metres; 20 kW.—7.0 p.m., Agricultural Notes. Tourist Report and Announcements. 7.20, Giornale Radio and Announcements. 7.30, Time and Announcements. 7.35 (approx.), Chamber Music. Soloists: Donato Marrone (Pianoforte), Enza Motti Messina (Soprano) and Luigi De Grandi (Violin). Overture, The Thieving Magpie (Rossini); Ballade for Pianoforte, Op. 23 (Chopin); Soprano Solos (Schumann); (a) Ich geh' nicht, (b) Morgen, (c) Ständchen; Elegy for Violin (Bazzini); Soprano Solos (Richard Strauss); (a) Traum durch die Dämmerung, (b) Morgen, (c) Ständchen; Pianoforte Solos (Boschi); (a) Amore in condola, (b) Colombiana (Cecchi); Overture, La fanciulla delle Asturie (Secchi); Pianoforte Solo; Da un autunno già lontano (Pizzetti); Three Sicilian Songs for Soprano (Mule); (a) Il canto del carcerato, (b) Ninnanna, (c) Filastroca; Piece for Violin; Dir. Béne (Schubert, arr. Prince); Pianoforte Solo; Waltz—Etude (Saint-Saëns). Humorous Talk in the interval. 9.55, News Bulletin.

BASLE.—See Schweizerische Landessender.

BELGRADE
430.4 metres; 2.8 kW.—5.55 p.m., Time and Programme Announcements. 6.6, Talk. 6.30, Song Recital. 7.0, Violin Recital: Sonata, Op. 100 for Violin and Pianoforte (Dvorák); Romance in F (Beethoven); Rondo (Stojanovic). 7.40, Radio Play. 8.20, Concert of Light Music by the Station Orchestra. 9.10, News, followed by Light Music from the Zentral Hotel.

BERLIN
KONIGS WUSTERHAUSEN; 1,635 metres; 60 kW.—11.55 a.m., Nansen Time Signal. 12.35 p.m., News. 1.0, Gramophone Concert of Classical Music, relayed from Berlin (Witzleben). 2.0, Programme for Children. 2.30, Weather and Exchange. 2.45, Reading of Authors' Letters. 3.0, Explanatory Talk on Goethe's Faust, Part I. 3.30, Concert from Hamburg. 4.10, Talk: The Champions and Heroes of German Aviation. 4.30, Talk on Religion. 4.55, Variations in C (Mozart), by Maria Petersen. 5.55, Weather for Farmers and Announcements. 6.0, French Lesson. 6.30, A Poem. 6.35, See Breslau. 7.30, Imaginary Conversations: (a) The Sage; Characters: Socrates and Alcibiades; (b) The Greatest Happiness of Morals; Characters: A University Lecturer and a Ghost; (c) The End of Life; Characters: Schiller (on his Death-bed) and Heinrich Voss. 8.10, See Berlin (Witzleben). 9.20, Weather, News and Sports Notes. 9.45, Weather Report for Shipping. 10.20 (approx.), Dance Music from Langenberg. 11.0, (approx.), Close Down.

BERLIN
WITZLEBEN; 419.5 metres; 1.5 kW.—6.0 p.m., Topical Talk. 6.10, Concert by a Mandoline Orchestra, conducted by Bruno Henze; Overture in G, Op. 24 (Krist); Pizzicato Polka from Sylvia (Delibes); Norwegian Dance No. 2 (Grieg); Waltz-Intermezzo, Sehnsucht (Henze); Two Pieces from the Carnival Suite (Schmalstieg); (a) Harlequin's Serenade, (b) Pierrette; Waltz, España (Waldteufel). 7.0, Talk: One of Eighty Millions. 7.15, Variety Programme of Talks and Music. 8.10, Symphony Concert by the Berlin Philharmonic Orchestra, conducted by Eugen Joachim, relayed from the Philharmonic; Concerto for Violin and Orchestra, Op. 35 (Karl Szymanovsky); Fourth Symphony in F Minor, Op. 36 (Tchaikovsky). 9.20, News, followed by Dance Music. 11.0 (approx.), Close Down.

BERNE.—See Schweizerische Landessender.

BEROMUNSTER.—See Schweizerische Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BORDEAUX-LAFAYETTE
304 metres; 13 kW.—7.30 p.m., News and Market Prices. 7.35, Lottery Results. 7.40, Dramatic Criticism. 7.55, Lottery Results. 8.0, Agricultural Notes. 8.15, News. 8.30, Vocal and Orchestral Concert.

NATIONAL
Recital of new gramophone records. Pianoforte recital. Orchestral concert from Bournemouth. Organ music. Promenade concert from Queen's Hall. "Strange Music," Pierrot in Music, instrumental concert.
LONDON REGIONAL
Ballad concert. Organ music. Orchestral concert. Typical orchestral music. Vaudeville programme. Military Band concert.
MIDLAND REGIONAL
Ballad concert. Light symphony concert. "From the Light Operas," orchestral programme.
NORTH REGIONAL
Organ music. Orchestral concert. Excerpts from Julian Wylie's pantomime, "Mother Goose," from the Palace Theatre, Manchester. Mr. Charles Arning: "The Business Man Abroad."
WEST REGIONAL
Orchestral concert from National Museum of Wales. West Regional Sketches: Mr. James Ross; Bristol Broad-sides. Tunes, Ancient and Modern, orchestral concert.
SCOTTISH REGIONAL BELFAST
Instrumental concert. Operatic and orchestral concert from Lyric Theatre, Glasgow. Orchestral concert, from Strainmillis.
HAMBURG HILVERSUM
Concert, conducted by J. Eibenschütz. The Haaren Orchestra Society, conducted by F. Schuurman.
RADIO PARIS STRASBOURG WARSAW
The Symphony Orchestra, conducted by E. Bigot. Concert relayed from the Palais des Fêtes. Pianoforte recital by H. Sztompka.

BRATISLAVA
270 metres; 14 kW.—3.10 p.m., See Prague. 4.0, Variety Music on Gramophone Records. 4.30, Programme for Children. 4.40, Popular Music on Gramophone Records. 5.0, Hungarian Transmission. Medical Talk followed by a Song Recital. 6.0, See Prague. 6.20, Popular Music on Gramophone Records. 6.40, See Brno. 8.0, See Prague. 8.30, See Brno. 9.0, See Prague. 9.15 (approx.), Close Down.
BREMEN.—See Hamburg.

BRESLAU
325 metres; 60 kW., and GLEIWITZ, 253 metres.—12.5 p.m., Weather for Farmers. 12.10, Gramophone Concert: Selection from Wiener Blut (Joh. Strauss); Das waren Zeiten, from Gasparone (Müllacker); Two Waltzes (Wald); Tambourin (Gossec); Minuet (Mozart); Zigeunerweisen (Sarasate); Selection from The Dubarry (Müllacker Mackelent); Waltz, Perpetuum mobile (Joh. Strauss). 12.45, Time, Weather, News and Exchange. 1.5, Gramophone Concert (cont'd); Wiener Spaziergänge (Komzak); Waltz, Im Zeichen des Frühlings (Lohat); Ukrainian Sketches (Sibuzky); Two Songs from Das Lied der Liebe (Strauss-Korngold); Two Hungarian Folk Songs (Dorczy); Taurische Maisblätter (Nador); Selection from The Gipsy Baron (Joh. Strauss). 1.45, Sponsored Programme, with Gramophone Records. 2.10, Agricultural Prices and Exchange. 2.30, Talk for Parents. 3.0, Pianoforte Recital by Margarete Slavik; Variations on the Turkish March, Op. 76 (Beethoven); Variations in B Flat (Schubert); Variations in E on a German Song (Chopin). 3.30, Talk: Customs and Ceremonies in Upper Silesia. 3.50, Talk: The Origin of Karlsruhe in Upper Silesia. 4.10, Talk on the coming German Skating Championships in Oppeln. 4.30, Agricultural Prices. 4.35, Concert of Opera Music by the Orchestra and Soloists of the Upper Silesian Land-theater. 5.0, Concert by the Upper Silesian Land-theater Orchestra, conducted by Erich Peter; Overture, Struensee (Meyerbeer); Waltz from Madame Pompadour (Fall); Selection from The Bartered Bride (Smetana); Ballet égyptien (Laurini); Carnaval à Paris (Svendsen). 6.5, Talk on Occupations of the Salesman. 6.30, Weather for Farmers. 6.35, Concert by the Silesian Philharmonic Orchestra, conducted by Edmund Nick. Overture, Der Tempel und die Jüdin (Marschner); Suite, Aschenputtel (Albert); Pastoral, Marsch der heiligen drei Könige (v. Waldart); Four Symphonic Interludes from Intermezzo (R. Strauss). 7.40, Saxophone Recital by Carl Rau. 8.10, Announcements. 8.20, Extracts from The Girl in the Taxi-Operetta in Three Acts (Gilbert), with Commentary by Dr. Ringmann. 9.15, Time, Weather, News, Sports Notes and Programme Announcements. 9.35, Concert by the Wireless Military Band, relayed from London. 10.30 (approx.), Close Down.

BRNO
342 metres; 35 kW.—3.10 p.m., See Prague. 4.10, A Marionette Play. 5.5, Review of Periodicals. 5.15, Talk for Workers. 5.25, German Transmission: News and Talk; Women to-day and in the Future. 6.0, See Prague. 6.5, Talk. 6.20, Waltzes and Variations for Pianoforte on Gramophone Records. 6.40, Variety Programme, 1870-1930. Part I. 1870; Färrer (Bergin); Selection from La Belle Héloïse (Offenbach). Part II, 1900; Sketch (Regnard); Selection from Die geschiedene Frau (Fall). Part III, 1930; Jealousy—Sketch (Molnar); Selection from Rose-Marie (Frind). 8.0, See Prague. 8.30, Music in the Family Circle—Sketch (Pesehek), translated by Kozik. 9.0, See Prague. 9.15 (approx.), Close Down.

BRUSSELS (No. 1)
I.N.R., 509 metres; 15 kW.—12 Noon, Gramophone Concert of Light Music. 1.0 p.m., Le Journal Parlé. 1.10, Concert, conducted by M. André Fellemann, relayed from the Grand Hotel, Antwerp; Selection from L'Adrienne (Bizet); Cello Solo; Träumerei (Schumann); Tango, Moja Malenka (Karasinaky); Rhythmic Foxtrot, with Pianoforte Obligato (Robrecht); Waltz, Reaching for the Moon (Irving Berlin); Foxtrot, Marta (Simons); Potpourri of Viennese Operetta Music (Druby). 5.0, Trio Concert; Divertissement (Mozart); Serenade (Dohnányi). 6.0, Un beau sujet de Film—Radio Sketch (André Blandin). 6.15, French Pianoforte Music Recital, with Commentary; Nocturne (Faure); Tableau de voyage (L'Indy); Pièce romantique (Florent Selmit); Baigneurs au Soleil (de Sévère); Minuet (Ravel); Hommage à Rameau (Debussy); Printemps (Milhaud); Rag Caprice (Milhaud); Danse (Honegger). 7.15, Talk on the Administration of the Belgian Congo. 7.30, Medical Review. 8.0, Concert by the Radio Orchestra, conducted by Charles Walpot; Soloist, Mlle. Light (Songs); Marche militaire française (Saint-Saëns); Waltz, Wienerblut (Joh. Strauss). 8.15, The Symphony of the Voices of the World—Experimental Transmission for Orchestra and Soloists (Mme. Douglas d'Estree). 9.0, Concert (cont'd); Die Wachtparade kommt (Eilenberg); Selection from No. No. Nanette (Yonnans); Songs; Idylle passionnelle (Razigade); Potpourri of Suppé Music (Morena); Songs; Slow Foxtrot, Dors, mon tout petit (Ludo Langlois). 10.0, Le Journal Parlé. 10.10, Gramophone Concert of Light Music. 11.0 (approx.), Close Down.

BRUSSELS (No. 2)
I.N.R., 338.2 metres; 15 kW.—Programme in Flemish.—12.0 Noon, Concert of Light Music relayed from the Grand Hotel, Antwerp. 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Concert: March (Furik); The Rose-Beetle goes a-wooing (Armandola); Andante religioso (Lang); Parade im Märchenwald

(Noack); Leuchtkäferchens Stelldichein (Siede); Melody, A Week-end in the Land of Cockaigne (Armandola); Un poco tristo (Snk); Fleurs de Lis (Stellens); Selection from The Merry Peasant (Fall); Orientale (Cui); Selection from The Gipsy Baron (Fall). 6.0, Concert by the Radio Orchestra, conducted by Charles Walpot; Overture, Chal Romano (Kretzschmar); Waltz, Künstlerleben (Joh. Strauss); Selection from The Geisha (Jones); Andante cantabile for Clarinet (Baermann); Russian Dance (Szamka); Ballet Music from Les Deux Pigeons (Messenger). 6.0, Gramophone Records; Impromptu, Op. 142, No. 3 (Schubert); Overture and March from The Nutcracker Suite (Tchaikovsky). 6.15, Readings. 6.30, Concert. 7.10, Talk on Spinoza. 7.30, Theatre Review. 8.0, Pinkschnecht—Musical Play in Two Acts (Oscar Roels). 10.0, Le Journal Parlé. 10.10, Concert by Alexys' Orchestra, relayed from the Ancienne Belgique. 11.0 (approx.), Close Down.

BUCHAREST
394 metres; 12 kW.—4.0 p.m., Concert by the Station Orchestra. 5.0, News and Time Signal. 5.10, Talk. 5.25, Concert by the Station Orchestra (cont'd). 6.0, Educational Talk. 6.40, Popular Music on Gramophone Records. 7.0, Violin Recital by Sima Alexandrescu; Concerto No. 2 in D Minor (Wieniawsky); Waltz (Brahms). 7.30, Talk. 7.45, Pianoforte Recital by Mme. Zamfiresco; Sonata, Op. 27, No. 2 (Beethoven); Réve angélique (Rubinstein); Evening Bells (Zamfiresco); Two Waltzes (Chopin). 8.15, Sonata in A Minor for Cello and Pianoforte. (Boellmann). 8.45, News and Time Signal.

BUDAPEST
550 metres; 18.5 kW.—Programme also relayed on 840 metres from 6.30 p.m. till Close Down. 6.0 p.m., Italian Lesson. 6.30, Pianoforte Recital by Elvire Zsembery; Sonata in C, Op. 2, No. 3 (Beethoven); Ballade in G Minor (Chopin); Le rossignol (Liszt). 7.0, Kadettenliebe—Operetta (Paul Gyöngy). News during the interval. After the Operetta, Cigány Concert from the Café Baross. Soloist: Mire Vargha (Songs).

CASSEL.—See Frankfurt.

COPENHAGEN
281 metres; 0.75 kW., and KALUNDBORG, 1,153 metres; 7.5 kW.—11.0 a.m., Time and Chimes from the Town Hall. 11.5, String Ensemble Concert relayed from the Wivex Restaurant. 12.15 p.m., Educational Programme. Talk with Musical Illustrations: Mozart's Opera, Figaro. 1.0, Gramophone Concert. Joseph Schmidt: Aria from Le Cid (Masse-net). Maartje Offers: Where Corals lie (Elear). Richard Tauber: Aria from Martha (Flotow). Roger Dann: Encore un soir (Czernau). Pablo Casals: Musette (Bach-Pollain). Sven Sandberg: Melody (Sylvain). Marta Eggerth: Was fang ich an mit meiner Schmeidel (May). Rotorua Maori-Choir: Maori Song, Come poi song. The Boswell Sisters: Hand me down my walkin' cane. 1.30, Programme for Children. 2.0, Relay of Prof. Halleby's Meeting from Bethesda. 3.0, Concert by the Station Orchestra, conducted by Emil Reesen. Soloist: Inger Christrup (Pianoforte). Overture, Morning, Noon, and Night (Suppé); Waltz, La Hussarde (Ganne); Selection from Mignon (Thomas); Serenade (Dvorak); Military March in G (Schubert); Pianoforte Solos; (a) Impromptus in G Flat and E Flat (Schubert). (b) Etude in E Flat Minor Op. 10 (Chopin). (c) Waltz in F Minor (Chopin); Selection from Naila (Delibes); (a) Pas des charpes, (b) Danse circassienne; Waltz, Hoffmingsstrahl (Laurer); Selection from The Czardas Princess (Kálmán); Serenade, Polka and Polonaise from Les Millions d'Arlequin (Drigo); March from Modernen (Nielsen). 4.40, Exchange and Fish Market Prices. 4.50, Talk. 5.20, French Lesson for Beginners. 5.50, Weather Forecast. 6.0, News and Announcements. 6.15, Time Signal. 6.16, Talk on Great Philosophers. 6.45, The Hansen Family—Sketch (Jens Løcher). 7.0, Chimes from the Town Hall. 7.5, Chamber Music: Sonata a tre in G Minor for Two Oboes, Bassoon, and Harpsichord (Bromann); Sonata for Harpsichord (Agrell); Variations on a Theme from Mozart's Don Giovanni (Beethoven). 7.30, Topical Talk. 8.0 to 1.0 a.m. (Thursday), Radio Ball. 8.0, Programme by Louis Prell's Dance Band, Refrains by Victor Cornelius. In the interval at 9.0, News. 10.15, Programme by the Valencia Orchestra, conducted by Aage Juhl-Thomsen. 11.0, Time and Chimes from the Town Hall. 11.5, Dance Music from the Ritz Restaurant. 12 Midnight, Dance Music from Nimb's Restaurant. 1.0 a.m. (Thursday), Close Down.

CORK.—See Dublin.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN
Call 2RN, 413 metres; 1.2 kW.; and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. 6.0, Popular Music on Gramophone Records. 6.15, Programme for Children. 7.0, Variety Music on Gramophone Records. 7.20, News Bulletin. 7.30, Time Signal. 7.31, Gaelic Reading. 7.45, German Lesson, by Olga von Wenckstern. 8.0, Garda Síochana Depot Band. 9.0, The Black Horse Inn, presented by Jack Dwan and Company. 9.30, Song

Recital by P. J. Duffy (Baritone). 9.50, Pianosolo Solos by Carmel Turner. 10.5, Station Sextet. 10.30, Time Signal, News, Weather Report, and Close Down.

FECAMP

223 metres; 10 kW.—12 Noon, Variety Music on Gramophone Records. 12.30 p.m., News Bulletin. 12.45, Concert of Light Music. 7.0, Local News and Agricultural Notes. 7.15, Popular Music on Gramophone Records. 7.30, Radio Gazette. 8.0, News Bulletin. 8.30, Variety Concert. 9.0, Concert, relayed from Berck. 10.0 till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: In London on a Night like this; Without my Gal; Let me sing and I'm happy; Sing a Little Theme Song; Lorette; I still get a thrill; Sing, you Sinners; High Society Blues; If anything happened to you; Gone; To my Mummy; When the Little Red Roses; By your Side; Springtime in the Rockies; Yours sincerely; I'm in the Market for you. 11.0, Orchestral Concert, with Songs: Songs: (a) Melody divine (Spencer); (b) Darling old Mother of mine (Zona); (c) A Convict's Dream (Dondy); The Parade of the Veterans (arr. Pecorini); Songs: (a) Dark Red Roses (Brahms); (b) The Golden Gates of Paradise (Verrill); (c) I wish I had died in my Cradle (Friedman); Souvenirs (arr. Pecorini). 11.30, The Accordion Two; Overture, Trieste (Pietro); Medley of Swedish Airs; Mazurka, Lido Lady (Perry); Waltz, The Blue Danube (Strauss); March (Michael); Medley of English Airs (arr. Caveller); Waltz, Lorentine (arr. Macari); Restless Fingers (Caveller); The Skaters' Waltz (Waldteufel). 12 Midnight, Concert on behalf of the Philco Radio and Television Corporation of Great Britain, Ltd. 12.30 a.m. (Thursday), Dance Music: The Chum Song; Under the Sweetheart Tree; I'd like to find the Guy that wrote the Stein Song; Without my Gal; Scottish Medley; Fiddle-pump; Gorgonzola; What a Perfect Night for Love. 1.0, Studio Concert of Longstaffe's Songs: The Driver of the 8.15; The Leader of the Town Brass Band; When the Sergeant Major's on Parade; Take off your Coat; P.C. Brown; Archie of the R.A.F.; The Captain of the Team. 1.30, Concertina Solos; Bonnie Lass of Bon Accord (Skinner); Wiegand (Brahms); The Road to the Isles (Fraser); Lopeziana (Aliter); Scottish Reels (arr. Dale). 1.45, Light Orchestral Music: Souvenir d'Ukraine; When It's Night Time in Nevada; That's why Darkies were born; Dance while the Music is ringing. 2.0, Dance Music: That's my Desire; You can't stop me from loving you; My baby said Yes! Yes!; You were my Salvation; Cuban Love Song; Just once for all time; The Wedding Party of Mickey Mouse; Life is just of Bowl of Cherries; My Sunshine is you; Put your Loving Arms around me; It's a girl; Got a Date with an Angel; It's great to be in love; Lies; They all make love but me; What's going to happen to me? 2.57, I.B.C. Good-night Melody. 3.0, Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW., and CASSEL, 245.9 metres.—4.0 p.m., Orchestral Concert. 6.15, Economic Notes. 5.25, Talk: Goethe's Personal Relations to the Frankfurt Theatre. 5.50, Topical Programme. 6.15, Time, Programme Announcements, Weather and Economic Notes. 6.30, Concert by the Station Orchestra, conducted by Hans Rosbaud. Soloist: Otto Fanger (Tenor). Part I: Overture, The Water Carrier (Cherubini); Cavatina from Rienz (Wagner); Overture, Fernand Cortez (Spontini); Lohengrin's Farewell, from Lohengrin (Wagner); Entr'acte Music from Die drei Pintos (Weber); Aria from The Valkyries (Wagner); Overture, The Vampire (Marschner); Aria from Tristan and Isolde (Wagner); Overture, King Lear (Berlioz). Part II: Programme of Josef Lanner's Waltzes. 8.20, Rural Peace—a Chronicle of the Simple Life. 9.0, Time, News, Weather and Sports Notes. 9.20, Military Band Concert, from London. 11.0 (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

Call ha (in Morse), 372 metres; 1.5 kW. Relayd by Bremen, 270 metres; Flensburg, 218 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—3.30 p.m., Orchestral Concert, conducted by Otto Ebel von Sosen: Prelude, Loreley (Bruch); Concert Overture, A Thousand and One Nights (Taubert); Potpourri of Brahms Music (Morena); Lyric Suite (Grieg); (a) Shepherd Boy, (b) Norwegian Peasant March, (c) Nocturne, (d) March of the Dwarfs, (e) Overture (Gungl); Coronation March (Svendson). 4.30, Programme in Commemoration of the Eightieth

Birthday of Gustav Falke. 5.0, Talk on Modern Finnish Writers—II, René de Clercq. 5.40, Talk for Women. 5.50, Exchange and Market Prices. 6.0, Talk; Young Craftsman. 6.30, The Songs of Campanella the Monk; Concert by the Station Orchestra, conducted by Horst Plateu; Soloist: Bernhard Jakschlat (Baritone). 7.0, The Golden Smile—Humorous Programme. 7.50, News Bulletin. 8.0, Concert, conducted by Jose Fibenschütz; Soloist: Meta Hagelom (Piano-forte); Concerto No. 2 in B Flat for Piano-forte and Orchestra, Op. 19 (Beethoven); Symphony No. 1 in C, Op. 21 (Beethoven); Concerto in C Sharp Minor for Piano-forte and Orchestra (Rimsky-Korsakov). 9.10, Time and News Bulletin. 9.20, Topical Talk. 9.30, Songs from Sound Films—an Evening in the Café Waldhof. In an interval at 10.20, See Report.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW.; and DANZIG, 453.2 metres.—12.5 p.m., Gramophone Concert: Heimatlid (Kistenmacher); Die Chorsinger (Pheips); Hymn from Alessandro Stradella (Flotow); Melody from The Ruins of Athens (Beethoven); Waltz, Op. 39 (Brahms); Servus Wien (Dostal); Rondo from Faust (Gounod); Song from Faust (Gounod); Niemand fragt uns (Gray); Es gibt noch Mädchen (Lehar); Was kann so schön sein, wie deine Liebe (Brodsky); Hungarian Folk Song, Ein bisschen Liebe für mich (Gilbert); So küsst man nur in Wien (Gilbert); Schon Rosmarin (Kreiser); Perpetuum mobile (Strauss); Das waren Zeiten (Steffan); Song from Blue Beard (Offenbach); Mit Willi Ostermann am Rhein (Ostermann); Helenen-marsch (Lühbert). In the interval at 12.20 p.m., News. 1.30, Sponsored Programme, with Gramophone Records. 2.0, Exchange Rates and Market Prices. 2.20, Hints for the Housewife. 2.30, Talk for Children. 3.0, Discussion on Vocations. 3.30, Concert by the Small Station Orchestra, conducted by Eugen Wilcken; Overture, Zampa (Herold); Thermen-Walzer (Joh. Strauss); Amina (Lincke); Santa Lucia Luntana (Mario); Selection from The Rose of Stamboul (Fall); Waltz Potpourri, Alter Saug—neuer Klang (Wismar); Overture, Flotte Bursche (Stüppé). 4.30, Radio Report from the Industrial Centre in Gumbinnen. 5.15, Agricultural Prices. 5.30, Talk on Tuberculosis. 6.0, Bridge Lesson. 6.25, News and Weather. 6.30, Dance Music by the Small Station Orchestra, conducted by Eugen Wilcken, and the Edmur Runde Orchestra. 8.30, Talk, with Gramophone Illustrations: European National Anthems. 9.0, Weather, News, and Sports Notes, followed by Variety Programme. 11.0 (approx.), Close Down.

HILVERSUM

Announced HUIZEN, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—11.55 a.m. till Close Down, Programme of the Christian Radio Society (N.C.R.V.). 11.55, Trio Concert. Soloist: J. v. Ginkel (Clarinet). Selection from The Creation (Haydn); Sacred Songs; Clair matin (Jeanjean); Entr'acte Music from Rosamund (Schubert); Cycle of Dutch Songs; Popular Music on Gramophone Records; Overture, Zampa (Herold); Waltz, Acceleration (Strauss); Melody (P. v. Overbeke); Selection from Rigoldito (Verdi); Selection from Cavalleria rusticana (Mascagni). 1.40, Agricultural Talk. 2.40, Religious Address. 3.10, Concert by De Zangklasse Children's Choir, conducted by J. Hornsmeier. 4.40, Programme for Children. 5.40, Light Music on Gramophone Records. 5.55, Talk. 6.10, Elementary English Lesson. 6.40, Talk. 7.10, Police Notes. 7.25, Religious Report. 7.40, Concert by the Haarlem Orchestral Society, conducted by F. Schuurman. Soloist: Hanny Schellehaar Klotz (Violin). Overture, William Tell (Rossini); Neapolitan Tarantella (Rossini); Waltz, Tales from the Vienna Woods (Joh. Strauss); Selection from Der Trompeter van Säckingen (Nessler-Nikisch); Selection from The Damnation of Faust (Berlioz). 8.40, Talk. 9.10, Concert (cont'd): Overture, Theodor (Handel); Concerto in A Minor for Violin (Bach); Symphony in F (Bach); Two Chorals (Bach). In the interval at 9.40 (approx.), News. 10.10, Gramophone Records of Variety Music. 11.10 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 1875 metres; 8.5 kW.—Programme arranged by the Workers' Radio Society (V.A.R.A.). 11.40 a.m., Concert by the Small Orchestra, conducted by P. Duclant; March, Mignonne (Polini); Neapolitan Serenade (Costa); Waltz from Die geschiedene Frau (Fall); Pasodoble (Guttman); Selection from The Tales of Hoffmann (Offenbach); Gramophone Records of Variety Music; March (Teike); Parade galante (Ganne); Wo die Zitronen blühen (Strauss); Selection from Fontaine Maritza (Kálmán); Gramophone Records of Variety Music; The Liberty Bell March (Souza); Sektgeister (Urbach);

JAN. 11th

WEDNESDAY

continued

Melody (Stolz); Narcissus (Nevin); Potpourri, Klänge aus Arkadien (Morena). 1.25 p.m., Interval. 1.40, Talk for Women. 2.40, Programme for Children. 5.10, Concert of Light Music. In the interval, Variety Music on Gramophone Records. 6.10, R.V.C. Programme. 6.40, Talk for Journalists. 7.0, Concert, relayed from Berlin (Witzleben). 7.40, S.O.S. Announcements. 7.45, Talk. 8.5, Talk on Music. 8.40, A Radio Play (B. van Deelen). 9.40, Orchestral Concert, conducted by H. de Groot; Overture, Die Felsenküde (Reissiger); Selection from Lilac Time (Schubert-Berke); Five Spanish Dances (Moszkovsky); Spanish Caprice (Tchaikovsky); Neapolitan Serenade (Rivelli); Dances (Lanner); March from Sigurd Jorsalfar (Grieg). 10.40, News. 10.50, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.0 p.m., Talk. 6.20, Announcements and Opera Music on Gramophone Records. 6.30 to 9.20, See Warsaw. 9.20, Dance Music. 10.0, Answers to Correspondents in French.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres, 54 kW.; and HELSINKI, 368.1 metres.—5.40 p.m., Flute Recital by Michele Orlando; Selection from The Daughter of the Regiment (Donizetti); Petite Fanfette (Damaré); Minuet from L'Arlesienne (Bizet). 6.0, Talk. 6.25, Concert by Freddy's Orchestra. 6.55, Humorous Talk. 7.45, News in Finnish and Swedish. 7.55, Dance Music.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert, conducted by Eysoldt; Overture, Karnevalsstreiche (Richter); Burlesque (Poot); Ein Ländler (Pachernezz); Second Japanese Suite, In the Kingdom of the Sun (Yoshitomo); Waltz, Was der Wald erzählt (Zimmer); Intermezzo, Sicilietta (Bloni); Mexican Serenade, Lisonga (Armandola); Potpourri of Eysler's Music (Hruby); Lipper Schützenmarsch (Lüling). 1.0 p.m. (in an interval), News. 1.30, Sponsored Programme with Gramophone Records. 2.30, Exchange and Time Signal. 2.50, Programme for Children. 3.20, Talk on Heinrich Zille on his Seventy-fifth Birthday. 3.40, Talk: Attempts to Discover a Biological Foundation for Education. 4.0, Concert, conducted by Wolf; Overture, Britannicus (Scasola); Waltz, Königskinder (Lühr); Selection from The Cricket on the Hearth (Goldmark); Serenade (Grünfeld); Melody (Harlov); Romanian Folk Dances (Béla-Bartok); In the Steppes of Central Asia (Borodin); Potpourri of Viennese Songs, Servus Wien (Dostal). 5.20, Review of Books on Travel and Exploration. 5.45, Weather, Time, Exchange, and Sports Notes. 6.0, Talk on Invalid Insurance. 6.20, Talk: Health Before Everything—Peace is the first consideration of the Family. 6.35, Talk: The Overcrowding in the Teaching Profession. 6.55, First General News. 7.0, The Little Dutch Girl—Operetta in Three Acts (Kálmán). 9.15, News and Sports Notes. 9.30, Wireless Military Band Concert, conducted by B. Walton O'Donnell, relayed from London. 10.0, Commentary, on the Six Days' Racing, relayed from Dortmund. 10.20, Serenade and Dance Music, conducted by Eysoldt. 11.0 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW.; and DRESDEN, 319 metres.—11.0 a.m. (approx.), Orchestral Concert, conducted by Gustav Mantebeck; Hungarian Shepherd Dance and Csardas (Gungl); Toren-Walzer (Translatour); Overture, Fatinitza (Suppé); Selection from Tosca (Puccini); Chantilly Waltz (Waldteufel); Gavotte (Eduard Schütt); March, Die Welt ist schön (Oskar Jünger); Overture, A Waltz Dream (Oscur Strauss); Hungarian Dances Nos. 2 and 7 (Brahms); Music to Der Blumen Rache (von Hornstein); Polka, Olga (Joh. Strauss); Selection from Der Opernball (Haberger). 12 Noon, in an interval, News, Weather, Snow Report and Time Signal, Exchange Quotations after the Concert. 1.0 to 1.30, Talk on Unemployment. 2.35, Exchange Quotations. 3.0, Concert for Young People. 4.50, Exchange, Weather and Time Signal. 5.10, Review of Books. 5.35, Italian Lesson. 5.55, Programme to be announced. 6.5, Talk on Book-keeping Methods. 6.30, Song Recital by the Gora Saugelust Double Quartet; Sternennacht from the Mülliedern, Op. 38, No. 1 (Hermann Schulken); O wie herbe ist das Scheiden (Friedrich Silcher); Morgengruss an den Rhein, Op. 91, No. 1 (Tschirsch); Meine Heimat, Op. 27 (Theo

Nestler); Unterm Lindenbaum, Op. 10 (Wilhelm Sturm); Abendlied (Franz Abt). 7.0, Otto Nicolai in Italy—Concert by the Leipzig Symphony Orchestra, conducted by Willy Steffen. Soloist: Aenne Colomba (Soprano). Commentary by Georg Richard Kruse. Two Ariettas: (a) La Pastorella, (b) Annetta Arietta; Romance, Alla Luna; Salve Regina; Scene and Aria from Enrico secondo; Overture, Il Templario. 8.0, Topical Talk. 8.10, Thomas Münzer—Drama (Paul Gurk). 9.10, News Bulletin. 9.15, (approx.), Military Band Concert relayed from London. 10.30 (approx.), Close Down.

LINZ.—See Vienna.

I JUBLJANA

574.7 metres; 2.5 kW.—6.0 p.m., Russian Lesson. 6.30, Literary Talk. 7.0, Gericke Programme—A Talk, and Concert of his Compositions. 8.15, Concert, relayed from the Café Zvezda. 9.15, Time and News.

LWOW

381 metres; 16 kW.—5.55 p.m., Literary Talk. 6.10, Miscellaneous Items. 7.0, Light Orchestral Concert, conducted by Tadeusz Seredyński. 7.55, See Warsaw. 9.15, Song Recital by Carol Baras (Bass). 9.35, Popular Music on Gramophone Records. 9.40, See Warsaw. 10.30 (approx.), Close Down.

LYONS

LA DOUA; 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South-East. 8.30, Educational Talk. 8.45, Le Jeu de l'Amour et du hasard—Play (Marivaux). After the Play, News Bulletin.

MADRID

ARANJUEZ (EAQ); 30.43 metres; 20 kW.—11.30 p.m., Variety Music. 11.45, Radio Chronicle. 12 Midnight, Concert of Popular Music. 12.35 a.m. (Thursday), Talk. 12.40, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotations, and Agricultural Talk, followed by Request Gramophone Records. 8.15, News Bulletin. 8.30 to 9.30, Interval. 9.30, Chimes and Time Signal. 9.35 (approx.), The Crime in Oxford Street—Play submitted in connection with the Radio Play Competition. 11.45, News Bulletin. 12 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—4.10 p.m., See Brno. 5.5, Talk: The Athlete in Winter. 5.15, Talk for Workers. 5.25, Brass Band Concert, from Petrvald. 6.0, See Prague. 6.20, A Play. 6.40, See Brno. 8.0, See Prague. 8.20, See Brno. 9.0, See Prague. 9.15 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 160 kW.—4.0 p.m., News. 4.10, Concert. 5.00, Popular Concert. 8.0, Talk in English: Prisons in the Soviet Union. 8.55, Times. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayd by Augsburg and Kaiserslautern, 560 metres, and Nürnberg, 239 metres.—4.0 p.m., See Frankfurt. 5.15, French Lesson. 5.35, Talk for Women. 5.55, Time, Weather and Agricultural Notes. 6.5, Talk: National Co-stumes, which are still worn. 6.25, Flute Recital by Hans Stöhr; Suite aus dem Pflanzenreich (Hünner); Humoresque, Op. 8 (Zankó). 6.45, Who laughs last Village Comedy in Three Acts (Julius Pohl). 8.25, Concert of Siegfried Kallenberg's Music by the Munich Philharmonic Orchestra, relayed from the Tonhalle. Conductor: Rudolf Hindemith. Soloist: Erich Kloss (Piano-forte). Concertante Fantasia for Piano-forte and Orchestra; Entry March and Wedding March from Sun Liao. 9.20, Time, Weather, News and Sports Notes. 9.45, Dance Music by Alexander Laszlo and his Soloists. 11.0 (approx.), Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayd by Fredrikstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 450.2 metres; and Rjukan, 447.1 metres. 6.0 p.m., Announcements, Weather and News. 6.30, Talk: The Unemployed in Winter. 7.0, Time. 7.1, Der Schauspielerdirektor—One Act Opera (Mozart). After the Opera, Serenade for Strings. Eine kleine Nachtmusik (Mozart). 8.10, Recitations. 8.30, Agricultural Notes. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Talk on Bridge, relayed from Aalesund (447.1 metres). 9.15, Dance Music by the Station Orchestra. 11.0 (approx.), Close Down.

OSTERSUND.—See Stockholm.

JAN. 11th

WEDNESDAY

continued

PALERMO

542 metres; 3 kW.—4.30 to 5.30 p.m., Concert by the Sunny Band Quartet, relayed from the Olympia Tea Room. 7.0, Announcements. Tourist Report, Agricultural Notes, and Giornale Radio. 7.20, Light Music on Gramophone Records. 7.30 (in an interval), Time and Announcements. 7.45, Variety Concert: Soloists, Pollicino (Tenor), Marisa Bentivegna (Pianoforte), Costavilla (Soprano), and Conti (Tenor). Part 1: Sonata (Porpora-Giny); Quartet in D Minor (Schubert); Tenor Solos: (a) Aria from Martha (Flotow), (b) Serenade (Romano). Talk: The Birth of Buddha; Two Movements from the Quartet in A (Pizzetti); Tenor Solos: (a) Tramonto (Monteforte), (b) Strimpellata (Bettinelli); Three Miniatures for Strings and Pianoforte (Piek-Mangiagalli); Part II: Duet, Torna Famore (Valente); Soprano Solo: Amour tonjons (Gaborche); Humorous Item: Ma perche? (Visintini); Ungarland (Abraham); Tenor Solo: Canto per voi, signora (Marazzi); Soprano Solo: Serenata gelata (Buzzi-Peccia); Humorous Item: Se ti ritiri tu (Ciolfi); Duet: Sgi (Otha). 9.55, News Bulletin.

PARIS

EIFFEL TOWER; Call FLE. 1,445.7 metres; 13 kW.—5.45 p.m., Le Journal Parle. 7.20, Weather Report. 7.30, Reading of Poetry. 7.45, Programme for Children. 8.15, News Bulletin. 8.20, Symphony Concert, conducted by Edouard Flament: Chaconne and Rigaudon (Moussign); Gavotte (Lullu); Minuet (Valensin); Zambra (Laparra); Quand dansait la reine (Flament); Piedmontese Dance (Sinigaglia); Ragtime (Satie); Mazurka (Chopin). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—7.0 p.m., Variety Music on Gramophone Records. 8.0, Tourist Talk. 8.15, Interval. 8.30, Sponsored Concert. 9.0, Interval. 9.10, Sponsored Concert. 9.40, Interval. 9.50, Popular Music on Gramophone Records. 10.10, Dance Music, relayed from the Lido.

PARIS

RADIO PARIS; Call CFR. 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Gramophone Records: Selection from Rigoletto (Verdi); Hymn to the Sun, from Isis (Mascagni). 8.0, Press Review and Weather. 12.0 Noon, Talk: The Technicalities of Education. 12.15 p.m., Concert by the Radio Paris Orchestra: Selection from Hans the Flute Player (Ganne). 12.30, Organ Recital from the Gannett Palace: Selection from No No Naxette (Youmans); I'll be loving you always (Rubyn); Rhapsody in Blue (Gershwin); It was so beautiful (Freed); Choo Choo (Frumhaber). 1.0, Exchange, News and Weather. 1.5, Concert by the Radio Paris Orchestra (contd.): Melody (Fanchy); Selection from The Quaker Girl (Monckton); Selection from Lustiger Krieg (Joh. Strauss); Le Secret de Polichinelle (Fouadain). 2.0, Exchange. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Market Prices. Weather, Agricultural Report and Exchange. 6.40, German Lesson. 7.0, Medical Talk. 7.20, Concert of Modern Italian Music by the Radio Paris Orchestra: Selection from Bellator (Respighi); Intermezzo and Dance from Abraham and Isaac (Pizzetti); Piece (Pizzetti). 7.45, Commercial Prices and News. 8.0, Concert by the Symphony Orchestra, conducted by Eugene Bigot. Soloist: Leon Kartun (Piano); The Reformation Symphony (Mendelssohn); Pianoforte Concerto in E Flat (Mozart); Scherzo (Lalo); Eastern Pictures (Zouhalov); Easter Overture (Rimsky-Korsakov). In the intervals at 8.30, News and Weather; at 8.40, Fashion Review by Mlle. José, and at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayd by W8XK on 48.86 metres and 25.27 metres.—9.0 p.m., Work-a-day Thoughts. 9.5, Business News. 9.15, Programme to be announced. 9.30, Weather Report. 9.32, Market Reports. 9.45, Pianoforte Interlude. 9.50, David Lawrence Dispatch. 9.55, KDKA Artist Bulletin. 9.58, Programme Announcements. 10.0, Westinghouse Chiefs. 10.15, Dromedary Caravan, from New York. 10.30, The Singing Lady. 10.45, Little Orphan Annie, from New York. 11.0, Time Signal. 11.1, Temperature Report. 11.2, Teaberry Sport Review. 11.7, Press News-Reader. 11.14, Weather Report. 11.15, Johnny Hart in Hollywood, from New York. 11.30, Sheer Romance. 11.45 to 2.30 a.m. (Thursday), New York Relay. 11.45, Today's News by Lowell Thomas. 12 Midnight, Amos 'n' Andy. 12.15 a.m., Royal Vacations. 12.30, Five Star Theatre—Dramatization of Short Stories. 1.0, Euro Crime Club. 1.30, Time Signal and Harriett Lee and her Leaders. 1.45, Country Doctor. 2.0, Adventures of Sherlock Holmes. 2.30, Programme to be announced. 3.0, Alice Joy, from New York. 3.15, Bridge School of the Air, by E. Hall Downes. 3.30, Around the Cracker Barrel. 3.45, Bradley Kincaid. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News Flashes. 4.20, Songs in French Manner by Mlle. Diane Laval. 4.30, Jimmy Joy and his Orchestra.

5.0, Salt and Peanuts. 5.15, College Inn Orchestra, from New York. 5.20, Time Signal and Good-night.

PORSGRUND.—See Oslo.

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., Concert by the Station Orchestra. 4.0, Medical Talk: Infectious Diseases in Children. 4.10, See Brno. 5.5, Agricultural Report. 5.15, Talk for Workers. 5.25, German Transmission: News and Educational Talk for Workers. 6.0, News. 6.5, Talk by Dr. Milos Kares, Director of the Literary Section of the Czechoslovak Broadcasting Corporation. 6.20, Czech and Russian Song Recital by Olga Bozdanovova. 6.40, See Brno. 8.0, Time Signal. 8.1, Cello Recital by Bohus Heran; Suite in D Minor for Cello (Bach); Symphony for Cello and Pianoforte (Pergolesi). 8.30, See Brno. 9.0, Time Signal. 9.1, News. 9.15 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS; 403 metres; 25 kW.; LAUSANNE, 680 metres; and GENEVA, 760 metres.—5.0 p.m., Programme for Children, relayed from Locle. 6.0 (from Geneva), Weather Forecast, News Bulletin and Announcements. 6.30 (from Lausanne), Agricultural Talk. 7.0, Concert by the Station Orchestra. 8.15 (from Lausanne), Dramatic Programme. 9.0, News Bulletin and Weather Forecast. 9.10 (from Lausanne), Dance Music, relayed from the Bel-Air Metropole. 10.0 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather, 8.45, Musical Programme and Announcements. 9.0, Chimes. 9.2, News Bulletin. 9.30, Reading. 10.0, Violin Solos by Thorarin Gudmundsson, followed by Arias and Handel Variations (Brahms) on Gramophone Records.

RIGA

525 metres; 15 kW.—5.0 p.m., English Lesson. 5.35, Agricultural Talk. 6.0, Weather. 6.5, The Land of Smiles—Operetta in Three Acts (Lehar). In the intervals, News and Weather. 8.30, Variety Music on Gramophone Records. 9.30 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call IRO, 441 metres; 50 kW. Relayd by Naples, 319 metres, and 2RO, 25.4 metres.—7.15 to 7.30 a.m., Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Sextet Concert: In the Magic Land of Egypt (Kretschy); Selection from Nina, non far la stupida (Giachetti); Argentine Tango, Tormento (Rusconi); Montegrina (Stroelitti); Pieces for Saxophone: Selection from L'Amore Fritz (Mascagni); Bimbe belle (Bazan Chiappo); Java nera (Mignone). In the interval at 12.30, Giornale Radio and Exchange. 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.30 to 5.15, Variety Concert: Waltz (Strausky); The Rustle of Spring (Sinding); Selection from La nave rossa (Seppilli); Minuet in D (Mozart); Ronda dei poliziotti inglesi (Bonelli); Selection from Fraspuita (Lehar); Melody (Endelberg). 6.10 (Naples), Shipping and Sports Notes. 6.15, Agricultural Report, Announcements, and Giornale Radio. 7.0, Time, Announcements, and Light Music on Gramophone Records. 7.15, Medical Talk. 7.30, Sports Notes, Tourist Report and Light Music on Gramophone Records. 8.0, Relay of an Opera. In the interval, Reading, Theatre Notes, and News.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY); 379.5 metres; 50 kW. Relayd at intervals by W2XAF on 31.48 metres and by W2XAD on 19.56 metres.—7.30 to 11.0 p.m., New York Relay. 7.30, Westminster Choir. 10.15, Paul Wing, the Story Man. 10.30, The Flying Family. 10.45, Adventures of the Safety Soldiers. 11.0, Ma Frasier's Boarding House. 11.15, Health Talk. 11.20, Studio Ensemble. 11.30, New York State Educational Series. 11.45, Chaudi, the Magician. 12 Midnight, Stock Reports. 12.15 to 2.0 a.m. (Thursday), New York Relay. 12.15, Wheatena Vile. 12.30, Roy Smeck Instrumental Quartet. 12.45, The Goldbergs. 1.0, Standard Brands. 1.30, The Shadow. 2.0, Annette McCullough (Crooner) and Steve Bouschard (Organist). 2.15, Three Shades of Blue. 2.30, First Prize Supper Club. 3.0, Corn Cobs Pipe Club of Virginia, from New York. 3.30, NBC Artists Service, from New York.

SCHWEIZERISCHER LANDESENDER

BEROMUNSTER, 459 metres, 60 kW.; BASEL, 244.1 metres; and BERNE, 245.9 metres.—9.20 a.m., Broadcast for Schools. 9.50 to 11.28, Interval. 11.28, Time Signal from Neuchâtel Observatory. 11.30, Weather

and News. 11.40, Puccini Concert on Gramophone Records. 12.35 p.m., Weather and Exchange. 12.40 to 2.30, Interval. 2.30, Gramophone Concert of Potpourris, Waltzes and Descriptive Music. 3.30 (from Basle), Programme for Children. 4.0, Wind Instrument Music on Gramophone Records. 4.30, Weather. 4.35 to 5.30, Interval. 5.30 (from Zurich), Talk: Civilisation and Culture. 6.0, Time, Weather and Market Prices. 6.15 (from Zurich), Walter Mittelholzer talks about his Last Flight to Africa. 6.45 (from Zurich), Vodel Songs by the Weindländer Double Quartet. 7.15 (from Zurich), Onkel Töbel—Dialect Comedy (Schneiter). 8.0 (approx.), Accordion Recital by Thoni and Achermann. 8.20, Weather and News. 8.40, Russian Concert by the Radio Orchestra, conducted by Hermann Hoffmann. 9.15 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayd by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—4.5 p.m. (from Göteborg), Variety Programme. 4.45, Popular Music on Gramophone Records. 5.45 (from Göteborg), Music for the Lute and Poetry. 6.15, Weather and News. 6.30, Parliamentary Report. 7.0 (from Göteborg), Symphony Concert. 8.45, Weather and News. 9.0, Dance Music by the Enders Orchestra, relayed from the Bern Hall. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW. 11.30 a.m., Brahms Concert on Gramophone Records. 12.45 p.m., News Bulletin. 1.0, Time Signal. 1.1, Exchange. 1.10, Concert, relayed from Bordeaux-Lafayette. 1.50 to 4.45, Interval. 4.45, Talk in French: Electricity. 5.0, Dance Music. 6.0, Trio Concert, relayed from Lille, 265.4 metres. 7.0, Talk in German: France. 7.15, Legal Talk: Competition by Road and Rail. 7.30, Time Signal. 7.31, News Bulletin. 7.45, See Paris (Eiffel Tower). 8.15, Popular Music on Gramophone Records, Lottery Results and News. 8.30, Concert, conducted by Paul Bastide, relayed from the Palais des Fêtes. Soloist: Henri Saint-Crieg (Tenor); Concerto grosso (Handel); Tenor Solos: (a) Aria from The Christmas Oratorio (Bach), (b) Aria from Joseph (Méhul); Suite No. 1 from Les Indes Galantes (Rameau); Selection from The Tale of Tsar Saltan (Rimsky-Korsakov); Tenor Solos: (a) Aria from L'enfance de Christ (Berlioz), (b) Le Manoir de Rosamunde (Duparc). (c) Le Vie intérieure (Duparc); Fireworks (Stravinsky). 10.30, Gramophone Records. Cavatina from The Queen of Sheba (Gonnod); Si vous croyez from Fortunio (Messager); La Maison Grise (Messager); Letter Aria, from Werther (Massenet); Legend of the Grail from Lohengrin (Wagner). 11.0, Quintet Concert, relayed from Radio Coloniale (Paris), 25.63 metres. 12.0 Midnight (approx.), Close Down.

STUTTART

MUHLACKER, 360.5 metres, 60 kW.; and FREIBURG, 570 metres.—11.0 a.m., Concert by the Station Orchestra, conducted by Gustav Görlisch; Overture, The Italian Girl in Algiers (Rossini); Selection from Faust (Gonnod); Trio for Three Flutes (Fürstenau); Persian Scene, Am Zielbrunnen (Rust); Selection from The Maid of the Black Forest (Jessed); Waltz, Les Sirènes (Waldteufel); March, Mein Schlesienland (Lincke). 12.15 p.m., Time, Weather, News and Announcements. 12.30, Songs by Enamel List on Gramophone Records. 1.0, Sponsored Concert. 1.30 to 3.0, Interval. 3.0, The Children's Hour, from Berlin Programme arranged by Dr. Fritz Nothardt. 4.0, See Frankfurt. 5.15, Time, Weather, and Agricultural Notes. 5.25, Legal Talk. 5.50 (from Mannheim), Book-keeping Hints. 6.15, Saxophone Recital by Sigurd Rascher; Waltz No. 10 (Chopin); Sonata (Jacobi); Le Cygne (Saint-Saëns); Czardas (Monti). 6.45, See Munich. 8.25, Cello and Pianoforte Recital by Jaro Hasa and Artur Haagen; Seven Variations for Cello and Pianoforte on a Theme from Mozart's Magic Flute (Beethoven); Suite in D Minor for Cello (Bach); Sonata in E for Cello and Pianoforte (Valentini). 9.10, Time, Weather, News, and Announcements. 9.20, Concert by the E.B.C. Wireless Military Band, relayed from London. 10.30 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Sound Film Music. 6.30, Petite Suite for Orchestra (Debussy). 6.45, Operetta Music: Songs from La Mascotte (Audran); Le Comte Orlgado (Moretti); The Gipsy Princess (Kálmán); and La Pêcheuse (Ollenbach). 7.0, Quartet (Schubert); Talk: Extase (Ganne). 7.15, News and Exchange. 7.25, Local News. 7.30, Accordion Music. 7.45, Orchestral Music. 8.0, Opera Music: Songs from Aida (Verdi); Samson and Delilah (Saint-Saëns); and Don Giovanni (Mozart). 8.15, Violin Solos: Meditation (Glazunov); La Fille aux

choux de lin (Debussy); Hungarian Poem (Hubay); 8.30, Songs. 8.45, Viennese Music. 9.0, Concert by La Clémence Isaura Society conducted by M. Tonric. In the interval at 9.30, Variety Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco: March of the Archduke Albert (Komzak); Duet from The Pearl Fishers (Bizet); Cavatina for Violin (Raff); Song (Frason); Les Echos de Flandres (Jaque-main); Dars me pêche (Borel-Clerc). 11.0, Concert: Cavatina from The Pearl Fishers (Bizet); Spring Song (Mendelssohn); La Racommoder de faience (Solier); Ah! Fuyez donc image, from Manon (Massenet); Aria from Tosca (Puccini); Melody, Overture, Der Freischütz (Weber). 11.30, Programme in English by the I.B.C.: Military Band Music: Jungle Drums (Kettelhey); Second Hungarian Rhapsody (Liszt); Selection from Faust (Gonnod); Fantasia, The Battle (Eckersberg); Serenade (Heykens); March Lorraine (Ganne). 12.5 a.m. (Thursday), Orchestral Music: La Boite à Joujoux (Debussy); First Symphony (Beethoven). 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—6.0 to 6.30 p.m., See Turin. 6.30, Orchestral Concert from the Caffè Dante. 7.0 (approx.) till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayd by Milan, 331.5 metres; Genoa, 312.8 metres; and Firenze, 560.8 metres.—6.0 p.m., Variety Concert on Gramophone Records. In the intervals at 6.25, Tourist Report, and at 6.30, Time and Announcements. 7.0, Giornale Radio and Weather. 7.15, Medical Talk. 7.30, A Comedy in Three Acts, followed by Dance Music. 10.0, Giornale Radio.

VATICAN CITY

19.84 metres (Morning), and 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

517 metres; 15 kW. Relayd by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218 metres.—4.0 p.m., Gramophone Concert: Overture, Martha (Flotow); Selection from: (a) André Chemier (Giordano), (b) Jonny spielt auf (Krenek); Foxtrot, Marta (Simons-Lenk); Foxtrot, Ich will ja nichts als deine Liebe (Santiago-Lopez); Serenade (Moszkowski); Chanson triste (Tchaikovsky); Minnet (Paderewski); Waltz, Dynamiden (Joh. Strauss); Potpourri, Das Bostey om Bosten (Dostal). 5.0, Health Talk. 5.25, Talk for Workers: Young People in Modern Industrial Life. 5.50, Talk: Animal Photography. 6.15, Time, Weather and Programme Announcements. 6.25, Pianoforte Recital by Eleanor Spencer: Two Melodies (Searlatti); (a) Pastorale, (b) Capriccio; Papillons (Schumann); Extracts from Les Préludes (Debussy); Ondine (Ravel); Triana (Albeniz). 6.55, Concert of Eysler Music, with the composer at the Pianoforte. Eva Hadrabova (Soprano) and Rudolf Sulzer (Tenor); Three Songs from Bruder Straubinger; Duet, So kisst nur eine Wienerin, from Graf Toni; Song, Nur der kann alle Frauen hassen, from Der Frauenfresser; Song, Olme diel, from Glückschweinchen; Drinking Song from Der lachende Ehemann; Two Songs from Die goldene Meisterin; Song from Künstlerblut; Duet, Einmal möcht' ich wieder hutschen geh'n, from Hauni geht tanzen; Duet, So tanzt man nur in Wien, from Die gold'ne Meisterin. 7.50, Variety Concert. 9.0, News, Weather and Announcements. 9.15, Concert from London.

WARSAW

1,411 metres; 120 kW.—11.0 a.m., Light Music on Gramophone Records. 12.20, Weather Forecast. 2.10, News Bulletin. 2.15, Economic Report. 2.30, Programme for Boys Scouts. 2.35, Programme for Children. 3.0, Variety Music on Gramophone Records. 3.40, Talk on Electricity. 3.40, Christmas in France and England—Gramophone Concert, with Commentary by Mme. Simon; News in the intervals. 4.40, Talk: Women's Salaries and Men's Salaries. 4.55, Programme Announcements. 5.0, Dance Music from the Adria. In the interval, News. 6.0, Miscellaneous Announcements. 6.20, Agricultural Notes. 6.30, Reading. 6.45, Radio Journal. 7.0, See Lwow. 7.55, Sports Notes. 8.0, Announcements. 8.5, Pianoforte Recital by H. Sztompka; Sonata in D Minor for Pianoforte, Op. 31 (Beethoven); Two Pieces (Chopin-Liszt); (a) Ma mignonne, (b) Le Désir; Two Pieces (Schubert-Liszt); (a) Soirée de Vienne, (b) Sur Feu; Spinning Chorus from The Flying Dutchman (Wagner-Liszt). 9.0, On the Horizon. 9.15, Dance Music. 9.40, Talk in Esperanto, from Cracow (312.8 metres). 9.55, Weather Forecast and Police Report. 10.0, Dance Music from the Café Italia. 11.0, Close Down.

WILNO

563 metres; 16 kW.—6.0 p.m., Lithuanian Review. 6.15, Talk on the Theatre. 6.30 till Close Down, See Warsaw. 11.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender.

ALGIERS

363.3 metres; 13 kW.—7.10 p.m., Shipping News. 7.15, Weather Forecast and Agricultural Notes. 7.20, Talk. 7.35, Grock in his Music Hall Sketch. 7.55, News Bulletin. 8.0, Time Signal. 8.2, Guitar and Mandoline Concert. 9.0, Popular Music on Gramophone Records. 9.15, Sketch in Dialect. 9.30, Chopin Pianoforte Recital on Gramophone Records: Toccata in C Minor, Waltz in C Minor, Etudes. 9.30, News Bulletin. 10.0, Concert of Oriental Music.

BARCELONA

RADIO-BARCELONA; Call EAJ1; 349 metres; 8 kW.—7.30 p.m., Exchange Quotations and Programme for Women. 8.0, Request Gramophone Records, and News. 9.0, Chimes, Weather, Exchange, and Market Prices. 9.5, Part Relay of an Opera from the Gran Teatro del Liceo. In an interval at 11.0, News. 12 Midnight (approx.), Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Notes, Tourist Report, and Announcements. 7.20, Giornale Radio. 7.25, Announcements. 7.30 (approx.), Concert by a Plucked String Quartet: March from Tamhäuser (Wagner); Overture, Post and Peasant (Suppé); Selection from Martha (Flotow); Serenade, Il canto dei cherubini (Sartori); Triste tramonto (Luisi); Intermezzo, Mormorio del mare (Saldvetti); Selection from The Barber of Seville (Rossini); Concertante for Two Mandolines (Pleesel). 9.30, Musical Programme from the Gran Caffè del Lavante. Cinema Notes in the Interval. 9.55, News Bulletin.

BASEL.—See Schweizerischer Landessender.

BELGRADE

430.4 metres; 2.8 kW.—5.25 p.m., Time and Programme Announcements. 5.30, Dialogue in French. 6.0, Recital of Yugoslav Songs. 6.30, Popular Music on Gramophone Records. 6.50, Introduction to the following Relay. 7.0, Opera, relayed from the National Theatre, Ljubljana (574.7 metres). In an interval at 8.30 (approx.), News.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.55 a.m., Nauen Time Signal. 12.35 p.m., News. 1.0, Gramophone Concert of Operetta Music relayed from Berlin (Witzleben). 2.0, Concert by Children. 2.30, Weather and Exchange. 2.45, Reading. 3.0, Reading for Children. 3.30, See Berlin (Witzleben). 4.10, Wireless Hints. 4.30, Italian Opera Arias by Margarete Pohland (Soprano). 4.55, Who is it?—A Guessing Literary Competition with Parodies. 5.25, The Wind Instrument in Modern Music—Concert. Theme and Variations for Two Flutes (Petyrek); Intermezzo for Flute and Clarinet (Wiener); Two Short Pieces for Two Flutes and Pianoforte (Hayemann); Three Pieces for Flute (Humbelth); Rhapsody for Two Flutes, Clarinet, and Pianoforte (Honegger). 5.55, Weather and Announcements. 6.0, German for Germans. 6.30, A Poem. 6.35, Agricultural Talk. 6.55, Introduction to the following Relay. 7.5, Festival Concert by the Philharmonic Orchestra, celebrating the Twenty-fifth Anniversary of the Society. The Friends of Music, relayed from the Philharmonie; Grand Fugue (Beethoven); Concerto for Four Violins (Vivaldi); The Same Concerto arranged for Four Pianofortes (Vivaldi-Bach); Symphony No. 9 (Bruckner). In an interval at 7.40 (approx.), Talk in Connection with the Winter Relief Fund. 8.10, See Vienna. 9.20, Weather, News, and Sports Notes. 9.45, Weather for Shipping, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—3.30 p.m., Concertante Music for Chamber Orchestra; Music for Two String Orchestras, Op. 65 (Stürmer); Kleine Unterhaltungs-musik, Op. 69 (Sieg); Music No. 1 in Four Movements (Maasz); Little Symphony for Strings and Children's Instruments (Jacobi). 4.30, Review of Technical Progress made in 1932. 4.50, A Children's Calendar for January. 5.10, Sonata in B Flat for Violin and Pianoforte (Mozart), by Edith von Voigtländer and Julius Bürger. 5.30, People in Danger—What to do in cases of Fire, Highway Robbery, and Burglary—an Instructional Radio Sequence. 5.55, The Witzleben Station informs its Listeners. . . . 6.0, Topical Talk. 6.10, Extracts from the Day's News. 6.45, Orchestral Concert relayed from the Café Moka Efti. 7.30, The Spendthrift—Fairy Tale (Ferdinand Raimund), arranged for Radio. 9.0, Weather, News, and Sports Notes. 9.15 (approx.), Dance Music from the Zoo. 11.0 (also relayed by Zeesen on 31.38 metres), Das höllische Gold—Opera in One Act (Bittner).

BERNE.—See Schweizerischer Landessender.

BEROMUNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—7.30 p.m., News and Exchange. 7.40, Talk arranged by the International Labour Bureau: The Employment of Children in the Film Industry. 7.55,

THURSDAY

JANUARY THE TWELFTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

- NATIONAL** Ballad concert. Orchestral concert. Vaudeville programme. Band concert. Pianoforte recital.
- LONDON REGIONAL** Operatic concert. Concert relayed from the University, Leeds. Orchestral music. Instrumental concert. Promenade concert from Queen's Hall.
- MIDLAND REGIONAL** "A Bite of the Apple," a comedy by Verno Sylvaine, from the Repertory Theatre, Birmingham. "Sportsman's Choice," recital of gramophone records.
- NORTH REGIONAL** Concert from Leeds University. Orchestral music. Gramophone records.
- WEST REGIONAL** Orchestral concert. Organ music. Light music. Welsh concert from Aberafan.
- SCOTTISH REGIONAL** Operatic concert. Orchestral concert. Tintling Scotland's House in Order (1), Mr. John Wilson; Town Planning.
- BELFAST** Light music. Organ recital. "In Lighter Vein," orchestral concert.
- ABROAD**
- BARI** Concert by a Plucked String Quartet.
- BRUSSELS (No. 1)** The Symphony Orchestra, conducted by M. Meulemans.
- HAMBURG** Music from Italian opera.
- HUIZEN** Orchestral concert, relayed from Amsterdam.
- STOTTEN** Mozart concert, from Geneva.
- STRASBOURG** Concert of modern music, relayed from the Conservatoire.

Lottery Results and Charades. 8.0, Talk on Wine. 8.15, News. 8.30, Two Plays: (a) L'autre soleil—Radio Legend in Three Acts and a Prologue (C. Larroude). (b) Miss Maghy—One-Act Comedy (Paul Vovard).

BRATISLAVA

279 metres; 14 kW.—5.25 p.m., Popular Music on Gramophone Records. 6.0, See Prague. 6.5, Talk on Economics. 6.20, Orchestral Concert. 6.50, See Prague. 9.15, See Moravská-Ostrava. 10.0 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres; 60 kW.; and GLEIWITZ, 253 metres.—10.50 a.m., Orchestral Concert, conducted by Hermann Behr: Three Military Marches (Schubert); Intermezzo Goldoniiani (Boschi); Strian Dances (Lammer); Pizzicato Polka (Joh. Strauss); Two Melodies (Joh. Strauss); (a) Bei uns Zillaus. (b) Overture, Prince Methusalem. 12.10 p.m., Weather for Farmers. 12.15, Orchestral Concert (contd.); Overture, Der Waldschmied (Lortzing); March from Don Cesar (Bellinger); Nutsacker Polka (Bayer); Two Airs (Müllbacher); (a) Laura Waltz. (b) Overture, Der Bettelstudent. 12.45, Time, Weather, News, and Exchange. 1.5, Gramophone Concert: Overture, Naktiris Hochzeit (Lincke); Waltz, Müncher Kindl (Kenzak); Two Songs from Schön ist die Welt (Lehár); Comedy Overture (Kéler-Béla); Waltz, Wiener Zugvögel (Translatour); Selection from Der Rastebühler (Lehár); Sophienmarsch (J. Strauss). 1.45, Sponsored Programme with Gramophone Records. 2.10, Agricultural Prices and Exchange. 2.40, Talk: Winter in the Glatz Mountains. 2.50, Book Review. 3.10, Verdi Concert by the Station Orchestra: Selection from (a) La Traviata. (b) Rigoletto; Overture, The Force of Destiny; Selection from Othello. 4.20, Soprano Recital for Children. 4.50, Beethoven Pianoforte Sonatas by Carl Graf Pückler: Sonata in E Flat, Op. 81; Sonata in E Minor, Op. 90. 5.20, Programme to be announced. 5.35, Talk for Working Women: The Care of Infants in the Worker's Household. 6.0, Talk: From a Girl's Elementary School to a Career. 6.30, Weather for Farmers. 6.35, Violin Recital by Kreisler on Gramophone Records: Minnet (Haydn); Old French Gavotte (Friedberg); Two Pieces (Kreisler): (a) Kleiner Wiener Marsch. (b) Synopation; Serenade (Lehár); Mitternachtsglocken (Heuberger); So lang der alte Stefansturm. 7.0, Boycott—Radio Play (A. Ulliz). 8.15, Announcements. 8.25, Old Dances—New Songs: Concert of Dance Music by the Station Orchestra: Soloist, H. W. Bachmann (Tenor). 9.30, Time, Weather, News Sports Notes, and Programme Announcements. 9.50, Esperanto Lesson. 10.0, Talk on Horse Breeding in Germany and Review of the Year's Racing. 10.20 (approx.), Close Down.

BRNO

342 metres; 35 kW.—4.50 p.m., Esperanto Lesson. 5.0, Literary Talk. 5.15, See Prague. 5.25, German Transmission: News and Humoral Sketch (Rösler). 6.0, See Prague. 6.5, Elementary English Lesson. 6.20, Reading (Romain Rolland). 6.50, See Prague. 9.15, See Moravská-Ostrava. 10.0 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R.; 509 metres; 15 kW.—12 Noon, Gramophone Concert: Tarass Bulba chez les Cosaques (Alex. Georges); Allegro appassionato (Saint-Saëns); Aria from Samson and Delilah (Saint-Saëns); Humorous Scenes (Leonard); Légende (Coppola); Aria from La Favorita (Donizetti); Golliwog's Cake Walk (Debussy); Echoes of Alsace (Rinequo); La Havanaise (Saint-Saëns); Fantasia, Monte Carlo; Schön Rosmarin (Kreisler); Selection from Great Day (Youmans). 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Small Radio Orchestra, conducted by Leemans. Soloist: M. Witz (Violin). Overture, Lysistrata (Lincke); Bells across the Meadows (Kettelbey); Potpourri of Millček Music (Morena); Violin Solo: Légende (Wieniawski); Jota aragonesa (Saint-Saëns); Foxtrot, On a little Balcony in Spain (Klein and Doll); Waltz from Cordou bleu (Gramon); Foxtrot (Masraki). 5.0, Concert by the Symphony Orchestra, conducted by M. Meulemans: Overture, Die Fledermaus (Joh. Strauss); Selection from Der Rosenkavalier (R. Strauss); Waltz, Tales from the Vienna Woods (Joh. Strauss). 5.30, Literary Programme for Young People. 6.0, Talk. 6.15, Gramophone Records: Souvenirs de Messager (Messager-Berville); Cortège from Mlada (Rimsky-Korsakov); Gopak (Moussorgsky). 6.30, Concert by the Little Radio Orchestra, conducted by M. Leemans: Ein Hochzeitstag in Lilliput (Translatour); Marionettes (Ljadov); Selection from The Nürnberg Doll (Adam); Two Pieces (Poldini); Toccata for Pianoforte (Bazelaire); Andalousse de Tave; Selection from Les Géorgiennes (Offenbach). 7.15, Talk for Workers. 7.30, Sports Review. 8.0, Concert by the Symphony Orchestra, conducted by M. Meulemans. Soloists: M. Erlich (Trumpet) and M. van den Daele (Bass). Overture, The Magic Flute (Mozart); Concerto for Trumpet (Bach); (b) The Two Grenadiers (Schumann); (c) La Chanson du Pêcheur (Faure). (e) Ton nom (Augusta Holmes); First Part of the First Symphony (Schumann). 8.45, Talk on Sport. 9.0, Concert by the Radio Orchestra, conducted by Charles Walpot. Soloist: M. van den Daele (Bass). Egyptian March (Joh. Strauss); Overture, Morning, Noon and Night (Suppé); Waltz (Berger); Sketch, In the Harbour of Port Saïd (Armand-Job); Selection from The Desert Song (Romberg); Songs: (a) Cavatina from The Queen of Sheba (Gounod), (b) Mephistopheles'

Serenade from Faust (Gounod); In the Tea House of the Hundred Steps (Yoshitomi); Potpourri of Sound Film Music (arr. Salabert). 10.0, Le Journal Parlé. 10.0, Concert of Light Music. 11.0 (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R.; 338.2 metres; 15 kW.—Programme in Flemish. 12 Noon, Concert by the Small Station Orchestra, conducted by P. Leemans. 1.0 p.m., Le Journal Parlé. 1.10, Dance Music on Gramophone Records. 5.0, Concert by the Radio Orchestra, conducted by Charles Walpot, K.V.R.O.: Strijdlied (Moussmans); Overture, The Thieving Magpie (Jossin); A Journey in a Zeppelin (Mannecke); The Phantom Brigade (Middleton); Dance of the Hours, from La Gioconda (Ponchielli). 5.45, Programme for Children. 6.5, Song and Pianoforte Recital by Martelle van Landuyt (Songs), Paula Schisind (Pianoforte), with Recitations in the interval. 7.0, Sacred Music by a Children's Choir. 7.30, Talk for Women. 8.0, Concert by the Radio Orchestra, conducted by Charles Walpot. Soloist, E. Laes (Tenor). Dahomian Rhapsody (de Boeck); Four Songs (Vanderheyden); (a) Gondscheijn, (b) Graf en Wieg, (c) Pax, (d) Nachtlidje; Marche militaire (Saint-Saëns). 8.35, The Wireless Operator Radio Play (Van Hemeld-uek). 9.0, Talk on Catholicism. 9.10, Jan Bloekx Concert by the Station Symphony Orchestra, conducted by A. Meulemans: Prelude and Carnival from Princesse d'Auberg-Bénédictine de la Mer, from La Fiancée de la Mer; Serenade from Milenka; Flemish Dances. 9.5, Evening Prayer. 10.0, Le Journal Parlé. 10.10, Gramophone Concert. Part I: Marches: The Liberty Bell (Souza); March from Carmen (Bizet); Marche joyeuse (Chabrier). Part II: Minnets by Debussy, Bolcherini, Valensin, and Mozart. Part III: Flemish Songs: Van Jezus en Sint Jansken (arr. De Vocht); Och, wiech es so lang (Mestdagh); Paecientie (arr. De Vocht); Ons Vaderland (Jan Bloekx); Stoet (De Vocht). Part IV: Waltzes: Oiseaux de Passare (Translatour); Waltz from The Mikado (Sullivan); Waltz from A Waltz Dream (Strauss); Dolores (Waldteufel). 11.0 (approx.), Close Down.

BUCHAREST

394 metres; 12 kW. 4.0 p.m., Concert of Light Music and Romanian Music by the Dinico Orchestra. 5.0, News and Time Signal. 5.10, Talk. 5.25, Concert by the Dinico Orchestra (contd.). 6.0, Talk: The Danube. 6.40, Relay from the Romanian Opera House. In the intervals, News Bulletin.

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on 840 metres from 6.25 p.m. till Close Down.—4.30 p.m., Concert by the Arpad Top Gányi Band. 5.30, English Lesson. 6.0, Reading. 6.30, Relay from the Royal Hungarian Opera House. News during the interval. After the Relay, Dance Music from the Hotel Bellevue.

CASSEL.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW.; and KALUNDBORG, 1,153 metres; 7.5 kW.—11.0 a.m., Time and Chimes from the Town Hall. 11.5, String Ensemble Concert from the Hotel d'Angleterre. 1.0 p.m., Concert of Light Music. 2.0, Relay of Prof. Hallesby's Meeting from Bethesda. 3.0, Concert of Light Music. 4.0, Programme for Boys. 4.40, Exchange and Fish Market Prices. 4.50, Talk. 5.20, English Lesson. 5.50, Weather Forecast. 6.0, News Bulletin. 6.15, Time Signal. 6.16, Talk. 6.45, Danish Lesson. 7.10, Concert relayed from the State Broadcasting Building. The Radio Symphony Orchestra, conducted by Lanny Grandahl, and a Students' Choir. Soloists: Gunna Brenning-Storm (Violin) and Einar Norby and Thyge Thygesen (Songs). Overture, Lahn (Kublan); Symphony in B Flat (Weyses); Cantata for Soloists, Choir and Orchestra; Ten Minutes' Interval; Stay Dance in C (Dvorak); Concerto in D Minor, Op. 22, for Violin and Orchestra (Wieniawski); Suite from The Wooden Prince (Bela Bartok). 9.15, News. 9.30, Danish Festival Programme 12 Midnight, Close Down.

CORK.—See Dublin.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN, 413 metres; 1.2 kW.; and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report, and Gramophone Records of Light Music. 6.0, Popular Music on Gramophone Records. 6.15, Programme for Children. 7.0, Variety Music on Gramophone Records. 7.10, Dublin Cattle Market Report. 7.20, News. 7.30, Time Signal. 7.31, French Lesson, by Mlle. M. T. Gindicelli and Mme. N. Redmond. 7.45, Literary and Dramatic Talk. 8.0, Symphony Concert: The 2RN Symphony Orchestra, conducted by E. Godfrey Brown; Soloists: Agnes O'Kelly (Contralto) and Gabriel Lavelle (Baritone). 10.30, Time Signal, News, Weather Report, and Close Down.

FECAMP

223 metres; 10 kW.—12 Noon, Light Music on Gramophone Records. 12.30 p.m., News Bulletin. 12.45, Programme for Children. 7.0, Popular Music on Gramophone Records. 7.15, Local News. 7.30, Radio Gazette. 7.50, Parisian News. 8.0, Light Music on Gramophone Records. 8.15, News Bulletin. 8.30, Concert, relayed from the Town Hall, Rouen. 10.0 p.m. till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: After the Party; Blue Again; Bubbling Over with Love; I'm Yours; Nevertheless; Love for Sale; I Believe in You; Hello Beautiful; There's Something in Your Eyes; Sing; The Queen was in the Parlour; There's Something About an Old-Fashioned Girl; Springtime Reminds me of You; My Sunshine came on a Rainy Day; I Found You; I Like a Little Girl like That. 11.0, The Theo Harmony Four; Jeannie with the Light Brown Hair; Lassie O'Mine; Who is Sylvia?; Believe me if all those Endearing Young Charms; Silver Threads Among the Gold; Where'er you Walk; Love's Old Sweet Song; Announcement on behalf of the "Wireless World." 11.30, Hawaiian Band: Kīwīma (Traditional); Land of the Might-Have-Been (Adelbert); Hawaiian Love (Gaston); Bone Festa (Traditional); Kamichamula (Traditional); Hawaiian Hotel (Traditional); Sleepy Head (Blackforth); Manilla Moon (Gaston). 12 Midnight: Concert on behalf of the Philéo Radio and Television Corporation of Great Britain, Ltd. 12.30 a.m. (Friday), Dance Music: Marta; The Longer that you Linger in Virginia; Kicking the Gong Around; You Rascal You; One More Affair; There's Something in Your Eyes; Minnie the Moocher; Adios. 1.0, The Piano Synchronators; River Stay away from my Door (Dixon); Seven Veils (de Sylva); In a Kitchennette (Dubin-Burke); Where are You? (McVey); When You're Smiling (Fisher); You Fell in Love (Valentine); Make Yourself a Happiness Pie (Nelson); Shake and Let us be Friends (May); Why Waste your Tears (Holstein). 1.30, Cigány Band; Réve d'Artiste (Swanson); Two Guitars (Traditional); Posehadie (Leoniev); Black Eyes (Ferraris); Cyrdas (Aloniv); Russian Potpourri of Traditional Melodies; Gaika Troika (Traditional); Waltz, Tales from the Vienna Woods (Strauss). 2.0, Dance Music: Love Letters in the Sand; Makin' Faces at the Man in the Moon; That's Why Darkies were Born; The Little Raindrop; Meet me Tonight in the Cowshed; Live, Laugh and Love; Tom Thumb's Drum; This is the Missis; Black Eyes; Manis; When I Dance with You; Today I feel so happy; The Way with every Sailor; Rio de Janeiro; Let's all sing like One O'clock; You Forgot your Gloves. 2.57, I.B.C. Good-night Melody. 3.0, Close Down.

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

FRANKFURT

259 metres; 17 kW.; and CASSEL, 245.9 metres.—2.30 p.m., See Stuttgart. 3.50, Economic Notes. 4.0, See Stuttgart. 5.15, Economic Notes. 5.25, Dialogue between Dr. Wolfgang v. Einstedel and Dr. Max Tan on the Book, Literary Criticism. 5.50, See Stuttgart. 6.15, Time, Programme Announcements, Weather, and Economic Notes. 6.30, Concert by the Boehkheim Mandoline Club; Overture in C (Schmidlin); Concert Waltz (Mouvier); Intermezzo, The Legend of the Castle (Figliolini); Spanish Rhapsody (Salvetti). 7.0, See Breslau. 8.15, Recital of Paul Juon's Sonatas, by the Composer (Pianoforte) and Gustav Lenzewski (Violin). 9.0, Serenade by the Eysoldt Orchestra. In an interval at 9.10, Time, News, Weather, and Sports Notes. 10.40, See Langenberg. 11.10 (approx.), Close Down.

FREDRIKSSTAD.—See Oslo. FREIBURG.—See Stuttgart. GENEVA.—See Radio-Suisse Romande. GENOA.—See Turin. GLEIWITZ.—See Breslau. GÖTTESBORG.—See Stockholm. GRAZ.—See Vienna. HAMAR.—See Oslo.

HAMBURG

Call ha (in Morse); 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 218 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—6.0 p.m., Talk: Rheumatoid Diseases. 6.25, Weather Report. 6.30, Shuanghai-Rummel—Radio Play (Hans Leip). 7.30, Concert of Music from Italian Opera. The Station Orchestra, conducted by Adolf Secker. Soloists: Simaida Lissitschkina. Overture, Semiramis (Rossini-Secker); Arias from (a) Semiramis (Rossini-Secker), (b) Don Pasquale (Donizetti); Ballet Music from William Tell (Rossini); Overture, Ali Baba (Cherubini); Selection from Lucia di Lammermoor (Donizetti); Mad Scene from The third Act of Lucia di Lammermoor (Donizetti); Potpourri of Music from Aida (Verdi). 9.0, Time and News Bulletin. 9.20, Topical Talk. 9.30, Dance Music. In an interval at 10.20, Ice Report.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres, 60 kW.; and DANZIG, 453.2 metres.—12.5 p.m., Gramophone Concert:

JAN. 12th

THURSDAY

continued

Norag-Marsch (Platen); Treu musst du sein (Grothry); Wanderlieder-Potpourri; Blumenkosen (Lendjens); Malwasenwalzer (Margis); Von Lenz und Liebe (Körner-Roberts); The Three Grenadiers (Meyer); Indianerständchen (Monte); Overture, Nakisris Holzzeit (Lüneke); Two Songs from The Land of Smiles (Lohr); Einfach fabelhaft (Dostal); Taxis-Marsch (Kohlborn); Alt-Heidelberg, du feine (Söling); Grüss mir meinen Schatz am Rhein (Engel-Berger); Wenn ein Stern vom Himmel fällt (Marbot); Na denn woll'n wir nochmal (Böhme); Zum Küssen schön (Dicke); Ecstasy (Beynes). In interval at 12.20, News. 2.0, Exchange Rates and Market Prices. 3.0, Programme for Children. 3.30, Concert by the Small Station Orchestra, conducted by Eugen Wileken; Overture, Der Wolgatziguner (Spialek); Fantasia, Geschichten von Strauss (Korngold); Melodia amorosa (Beere); Romance No. 5 (Tchaikovsky); Selection from Norma (Bellini); Suite, Aus galanter Zeit (Klaas); Overture, Peter Schmöll (Wolber). 4.50, Talk: The Language of Dogs. 5.15, Agricultural Prices. 5.30, Agricultural Talk. 5.55, Viola and Pianoforte Recital by Hildegard Heinitz and Fritz Waldmann; Sonata in C (Honegger); Five Old French Dances (Marais). 6.30, English Lesson for Beginners. 6.55, News and Weather. 7.0, See Breslau. 8.20, See Vienna. 9.20, Weather, News, and Sports Notes.

HILVERSUM

Announced HUIZEN, 296.1 metres; 20 kW (7 kW, up to 4.40 p.m.).—10.40 a.m. to 1.40 p.m., Programme of the Catholic Radio Society (K.B.O.). 10.40, Variety Music on Gramophone Records. 11.10, Religious Address. 11.40, Police Notes. 11.55, Concert of Light Music, with Gramophone Interludes. 1.40 till Close Down, Programme of the Christian Radio Society (N.C.R.V.). 1.40, Lesson in Handwriting. 2.40, Programme for Women. 3.10 to 3.40, Interval. 3.40, Bible Reading and Sacred Music. 4.40, Song Recital by Frits Meyere. In the interval: Gramophone Records of Variety Music. 5.25, Handwork for Young People. 5.55, Talk. 6.25, Dress-making Lesson. 6.40, Press Review. 7.10, Police Notes. 7.25, Religious News. 7.40, Relay of a Hebrew Ceremony. 8.55, Organ Recital. 9.40, News Bulletin. 9.50, Variety Music on Gramophone Records. 11.0 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

1,675 metres; 8.5 kW.—Programme of the Algemeene Vereniging Radio Onroep (A.V.R.O.). 11.41 a.m., Concert by the Station Orchestra, conducted by Louis Schmidt; Overture, Der Wildschütz (Lortzing); Swedish Suite (Wesslander); Two Pieces (Translaten): (a) Berceuse, (b) Gavotte; Waltz, Perken der Liebe (Jos. Strauss); Gramophone Records: Hungarian Sonatas (Lederer); Hidalgo (Laundry); Clair de Lune (Kotchev); Grieg Potpourri (Frahach); Gramophone Records; Slav Lullaby (Norada); Selection from Die Bajadere (Kalmán); Waltz from Polen Blut (Nedbal); Hurrah! Die Musik kommt (Zimmer). 1.55 p.m., Variety Music on Gramophone Records. 2.10, Interval. 2.25, Popular Music on Gramophone Records. 2.40, Dress-making Lesson. 3.25, Variety Music on Gramophone Records. 3.40, Programme for Hospitals. 4.10, Pianoforte Recital by Elise Noltheims; Burlesque and Gigue (Scarlatini); Rondo in A Minor (Mozart); Scherzo (Mendelssohn); Bolero (Chopin); Prelude (Prokofiev); Symphonic Scherzo (Beynes). 4.40, Programme for Children. 5.10, Concert by the Small Station Orchestra, conducted by Nico Trepp; Overture, The Daughter of the Regiment (Donizetti); Two Slav Dances (Dvorák); One Hour with You (O. Straus-Whiting); Two Pieces (Kreisler): (a) Liebesfrend, (b) Syncope; Selection from Rigoletto (Verdi); Impression and Polish Dance (Rubinstein). 6.10, Sports Notes. 6.40, Orchestral Concert (contd.): Waltz, Les sirènes (Waldteufel); Die Spieluhr der Pompadour (Noack); Harlequinade (Blumann); Selection from Die Puppenfee (Bayer). 7.10, English Lesson. 7.40, Time. 7.41, News. 7.55, Humour in Music. Orchestral Concert, relayed from the Concertgebouw, Amsterdam. Conductor: Eduard van Beinum. Soloists: Helene Cals (Soprano), Louis van Tulder (Tenor), and Hermann Sehey (Baritone). Coffee Cantata (Bach); Ein musikalischer Spass (Mozart); Trois histoires pour enfants (Stravinsky); Carnival of the Animals (Saint-Saëns). 10.10, Concert of Light Music by the Kovacs Lajos Orchestra; Bob Scholte (Songs). 10.40, News. 10.45, Popular Music on Gramophone Records. 10.55, Orchestral Concert (contd.). 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna. KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.0 p.m., Sports Notes. 6.15, Announcements and Opera Music on Gramophone Records. 6.25, Boy Scouts' Report. 6.30 to 10.0, See Warsaw. 10.0, Dance Music from the Monopol Restaurant.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres; 54 kW., and HELSINKI, 368.1 metres.—6.0 p.m., Talk. 6.25, Songs by the Station Quartet. 6.50, Recitations. 7.10, Orchestral Concert. 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert by the Düsseldorf Symphony Orchestra, conducted by Hans Paug; Teutonien-Marsch (Lilting); Overture, William Tell (Rossini); Verdis Triumph (Vouinger); Rundfunkmusik (Schwelo); A Dutch Peasant Wedding (Schouten); Foxtrot-Fantasia, The Bird Fancier (Zeller-Kochmann); Concert Fantasia on Karl Blum's Song, Grün ist die Heide (Schönemann); Poppetinum mobile (Strauss-Kachmann); Pasodoble, Rosa (Stauss-Rosa (Salter)). In the interval at 1.0 p.m., Announcements. 1.30, Sponsored Programme with Gramophone Records. 2.30, Economic Notes and Time. 2.50, Old Stories and Music for Children. 3.10, Notes on the Broadcasts for Schools. 3.20, Educational Programme. 4.0, See Munich. 5.0, Talk: Modern Architecture in the Crisis. 5.25, French Conversation. 5.45, Weather, Time, Economic Notes, and Sports Report. 5.55, Talk: The Six Days' Racing at Dortmund. 6.5, Talk: Scientific Perception and Organic Thought. 6.35, Economic Review for 1932. 7.0, News. 7.5, Roccoo Songs and Dances with Talk: The West German Chamber Orchestra, conducted by Hermann Spitz; Soloists, Maria Engel (Soprano), Helene Guermanova (Contralto), and Leonardo Aramoso (Tenor). 8.0, The Apostle Play (Max Mell). 9.15, News and Sports Note. 9.30, Concert, conducted by Eysoldt. 10.40, Relay of the Finish of the Six Days' Racing from the Westfalenhalle, Dortmund. 11.10 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW.; and DRESDEN, 319 metres.—12.15 p.m., Concert of Folk Music on Gramophone Records. In the interval at 1.0, News, Weather, Snow Report, and Time Signal. Exchange Quotations after the Concert. 1.0 to 1.30, Film Review. 2.35, Exchange Quotations. 3.0, Concert by the Endé Orchestra; Overture, Eva (Lehar); Idylle am Bach (König-Langer); Schmetterlingsreigen (Sehmalsch); Waltz, Mondsicht auf der Alster (Petras); Legende (Wieniawsky); Liebeslied (Arthur Andersch); Hungarian Dance, Op. 30, No. 4 (Drdla); Nocturne and Musette (Sibelius); Die Wachtparade kommt (Eilenberg); Waltz, Winterlandschaft (Lüneke); Potpourri, Eichenblätter (Moranda); Fünf Chr Tee bei Robert Stolz (Dostal); Tanz der Ehemädelchen (N. W. Gade); Selection from Das Spiel um die Liebe (Gilbert); Waltz Song, Die Tom aus Wien (Stöblau). 4.30, Weather and Time Signal. 4.50, Exchange Quotations. 5.0, Health Talk: A Warning to Skiers. 5.15, Talk on Taxation. 5.30, Spanish Lesson. 5.50, Programme to be Announced. 6.0, Talk for Workers. 6.30, Beethoven Pianoforte Recital by Prof. Bertrand Roth; Sonata in E. Op. 109; Sonata in A flat, Op. 110. 7.0, See Breslau. 8.15, Orchestral Concert, conducted by Emil Drieser; Overture, Ika (Doppel); Waltz, Wiener Extrablätter (Translaten); Selection from The Geisha (Jones); Mariengavotte (Paul Donath); March, Stets munter (Franz Hoffmann); Selection from A Waltz Dream (Oscar Straus); Ein Tag in Wienwäldl (Kreuzberger). 9.15, News and Silent Night.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—6.0 p.m., Biological Talk. 6.30, The Letter Box. 7.0, Relay of an Opera. 9.30, Time, News, and Light Music on Gramophone Records.

LWOW

381 metres; 16 kW. 6.0 p.m., Historical Talk. 6.15, Miscellaneous Items. 6.30, See Warsaw. 10.0, Relay of Foreign Stations. 10.30 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South East. 8.30, Concert of Chamber Music: Jean Witkowski (Cello), Mme. Chevaux Boyer (Songs), Mlle St. Serrin (Pianoforte), and Mlle. Bonnardel (Violin); Sonata in F (Brahms); Four Melodies (Schumann); La Sérénade interrompue (Debussy). Feux d'artifice (Debussy); Les jets d'eau à la Villa d'Este (Liszt); Three Modern Melodies; Violin Solos; Trio No. 2 (Schubert). After the Concert, News Bulletin.

MADRID

ARANJUEZ (EAQ), 30.43 metres; 20 kW.—11.30 p.m., Variety Music. 11.45, Radio Chronicle. 12 Midnight, Concert of Popular Music. 12.35 a.m. (Friday), Talk. 12.40, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO; Call EAJ7; 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotations and Programme for Children, followed by Request Gramophone Records. 8.15, News Bulletin. 8.30 to 9.30, Interval. 9.30, Chimes, Time Signal and Band Concert, conducted by Martin Domingo, relayed from the Hotel Nacional. 11.45, News Bulletin. 12 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—4.50 p.m., See Brno. 5.0, Talk: Caeti. 5.15, See Prague. 5.30, German Transmission: Talk and Reading. 6.0, See Prague. 6.5, See Brno. 6.20, Waltz Concert by the Station Orchestra. 6.50, See Prague. 9.15, Concert by the Station Orchestra, conducted by Plichta. 10.0 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—4.0 p.m., News. 4.10, Concert. 5.30, Concert, relayed from the Radio Theatre. 8.0, Review of the Week and Answers to Correspondents in French. 8.55, Time. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 235 metres.—4.0 p.m., Concert, conducted by Erich Klies; Overture, Jagliostro in Wien (Joh. Strauss); Fantastic Variations on a Silesian Folk Song (L. Kische); Scandinavian suite (Torjussen); Paraphrase on Hungarian National Songs (E. Padonk); Waltz, Am Wörthersee (Koschat); Selection from Sylvia (Delibes); Waltz Scherzo (O. Straus); Einzug des Schneekönigs (Noack). 5.15, Talk on Mountaineering. 5.35, Agricultural Talk. 5.55, Time, Weather, and Agricultural Notes. 6.10 (from Augsburg), Concert by the South German Zither Society; Overture, Jubelfeier (Preiter); Three Soprano Solos with Accompaniment by a Zither Orchestra (A. Preiter); Fantasia, Blütenzauber (I. Haunstein); Waltz, Lockende Sirenen (Kollmanek); Minuet and Scherzo (Preiter). 7.0, In Praise of Good Things; Variety Programme: Extracts from the Music of M. Praetorius, Telemann, J. Fischer, V. Rathgeber, Mozart, L. Blech, Gracner, Lendvai, and P. Hindenith; Readings from the Works of Li-tai-pe, J. Olivinus, M. Sturm P. Zesen, P. Fleming, A. Kreiger, Uhlend, Mörike, Verhaeren, and R. Bilfinger. 8.0, Talk: A Journey through Lower Bavaria. 8.20, Symphony Concert, conducted by H. A. Winter; Soloist, Fräulein Lamond (Pianoforte); Overture Fantasia, Raskolnikov (Reznick); Concerto for Piano and Orchestra in C Minor (Beethoven); Three Sympionic Sketches, La Mer (Debussy). 8.20, Time, Weather, News, and Sports Notes.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredriksstad, 367.6 metres; Hamar, 550 metres; Notodden, 447.1 metres; Porsgrunn, 453.2 metres; and Rjukan, 447.1 metres.—6.0 p.m., Announcements, Weather and News. 6.30, Soprano Song Recital by Elisabeth Munthe Kaas. 7.0, Agricultural Notes. 7.30, A Childhood Friend—One-Act Play (Edmond See), translated by Harriet Hansson. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Relay of European Stations. 11.0 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Agricultural Notes and Giornale Radio. 7.20, Variety Music on Gramophone Records. 7.30 (in an interval), Time and Announcements. 7.45, Concert of Light Music: Marcia grotesca (Frontini); Soprano Solo: Peuse (Mascheroni); Tenor Solo: Non ti scordar di mo (de Curtis); Cinema Tenors Soprano Solo: Canzone d'una volta (Riderelli); Tenor Solo: Signora, vi amo (Anade); Con un po' di rossetto (Simi); Humorous Item: Va pia di (Hannud). 8.30, A Comedy in One Act. 9.0, Concert (contd.): Fez (Mart-Mascheroni); Tenor Solo: Ah l'amore che fa fa (de Curtis); Soprano Solo: Ti voglio bene (Mariotti); Tenor Solo: Valzer dell'addio (Fragna); Soprano Solo: Indostan (Innocenti); Humorous Item: Aspetta Rosetta (Luggetti); Ragazze d'oggi (Mascheroni). 9.55, News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW.—5.45 p.m., Le Journal Parlé. 7.20, Weather Report. 7.30, Gramophone Concert: Overture, Les Troyens à Carthage (Berlioz); Selection from The Damnation of Faust (Berlioz); Overture, The Caliph of Bagdad (Boieldieu); Selection from Blue Bird (Offenbach); Spanish Serenade (Bizet); The Bull-fight (Iscman); Song, Le roi d'Yvetot (Béranger); A cinq heures du

JAN. 12th

THURSDAY

continued

matin (Desauziers); Japanese Lantern Dance (Yoshitomo); Monologues (Chenail); Intermezzo (Schleier); Melody (Lochmann); Marche des cols bleus (Farigoul). 9.0 (approx.). Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—7.0 p.m., Sponsored Talk. 7.10, Popular Music on Gramophone Records. 7.30, Sponsored Concert. 8.0, Variety Music on Gramophone Records. 8.15, Interval. 8.30, Le regard bleu (T. Herzege, arr. for Radio by R. Saunier). 10.0, Concert of Light Music by Alexander Scriabin's Russian Orchestra, relayed from the Berry. 10.30, News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (cont'd). 7.45, Gramophone Records of Light Music. 8.0, Press Review and Weather. 12 Noon, Protestant Address. 12.30 p.m., Concert—Part I, For Young People; Polichinelle (Rachmaninov); The Nutcracker Suite (Tchaikovsky); Part II—Modern Operetta and Sound Film Music; Selection from Tip Toes (Gershwin); P.L.M., from P.L.M. (Christine); Song from Flap (Saulz); Two Songs from Un Homme en habit (Borel-Clerc); Three Songs from The Smiling Lieutenant (O. Strauss); Song from Tu seras Duchesse (Gromon). In the intervals at 1.0, Exchange, News and Weather, and at 1.30, Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Gramophone Concert: Proch Potpourri; Les Oies de Lauterbourg (Hör); Invitation to the Waltz (Weber). 6.45, Legal Talk. 7.0, Talk: Anatole France. 7.20, Orchestral Concert. 7.45, Commercial Prices and News. 8.0, Literary Talk: Stories by Guy de Maupassant. 8.50, News and Weather. 8.45, Belgian Programme of Literature and Music, with Address by M. Delhaize, President of the Confederation of Belgian Societies in France. In the interval at 9.15, Press Review and News. 10.0, Gramophone Concert: Ballet Music from Daphnis et Chloé (Ravel); Capriccio (Stravinsky)

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relay by WXXK on 48.86 metres and 25.27 metres.—9.0 p.m., Work-a-day Thoughts. 9.5, Business News. 9.15, Programme to be announced. 9.30, Weather Report. 9.32, Market Reports. 9.45, Piano-forte Interlude. 9.50, David Lawrence Dispatch. 9.55, KDKA Artist Bulletin. 9.58, Programme Announcements. 10.0, Resolved: That the Allied War Debts of the United States should be cancelled. Princeton Team, Affirmative; La Fayette, Negative. 10.15, Salvation Army Band. 10.30, The Singing Lady, from New York. 10.45, Little Orphan Annie, from New York. 11.0, Time Signal. 11.1, Temperature Report. 11.2, Teaberry Sport Review. 11.7, Press News-Reeler. 11.14, Weather Report. 11.15, Johnny Hart in Hollywood, from New York. 11.30, KDKA Orchestra. 11.45 to 12.30 a.m. (Friday), New York Relay. 11.45, Today's News, by Lowell Thomas. 12.0 Midnight, Pepsodent Ainos 'n' Andy. 12.15 a.m., Royal Vagabonds. 12.30, Westinghouse Parade. 1.0, Regimentalists, from New York. 1.15, Syria Santa. 1.30 to 3.15, New York Relay. 1.30, Time Signal and Rin Tin Tin Thrillers. 1.45, Thurston, the Magician. 2.0, Death Valley Days. 2.30, Dancing Strings. 3.0, Song Follows. 3.15, McCormick's Orchestra. 3.30, Al and Pete, from New York. 3.45, Bradley Kincaid. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News Flashes. 4.20, Heart Songs by Louise Frayne. 4.30, Jimmy Joy and his Orchestra. 4.45, Bronc Busters. 5.0, Salt and Peanuts. 5.15, Terrace Gardens Orchestra, from New York. 5.30, Time Signal and Goodnight.

PORSGRUND.—See Oslo.

PRAGUE

488.6 metres; 120 kW.—4.50 p.m., Variety Music on Gramophone Records. 5.5, Agricultural Talk. 5.15, Talk for Workers. 5.25, German Transmission: News, Review of New Books, and Agricultural Report. 6.0, News. 6.5, See Brno. 6.20, Slav Song Recital by Eleonora Borodina-Cerkasska. 6.40, Reading. 6.50, The Evolution of the Piano-forte: Sonata III, Recital by Jan Herman, with Introductory Talk. 7.20, The Ghost Train—Play (Ridley), translated by Vancura. In the interval at 8.0, Time Signal. 9.0, Time Signal. 9.1, News. 9.15, See Moravská-Ostrava. 10.0 (approx.). Close Down.

RADIO-SUISSE ROMANDE

SOTTENS; 403 metres; 25 kW.; LAUSANNE, 680 metres; and GENEVA, 760 metres.—5.0 p.m. (from Geneva), Sports Talk. 5.20 (from Geneva), Esperanto Lesson. 5.35 (from Lausanne), Italian Lesson. 6.0 (from Lausanne), Weather Forecast, News Bulletin, and Announcements. 6.20 (from Lausanne), Answers to Correspondence. 6.30 (from Lausanne), Theatre Talk. 7.0 (from Geneva), Scenes from a Modern Play. 7.25 (from Geneva), Mozart Concert by M. Hoelder (Hörn) and Marcel Milholland (Piano-forte). 8.0 (from Lausanne), Songs by Modern Swiss Composers, sung by Mme. Rose Bernheim. 8.15 (from Lausanne), Concert of Chamber

Music. Mlle. J. de Crousaz (Piano-forte), M. Ed. Appia (Violin), and M. Burger (Cello). Trio No. 6 in D (Haydn); Trio in E flat (Andreae). 9.0, News Bulletin and Weather Forecast. 9.15 (approx.). Close Down.

REYKJAVIK

1,200 metres; 21 kW. 8.30 p.m., Weather. 8.40, Musical Programme and Announcements. 9.0, Chimes. 9.2, News Bulletin. 9.30, Reading. 10.0, Concert by the Station Quartet, followed by Popular Music on Gramophone Records.

RIGA

525 metres; 15 kW.—5.30 p.m., English Lesson. 6.0, Weather Report. 6.5, Light Music. 7.0, News. 7.20, Piano-forte Recital by Professor Vytautas Bacvicevici; Mephisto-walzer (Liszt); Poissons d'or (Debussy); Rigaudon (Ravel); First Prelude (Albéniz); Pieces (Bacvicevici): (a) Sonata, Op. 3, (b) Poem, Contemplation, (c) Sonata, Op. 4, No. 1. 8.0, Weather and News, followed by Orchestral Selection from Iolanthe (Tchaikovsky). 8.30, Dance Music. 9.30 (approx.). Close Down.

RJUKAN.—See Oslo.

ROME

Call 190, 441 metres; 50 kW. Relay by Naples, 319 metres; and 280, 25.4 metres.—7.15 to 7.30 a.m., Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 p.m., Humorous Items. 12.5 to 1.15 p.m., Orchestral Concert. In the interval at 12.30, Giornale Radio and Exchange. 3.45, Programme for Children. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.30 to 5.15, Orchestral Concert: Overture, Orpheus in the Underworld (Offenbach); Fiorellini d'amore (Broggi); Selection from Mame Lescaut (Puccini); Piano-forte Solos: (a) Ave Maria (Liszt), (b) Etude in Waltz Form (Saint-Saëns); Introduction and Greek Dance (Negri); Wiegenlied (Schumann); One-step (Petralia). 6.10 (Naples), Shipping and Sports Notes. 6.15, Agricultural Report, Announcements and Giornale Radio. 7.0, Time and Announcements. 7.15, Light Music on Gramophone Records. 7.20, Talk for the Housewife. 7.30, Sports Notes and Tourist Report. 7.45, Symphony Concert, conducted by Rito Selvaggi. In the interval: Talk on Literature and Art. 9.55, News Bulletin.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY); 379.5 metres; 50 kW. Relay at intervals by W2XAF on 31.48 metres; and by W2XAD on 19.56 metres.—7.45 p.m., Powder River Kid. 10.15, Paul Whitehead's Rhythm Boys, from New York. 10.30, Father John's Programme. 10.45, Sekatary Hawkins, from New York. 11.0, Joe and Eddie—Comedy Sketch. 11.15, Studio Ensemble. 11.45, Chandu, the Magician. 12 Midnight, Stock Reports. 12.15 a.m. (Friday) till Close Down, New York Relay. 12.15 a.m., Wheatena Ville. 12.30, Barbasol Programme. 12.45, The Goldbergs. 1.0, Fleischmann Hour. 2.0, Capt. Henry's Show Boat. 3.0, Lucky Strike Hour. 4.0 (approx.). Close Down.

SCHWEIZERISCHER

LANDESENDER

BEROMUNSTER; 459 metres; 60 kW.; BASEL, 244.1 metres; and BERNE, 245.9 metres.—11.28 a.m., Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40, Popular Music on Gramophone Records. 12.35 p.m., Weather and Exchange. 12.40 to 2.30, Interval. 2.30 (from Berne), Talk for Women. 3.0, Light Music on Gramophone Records. 4.0, Chamber Music on Gramophone Records. 4.30, Weather Report. 4.35 to 5.30, Interval. 5.30 (from Basle), Talk: The Development and Aims of the International Union Club. 6.0, Time, Weather, and Announcements. 6.15 (from Basle), Elementary Italian Lesson. 7.0 (from Basle), Die Welt auf dem Monde (The World on the Moon)—Comic Opera in Two Acts (Haydn), relayed from the Municipal Theatre. 8.50 (approx.). Weather and News. 9.30 (approx.). Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relay by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres, and Sundsvall, 542 metres.—4.5 p.m., Talk on the One hundred and fiftieth Anniversary of the Birth of the Swedish Historian, Erik Gustaf Geijer. 4.35, Religious Address. 5.0, Variety Programme on Gramophone Records. 5.45, Elementary English Lesson. 6.15, Weather and News. 6.30, Erik Gustaf Geijer Programme: Talk by Dr. John Lundqvist; Songs by Edith Widmark-Lundblad (Songs), and Reading by Olov Molander. 7.45, Military Band Concert, re-

layed from Falun (307 metres). Conductor: Joel Olsson. Concerto in D for Cello and Piano-forte (Vivaldi); Siciliana (Bach); Tambourin (Rameau); Sonata in E for Cello and Piano-forte (G. Valentini); Melody (Bové); Flute Solo (Debussy); Schän Rosmarin (Kreischer); Papillon (Fauré); Gipsy Song (Dvorak); Chanson villageoise (Popper). 10.0 (approx.). Close Down.

STRASBURG

345 metres; 11.5 kW. 11.30 a.m., Light Music on Gramophone Records. 12.45 p.m., News Bulletin. 1.0, Time Signal. 1.2, Exchange Quotations. 1.10, Concert of Light Music on Gramophone Records. 2.0 to 3.0, Programme for Children. 4.0, Dance Music on Gramophone Records. 4.45, Lesson in French Eloquence. 5.0, Dance Music. 6.0, Talk in German: Alesian Historians of the Eighteenth century. 6.15, Talk for Women. 6.30, Orchestral Concert, conducted by Maurice de Villers: Overture, Rienzi (Wagner); Selection from Elektra (R. Strauss); La Boite à joujoux (Debussy); Prelude and Serenade from The Snow Man (Korngold); Winter Evening (Schubert); Three Pieces (Pierné); Rakoczy March (arr. Salabert). 7.30, Time Signal. 7.32, Orchestral Concert (cont'd). Ballet Music from La Fera (Lacôme); Overture, Fra Diavolo (Auber); Selection from Gaudemus (Humperdinck); French Waltz (Y. Émer); French March (Fillipucci). 8.25, Announcements. 8.30, Concert of Modern Music, relayed from the Conservatoire: Soloists: Jacques Février and Francis Poulenc (Piano-forte); Fantaisie from the Sérénade (Milhaud); Suite in D from La Création du Monde, for Six Instruments and Piano-forte (Milhaud), with the Composer at the Piano-forte; Music for Two Piano-fortes: Bibliophilie (Auri); Trio for Oboe, Bassoon, and Piano-forte (Poulenc), with the Composer at the Piano-forte; Serenade for Violin and Eleven Instruments (Rieti); Piano-forte Solo: Selection from Don Quixote (Nabokov); Melody for Voice and Orchestra: La Voyante (Sauguet), the Composer conducting; Gallop for Seven Instruments, Piano-forte and Drum (Markevitch). 10.30 (approx.). Close Down.

STUTTGART

MUHLACKER; 360.5 metres; 60 kW.; and FREIBURG, 570 metres.—11.30 a.m., Gramophone Concert of Light Music. 12.15 p.m., Time, Weather, News, and Programme Announcements. 12.30, Symphony in C, No. 41—the Jupiter Symphony (Mozart), on Gramophone Records. 1.0, Sponsored Concert. 1.30, Spanish Lesson. 2.0, Elementary English Lesson. 2.30, Programme for Children. 3.45, Talk: Gerhart Hauptmann in France. 4.0, Concert by the Station Orchestra, conducted by Gustav Gäheli. Soloist: Karl Paul Rau (Baritone). Part I: Mozart's Opera Music: Overture and Two Arias from Bastien and Bastienne; Overture and Bartolo's Aria from Figaro. Part II: Overture, Die schone Galathee (Suppé); Waltz, Künstlerleben (Joh. Strauss); Song from Light Cavalry (Suppé); Potpourri of Eybler's Operetta Music (Hruby); Waltz from Der Obersteiger (Zeller). 5.15, Time, Weather, and Agricultural Notes. 5.25, Talk: The Fruits and Wines of Germany. 5.50 (from Freiburg), Talk: The Importance of Credit Transactions in Modern Industry. 6.15, Time and News. 6.30, Unfamiliar Europe: III: Beyond Budapest on Gramophone Records. 7.0, Das musikalische Opfer (Bach), for Organ, Flute, Oboe, Violin, Viola, Two Cellos, and Harpsichord, relayed from the Academy of Music: Fugue (Rieserere) for Organ; Fuga canonica for Violin and Organ; Canon perpetuus, for Flute, Violin, Cello and Organ; Trio Sonata for Flute, Violin, Cello, and Harpsichord; Eight Canons for Wind and String Instruments; Final Fugue for Orchestra and Organ. 8.20, Spies—a Radio Play (Max Heye). 9.20, Time, Weather, News, and Programme Announcements.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0 p.m., News Bulletin. 6.15, Accordion Music. 6.30, Programme for Children. 7.0, Argentine Music. 7.15, News and Market Prices. 7.25, Local News. 7.30, Night on the Bare Mountain for Orchestra (Mussorgsky). 7.45, Melodies. 8.0, Viennese Music. 8.30, Sound Film Music. 8.45, Orchestral Music. 9.0, La Basoche—Opéra-comique (Messager). (Concert Version). 9.40, Popular Music. 10.0, Opera Music: Arias from The Magic Flute (Mozart), William Tell (Rossini), and La Juive (Halévy). 10.15, North African News. 10.30, Concert for Listeners in Morocco: Selection from Mirella (Gounod); Song from La Vivandière (Godard); Cristalline (Blémant); Melody from Marins (Pagnol); Frimousse (Mareau). 11.0, Baladaika Music and Russian Songs: Song of the Ural Cossacks; Mon Chéri; Potpourri of Little Russian Songs. 11.15, Military Music. 11.30, Programme in English by the I.B.C.; Songs and Dances; Mona Lisa (Sullivan); Two Hearts and a Waltz Refrain (Stolz); You are my

Heart's Delight, from The Land of Smiles (Lehár); Jeanine, I dream of Lilac Tim (Shikret); There's a Rainbow round my Shoulder (Rose); Dream a little Dream of me (Schwartz); One little Raindrop (Kielman); Balls, Pienies and Parties (Christie). 12 Midnight, Weather. 12.5 a.m. (Friday) Orchestral Music. 12.30 (approx.). Close Down.

TRIESTE

247.7 metres; 10 kW.—6.0 p.m. till Close Down. See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relay by Milan, 331.1 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—6.0 p.m., Variety Music: Potpourri of Favourite Melodies (Herbert); Ein Ballnachtstraum (Translatour); Fior d'Andalusia (Malvezzi); Echoes of the Ukraine (Ferraris). 6.25, Tourist Report. 6.30, Time, Announcements and Light Music on Gramophone Records. 7.0, Giornale Radio and Weather. 7.20, Talk for the Housewife. 7.30, Variety Music on Gramophone Records. 8.0, Relay of an Opera. In the intervals: Cinema Notes, Talks and Giornale Radio.

VATICAN CITY

19.84 metres (Morning), and 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

517 metres; 15 kW. Relay by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218 metres.—4.0 p.m., Concert by the Franz Eber Orchestra: Overture, Donna Diana (Reznicek); Waltz, Wilde Rosen (Ganglbauer); Selection from The Cricket on the Hearth (Goldmark); Spanish Rhapsody, España (Chabrier); Viennese Song, Das sind die Perlen von Wien (Weiner-Dillmann); Potpourri, Musikalische Stationen (Richter); March, Fesch und schneidig (Rameis). 5.0, Talk for Women. 5.25, Talk for Workers. 5.50, Talk: Fifty Years of Post Office Savings' Banks. 6.20, Time, Weather, and Programme Announcements. 6.30, Talk. 7.0, See Munich. 8.10, Concert of Viennese Operetta Music by the Alois Dostal Orchestra: Soloist: Charlie Suk (Tenor); Overture, Der Bettelstudent (Müllbacher); Song, Lass dir Zeit, from Der Köllenmeister (Zeller); Song, Muatterli, liabs Muatterli from Schützendies (Eybler); Lagunen-Walzer from Eine Nacht in Venedig (Joh. Strauss); Song from The Little Dutch Girl (Kálmán); Song, Da nehm' ich meine kleine Zigarette from Der Orlov (Griegelstaedt); Selection from The Rose of Stamboul (Fal); Song from The Czarovitch (Lehár); Potpourri, Von wien durch die welt (Hruby). 9.20, Announcements and Weather. 9.30, Song Report. 9.45, Dance Music from The Cze Palmhof.

WARSAW

1,411 metres; 120 kW.—11.10 a.m., Orchestral Concert, conducted by J. Ozimski: Overture, Accordailles polonaises (Nowiejski); Poème (Filich); Serenade (Drdla); Selection from The Bartered Bride (Smetana); Waltz from Eugene Onegin (Tchaikovsky); Extracts from Carmen (Bizet); Waltz (Dvorakovsky); Hungarian Rhapsody, No. 9 (Liszt). 12.20 p.m., Weather Forecast. 2.10, News Bulletin. 2.15, Economic Report. 2.25, Light Music on Gramophone Records. 2.35, Health Talk. 2.50, Popular Music on Gramophone Records. 3.25, French Lesson. 3.40, Talk. 4.0, Concert of Chamber Music on Gramophone Records. 4.40, Topical Talk. 4.55, Programme Announcements. 5.0, Light Music from the Cristal Restaurant. In the interval, News. 6.0, Miscellaneous Items. 6.20, Agricultural Report. 6.30, Humorous Literary Programme. 6.45, Radio Journal. 7.0, Concert by the Station Orchestra, conducted by St. Navrot. Soloists: C. Horbowska (Soprano) and L. Urstein (Piano-forte). Overture, A Night in Venice; Carnival Suite (Siede); Soprano Solos: (a) Waltz (Lehár), (b) Waltz from Peppina (Stolz), (c) Song (Miller); Waltz from Countess Mariza (Kálmán); Song (Stolz); Gavotte, The Bells of Saint-Cyr (Schmalch); Boston (Maklakiewicz); Melody from Ein Herbstmonat (Kálmán); Czardas from Countess Mariza (Kálmán); Wine, Woman and Song (Strauss); Dances de jeunes filles (Friml); Egyptian Dance (Friml); Spanish Caprice, Alhambra (Semler); Cadet March (Sonsa). In the interval, Sports Notes and Radio Journal. 8.30, Talk. 9.15, Gipsy Orchestra. 9.55, Weather Forecast and Police Notes. 10.0, Dance Music from Katowice (408 metres). 11.0 (approx.). Close Down.

WILNO

563 metres; 16 kW.—6.0 p.m., Answers to Correspondents. 6.20, Miscellaneous Items. 6.30, Recitations. 6.45 to 10.0, See Warsaw. 10.0, Dance Music. 11.0 (approx.). Close Down.

ZURICH.—See Schweizerischer Landessender.

ALGIERS

363.3 metres; 13 kW.—7.10 p.m., Shipping News. 7.15, Agricultural Talk. 7.30, Popular Music on Gramophone Records, with a Commentary by M. Pistor. 7.55, News Bulletin. 8.0, Time Signal. 8.2, Light Music on Gramophone Records. 8.15, Les Noces de Jeannette—Opéra-Comique (Massé). 9.50, News Bulletin. 10.0, Dance Music, relayed from the Hotel Aletti. 11.0 (approx.), Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 349 metres; 8 kW.—7.30, Exchange Quotations, Request Gramophone and News Bulletin. 9.0, Chimes, Weather and Programme for Sailors. 9.10, Concert by the Station Orchestra. 9.30, Programme from Madrid (EAJ7). In an interval at 11.0, News Bulletin.

BARI

270 metres; 20 kW.—7.0, Announcements, Tourist Report and Agricultural Notes. 7.20, Giornale Radio and Announcements. 7.30, Time and Announcements. 7.32 (approx.), Concert. Soloists: d'Angelo (Baritone), and Maria de Santos Bruno (Soprano). Overture, Carnival (Ragni); Selection from I compagni (Riccioli); Aria for Baritone from Ruy Blas (Marchetti); Intermezzo from Manuel Mendive (Filiasi); Soprano Solos: (a) Salve Regina (van Westerhelt), (b) Aria from Tosca (Puccini); Selection from Siberia (Giordano); Overture, Le femmine bigiose (Cardoni); Baritone Solos: (a) Aria from Beatrice di Tenda (Bellini) (b) Aria from I due Foscari (Verdi); Intermezzo from the Second Act of Adrienne Lecouvreur (Cliea); Soprano Solos: (a) Aria from La Bohème (Puccini), (b) Aria from I Pagliacci (Leoncavallo); Selection from La Gioconda (Ponchielli); Sports Talk in the interval. 9.30, Gramophone Records of Variety Music. 9.55, News Bulletin.

BASLE.—See Schweizerischer Landessender.

BELGRADE

430.4 metres; 2.8 kW. 5.55 p.m., Time and Programme Announcements. 6.0, Variety Music on Gramophone Records. 6.30, New Year Programme. 7.0, Mendelssohn Concert by the Station Orchestra; Overture, Meeresstille und glückliche Fahrt; Concerto in E Minor, Op. 64, for Violin and Orchestra; Nocturne and Wedding March from A Midsummer Night's Dream. 8.0, Saxophone Solos. 8.30, Russian Song Recital. 9.0, Religious Address, The Passing of the Old Year. 9.30, News, followed by a Relay of New Year Celebrations.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.55 a.m., Nauen Time Signal. 12.35 p.m., News. 1.0, Gramophone Concert of Classical Music, relayed from Berlin (Witzleben). 2.0, Talk for Girls. 2.30, Weather and Exchange. 2.45, Reading. 3.0, Educational Talk. 3.30, See Leipzig. 4.10, Topical Talk. 4.30, Talk: Creators of the German Language. 4.55, String Quartet in D (Haydn). 5.25, Talk for Workers. 5.55, Weather for Farmers and Announcements. 6.0, Talk: The First Prussian. 6.30, A Poem. 6.35, See Berlin (Witzleben). 7.20, Magdalena—Play (L. Thoma). 8.50, Part Relay of the European Concert from Turin. 9.15, Weather, News, and Sports. Notes. 9.45, Weather for Shipping. 10.0 (approx.), Orchestral Concert, relayed from the Schlitzhaus, Frankfurt-an-der-Oder; Overture, Waldmeister (Joh. Strauss); Waltz, Die Werber (Lautner); Hungarian Dances (Lehár); Waltz, Nachtschwärmer (Zielner); Selection from Der Bettelstudent (Millöcker). 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—6.0 p.m., Topical Talk. 6.10, Choral Concert. 6.35, Orchestral Concert, conducted by Willy Post, relayed from the Musikheim, Frankfurt-an-der-Oder; Overture, Waldmeister (Joh. Strauss); Waltz, Die Werber (Lautner); Hungarian Dances Nos. 5 and 6 (Brahms); Waltz, Nachtschwärmer (Zielner); Selection from Der Bettelstudent (Millöcker); Oriental Suite (Popy); Russian March (Ohlson). 7.45, Three Equals for Trombones (Beethoven), relayed from the Philharmonie. 8.0, Topical Talk. 8.15, Mexican Songs and Poems on Gramophone Records, followed by News and Concert of Wind Instrument Music. 11.0 (approx.), Close Down.

BERNE.—See Schweizerischer Landessender.

BEROMUNSTER. — See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—7.30 p.m., News. 7.40, Variety Music on Gramophone Records. 7.55, Lottery Results. 8.0, Spanish Lesson. 8.15, News and Weather Forecast. 8.30, Vocal and Orchestral Concert.

BRATISLAVA

279 metres; 14 kW.—3.10 p.m., See Prague. 3.55, Popular Music on Gramophone Records. 4.5, See Prague. 5.5, Sports Notes. 5.20, Variety Music on Gramophone Records. 5.45, Slovak Grammar Lesson. 6.0, See Prague. 6.20, Romantic Concerto for Pianoforte and

FRIDAY
JANUARY THE THIRTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

- NATIONAL** Mr. St. John Ervine: "The Theatre." Recital of operatic gramophone records. "Pieces of Tape," being bits and pieces of past programmes. Orchestral concert.
- LONDON REGIONAL** Orchestral concert. Promenade concert from Queen's Hall.
- MIDLAND REGIONAL** Light music. Choral concert.
- NORTH REGIONAL** Orchestral concert. Organ recital. Relay from Circus at Belle Vue, Manchester.
- WEST REGIONAL** Channel Currents: "A Review of Events in the West Region." Burlesque No. 3: "The Mollusc," a comedy by Hubert Henry Davies.
- SCOTTISH REGIONAL** Ballad concert. London Regional programme.
- BELFAST** Organ recital. An Irish programme. National programme.
- BARI** Vocal and instrumental concert of operatic music.
- COPENHAGEN** Chamber concert of Schumann's music.
- HEILSBERG** Symphony concert from the Stadthalle, Königsberg.
- STUTTGART** Concert of old music, by the Philharmonic Orchestra.
- TURIN** Symphony concert, conducted by R. Zandonai.
- WARSAW** Pianoforte recital by Arthur Rubenstein.

ABROAD

Orchestra (Marx). 7.10, The Fatal Invitation—One-Act Comedy (H. Clairville). 8.25 (approx.), See Prague. 9.15 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres; 60 kW.; and **GLEIWITZ**, 253 metres.—12.5 p.m., Weather for Farmers. 12.10, Gramophone Concert: Hesse-Marsch (Periklamm); Waltz, Dorf-schwaben aus Oesterreich (Jos. Strauss); Melody from The Gipsy Baron (Joh. Strauss); Bandltanz, s'Deindl mit'n roten Miada, Ein Gruss aus dem Passeyerthal (Pühlinger); Händler, D'Knöchler (Huber); Waltz, Die Schänbrunner (Lautner); March, Wien bleibt Wien (Schrammel); 12.45, Time, Weather, News and Exchange. 1.5, Gramophone Concert: Overture, The Merry Wives of Windsor (Nicolaï); Selection from Die toten Augen (F. Albert); Der Vogel im Walde (Taubert); Was i hab' (Bohm); Norwegian Dances (Grieg). 1.45, Sponsored Programme with Gramophone Records. 2.10, Agricultural Prices and Exchange. 2.40, Talk for Young People: Cowboys. 3.10, Concert by the Station Orchestra, conducted by Franz Marszałek: Foxtrot Potpourri, Nach Wien! (Rohrechl); Foxtrot Potpourri, Das fidele Alt-Berlin (Rohrechl); Vibraphone Waltz (Löhrl); Intermezzo, Die Spieluhr der Pompadour (Noack); Serenata (Sanderson); Two Melodies (Homann-Wobau). (a) Waltz Intermezzo, Rheinzauber. (b) O du lieber Augustin, Humoresque in the Musical Style of Different Nations; Cuban Serenade (Mautz); Selection from Leislot (Künneke); Overture, The Nuremberg Doll (Adam). 4.30 (from Gleiwitz), Market Prices, followed by Talk: The Crisis in the Most Profitable Professions for Women. 5.0, Talk by Robert Maritz. 5.30, Programme to be announced. 6.0, Talk on Industrial Occupations. 6.30, Weather for Farmers. 6.35, Concert by the Station Orchestra: Selection from Der Rosenkavalier (R. Strauss-Higgs); Entr'acte from Intermezzo (R. Strauss); Pictures of the Rhine (Bizet-Gocher); Selection from Carmen (Bizet); The Emperor Waltz (Joh. Strauss); Selection from The Gipsy Baron (Joh. Strauss-Atzler); Polka, Bahu frei! (E. Strauss). 8.0, European Concert, relayed from Turin. 9.15, Time, Weather, News, Sports Notes and Programme Announcements. 9.35, Orchestral Concert of Variety Music, relayed from the Schlitzhaus, Frankfurt-an-der-Oder. 11.0 (approx.), Close Down.

BRNO

342 metres; 35 kW.—3.10 p.m., See Prague. 3.55, Theatre Review. 4.5, See Prague. 5.5, Talk: Creative Art. 5.15, Talk for Workers. 5.25, German Transmission: News and Sports Report. 6.0, See Prague. 7.0, Variety Concert with Gramophone Records. 7.25 (approx.), See Prague. 9.15 (approx.), Close Down.

BRUSSELS (No. 1)

1.1.N.R., 589 metres; 15 kW.—12 Noon, Concert by the Station Orchestra, conducted by P. Lecmans: Cortège Catalan (de Sève); Overture, Le roi Fa dit (Delibes); Spanish Serenade (Laurys); Ballet égyptien (Ludgini); Berceuse (Fauré); Potpourri, Klänge aus Rumänien (Danber); An den Frühling (Grieg); Waltz, Your Heart's mine (Heartly); Sound Film Potpourri (Salabert). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Concert: Two Arias from Azor (Gabaroché); Badinerie (Camus); Military Waltz, La Hussarde (Ganne); Xylophonitis (Whitlock); Offenbach Operetta Potpourri; Le beau rêve (Flégier); Selection from Les Mousquetaires au Convent (Varney); L'eau qui court (Georges); Selection from Im Reiche des Indra (Lincke); Piece (Grothe); Selection from The Czardas Princess (Kálmán). 2.0, Broadcast for Schools. 5.0, Concert by the Radio Orchestra, conducted by Franz André. 6.0, Talk. 6.15, Gramophone Concert: Suite, Le Bourgeois gentilhomme (R. Strauss); Hindu Song from Sadko (Rimsky-Korsakov); Gopak (Mussorgsky); Liebeswalzer (Reger); Eine Faust-Ouverture (Wagner). 7.15, Talk: The Prevention of Mental and Nervous Diseases. 7.30, Literary Review. 8.0, Concert by the Radio Orchestra, conducted by Franz André: Soloist, Simone Leslie (Songs); Morning, Noon and Night (Suppé); Waltz, The Blue Danube (Joh. Strauss); Song from The Pearl of Brazil (David); Irish Echoes (Lange); Selection from Le Grand Mogol (Andran); Aria from Lakmé (Delibes); Cadet March (Souza). 8.45, Talk. 9.0, Concert (contd.): Le Carnaval des Animaux (Saint-Saëns); Selection from La Faussette du Temple (Messager); Waltz, Künstlerleben (Joh. Strauss); Aria from Manon (Massenet); Selection from The Count of Luxembourg (Lehár); Heizenmännchens Wachtparade (Noack); Le Camari (Poliakini); Russian Potpourri, Volga (Evans). 10.0, Le Journal Parlé. 10.10, Light Music on Gramophone Records. 11.0 (approx.), Close Down.

BRUSSELS (No. 2)

1.1.N.R., 338.2 metres; 15 kW.—Programme in Flemish.—12 Noon, Gramophone Concert: March (Smar); Can't help lovin' dat man, from Show Boat (Kern); Waltz from Nalla (Delibes-Doppler); Ol' Man River, from Show Boat (Kern); Souvenir (Drilla); Mushrooming (Mussorgsky-Rimsky-Korsakov); Hungarian Dance No. 8 (Brahms-Johannin); Piece (Drey); Pas des Eclairpes (Chaminade); Piérette (Chaminade); Spanish Rhapsody (Liszt); Rustle of Spring (Sinding); Jota Aragonesa (Sarasate); Ballet Music from Coppélia (Delibes). 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Little Station Orchestra, conducted by P. Lecmans: March, Vivaldi Hungaria (Kálmán); Scènes pittoresques (Massenet); Menuet varié for Pianoforte (Mortelmans); Selection from Gri-Gri (Lincke); Märchen-

traum for Violin (Bass); Waltz (Abraham); Foxtrot, I owe you (Hartman-Goodhart). 2.0, Broadcast for Schools. 5.0, Concert by the Little Station Orchestra, conducted by P. Lecmans: Overture, Rosamund (Schubert); Suite from Callirhoe (Chaminade); Paysage (Doullez); Sérénade à Lisette (Caludi); Selection from The Jewels of the Madonna (Wolf-Ferrari); Doll Dance (Turina); Prelude and Cortège from L'Enfant Prodige (Debussy); Divertissement flamand (Vidal). 6.0, Saxophone Solos by Paul Gason. 6.15, Gramophone Records: Selection from Undine (Lortzing); Madrigal (Simonetti); Hungarian Czardas (Barthel). 6.30, Song and Pianoforte Recital by Walter Goes (Tenor), and Jef Van Durme: Prelude and Fugue for Pianoforte (Van Durme); Tenor Songs; Pianoforte Solos (Benoit): (a) Ballad, (b) Chevauchée; Tenor Songs; Dance de la Fierté (Van Durme). 7.15, Talk: The History of the Cinema. 7.30, Botanical Talk. 8.0, European Concert relayed from Turin. In the intervals at 8.31 and 9.11, Popular Music on Gramophone Records. 10.5, Le Journal Parlé. 10.15, Light Music on Gramophone Records. 11.0 (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—4.0 p.m., Concert by the Station Orchestra. 5.0, News and Time Signal. 5.10, Talk. 5.25, Concert by the Station Orchestra (contd.). 6.0, Talk: The Importance of the Danube to Romania. 6.40, Popular Music on Gramophone Records. 7.0, Wagner Concert by the Philharmonic Orchestra, conducted by A. Alessandresco; Soloist, Mme. Aca de Barbu (Soprano): Overture, The Flying Dutchman; Dance of the Apprentices and Hans Sachs Aria, from The Mastersingers; Five Songs; Funeral March and Finale from The Dusk of the Gods; Overture, Tannhäuser. 9.0, News Bulletin.

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on 840 metres from 6.15 p.m. till Close Down. 4.30 p.m., Concert of Ballet Music by the Budapest Concert Orchestra, conducted by Michael Nador. 5.45, Shortland Lesson. 6.15, Bunter Abend. 7.40, Talk on Foreign Affairs. 8.0, European Concert, relayed from Turin. 9.30, News. 9.45 (approx.), Concert by the Alexander Cura Cigány Band, relayed from the Hotel Dunapalota. **CASSEL**.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG**, 1,153 metres; 7.5 kW.—11.45 a.m., String Ensemble Concert, relayed from the Bellevue Stradhôtel. 1.0 to 1.30, Interval. 1.30, Gramophone Concert. Beniamino Gigli; Quanno a femmena vo' (de Crescendo); Emanuel List: Das Rindvieh (Gläser); The Merry-makers; The Merry-makers' Carnival (Ford-Haensehn); Parodies of Hollywood Stars by Florence Desmond; Songs by Graeie Fields. 2.0, Relay of Prof. Hallsby's Meeting from Bethesda. 3.0, Orchestral Concert, relayed from the Wivex Restaurant. 4.0, Programme for Children. 4.40, Exchange and Fish Market Prices. 4.50, Talk on Danish Literature: Carsten Hauch's Books. 5.20, German Lesson. 5.50, Weather Forecast. 6.0, News and Announcements. 6.15, Time Signal. 6.30, Talk: Politics during the Past Month. 7.0, Chimes from the Town Hall. 7.5, Programme by Per Knutzen. 7.10, Sonata in G Minor for Cello and Pianoforte (Loeillet). 7.25, Talk. 7.50, Jutland Folk Dances for Violin, Viola, Clarinet and Double Bass (arr. Lanny Grundahl), followed by Reading. 8.30, Zock has lost a Thousand Marks—Play (Röslér). 8.45, Concert of Danish Songs by the Schierberk Trio. 9.5, Reading. 9.25, News. 9.40, Schumann Recital: Ole Frosig (Clarinet), Johs. Ewald (Viola), and Folmer Jensen (Pianoforte). Märchenbilder, Op. 113, for Viola and Pianoforte; Märchen-zählungen, Op. 132, for Clarinet, Viola and Pianoforte. 10.5, Dance Music from the Ritz Restaurant. In the interval at 11.0, Time and Chimes from the Town Hall. 11.30 (approx.), Close Down.

CORK.—See Dublin.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN, 413 metres; 1.2 kW.; and **CORK**, 224.2 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report, and Popular Music on Gramophone Records. 6.0, Gramophone Concert of Popular Music. 6.15, Programme for Children. 7.0, Gramophone Concert of Popular Music. 7.20, News Bulletin. 7.30, Time Signal. 7.31, Gardening Talk by G. O. Sherrard. 7.45, Recitations by Frances Moynagh. 8.0, Concert by the Culwick Choral Society; Conductor: Mr. Turner Huggard. 8.30, Concert by the Station Sextet. 9.0, The Valiant—presented by the Dublin Repertory Company. 9.30, Concert by the Station Sextet, with Patrick Kirwan (Tenor). 10.30, Time Signal, News, Weather Report, and Close Down.

FECAMP

223 metres; 10 kW.—12 Noon, Light Music on Gramophone Records. 12.30 p.m., News Bulletin. 12.45, Popular Concert. 7.0, Variety Music on Gramophone Records. 7.15, Local News. 7.30, Radio Gazette. 7.50, Parisian News. 8.0, News Bulletin. 8.15, Agricultural Talk. 8.30, Concert re-

JAN. 13th

FRIDAY

continued

laid from Le Havre. 10.0 p.m. till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: Bye Bye Blues; Betty Co-ed; I surrender dear; Can't we be Friends?; The Changing of the Guard; Down beside a Dutch Canal; Just one more Chance; Lonesome Lover; Heartaches; Here comes the Sun; Ho Hum; I am the Words; you are the Melody; Oh Glory; Underneath the Spanish Stars; If you're really and truly in love; Wrap your Troubles in dreams. 11.0, Concert by a Symphony Orchestra: Song without Words in A Minor (Tchaikovsky); Overture, Figaro (Mozart); Autumn (Chaminade); Anita's Dance from Peer Gynt (Grieg); Minuet (Mozart); Hungarian Dance No. 6 (Brahms); Les trésors de Colombine (Drigo). 11.30, Xylophone Recital: Dance of the Clowns (Smetana); Overture, Light Cavalry (Suppé); Gipsy Rondo (Haydn); Roses from the South (Strauss); Mignonette (Friml); Spanish Dance (Moszkovsky); Liebestreu (Kreisler); Chinese Fantasy (Deppen). 12 Midnight, Concert on behalf of the Philo Radio and Television Corporation of Great Britain, Ltd. 12.50 a.m. (Saturday), Dance Music: Sing a little Jingle; Sweet and Lovely; The Queen was in the ParLOUR; I believe in you; Smile, darn ya, smile; At your Command; Life's Desire; How's your Uncle? 1.0, Orchestral Concert of Light Music, with Songs: In the Sudan (Sebeck); Two Songs: (a) O dry these Tears (del Riego); (b) Goodbye (Fosti); Baci al buio (de Micheli); Song: O sol mio (di Capua); Two Duets: (a) Homing (del Riego); (b) O Lovely Night (London Ronald). 1.30, Programme of Country Dances: Onestep; Eightsome Reel; Four-some Reel; Petronella; Strip the Willow; Paul Jones; Hornpipe; Highland Schottische. 2.0, Dance Music: Sweetheart; Marianne; That's when I learned to love you; Smile darn ya, smile; Dream Lover; The Way with every Sailor; Go to Bed; There'll never be another Mary; Mamsie; All of me; Just you, just me; Lonesome Little Doll; That's what I like about you; Neath the Spell of Monte Carlo; Moonshine is better than Sunshine; Goodnight and Pardon Madame. 2.57, I.B.C. Goodnight Melody. 3.0, Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

253 metres; 17 kW.; and CASSEL, 245.9 metres.—4.0 p.m., Concert, Part I Conductor, Reinhold Merten; Soloist, Hermann Hoppe (Pianoforte); Overture, Gudrun (Dräsecke); Pianoforte Concerto in C Minor, Op. 16 (Gernsheim); Overture, Dame Kobold (Reinecke); Part II Conductor, Walter Caspar; Old Dance Music. 5.15, Economic Notes. 5.25, See Stuttgart. 6.15, Time, Programme Announcements, Weather and Economic Notes. 6.30-8.0, See Stuttgart. 8.01, European Concert, relayed from Turin. 8.35, Concert. 9.20, Time, News, Weather and Sports Notes. 9.45, Dance Music from Stuttgart. 11.0 (approx.), Close Down.

FREDRIKSSTAD.—See Oslo.

FREIBURG.—See Stuttgart.

GENEVA.—See Radio-Suisse Romande.

GENOA.—See Turin.

GLEIWITZ.—See Breslau.

COTE BORG.—See Stockholm.

GRAZ.—See Vienna.

HAMAR.—See Oslo.

HAMBURG

Call ha (in Morse), 372 metres; 1.5 kW. Relay by Bremen, 270 metres; Flensburg, 218 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—6.0 p.m., Talk: With German Students in Western Friesland. 6.25, Weather Report. 6.30, Folk Music and Folk Song—Concert by a Vocal Quartet and the Norag Chamber Orchestra. 7.5, Where there are no Dykes—A Sketch (Professor Lehmann) with Musical Accompaniment. 8.0, See Berlin (Witzleben). 8.15, Concert of Contemporary Music: I, Paul Hindemith, Soloist, The Composer (Viola); Overture, Neues vom Tage Sonata for Viola and Pianoforte, Op. 11, No. 4; Five Pieces for String Orchestra, Op. 44, No. 4; Chamber Music No. 5 (Viola Concerto), Op. 36, No. 4. 9.5, Time and News Bulletin. 9.25, Topical Talk. 9.35, Concert from the Alster Pavilion. 10.20, Ice Report. 10.25 (from Hanover), Concert from the Café Continental.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres, 60 kW.; and DANZIG, 453.2 metres.—12.5 to 1.30 p.m., Gramophone Concert: The Changing of the Guard (Rivelli); Zwergspatrouille (Rathke); Waldentel Reminiscences (Plink); Das Mädchen am Buldensee (Müller); Hochzeit auf Java (Profes); Chinesischer Märchen-zähler (Dreyer); Selection from Maritana (Wallace); The Sanctuary of the Heart (Keteleby); Frauenherz (Jos. Strauss); Cadet March (Alford); Selection from Il Trovatore (Verdi); Duet from Aida (Verdi); Russian Folk Song, Evening Bells; Russian Folk Song, On the Road to St. Petersburg; Eternal Love (Friml); In the Seventh Heaven (de Sylva). In the interval at 12.20, News Bulletin. 1.50, Sponsored Programme with Gramophone Records. 2.0, Exchange and Market Prices. 2.30, Programme for Chil-

dren. 3.0, Talk for Women: The Vocational Woman and the Child. 3.30, See Leipzig. 4.30, Talk: Plastic Art in East Prussia in the Nineteenth Century and in the Present Day. 4.55, Review of Books. 5.15, Market Prices. 5.20 (from Danzig), Old Hunting Tales. 6.0, Ernst Maschke Recital, directed by the Composer; Soloists, Elisabeth Maschke (Soprano), Eugen Wilken (Violin), and Franz Kirchberger (Cello); Five Songs: (a) Dem unbekanntem Gott; (b) Wer weiss, woher das Bräunlein quillt; (c) Kreistaur; (d) Wie meine Mutter; (e) Glaube und Tat; Romantic Trio; Four Songs: (a) End eines Tages; (b) Lenzenfahrt; (c) Gedacht am Meer; (d) Abendrot. 6.30 (from Danzig), French Conversation. 7.0, News and Weather. 7.10, First Part of the Symphony Concert from the Stadthalle, König-berg; Conductor, Bruno Vondenhoff; Soloist, Georg Kulenkampff (Violin); Concerto for Violin and Orchestra in D (Brahms). 8.0, Talk: Problems of Contemporary Literature. 9.40 (approx.), Weather, News, and Sports Notes.

HILVERSUM

Announced HUIZEN, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.). Programme of the Catholic Radio Society (K.R.O.)—11.55 a.m., Sextet Concert, conducted by Mr. Lustenhouwer. 1.25 to 1.40 p.m., Interval. 1.40, Variety Music on Gramophone Records. 2.10, Pianoforte Duets: Sonata in B flat (Clementi); Sonata in D (Mozart). 2.40, Light Music on Gramophone Records. 2.50, Recitations. 3.10, Pianoforte Duets (contd.); Three Etudes in Canon Form (Schumann); Andante and Variations, Op. 46 (Schumann); Valse, Op. 39 (Brahms). 3.40, Violin and Pianoforte Recital: Sonata in A, No. 17, for Violin and Pianoforte (Mozart); Fantasia in C Minor (Bach); Allegro (Cimarosa). Violin Solos: (a) Melody (Gluck-Kreisler). (b) Allegro (Fioroni). 4.10, Talk on Industry. 4.40, Violin and Pianoforte Recital (contd.); Pianoforte Solos: (a) Air from En Bretagne (Rhené-Baton); (b) Antonne (Chaminade). (c) Zapateado (Turina). Violin Solos: Recitative and Scherzo-Caprice (Kreisler). Violin Solos: (a) Cortège (Boulaenger); (b) Air from the Petite Suite (Frenkel); (c) Irish Air (Schelling-Kreisler). 5.10, Light Music on Gramophone Records. 5.30, Sonata in C Minor, No. 7, Op. 30, for Violin and Pianoforte (Beethoven). 5.55, Lesson in Rhetoric. 6.25, Sonata in G, Op. 78, for Violin and Pianoforte (Brahms). 6.50, Talk. 7.10, Police Notes. 7.25, Chess Lesson. 7.45, Light Music on Gramophone Records. 7.55, Little Durrüt—Operetta after Dickens (R. Kessler). In the interval at 8.55, News. 10.40, Gramophone Concert of Variety Music. 11.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 1,875 metres; 8.5 kW. 11.40 a.m. to 3.40 p.m., Programme of the Allgemeine Vereinigung Radio Omroep (A.V.R.O.)—11.40, Time Signal. 11.41, Concert by Nico Treep. 1.40 p.m., Popular Music on Gramophone Records. 2.10, Concert by the Wireless Orchestra, conducted by Louis Schmidt. 3.40 to 7.40, Programme of the Workers' Radio Society (V.A.R.A.). 3.40, Concert by De Notenkrakers, conducted by D. Wims; Selection from L'Enfant Prodigue (Debussy); Après un rêve (Fauré); Jardins sous la pluie (Debussy); Danse lente (Franck); Mariage des roses (Franck); Popular Music on Gramophone Records; Danse des Fleurs (Berger); Marchedra (Tosti); Baci al buio (de Micheli); Gipsy Idyll (Fernandis). 4.30, Programme for Young People. 5.10, Concert by the Little V.A.R.A. Orchestra, conducted by P. Diebant. 5.55, Light Music on Gramophone Records. 6.0, Organ Recital by Johan Jong; Somebody loves you (de Rose); The Teddy Bear's Picnic (Kennedy-Bratton); Waltz (Durand); Selection from Wild Violets (Stolz). 6.20, Talk on Russia. 6.40, Concert by the V.A.R.A. Orchestra, conducted by Hugo de Groot; March, Berliner Luft (Lüncke); Slav Rhapsody No. 2 (Friedemann); Ballet Music (Drigo); Selection from Il Gasparone (Müllbeker); Reminiscences of Baden (Konczák); Es kommt ein Vogel geflogen (Reekentwäld); Fliegermarsch (Postal). 7.40 to 10.40, Programme of the Liberal Protestant Radio Society (V.P.R.O.). 7.40, Talk. 8.10, Pianoforte and Violin Recital by Mlle N. Wagenaar and H. v. d. Veeg (Violin). 8.40 (in the interval), Talk: Conscience. 9.40, Religious News. 9.45, News. 9.55, Religious Talk. 10.25, Popular Music on Gramophone Records. 10.40, V.A.R.A. Programme: Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.0 p.m., Talk. 6.15, Announcements, and Popular Music on Gramophone Records. 6.30 to 10.0, See Warsaw. 10.0, Answers to Correspondents in French.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres; 51 kW.; and HELSINKI, 368.1 metres.—6.0 (from Helsinki), Concert by the Station Orchestra, conducted by Toivo Haapanen. Soloists: Irma Järnroth (Harp) and Erik Cronvall (Violin). 7.0, Talk. 7.20 (from Helsinki), Popular Music on Gramophone Records. 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert, conducted by Eysoldt; Polonaise (Moszkovsky); Overture, Raymond (Thomas); Suite, Aus dem Nordlande (Friederiksen); La musica proibita (Gastaldon); Für dich allein (Gebl); Fantasia on Verdi's Aida (Weninger); Morgens auf dem Felde (Pesse); Der lustige Postillon (Pesse); Potpourri, Auf Wiederhören (Weninger). In the interval at 1.0 (approx.), News. 1.30, Sponsored Programme with Gramophone Records. 2.30, Economic Notes and Time. 2.50, Painting and Drawing Lesson for Children. 3.20, A Play for Children (Meyer). 4.0, Badenbrunn, Op. 121, for Pianoforte (Walter Niemann), played by the Composer. 4.30, String Quartet in E Minor, Op. 59 (Beethoven). 5.20, English Conversation. 5.45, Weather, Time, Economic Notes, and Sports Report. 6.0, Talk: The Reorganisation of Municipal Administration. 6.20, Talk on the Feminist Movement. 6.30, Talk: In Memory of Eduard Bernstein. 6.55, News Bulletin. 7.0, The World of Gramophone Records; American Negro Spirituals. 8.0, European Concert relayed from Turin. In the interval at 8.31, News. 9.15, News and Sports Notes. 9.30, Serenade conducted by Wolf. 11.0 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW.; and DRESDEN, 319 metres.—11.0 a.m., Orchestral Concert: Overture, Le Roi Fa dit (Delibes); Hungarian Suite (Hofmann); Straubinger Walzer (Eysler); Three Bavarian Dances (Pacher-negg); Scherzo (Engelmann); Puppenreville (Pretzel); Selection from Lysistrata (Lüncke); Waltz from Die Tanzgrün (Stolz); Mexican March (Mello); Intermezzo, Melitta (von Blon). In the interval at 12 Noon, News, Weather, Snow Report, and Time. After the Programme, Exchange Quotations. 1.0 p.m., Art Report. 1.30, Labour Market Report. 2.15, Agricultural Talk. 2.35, Economic Notes. 3.0, Talk: The Gardener's Calendar for January. 3.15 to 3.30, Interval. 3.30, Concert by the Leipzig Symphony Orchestra, conducted by Willy Stelzen; Overture in C, No. 2 (Schubert); Moment musical (Schubert); Military March (Schubert); Suite, Aus dem Morgenlande (Heuberger); Waltz, Wiener Blut (Joh. Strauss); Hungarian Rhapsody (Reimold); Pan and Syrinx, Op. 49 (Nielsen); Festlicher Marsch (Hans von Vignau). 4.30, Book Review. 4.50, Economic Notes, Weather, and Time. 5.0, Talk: Distress in Thuringia. 5.25, English Lesson. 5.50, Announcements. 6.0, Talk: Back to the Simple Life. 6.30, Concert by the Dresden Philharmonic Orchestra, conducted by Ernst Schickelanz; Overture, Banditenstrieche (Suppé); Selection from Nisida (Genée); March, Don Cesar (Dellinger); Selection from Künstlerblut (Eysler); Waltz from Der lustige Krieg (Joh. Strauss); Selection from The Mikado (Sullivan); Melody from Lilac Time (Schubert-Berté); Selection from The Little Dutch Girl (Kalmán); Waltz from Eva (Lehár); March from The Merry Widow (Lehár). 8.0, Economic Notes. 8.10, Richard Billinger reads from his own Works. 8.50, European Concert, relayed from Turin. In the interval at 9.15, News. 10.5, Concert of Old Music for Harpsichord, Flute, Violin, Lute, and Viola da Gamba; Sonata in D for Viola da Gamba and Harpsichord; (Bach); Sonata in D for Flute and Harpsichord (Quantz); Melody for Harpsichord (Conperin); Melody for Harpsichord (Rameau); Suite in A for Lute and Harpsichord (Höfner, arr. Erben-Groff); Trio Sonata in E Minor for Flute, Violin, and Harpsichord (Stellanti). 11.0 (approx.), Close Down.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—6.0 p.m., French Lesson. 6.30, Programme for Women. 7.0, Programme relayed from Belgrade (430.4 metres). 9.0, Time, News, and Light Music on Gramophone Records.

LWOW

381 metres; 16 kW.—5.50 p.m., Talk. 6.10, Miscellaneous Items. 6.30 till Close Down, See Warsaw. 10.30 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South East. 8.30, Dramatic Programme, arranged by Les Amis de Gignol, relayed from the Salle Molière. After the Programme, News Bulletin.

MADRID

ARANJUEZ (EAO), 30.43 metres; 20 kW.—11.30 p.m., Variety Music. 11.45, Radio Chronicle. 12.0 Midnight, Concert of Popular

Music. 12.35 a.m. (Saturday), Answers to Correspondence. 12.45, Spanish-American Talk. 12.50, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotations, Programme of Musical Novelties and Variety Items by Ramon Gomez de la Serna. 8.15, News Bulletin. 8.30 to 9.30, Interval. 9.30, Chimes and Time Signal. 9.35 (approx.), Gramophone Concert of Opera Music: Extracts from (a) Don Pasquale (Donizetti), (b) L'Elisir d'amore (Donizetti). 11.45, News Bulletin and Programme Announcements for Listeners Abroad. 12.0 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres, 11 kW.—3.10 p.m., See Prague. 5.5, Talk on Winter Sports. 5.15, See Prague. 9.15 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—4.0 p.m., News. 4.10, Concert. 5.30, Concert relayed from the Radio Theatre. 8.0, Programme in English: Review of the Week and Answers to Correspondents. 8.55, Time. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres, 60 kW. Relay by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—4.0 p.m., Concert, conducted by Erich Kloss; Overture, The Ruins of Athens (Beethoven-Haensch); Elegy (F. Ernst); Selection from Der Evangelist (Kienzl); Upper Bavarian Ländler (Pottjesser); Ballet Music from Undine (Lortzing); Finale from Ariadne (E. Bach); Waltz, Schneeballen (Zieher); Three Pieces (A. Jensen); (a) Die Mühle; (b) Träumerei; (c) Hochzeit musik. 5.15, Talk: Why are People so fond of Statistics? 5.35, Notes on the Economic Situation. 5.55, Time, Weather, Agricultural Notes and Snow Report. 6.5, Health Talk. 6.25, Variety Music on Gramophone Records. In the intervals, Reading and the Trumpeter—a Musical Conversation between Schmidt-Karlo and a Clarinet. 7.50, Dialogue: What is on Mars? 8.15, Original Songs of the Troubadours—Recital by Max Meili (Tenor); Valentin Härl (Viola) and Bruno Steinbach (Pianoforte); Songs by Adam de la Halle, Blondel, Richard Lionheart, Johannes de Florentia, Bartolomäus Biolo and others. 8.35, Reading (B. Trautner). 9.0, Serenade for Two Harps (M. Bittner), by the Composer and Eugenie Ebner. 9.20, Time, Weather, News, Sports Notes, Snow Report and Traffic Notes.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relay by Fredrikstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 442.2 metres; and Rjukan, 447.1 metres.—6.0 p.m., Announcements, Weather and News. 6.00, English Lesson. 7.0, Time. 7.1, Concert by the Philharmonic Orchestra, relayed from St. Paulin's Church; Overture, Iphigénie (Gluck); Veslenjens Song (Halvorsen); Berceuse (Järnefelt); Concerto for Two Violins and String Orchestra (Bach); Largo (Handel); March from the Eroica Symphony (Beethoven); Resignation (Nepert); Good Friday Magic from Parsifal (Wagner); Overture, from the Suite in D Minor (Bach). 8.30, Agricultural Notes. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Introduction to the following Relay. 9.30 (approx.), Part Relay of the European Concert from Turin: Act IV of I cavalieri di Ekebù—Opera (Zandonai). 10.0 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—4.30 to 5.30 p.m., Concert by the Sunny Band Quartet. 7.0, Announcements, Tourist Report, Agricultural News, Report of the Royal Geographic Society and Giornale Radio. 7.20, Variety Music on Gramophone Records. 7.30 (in an interval), Time and Announcements. 7.45, Symphony Concert. In the interval, Talk. 9.55, News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW.—5.45 p.m., Le Journal Parlé. 7.20, Weather. 7.30, Symphony Concert, conducted by Edouard Flament; Selection from Boris Godunov (Muszkovsky); Selection from The Valkyries (Wagner); Selection from Die Rosenkavalier (R. Strauss). 8.15, Musical and Literary Programme for Young People. 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—(Relay of the Test Match from Australia)—7.0 p.m., Popular Music on Gramophone Records. 7.30, Topical Talk. 8.0, Talk on Music. 8.15, Interval. 8.30, Humour in Music—Symphony Concert by the Station Orchestra. 10.30, News.

JAN. 13th

FRIDAY

continued

PARIS

RADIO PARIS; Call CFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Report on the Test Match, relayed from Australia. 8.0, Press Review and Weather. 8.30, Report on the Test Match, relayed from Australia. 12.0 Noon, Hebrew Talk. 12.30 p.m., Concert by the Kretzky Orchestra. Soloists: Robert Kretzky (Violin), Roger Boulincé (Cello), Yvonne Pascal (Viola), and Roehut (Flute). Allegro from the Violin Concerto in E (Bach); Andante for Cello (Haydn); Viola Solo (Schumann); Andante and Finale for Flute (Mozart); Selection from Les Indes Galantes (Rameau); Waltzes (Schubert-Bigot); Reverie and Waltz (Tchaikovsky); Castilian Dance and Melody (Turina); Two Pieces (Smetana); Slav Dances (Dvorák). In the intervals at 1.0, Exchange, News and Weather; at 1.30 and 2.0, Exchange. 3.45, Exchange and Market Prices. 4.30, Elementary English Lesson. 6.10, Agricultural Talk. 6.30, Review of New Books. 6.50, Review. 7.0, Talk. 7.20, Concert by the Kretzky Orchestra: Sortilèges de Printemps (Berliandier); Fantasia on Two Popular Tournaian Refrains; Piece (Pièrre); Spanish Serenade (Lettellier); Traversée Bretonne (Schmitt). 7.45, Commercial Prices and News. 8.0, European Concert, relayed from Turin. In the intervals at 8.30, News and Weather; at 8.45, Gastronomic Review, and at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—9.0 p.m., Workday Thoughts. 9.5, Business News. 9.15, Programme to be announced. 9.30, Weather Report. 9.32, Market Reports. 9.45, Pianoforte Interlude. 9.50, David Lawrence Dispatch. 9.55, KDKA Artist Bulletin. 9.58, Programme Announcements. 10.0, Programme to be Announced. 10.15 to 11.0, New York Relay. 10.15, Bromedary Caravan. 10.30, The Singing Lady. 10.45, Little Orphan Annie. 11.0, Time Signal. 11.1, Temperature Report. 11.2, Teaberry Sport Review. 11.7, Press News Reeler. 11.14, Weather Report. 11.15, Johnny Hart in Hollywood from New York. 11.30, KDKA Dinner Concert. 11.45 to 3.15 a.m. (Saturday), New York Relay. 11.45, To-day's News by Lowell Thomas. 12 Midnight, Repodent Amos 'n' Andy. 12.15 a.m., Royal Vagabonds. 12.30, Five Star Theatre—Charlie Chan. 1.0, Nestlé's Programme. 1.30, Time Signal and Adventures in Health. 1.45, Howard Thurston, the Magician. 2.0, The First Nighter. 2.30, Armour Programme. 3.0, Alice Joy. 3.15, Westinghouse Pioneers. 3.30, Bridge School of the Air by E. Hall Downes. 3.45, Bradley Kincaid. 4.0, Time Signal 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News Flashes. 4.20, Cora Williams Hines (Contralto). 4.30, Jimmy Joy and his Orchestra. 5.0, Salt and Peanuts. 5.15, Cotton Club Orchestra, from New York. 5.30, Time Signal and Good-night.

PORSGRUND.—See Oslo.

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., Concert by the Station Orchestra, conducted by Rudolf Kubin. 3.55, Talk. 4.5, Concert by the Quartet of the Slav Institute in Paris: String Quartet No. 2 in D, Op. 39 (Fosterer); First String Quartet (Mihaud). 5.5, Agricultural Report. 5.15, Talk for Workers. 6.25, German Transmission: News and Talk. 6.0, News. 6.5, Talk by Prof. Karel B. Jirak, Director of the Musical Section of the Czechoslovak Broadcasting Corporation. 6.20, Songs of the Highroad. 6.55, Light Concert by the Prague Wind Instrument Quintet. 7.25, Is Sir Arthur Conan Doyle guilty?—Sketche (Studecky). 8.0, European Concert, relayed from Turin. 9.0 (in the interval), Time Signal. 10.5, News. 10.20 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW. LAUSANNE, 680 metres; and GENEVA, 760 metres.—5.0 p.m. (from Geneva), Reading for Children. 5.15 (from Geneva), Talk for Young People. Sugar. 5.30 (from Lausanne), Educational Talk. 6.0 (from Geneva), Weather Forecast, News Bulletin and Announcements. 6.30 (from Lausanne), Commercial Lesson. 7.0 (from Lausanne), Antrefois—Song Cycle (Gustave Daret), by Karl Rehuss (Barritone). 7.25 (from Lausanne), Mandoline and Guitar Concert. 8.10 (from Lausanne), Concert of Operetta and Sound Film Music. 9.0, News Bulletin and Weather Forecast. 9.15 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather, 8.40, Musical Programme and Announcements. 9.0, Chimes. 9.2, News Bulletin. 9.30, by the Fjriside.

RIGA

525 metres; 15 kW.—6.15 p.m., Orchestral Concert, conducted by Medins: Sixth Symphony (Tchaikovsky); Dramatic Overture (Glazunov); Pianoforte Concerto in F Sharp Minor (Scriabin); Suite from Le Pavillon d'Armide (Tcherepnin). In the intervals at 7.0, News, and at 8.0, Weather and News. 8.30, Dance Music. 9.0 (approx.), Close Down.

RJKAN.—See Oslo.

ROME

Call IRO; 441 metres; 50 kW. Relayed by Naples, 319 metres; and 2RO, 25.4 metres.—7.15 to 7.30 a.m., Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Sextet Concert: Overture, Il signor Bruschino (Rossini); Erotica (Grieg); Musette from King Christian (Schubert); First Romanesque Rhapsody (Caraballa); Cello Solos: (a) Le cygne (Saint-Saëns), (b) Danse of the Sylphs (Jenkinson); Selection from Thais (Massenet); Danza infantile (de Michel); Waltz from La reginetta delle rose (Leoncavallo); Foxtrot (Mignone). 3.0, Trio Concert, relayed from the Royal Academy of Saint Cecilia. 6.10 (from Naples), Shipping and Sports Notes. 6.15, Agricultural Report, Announcements, Giornale Radio and Light Music on Gramophone Records. 7.0, Time and Announcements. 7.5, Report of the International Institute of Agriculture (in Italian, French, English, German and Spanish). 7.30, Talk on Sport, Sports Notes and Tourist Report. 7.45, Variety Concert: Marche héroïque (Saint-Saëns); Symphonic Piece, Guardando la Santa Teresa del Bernini (Mascagni); Intermezzo and Dance from Philémon et Baucis (Gounod); Tenor Solos: (a) Canto d'amore (Carnevali), (b) Aria from La Favorita (Donizetti), (c) Aria from Werther (Massenet), (d) Bimba, bimbeta (Sibella). 8.30, A Delicate Mission—Comedy in One Act (Denerville). 9.0, Variety Concert. Soloists: Mary Luisa Sardo (Violin), Ofelia Parisini (Soprano), and Guglielmo Castello (Baritone); Violin Solos: (a) Danse rituelle du feu (Falla-Kochanski), (b) Hora staccato (Dinic-Helfitz), (c) Two Caprices (Paganini-Szymanowsky); Monologue and Duo from Act Three of André Chénier (Giordano); Spanish Caprice (Rimsky-Korsakov). In the interval, Travel Talk. 9.55, News Bulletin.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres; and by W2XAD on 19.56 metres.—7.45 to 11.0 p.m., 10.15, Paul Wing, the Story Man. 10.30, Flying Family. 10.45, Adventures of the Safety Soldiers. 11.0, Ma Frasier's Boarding House. 11.15, Music Interlude. 11.30, With Gray McClinton in the Canadian North. 11.45, Chandu, the Magician. 12 Midnight, Stock Reports. 12.15 a.m. (Saturday), General Electric Programme—Explorations in Science. 12.30 to 1.30, New York relay. 12.30, Soloist, 12.45, The Goldbergs. 1.0, Cities Service Concert. 1.30, WGY Farm Forum. 2.0 till Close Down, New York relay. 2.0, Clichet Club Eskimos. 2.30, Pond's Programme. 3.0, Chevrolet Programme. 3.30, Elgin Adventurers' Club. 3.45, Lanny Ross (Tenor).

SCHWEIZERISCHER LANDESENDER

BEROMUNSTER, 459 metres; 60 kW.; BASLE, 244.1 metres; and BERNE, 245.9 metres.—11.28 a.m., Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40, Orchestral Concert. 12.35 p.m., Weather and Exchange. 12.35 (approx.) to 2.30, Interval. 2.30, Concert of Light Orchestral Music. 3.30 (from Zürich), Programme for Children. 4.0, Gramophone Records of Variety Music. 4.30, Weather Report. 4.35 (approx.) to 5.30, Interval. 5.30 (from Berne), Talk: Mental Diseases and Heredity. 6.0, Time, Weather, Market Prices, Tourist Report and Sports Bulletin. 6.20 (from Berne), Pianoforte Recital. 6.40 (from Berne), Talk: The Man who understands the Language of the Birds. 7.0 (from Berne), Popular Concert by a Peasant Orchestra and a Yod-ling Chorus. 7.25 (from Berne), Second Act of Hansjörgel, der Erlvetter—Play in Dialect (Simon Gfeller). 8.5 (from Berne), Popular Concert contd.). 8.30, Weather and News. 8.40, Orchestral Concert. 9.15 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—4.5 p.m., Boy Scout Report. 4.20, Talk Music, relayed from Umea, 231 metres. 4.45, Popular Music on Gramophone Records. 5.45 (from Boden), Talk. 6.15, Weather and News. 6.30, A Hundred Years Old—Comedy in Three Acts (Seradin and Joaquín Quintero). 8.0, Quintet in F for Two Violins, Two Violas and Cello (A. Bruckner). 8.45, Weather and News. 9.0, Orchestral Concert: Overture, The Galiph of Bagdad (Boieldieu); Crescendo (Lasson); Two Pieces (Brett): (a) Slow Waltz, (b) Foxtrot; Selection from Boccaccio (Suppé). 9.30 (approx), Part relay of the European

Concert from Turin Act IV of I Cavalieri di Ekebie Zandonai. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Gramophone Concert: Overture, Poet and Peasant (Suppé); Waltz, Souvenir de Herkulesbad (Pacellar); Air from La Traviata (Verdi); Air from Rigoletto (Verdi); Morning, Noon and Night (Suppé); Suite No. 1 from Peer Gynt (Grieg); Ballad from The Flying Dutchman (Wagner); Recitative from Parsifal (Wagner); Overture, Der Freischütz (Weber); Air from Othello (Verdi); Ave Maria (Verdi); Air from Aida (Verdi); Hungarian Dances Nos. 1 and 3 (Brahms); Rakoczy March (Liszt). 12.45 p.m., News. 1.0, Time Signal. 1.2, Exchange Quotations. 1.10, Light Music on Gramophone Records. 2.0 to 4.45, Interval. 4.45, Talk: The Theatre World of Olden Days. 5.0, Orchestral Concert, conducted by Roskam: March, Sempre avanti (Leopold); Waltz, Galanterie (Leopold); Slav Caprice (Bayer); Overture, Jean de Paris (Boieldieu); Andante for Cello and Orchestra (Göller); Selection from Madame Cupidon (Ilesse); Minuet from the Sonata in E Minor (Grieg); Pied-montaise Dance No. 1 (Sinigaglia); The Eagle; Moonlight (MacDowell); Suite variée (Pièrre). 6.0, Chamber Music, relayed from Lille, 265.4 metres. 7.0, Topical Talk in German. 7.15, Talk: Baron Hanssuaum. 7.30, Time Signal. 7.32, News. 7.45, Light Music on Gramophone Records. 8.25, Lottery Results, Announcements and Gramophone Records. 8.30, Orchestral Concert, conducted by Maurice de Villers. Soloist: Fernand Rich (Pianoforte); Overture, A Midsummer Night's Dream (Mendelssohn); Capriccio brillante in B Minor for Pianoforte and Orchestra (Mendelssohn); Symphony, Antar (Rimsky-Korsakov); Spanish Caprice (Rimsky-Korsakov). 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW., and FREIBURG, 570 metres.—11.0 a.m., Rossini-Donizetti-Bellini Gramophone Concert: Overture, The Thieving Magpie (Rossini); Two Arias from The Barber of Seville (Rossini); Overture, The Daughter of the Regiment (Donizetti); Aria from La Favorita (Donizetti); Aria from L'elisir d'amore (Donizetti); Chorus from Don Pasquale (Donizetti); Selection from Lucia di Lammermoor (Donizetti); Overture, Norma (Bellini); Selection from Norma (Bellini). 12.0 Noon, Gramophone Records of Fantasias on Strauss Themes: The Blue Danube; Die Pflerdmars; Freut euch des Lebens; Wiener Blut. 12.15 p.m., Time, Weather, News and Programme Announcements. 12.30, Orchestral Concert from Munich. 1.0, Sponsored Concert. 1.30, Advanced English Lesson. 2.0 to 4.0, Interval. 4.0, See Frankfurt. 5.15, Time, Weather and Agricultural Notes. 5.25, Talk: Is the Universe Finite or Infinite? 5.50, Talk on Tuberculosis. 6.15, Time and News. 6.30, The Wax Works—a Humorous Dialogue (Paul Enderling), with Gramophone Records. 7.30, Concert of Old Music by the Philharmonic Orchestra, conducted by Emil Kahu. Soloists: Luise Richartz and Prof. Walter (Songs), Li Stadelmann, Maria Fahnüller and Liselotte Oehlert; Overture, Athalia (Handel); Two Songs (Handel): (a) Aria from Rodolinda, (b) Aria from Julius Caesar; Concerto in C for Two Harpsichords and a String Orchestra (Bach); Soprano Aria from Mitraue (F. Rossi); Allemande in A for Two Harpsichords (Couperin); Die Amerikanerin, Solo Cantata for Male Voice, String Orchestra and Harpsichord (J. C. F. Bach); Sonata in F for Two Harpsichords (Friedemann Bach); Symphony in D Minor for Two Flutes and String Orchestra (Friedemann Bach). 9.0, Time, Weather, News, Announcements and Sports Notes. 9.30, Dance Music by the Stuttgart Philharmonic Dance Band, conducted by Harry Risch, with Vocal Refrains by Walter Maurer. 11.0 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Opera Music: Serenade from Don Giovanni (Mozart); Air from The Prophet (Meyerbeer); The King's Song from Hamlet (Thomas); Cavatina from William Tell (Rossini). 6.30, Suite from The Fire Bird (Stravinsky). 6.45, Light Music. 7.0, Tourist Report. 7.15, News, Horse Racing Results and Market Prices. 7.25, Announcements. 7.30, Accordion Music. 7.45, Dance Music. 8.0, Programme by a Viennese Orchestra. 8.30, Operetta Music: Selection from (a) Les Cloches de Corneville (Planquette), (b) Bambolina and (c) La Pompe (Audran). 8.45, Military Music. 9.0, Concert by the Philharmonic Society, conducted by Malet. In the interval, Light Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco; Melody from The Desert Song (Romberg); Air from Lohengrin (Wagner); The Puppet (Stolz); Violin Solo: Chant sans paroles (Tchaikovsky); La Java des Ponpous

rouges (Dequin). 11.0, Orchestral Music, Sérénade (Pièrre); Dénuade et réponse (Coleridge-Taylor); Poupée valsante Poldini Vienne, Vienne (Ancliff); Tout petit (Corthy). 11.15, Sound Film Music. 11.30, Programme in English by the I.B.C.: Organ Recital: Sanctuary of the Heart (Ketyelbey); Ave Maria (Bach); Four Indian Love Lyrics (Woodforde-Finden); The Storm (Shaw); Largo (Händel); In a Monastery Garden (Ketyelbey). 12 Midnight, Weather and Announcements. 12.5 a.m. (Saturday), Dance Music. 12.15 a.m., Military Music. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—3.0 to 6.30 p.m., See Turin. 6.30, Orchestral Concert from the Caffè Dante. 7.0 (approx.) till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayed by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—3.0 p.m., Trio Concert from the Royal Academy of Saint Cecilia. In the interval and after the Concert, News. 5.35, Giornale Radio, Agricultural Report and Announcements. 6.0, Variety Music: Selection from Frederica (Lohar); Il tamburino arabo (Ranzato); Ein Hochzeitszug in Liliput (Transthaeur). 6.25, Report of the Royal Geographical Society. 6.30, Time and Announcements. 7.0, Giornale Radio, Weather and Light Music on Gramophone Records. 7.50, Sports Talk and Variety Music on Gramophone Records. 8.0, Symphony Concert, conducted by Riccardo Zandonai: Overture, Il Vagabondo a Rems (Rossini); Aria for Cello and Strings (Popera); Scherzo in G Minor (Cherubini); Ballata eroica (Zandonai); Notte a Siviglia (Zandonai); Symphonic Poem for Flute and Small Orchestra: Il flauto notturno (Zandonai); Trezene—Popular Tuscan Dance (Zandonai); Act IV of I cavalieri di Ekebie—Opera (Zandonai). In the intervals, Recitations by Francesco Pastonchi. 10.0, Giornale Radio.

VATICAN CITY

19.84 metres (Morning), and 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

517 metres; 15 kW. Relayed by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218 metres.—4.0 p.m., Concert: Zög Ptasch-Formacher (Soprano), Emilie Rutschka (Contralto), Sigmund Bleier (Violin), and Elvira Jung (Pianoforte); Soprano Solos: (a) Non t'accostar all'urna (Schubert), (b) Auf dem Wasser zu singen (Schubert), (c) Mignon (Wolf), (d) Wie glänzt der helle Mond (Wolf), (e) Tretet ein hoher Kreiger (Wolf); Contralto Solos (Keger): (a) Brantring, (b) Geheimnis, (c) Nachteggelster, (d) Um Mitternacht blühen die Blumen, (e) Schlummerlied, (f) Süsse Ruh, (g) Sonnenregen, (h) Folk Song; Pianoforte Solos: (a) Variations on an Hungarian Folk Song (Brahms), (b) Kolibri (Niemann), (c) Laughter (Vladigerov), (d) Ständelien (Strauss-Bachhaus); Violin Solos: (a) Prelude from the Partita in E (Bach), (b) Waltz, Op. 39 (Brahms-Huberman), (c) Tarantella (Wieniasky), (d) Zigeunerweisen (Sarasate). 5.15, Talk for Tourists. 5.30, Talk: Children and Physical Culture. 5.45, Sports Report. 5.55, Talk on Eugen Dühring. 6.10, Talk: The International Skiing Championship at Innsbruck. 6.35, Time, Weather, and Programme Announcements. 6.45, Folk Song Recital by the Vienna Folk Song Society. 7.45, See Berlin (Witzleben). 8.0, European Concert, relayed from Turin. In the interval at 8.30 (approx.), News. 9.40, Concert relayed from the Krautz-Ambassador Hotel.

WARSAW

1,411 metres; 120 kW.—11.10 a.m., Light Music on Gramophone Records. 12.20 p.m., Weather Forecast. 2.10, News Bulletin. 2.15, Economic Report. 2.25, Anti-Gas and Aircraft Drill. 2.35, English Lesson on Linguaphone Records. 2.50, Popular Music on Gramophone Records. 3.25, Review of Periodicals. 3.40, Programme from Lwow (381 metres). 4.0, Concert by the Police Band. 4.55, Programme Announcements. 5.0, Dance Music from the Adriatic. News in the interval. 5.50, Miscellaneous Items. 6.20, Agricultural Press Review, relayed from Wilno (563 metres). 6.30, Reading. 6.45, Radio Journal. 7.0, Reading. 7.15, Pianoforte Recital by Arthur Rubinstein, relayed from the Philharmonic. 8.0, European Concert relayed from Turin. 9.40, Sports Notes. 9.45, Radio Journal. 9.55, Weather Forecast and Police Report. 10.0, Dance Music from the Café Adria. 11.0, Close Down.

WILNO

563 metres; 16 kW.—6.0 p.m., Talk for Poles in Lithuania. 6.20, Agricultural Press Review. 6.30 till Close Down, See Warsaw. 11.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landeseender.

SATURDAY

JANUARY THE FOURTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL Orchestral programme. Song recital. Vaudeville programme. Promenade concert from Queen's Hall (Last Night of the Season).

LONDON REGIONAL MIDLAND REGIONAL Brass Band concert. A Ketelbey concert from Kingsway Hall. Orchestral concert.

NORTH REGIONAL "Requests" orchestral programme. "Alice in Wonderland," a musical play founded on Lewis Carroll's books, by Herbert M. Prentice, from the Repertory Theatre, Birmingham.

WEST REGIONAL Organ music. Brass Band concert. Leeds Symphony concert from Leeds Town Hall. Gramophone records.

SCOTTISH REGIONAL Mr. R. H. Jones: "A Visit to Bristol's Docks." Concert for Blind and Disabled Soldiers and Blind Workers, from Cardiff City Hall. Welsh interlude. "The Trial of Deacon Brodie," a play based on the report of the famous trial, by Alexander Macdonald. Mr. George Blake: "The Week in Scotland." Excerpts from the Theatre Royal Pantomime, Glasgow.

BELFAST Recital of gramophone records (theme songs). Padraig Gregory: "Readings from the Lesser Known Ulster Poets." Orchestral concert from Ulster Hall. Three plays: "Odd Jobs," a farce by Harry Sinton Gibson; "Mounting Assets," by Elizabeth Hingworth; "Thanks to Mrs. Rooney," by Irene McAllery.

ABROAD

HEILSBURG Wind instrument concert, conducted by E. Stiehe-ritz.

HILVERSUM LANGENBERG STRASBOURG Light orchestral concert. Variety concert from Aachen. Madrigal concert.

BORDEAUX-LAFAYETTE

204 metres; 13 kW.—6.30 p.m., Radio Journal. 7.40, Sports Notes. 7.45, Variety Music on Gramophone Records. 8.0, News and Market Prices. 8.5, English Lesson. 8.20, News. 8.30, Popular Music on Gramophone Records. 9.0, Le mellein malgre lui—Comedy in Three Acts (Moliere).

BRATISLAVA

279 metres; 14 kW.—3.10 p.m., Concert of Light Music by the Station Orchestra. 4.10, Popular Music on Gramophone Records. 4.45, Programme for Children. 5.45, Programme for Housewives. 6.0, See Prague. 6.20, Concert of Light Music by the Station Band. 7.3, See Prague. 8.0, Concert by the Station Orchestra: Overture, The Gipsy Baron (Joh. Strauss); Potpourri, Rendezvous bei Lehar (Hrubý); Serenade from Les millions d'Arbopoin (Drigo); Ballad (Ondricek); Humoresque (Bayer); Waltz (Fueik); The Cloek and the Dresden Figures (Ketelbey); March (Zita). 9.0, See Prague. 9.15 till Close Down, See Moravská-Ostrava. 10.30 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres 60 kW.; and GLEIWITZ, 253 metres.—12.5 p.m., Weather for Farmers. 12.10, Gramophone Concert of Popular Music. 12.45, Time, Weather, News and Exchange. 1.5, Variety Music on Gramophone Records. 1.45, Sponsored Programme with Gramophone Records. 2.10, Agricultural Prices and Exchange. 2.40, Film Review. 3.0, Programme to be announced. 3.30, Concert by the Station Orchestra: Potpourri, From Pontius to Pilate (Morona); Waltz, Mon rive (Waldteufel); Hungarian Ballet, Eticka (Ailbont); Turkish Suite (Ganwin); Waltz, Holländisches Bauerntanz (Schöntoni); Ballet Overture (Lincke); Potpourri of Marching Songs, Jung-Deutschland (Weninger). 5.0, Review of Books for Children. 5.15, Talk: Possible Professional Openings in Town and Country which are insufficiently recognised. 5.45, Favourite Overtures, by the Radio Orchestra, conducted by Franz Marsalek: Martin (Flotow); Si jetais roi (Adam); Zampa (Herold); Norma (Bellini); The Merry Wives of Windsor (Nicolai). 6.30, Weather for Farmers, followed by Programme to be announced. 7.0, See Langenberg. 9.30, Time, Weather, Sports, Notes and Programme Announcements. 10.0, Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BRNO

342 metres; 35 kW.—3.10 p.m., See Bratislava. 4.10, Czech Lesson. 4.20, See Prague. 4.50, Talks. 5.0, Theatre and Film Review. 5.15, See Prague. 5.25, German Transmission;

ALGIERS

353.3 metres; 13 kW.—7.10 p.m., Shipping News. 7.15, Request Gramophone Concert. 7.55, News Bulletin. 8.0, Time Signal. 8.2, Popular Music on Gramophone Records. 8.15, Concert of Light Music by the Station Orchestra. 8.30, Songs from Sound Film. 9.0, Symphony Concert by the Station Orchestra: Academic Festival Overture (Brahms); Symphony (Bruckner); Pastorale d'été (Honolger); Danse macabre (Saint-Saëns). 9.50, News Bulletin.

BARCELONA

RADIO-BARCELONA; Call EAJ1; 349 metres; 8 kW.—7.30 p.m., Exchange Quotations, Catalan Lesson, Request Gramophone Records, and News Bulletin. 9.0, Chimes, Weather, Exchange, and Market Prices. 9.5, Concert by the Station Orchestra. 10.0, Literary Programme. 10.15, Mandoline Concert, conducted by Felix de Santos Sebastian. In an interval at 11.0, News. 11.15, Sextet Concert, relayed from the Grand Royal. 12 Midnight (approx.), Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Notes, Tourist Report, and Announcements. 7.20, Giornale Radio, Sports Notes and Announcements. 7.30, Time and Announcements. 7.32 (approx.), Band Concert, conducted by Salvatore Rubino: Triumphant March from Cleopatra (Mancini); Overture, The Barber of Seville (Rossini); Selection from Tosca (Puccini); Suite, Scènes pittoresques (Massenet); Two Pieces (Wagner): (a) The Death of Siegfried, (b) The Ride of the Valkyries; March, Generale parlante (Rubino). In the interval: Talk: From Near and Far. 9.30, Musical Programme from the Gran Caffè del Levante. 9.55, News Bulletin.

BASLE.—See Schweizerischer Landessender.

BELGRADE

430.4 metres; 2.8 kW.—5.55 p.m., Time and Programme Announcements. 6.0, Popular Music on Gramophone Records. 6.30, Talk. 7.10, Concert of Yugoslav Music by the Station Orchestra. 8.10, Radio Play. 8.40, News, followed by Light Music from the Ratnicki Dom Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.55 a.m., Nansen Time Signal. 12.35 p.m., News. 1.0, Gramophone Concert of Sound Film Music, relayed from Berlin (Witzleben). 2.0, Handwork Programme for Children. 2.30, Weather and Exchange. 2.45, Reading (Paul Keller). 3.0, Talk on Voluntary Social Service. 3.30, Concert from Hamburg. 4.10, Review of the Week. 5.25, Talk. 5.55, Weather for Farmers and Announcements. 6.0, Talk: How can Man find his own Level? 6.30, A Poem. 6.35, Motets (Schütz) by the Fleishburg Oratorio Society, conducted by Johannes Röder. 7.0, See Langenberg. 9.30, Weather, News, and Sports Notes. 9.45, Weather for Shipping, followed by Dance Music from Berlin (Witzleben). 11.20 (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—3.0 p.m., Concert by the German Symphony Orchestra, conducted by Ludwig Preiss; Heitere Overture for Orchestra (Scharrer); Ballet Music from The Merry Wives of Windsor (Nicolai); Selection from Sigurd Jorsalgar (Grieg); Overture, The Flying Dutchman (Wagner). 3.45, Sports Report. 3.55, Concert (cont'd.): Overture, Hans Heiling (Marschner); Selection from Tosca (Puccini); Bilder vom Rhein (Göhr-Bizet); Selection from Der liebe Augustin (Fall); Pesther-Walzer (Lanner). 4.50, A Guessing Competition: Voices and Nois. 5.10, Concert by the Cologne Chamber Orchestra, conducted by Hermann Abendroth: Concerto grosso No. 8 for String Orchestra and Harpsichord (Corelli); Concerto in C Minor for Two Violins and String Orchestra (Bach); Serenata notturna for String Quartet, String Orchestra, and Kettledrums (Mozart). 5.55, The Witzleben Station informs its Listeners. 6.0, Topical Talk. 6.10, Topical Report. 6.25, Concert of Light Music. Part I. A Zither Orchestra: Jubel-Marsch (Mieckenschreiber); Praxidox-Gavotte (Kollmanek); Die Spiellose (Obermayer); Concert Waltz, Fische-Geister (Schiffel). Part II. The Alfred Bros. Orchestra: Melusankewalzer (Strauss); Rocooco Gavotte (Pataky); Alméria (Maly). Polka, Fritsch-Fritsch (Strauss). Part III. A Mouth-Organ Orchestra: March, Unter der Friedensflagge (Nowowsky); Waltz, Vernehmliche Liebe (Lincke); Paraphrase on the Song Ein Vöglein sang im Lindenbaum (Eberle). 7.30, An Excursion with the Microphone. 9.0, Weather, News, and Sports Notes. 9.15 (approx.), Dance Music from the Ball of the Women's Section of the German Colonial Society in the Marmorsaal of the Zoo, followed by Dance Music from the Ball of the German Theatrical Association in the Kroll-Festsälen. 11.30 (approx.), Close Down.

BERNE.—See Schweizerischer Landessender. BERMUNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODN.—See Oslo.

Saltana (Rimsky-Korsakov). 8.45, Recitations. 9.0, (Concert (cont'd.): Petite Suite (Debussy); Songs: (a) Aria from Carmen (Bizet), (b) Solveig's Song (Grieg), (c) Ich liebe dich (Grieg); Danse macabre (Saint-Saëns); Serenade (Pierné); La Danza (Rossini); Songs: (a) Song from The Tales of Hoffmann (Offenbach); O kom met mij in den Lentenacht (Van der Stucken); Ballet Music from Le Cid (Massenet). 10.0, Le Journal Parlé. 10.10, Gramophone Records: Selection from The Girl in the Taxi (Gilbert); Moretti Potpourri; Potpourri, Fortissimo (Kálmán). 10.30, Concert, conducted by Paul Moreau, relayed from the Memling Hall, Antwerp. 11.30, Gramophone Dance Music. 12 Midnight, Close Down.

BUCHAREST

394 metres; 12 kW.—4.0 p.m., Concert of Light Music and Romanian Music, by the Sibiceano Orchestra. 5.0, News and Time Signal. 5.10, Talk. 5.25, Concert by the Sibiceano Orchestra (cont'd.). 6.0, Talk: The Black Sea. 6.40, Popular Music on Gramophone Records. 7.0, Choral Concert of Sacred and Romanian Folk Songs. 7.45, Talk. 8.0, Concert by the Station Orchestra. Three Military Marches (Schubert); Ballet Music from Hérodiade (Massenet); Potpourri of Romanian Music (Pasehill); Waltz, Dorf-kinder (Kálmán). 9.0, News Bulletin.

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on 840 metres from 6.15 p.m. till Close Down.—4.0 p.m., Orchestral Concert, conducted by Tibor Polgar: Overture, Balaton (Vaszy); Operetta Suite (Molnar); Three Rhythmic Impressions (Sattler); Romanes (Jara); Liebeswalzer (Paksy); Neapolitan Serenade (Polgar); Melody (Szabados); Hungarian March (Vincez). 5.30, Answers to Correspondents. 6.15, Gramophone Record of Light Music. 6.45, Concert by the Budapest Concert Orchestra, conducted by Freccia Massimo, relayed from the Academy of Music. Soloist: Paul Wittgenstein. Dance arie antiche (Respighi); La mer—Three Symphonic Sketches for Orchestra (Debussy); Pianoforte Concert for the Left Hand (Ravel); Symphony (César Franck). 8.45, News Bulletin. 9.0 (approx.), Cigán-Band Concert from the Café Emke. 10.0, Dance Music from the Hotel Royal.

CASSEL.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW.; and KALUNDBORG, 1,153 metres; 7.5 kW.—11.0 a.m., Time and Chimes from the Town Hall. 11.5, String Ensemble Concert, relayed from the Wings Restaurant. 1.0 to 1.30, Interval. 1.30, Gramophone Concert of Opera and Light Music. 2.0, Programme for Children. 2.30, Orchestral Concert, conducted by Laur. Grondahl: Soloist, Augusta Erichsen (Songs); March, Senper Adolis (Sovani); Prelude to Act Two of Thyrfing (Grondahl); Waltz, The Blue Danube (Joh. Strauss); Selection from La Masquita (Andran); Britta-Polka (Lambert); Mazurka from Balla (Moniuszko); Overture, Raymond (Thomas); Songs: (a) Two Songs from Faust (Gounod), (b) Synovose Song (Kjerulf), (c) Soave (Kjerulf), (d) Violet (Svendsen); March (Allin); Waltz, Soldaterrinder (Norup); Drommehjelder (Lunbye); Glühwürmchen, from Lysistrata (Lincke); Moniuszko Potpourri; March (Lehar). 4.40, Exchange and Fish Market Prices. 4.50, Talk in English: South Africa. 5.20, French Lesson for Beginners. 5.50, Weather Forecast. 6.0, News. 6.5, Time Signal. 6.30, Educational Talk from the Randers Studio. 7.0, Chimes from the Town Hall. 7.5, Choral Concert of Sacred Music relayed from Copenhagen Cathedral. 7.40, Lehar Music by the Station Orchestra, conducted by Emil Reesen; Hungarian March from Gipsy Love; Selection from The Land of Smiles; Foxtrot from Clo-Clo. 8.0, Marimba Solos by Richard Stanger; Waltz Potpourri; Marimba Jack (Kjaer); Melody in F (Rubinstein). 8.15, Folk Songs to the Guitar by Margrethe Sadoll; Swedish, Nu är det sommar; French, Menuet d'Alexandret; English, O, John; Spanish, Cuando al pie de ventana; German, Phyllis and her Mother; Danish, De tre Skakke. 8.30, Moller and Dahl Music by the Station Orchestra, conducted by Emil Reesen; Bataille March (Moller); Waltz, Souvenir à Th. Balth (Moller); Spanish Dancer, The Toreador (Dahl); Duminy Champagne-Galop (Dahl). 8.50, Reading. 9.10, News. 9.25, Orchestral Concert, conducted by Emil Reesen; Hungarian Comedy Overture (Kéler-Bé); Waltz, Sesta (Waldteufel); Entr'acte Gavotte for Strings (Gillet); Dance, Chang Al. (Fueik); Allegro di bravura and Waltz from the Gipsy Suite (E. German); March from Sunay (Kern). 10.5, Dance Music from the National Scala. In the interval at 1.0, Time and Chimes from the Town Hall. 1.30 (approx.), Close Down.

CORK.—See Dublin.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN, 413 metres; 1.2 kW.; and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report, and Popular Music on Gramophone Records. 7.20, News

News and Concert. 6.0, See Prague. 6.20, See Bratislava. 7.0, See Prague. 8.0, Dance Music. 9.0, See Prague. 9.15, See Moravská-Ostrava. 10.30 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—12 Noon, Concert relayed from the Grand Hotel, Antwerp. 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by P. Lecmans. Soloist: M. Doniez (Pianoforte). Marching along Together (Steininger); Overture, La belle Héloïse (Offenbach); Berceuse (Vreind); Selection from Le Chemineau (Leroux); Valse caprice for Pianoforte (Newland); Danes from Prince Igor (Borodin); Night in the Bay of Palma (Tarinia); March of the Dwarfs (Grieg). 5.0, Dance Music. 6.0, Talk: Fruit-growing in Belgium. 6.15, Song Recital: Danksagung an den Bach (Schubert); Clair de lune (Fauré); Les roses d'Espahan (Fauré); L'invitation au voyage (Dupan); Chanson des noisettes (Dupont). 6.20, Le remords dérisoire—Sketch (Henri Mugnie and Paul Virés). 6.55, Gramophone Records: Romance in F (Beethoven); Valse caprice (Rubinstein); Tzigane (Ravel); Index from Mors et Vita (Gounod). 7.15, Talk: Administration in the Belgian Congo. 7.30, Review of International Events. 8.0, Weather Programme. 9.0, Choral Concert: Le Chant des Mafelots (Rouloz); Gramophone Record: Overture, Tannhäuser (Wagner); Le Chant du cirque (Dupuis); Gramophone Record: Slav Rhapsody (Bridemann); Song of the Waves (Rizq). 10.0, Le Journal Parlé. 10.10, Dance Music from the St. Sauveur Palais de Danse. 12 Midnight, Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish.—12 Noon, Concert by the Little Station Orchestra, conducted by P. Lecmans. 1.0 p.m., Le Journal Parlé. 1.10, Concert, conducted by André Fellemans. 5.0, Concert by the Little Station Orchestra, conducted by P. Lecmans: Pasodoble, Solera (Demont); Overture, Voyage en Chine (Bazin); Suite, Summer Days (Coates); Minuet for Violin (Dusseck-Burmeister); Ballet Music from William Tell (Rossini); Three Waltzes for Pianoforte (Van Hoof); Legend No. 10 (Dvořak); Songs (Heymann). 6.0, The Nursery Suite, (Elgar), on Gramophone Records. 6.15, Recitations. 6.30, Cello Recital by G. Pitsch and Mlle. DeBecker; Sonata (Ereles); Concerto for Two Cellos; Sacred Melody (Bach); Gavotte (Martini); Paraphrase on Two Scottish Melodies (Hahn); Caprice (Hindemith). 7.15, Talk. 7.30, Agricultural and Gardening Talk. 8.0, Concert by the Symphony Orchestra, conducted by Jean Kumps. Soloist, Marcelle Vernay (Songs): Overture, Mignon (Thomas); Suite No. 1 from Peer Gynt (Grieg); Menuet and Forlane (Ravel); Suite from The Tale of Tsar

JAN. 14th

SATURDAY

continued

Bulletin. 7.30, Time Signal. 7.31, Talk on Hungary, by Mme. A. E. Koenig. 7.45, Gaelic Talk. 8.0, Concert by the Station Orchestra, under the direction of Dr. V. O'Brien; Soloist: Lena Munro (Soprano); A Revue, presented by Eva Brennan and Company; The Dublin Banjo and Guitar Club Quartet. 10.30, Time Signal, News, Weather Report, and Close Down.

FECAMP

223 metres; 10 kW.—12 Noon, Variety Music on Gramophone Records. 12.30 p.m., News Bulletin. 12.45, Popular Concert. 7.0, Light Music on Gramophone Records. 7.30, Radio Gazette. 7.50, Parisian News. 8.0, News Bulletin. 8.30, Variety Concert. 10.0, Café Concert. 11.0 p.m. till Close Down, Programme in English by the I.B.C. 11.0, Club Concert by a Military Band: March, The Brave of the Brave (Dunn); Selection from Cavalcade (Coward); Intermezzo, By the Blue Hawaiian Waters (Ketelbey); One-step, The Changing of the Guard (Flotsum-Jesam); Suite, Melodious Melodies (Finck); March, Carry On (Dunn); One-step, Policemen's Holiday (Ewing); Waltz, Jolly Fellows (Vollstedt); Intermezzo, Bells across the Meadow (Ketelbey); March, The Wee MacGregor Patrol (Amers). 12 Midnight, Concert on behalf of the Philco Radio and Television Corporation of Great Britain, Ltd. 1.0 a.m. (Sunday), Vandeville; Overture, The Polar Bears come back; The World snaps its Fingers; Kisses of Picardy; I love you; Child Impersonations; Intermezzo; Blackpool Rock; Marguerite; I need you more each Day; Zuhland; Every Time my Sweetie passes by. 2.0, Dance Music: I love you so much; The Parade of the Blues; Broken Dreams; A Cottage for Sale; It must be true; Dream Star of Araby; That Tiny Tear-drop; Dance away the Night; In the Still of the Night; Around the Corner; My Baby just cares for me; Without a Song; Harmony Heaven; Wasn't it nice? Dream Lover; I lost my Girl again. 2.57, I.B.C. Goodnight Melody. 3.0 Close Down.

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

FRANKFURT

259 metres; 17 kW.; and CASSEL, 245.9 metres.—12.30 p.m., Concert of Light Music by the Station Orchestra. In the interval at 1.0, News. 1.40, Sponsored Concert. 2.20, Weather. 2.25, Time and Economic Notes. 2.30, Programme for Young People. 3.50, Exchange Quotations. 4.0, See Langenberg. 5.15, Economic Notes. 5.25, Talk: The East Mark and German Civilisation. 5.50, Talk: Agricultural Problems in East Germany. 6.15, Time, Programme Announcements, Weather and Economic Notes. 6.30, See Stuttgart. 7.0, See Munich. 9.20, Time, News, Weather and Sports Notes. 9.45 (from Cassel), Serenade. 11.0 (approx.), 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 Oslo.

HAMBURG

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 218 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—3.30 p.m., Concert by the Norag Orchestra, conducted by Horst Platen. Soloists: Fritz Lene (Violin), Gerhard Gregor (Organ). Short Overture to a Musical Comedy (Horst Platen); Waltz from the F major Serenade (Volkmann); Humoresque, Carnival (Weiner); Entr'acte Gavotte (Gillet); Violin Solo: Canonetta (Godard); Abendtraume (Jongen); Sehnsucht der Semmerin (Ole Bull-Svendens); Valse triste (Sibelius); Two Movements from Eine kleine Serenade (Trunk); Hymn to the Rising Sun (Mandl) for String Orchestra, Organ and Harp. 4.30, Talk: The People of Mecklenburg. 4.55 (from Bremen), Talk on Dramatic Art. 6.0, Talk: Australia as a Member of the British Empire. 6.25, Weather Report. 6.30, Gramophone Concert by the Comedian Harmonists. 7.0, See Langenberg. 9.30, Time and News Bulletin. 9.50, Topical Talk. 10.0, Dance Music from the Café Hans Siegler. In an interval at 10.20, Tee Report.

HANOVER.—See Hamburg.

HEILSBERG

276.5 metres; 60 kW., and DANZIG, 453.2 metres.—12.5 to 1.30 p.m., Gramophone Concert. Bei Lied und Wein (Armandola); Golden Days (Lacina); Dreaming (Cornak); Selection from the Singing Fool (Johnson); Songs: (a) Rot ist dein Mund (Rubens and Grothe). (b) Zwei Tränen (Rubens-Grothe); Selection from Paganini (Lehár); Hungarian Dance No. 5 (Brahms); Melody (Rubinowitz); Wien bei Nacht (Komzak); Maren, Doiores (Pence); March, Gruss an Kiel (Spohr); Potpourri of Popular Melodies (Dostal); The Song is ended (Sommer); Student Song, Burschen heraus; Die letzten Vier (Wolf); Eine Muh, eine Mäh (Linde-

mann); Kinderlieder (Lindemann). In the interval at 12.20, News. 1.30, Sponsored Programme with Gramophone Records. 2.0, Exchange and Market Prices. 2.30 (from Danzig), Programme for Children. 3.0, Concert from Berlin (Witzleben). 4.50, Topical Review. 5.0, Programme Announcements for the Coming Week. 5.10, Programme Information in Esperanto. 5.15, Market Prices. 5.30, International Market Report. 5.45, Talk by Prof. Thienemann: From my Life. 6.10, Beethoven Piano-forte Sonatas, played by Joachim Ansoer; Sonata in E, Op. 109; Sonata in A flat, Op. 110. 6.50, News and Weather. 7.0, Johann Strauss—The Waltz King—A Play (Robert Fitzoed). 8.15 (from Danzig), Wind Instrument Concert, conducted by Ernst Stiebertz; March, Mein Regiment; Mein Vaterland (Leuschner); Overture, Rienzi (Wagner); Waltz on Them's by Launer; Alt-Wien (Kremsner); Oriental Seite for Military Band (arr. Stiebertz); Two Austrian Military Marches: (a) Schönfeld-Marsch (Zichner), (b) Erzherzog Albrecht (Komzak); Selection from I Pagliacci (Leoncavallo); Second Slav Rhapsody (Friedemann); March Potpourri, Die alte deutsche Treue (Franzen). 9.30, Weather, News and Sports Notes, followed by Dance Music from Berlin (Witzleben). 11.30 (approx.), Close Down.

HILVERSUM

Announced HUIZEN, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—Programme of the Catholic Radio Society (K.R.O.). 11.55 a.m., Trio Concert: Rusticella (Cortopassi); Czardas from Comtesse Maritzza (Kalmán); Fantasia on Russian Waltzes (Borchert); Serenata diabolica (Cerrí); Klänge aus Rumänien (Dauber); Liebesfeier (Weingartner); Potpourri, Major and Minor; Gavotte (Glück); Selection from Polenblut (Nedbal); Rondo all'ungarese (Haydn); Turkish March (Mozart). 1.25 to 1.40 p.m., Interval. 1.40, Programme for Young People. 2.10, Programme for Children. 3.40, Organ Recital: Overture, Zampa (Hérold); Andante from the Violin Concerto (Mendelssohn); Souvenir (Drdla); Pompeo valsaute (Polidini); Nola (Arnold); Waltz (Moszkowsky); Gramophone Records of Light Music: Kashmiri Love Song (Woodford-Finden); The Rosary (Nevin); Vénitienne (Godard); Gavotte (Gosse); Pastorale (Bossi); Ballet Music from Coppelia (Delibes). 4.55, Esperanto Lesson. 5.10, Concert by the K.R.O. Boys and J. Mossel (Songs). 6.0, Press Review. 6.20, Concert (cont'd). 6.50, Economic Review. 7.10, Police Notes. 7.25, Sports Talk. 7.40, Orchestral Concert, with the collaboration of the Columbia Three: Overture to an Operetta (Lincke); Kind, du kannst tanzen (Fall); The Columbia Three: (a) Rndolfsklänge (Herzner), (b) Serenata (Braga), (c) Sweet Violets (Powell), (d) Ein Walzerabend bei Suppé (Thiele); Selection from The Czarevitch (Lehar); Selection from The Gipsy Baron (Strauss); The Columbia Three: (a) March (Boer), (b) The Love Letter (Stewart), (c) Selection from Les Cloches de Corneville (Planquette), (d) Schön war es (Alex). 9.25, Recitations. 9.40, Time (Sehubert-Berté); Selection from Lilac Time (Sehubert-Berté); Selection from Der liebe Augustin (Fall). 10.10, Recitations. 10.25, Concert (cont'd); Selection from The Gipsy Princess (Kalmán). 10.40, Variety Music on Gramophone Records. 11.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 1,875 metres; 8.5 kW.—11.40 a.m. till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). 11.40, Concert by De Notenkraakers, conducted by D. Wims. 1.55, Popular Music on Gramophone Records. 2.30, Literary Talk. 2.50, Concert by the V.A.R.A. Mandoline Ensemble, conducted by J. Kok. 3.30, Talk on Music. 4.10, Talk for Young Socialists. 4.30, Accordion and Piano-forte Solos. 4.50, Microphone Report—A Stroll through the Museum in Amsterdam. 5.20, Literary Talk. 5.40, Frisian Dramatic Programme. 6.40, Gardening Talk. 6.55, Address. 7.10, Concert by De Flieveluuters, conducted by Hugo de Groot: La biguine (Moretti); Es ist besser so (Kálmán); Du bist mein Alles (Kálmán); Oft hab' ich vom Glück geträumt (Kálmán); Indian Song (Lienance); Russian Potpourri (Batzem-Borchert). 7.35, S.O.S. Messages. 7.40, Concert by the V.A.R.A. Orchestra, conducted by Hugo de Groot; Soloist, Jo Vincent (Soprano); Overture, The Magic Flute (Mozart); Song: Peer Gynt Suite No. 1 (Grieg); Letzter Frühling (Grieg); Wiegeliend (Grieg); Solveig's Song; Anxiety—Radio Play (van Duin); Selection from White Horse Inn (Benatzky); Variations on Le Carnaval de Venise (Ritzau). 9.40, Organ Recital by Johan Jong: Love me and the World is mine (Ball); Invitation to the Waltz (Weber); Ballet Music from Coppelia (Delibes). 10.10, News. 10.20, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.0 p.m., Talk: Slovene Poets. 6.30 to 10.0, See Warsaw. 10.0, Dance Music.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres; 54 kW.; and HELSINKI, 368.1 metres.—5.40 p.m., Concert of Swedish Music by the Station Orchestra, conducted by Erkki Linko. 6.15, Talk. 6.40, Amikki Uimonen Song Recital by Topelius. 7.5, Recitations. 7.20, Concert by the Station Orchestra, conducted by Erkki Linko: Melody (Linsen); Waltz from The Sleeping Beauty (Molart); Overture, Kung Karls jakt (Pacius). 8.15, Dance Music relayed from the Hotel Kämp.

LANGENBERG

473 metres; 60 kW.—11.0 a.m., Orchestral Concert, conducted by Spitz: Waltz, Wine, Woman and Song (Joh. Strauss); Selection from Tosca (Puccini); Camerle (Gillet); Selection from Schön ist die Welt (Lehar); Die frechen Spatzen (Löhr); Potpourri, Von Wien durch die Welt (Hrubý). 11.50, Weather, Time and Announcements. 12 Noon, Concert, conducted by Wolf: March, Deutschlands Heil (Albus); Waltz, Feuilles du Soir (Offenbach-Senger); Overture, Il Guarany (Gomes); Selection from Otello (Verdi); Two Hungarian Dances, Nos. 5 and 6 (Brahms); Selection from Sylvia (Delibes); Overture, Fahrend Volk (Leuschner); Potpourri, Contrasts (Robrecht); Champagner-Galopp (Wiegand). In the interval at 1.0 p.m., News. 1.35, Gramophone Concert of Variety Music. 2.30, Economic Notes and Time. 2.50, Programme for Children. 3.10, Talk: Animals in Winter. 3.30, English Lesson. 4.0, Variety Concert. 5.15, Talk: Work in the Garden in Winter. 5.20, Talk for Women. 5.40, Weather, Time, Economic Notes and Sports Report. 5.50, Talk: The Centenary of Eugen Dühring. 6.10, Talk on Music. 6.30, Masters of Travel Description: The Han Grotto in Belgium (Heinrich Lützelar). 6.55, News Bulletin. 7.0, Variety Concert in Aid of the Station Winter Relief Fund, relayed from the Concert House, Aachen. 9.30, News and Sports Notes. 9.45, Serenade, conducted by Wolf. 11.0, Dance Music. 12 Midnight, Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres, 120 kW.; and DRESDEN, 319 metres.—11.0 a.m., Gramophone Concert of Orchestral Music, conducted by Leo Blech: The Berlin Philharmonic Orchestra; Overture, The Hebrides (Mendelssohn); The Berlin Municipal Opera House Orchestra: Movement from the Italian Capriccio (Tchaikovsky); The Berlin State Opera House Orchestra: Symphonic Poem, Les Préludes (Liszt); The London Symphony Orchestra: Finale from the Symphony in C, No. 7 (Sehubert); The Berlin State Opera House Orchestra: Leonora Overture, No. 3 (Beethoven); Huldigungs-marsch (Wagner). 12 Noon, News, Weather, Snow Report, and Time Signal. 12.15 p.m., Gramophone Concert of Alpine Yodels and Folk Music, followed by Exchange Quotations. 1.0, Wireless Hints. 1.10 to 1.20, Radio Notes. 1.30, Programme for Children. 2.15, Chess Lesson. 2.45, Exchange Quotations. 3.0 to 3.15, Talk on Music. 3.30, Concert from Berlin (Witzleben). 5.0, Legal Talk. 5.30, German Lesson: Who can find the right word? 5.50, A Modern Dictionary. 6.0, Concert by the Dessau-Alten Male Voice Choir: Deutscher Glaube (Franziskus Nagler); Abendfrische am Rhein (Matthias Neumann); Folk Song, Das stille Tal (arr. Wohlgeschuth); Zieh mit (Theo Nestler); Auf der Lüneburger Heide (Adolf Kirchl); Der Jäger aus Kurpfalz—Nineteenth Century Folk Song (arr. Othegraven); Folk Melody, Kapitän und Leutnant (arr. Hans Heinrichs); Trinklied (Paul Goldsdorf). 6.30, Talk: Tuberculosis and Environment. 7.0, See Langenberg. 9.5, News, followed by Dance Music. 10.0, Winter Relief charity Programme, relayed from the Old Theatre: L'impressionnisme in angustie Opera in Two Acts (Cimarosa). 12 Midnight (approx.), Close Down.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—6.0 p.m., Talk on Sociology. 6.30, Philosophical Talk. 7.0, Concert of Russian Music. 9.0, Time, News and Light Music.

LOWO

381 metres; 16 kW.—6.10 p.m., Miscellaneous Items. 6.30, See Warsaw. 10.0, Talk on Music, with Gramophone Illustrations. 10.30 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South East. 8.30, Concert, relayed from the Salle Mollière. After the Concert, News Bulletin.

MADRID

ARANJUEZ (EAQ), 30.43 metres; 20 kW.—6.0 to 8.0 p.m., Programme for Listeners in the Canary Islands, Guinea and America. 6.0 p.m., Concert of Popular Spanish Music. 7.15, Talk. 7.35, Light Music. 8.0 to 11.30, Interval. 11.30, Variety Music. 11.45, Radio Chronicle. 12.0 Midnight, Concert of Popular Music. 12.35 a.m. (Sunday), Talk. 12.40, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO, call EAJ7, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotations and Report on Leading Events, followed by Request Gramophone Records. 8.15, News Bulletin. 8.30 to 9.30, Interval. 9.30, Chimes, Time Signal and a Musical Comedy. 11.45, News Bulletin. 12 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—3.10 p.m., See Bratislava. 4.10, See Prague. 4.50, Music Review. 5.0, Medical Talk. 5.15, See Prague. 5.25, Concert by the Skalice Mixed Choir, conducted by C. Gardelka. 6.0, See Prague. 6.20, See Bratislava. 7.0, See Prague. 8.0, See Bratislava. 9.0, See Prague. 9.15, Radio Film—Songs, Instrumental Solos, Dramatic Items and Orchestral Music. 10.30 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.; 4.0 p.m., News. 4.10, Concert. 5.30, Concert of Popular Music. 8.0, Talk in French: The Life of the Metal Worker. 8.55, Time. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—3.10 p.m., Concert, conducted by Erich Kloss: Overture, Orpheus in the Underworld (Offenbach); Two Songs (Tchaikovsky); Interlude: Humorous Reading by Fritz Reck-Malleczewen; Selection from Lucia di Lammermoor (Donizetti); Dance of the Merry Mascots (Ketelbey); Selection from Gipsy Love (Lehar); Interlude: Reading of Humorous Verse (L. Hartmann); Glow-Worm Idyll (Lincke); March, Folies Bergère (Lincke). 4.30, Programme for Young People. 5.15, Wireless Hints. 5.30 (from Nürnberg), Concert by the Alpenrose Mandoline Club and the Regensburg Vocal Quartet. 6.25, Travel Talk. 6.45, Wireless Hints. 7.0, The Count of Luxembour—Operetta in Three Acts (Lehar). 9.20, Time, Weather, News, Sports Notes and Income Tax Reminder. 9.45, Concert from Vienna. 11.0 (approx.), Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredriksstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres; and Rjukan, 447.1 metres.—6.0 p.m., Announcements, Weather and News. 6.30, Talk: The Russian Theatre. 7.0, Time. 7.1, Concert by the Station Orchestra, conducted by Hugo Kramm: March (Johansen); Overture, William Tell (Rossini); Potpourri, Vindobona (Leopold); Waltz, Mon rêve (Waldteufel); Love Song (Padrevsky); Saeterjentens Søndag (Ole Bull); Poem (Fibich); Czardas (Monti); Waltz, Die Werber (Launer); Selection from Die Fledermaus (Joh. Strauss); Fakir March (Osehit). 8.40, Weather and News. 9.0, Topical Talk. 9.15, Humorous Readings. 9.45, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tourist Report, Agricultural Notes, and Giornale Radio. 7.20, Variety Music on Gramophone Records. In the intervals at 7.25, Sports Review; and at 7.30, Time and Announcements. 7.45, La vergine rossa—Operetta in Three Acts (Cuschin). In the intervals: Review of New Books and Reading. 9.55, News Bulletin.

PARIS

EIFFEL TOWER, call FLE, 1,445.7 metres; 13 kW. 5.45 p.m., Le Journal Parlé. 7.20, Weather Report. 7.30, Three One Act Come-

dies: (a) Spiritisme pratique (Chèvre), (b) Ce qu'ils font de nos femmes (Orly), (c) Un mystère sans importance Bernard. 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—(Relay of the Test Match from Australia.) 7.0 p.m., Popular Music on Gramophone Records. 8.0, Theatre Notes. 8.15, Interval. 8.30, Chamber Music Concert. 9.0, Interval. 9.10, Dance Music by the Sonora Band, conducted by Fred Hoffmann. 11.0, Dance Music on Gramophone Records. 12 Midnight, Close Down.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather Forecast and Physical Culture. 7.45, Report on the Test Match relayed from Australia. 8.0, Press Review and Weather. 8.30, Report on the Test Match, relayed from Australia. 9.0, Concert relayed from the Conservatoire. 12 Noon, Concert of Folk Music by the Radio Paris Orchestra: Catalane (Busser); A Gascon Wedding (Lacombe); English Folk Melodies (arr. Montagne Phillips); Fantasia on Negro Songs (Foulds); Ballet Music from Casanova a Venezia (Pick-Mangiagalli); En Terre Celtique (Duboune); Tableau villageois (Février); En Languedoc (de Séverac); Belgian March (Foudrain); Le rouet de Grand Maman (Gillet); Hungarian Divertissement (Schubert); Emperor Waltz (Joh. Strauss); Libro de Horas (Granados). In the intervals at 1.0, Exchange, News and Weather, and 1.30 and 2.0, Exchange. 3.0, Programme for Children. 3.45, Exchange and Market Prices. 3.50, Dance Music by the Radio Paris Orchestra. 6.30, Market Prices, Weather, Agricultural Report and Exchange. 7.0, Scientific Talk. 7.20, Agricultural Talk. 7.45, Commercial Prices and News, and Latin Press Review. 8.0, Literary Talk: Henry Beaque. 8.30, News and Weather. 8.40, Review by René Dorin. 8.45, Gramophone Records: Stenka Razin (Glazunov). 9.0, News. 9.15, Touche Concert, conducted by the Composer.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—9.0 p.m., Dance Masters, from New York. 9.30, Programme to be announced. 10.0, KDKA Orchestra. 10.30, Weather Report. 10.32, Behind the Law—Tales of the Pennsylvania State Police. 10.45, Little Orphan Annie, from New York. 11.0, Little German Band. 11.30, Time Signal. 11.31, Temperature Report. 11.32, Teaberry Sport Review. 11.37, Press News-Reader. 11.44, Weather Report. 11.45, A Recreo, by Bill and Alex of the Downtown Y.M.C.A. 11.59, Time Signal. 12 Midnight, Fields and Hall, from New York. 12.15 a.m. (Sunday), Atkinson String Ensemble. 12.30, KDKA Players. 1.0 to 3.45, New York Relay. 1.0, American Taxpayers' League. 1.15, St. Regis Orchestra. 1.30, Road to Romany. 2.0, S.R.O. 3.0, Whoopee. 3.30, Buccaneers. 3.45, Bradley Kincaid. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News. 4.20, Messages to Dwellers in the Far North.

PORSCRUND.—See Oslo.

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., See Bratislava. 4.10, Talk on Economics. 4.20, Czech Lesson for Germans and German Lesson for Czechs. 4.50, Variety Music on Gramophone Records. 5.15, Agricultural Report. 5.15, Talk for Workers. 5.25, German Transmission: News, Talk and Reading. 6.0, News. 6.5, Talk by Dr. Matosok, Director of the Talks Section of the Czechoslovak Broadcasting Corporation. 6.20, See Bratislava. 7.0, Literary Cabaret. 8.0, Time Signal. 8.1, See Bratislava. 9.0, Time Signal. 9.1, News. 9.15, See Moravská-Ostrava. 10.30 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE**, 680 metres; and **GENEVA**, 760 metres.—5.0 p.m. (from Geneva), Scientific Talk: Acoustical Phenomena. 5.30 (from Lausanne), Book Review. 6.0 (from Lausanne), Weather Forecast, News Bulletin and Announcements. 6.30 (from Lausanne), Talk on Films. 7.0, Musical Items and Reading of Poems by Mme. Croiza. 7.45, Concert by the Station Orchestra. 9.0, News Bulletin and Weather Forecast. 9.10, Dance Music by the Broadcasting Serenaders. 10.30 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather. 8.40, Musical Programme and Announcements. 9.0, Chimes. 9.2, News Bulletin. 9.30, Reading. 10.0, Concert by the Station Quartet, followed by Choral Music on Gramophone Records. After the Programme, Dance Music. 1.0 a.m. (Sunday), Close Down.

RIGA

525 metres; 15 kW.—4.20 p.m., Organ Recital: Fantasia and Fugue in C Minor (Bach);

JAN. 14th

SATURDAY

continued

Musette (D'Andrieu); Provençal Melody of the 13th Century (Rheinberger); Allegro, from the Sixth Symphony (Widor); Choral. 5.30, Agricultural Talk. 5.30, French Lesson. 6.3, Weather. 6.3, Light Music. 6.30, Dramatic Programme. 7.0, News. 7.20, Dramatic Programme. 8.0, Weather and News. 8.30, Dance Music. 10.0 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call 1RO, 441 metres; 50 kW. Relayed by Naples, 319 metres; and 2RO, 25.4 metres.—7.15 to 7.30 a.m., Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Orchestral Concert. In the interval at 12.30, Giornale Radio and Exchange. 3.45, Children's Radio Review and Talk for Young People. 4.0, Exchange, Announcements, Report of the Royal Geographical Society and Giornale Radio. 4.15, Reading. 4.30 to 5.15, Orchestral Concert: Gipsies of the Volga (Spialek); Waltz (Petralia); Mamine blanche (Allegri); Serenade and Dances from Iris (Mascagni); Fior d'Andalusia (Pennati Malvezzi); Leggenda (Reggiani); Signora, questo lang e per me (Varinca); Love's Kiss (Stravinsky). 6.10 (Naples), Shipping and Sports Notes. 6.15, Atmospheric Signals, Giornale Radio and Agricultural Report. 7.0, Time, Announcements and Light Music on Gramophone Records. 7.30, Sports Notes and Tourist Report. 8.0, Relay of an Opera. In the intervals: Review of New Books and News.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres, and by W2XAD on 19.56 metres.—8.30 p.m., Matinée Gens, from New York. 9.30, Studio Ensemble. 9.45 to 10.30, New York Relay. 9.45, Trio Charmante. 10.0 Sun Oil Programme. 10.15, Mitchell Schuster and his Orchestra. 10.30, Bob Reynolds' Orchestra. 10.45, Secretary Hawkins, from New York. 11.0, Joe and Eddie—Comedy Sketch. 11.15, Billy Rose (Tenor). 11.30, Studio Ensemble. 11.45, Horse Sense Philosophy. 12 Midnight, Stock Reports. 12.15 a.m. (Sunday), Municipal Series. 12.30, Hotel New Yorker Orchestra, from New York. 12.45, The World Today, by James G. MacDonald, from New York. 1.0, Lady Fingers (Pianists). 1.15, Bernard Silberg (Cellist). 1.30 till Close Down. New York Relay. 1.30, National Advisory Council. 2.0, Erno Rapce's Orchestra. 3.0, Lucky Strike Hour. 4.0 (approx.), Close Down.

SCHWEIZERISCHER

LANDESENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASEL**, 244.1 metres; and **BERNE**, 245.9 metres.—9.20 a.m. (from Zürich), Programme for Schools—The Swiss Folk Songs. 9.50 to 11.28, Interval. 11.28, Time Signal from the Neuchâtel Observatory. 11.30, Weather and News. 11.40, Variety Programme on Gramophone Records. 12.35 p.m., Weather and Exchange. 12.45 (from Basle), Wireless Talk. 1.0, Review of Books. 1.30, Gramophone Records of Yodelling. Ländler and Swiss Comedians. 2.30 (from Basle), Talk: Sebastian Knip and his Work. 2.30, Light Music on Gramophone Records. 3.0 (from Basle), Accordion Concert. 3.30 (from Basle), Talk on Basle. 4.0, Melodies by Stravinsky (on Gramophone Records) in Commemoration of the Composer's Death. 4.50, Weather Report. 4.35 (approx.) to 5.30, Interval. 5.30 (from Basle), Talk for Women. 6.0 (from Zürich), Chimes from the Zürich Churches followed by Weather, Time and Market Prices. 6.15 (from Basle), Talk: Heinrich Handschin, a Basle Benefactor. 6.45 (from Basle), Talk on the following Transmission. 7.0 (from Basle), Concert by the Basle Music Society, relayed from the Musiksal. Conductor: Dr. Felix Weingartner. Recitations by Ludwig Wüller. 9.0 (approx.), Weather and News. 9.10, Gramophone Dance Music. 10.0 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—3.0 p.m., Orchestral Concert of Light Music. 4.5, Programme for Children. 4.30, Popular Music on Gramophone Records. 5.30 (from Sundsvall), Talk: The Practical Corner. 5.45, Song Recital by Jack Adams-Ray and Pehr Danielsson. 6.15, Weather and News. 6.30, Old Time Dance Music. 7.15 (from Sundsvall), Talk. 7.45, Cabaret. 8.45, Weather and News. 9.0, Modern Dance Music by the Vernon Orchestra. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Orchestral Concert, conducted by Maurice de Villers. Overture, Rosamunde (Schubert); Selection from Lohengrin (Wagner); Selection from Coppélia (Delibes); La Jota Aragonesa (Saint-Saëns); Selection from The Prodigal Son (Wormser). 12.45 p.m., News. 1.0, Time Signal. 1.2, Exchange Quotations. 1.10, Quintet Concert, relayed from Bordeaux-Lafayette. 1.50, Gramophone Records of Popular Music. 2.0, Talk in German. 2.15 Gramophone Concert: Overture, Tannhäuser (Wagner); Walter's Prize Song and O Star of Eve, from Tannhäuser (Wagner); Le Roi et d'Omphale (Saint-Saëns); See my distress, alas! from Samson and Delilah (Saint-Saëns); Dance of the House, from La Gioconda (Ponchielli); Air from The Prophet (Meyerbeer); Air from Othello (Verdi); Hungarian Rhapsody (Liszt). 3.15 to 3.45, Interval. 3.45, Talk on Music—Schubert. 4.0, Dance Music on Brunswick Gramophone Records. 4.45, Legal Talk in German. 5.0, Padeloup Symphony Concert relayed from the Théâtre des Champs Élysées, Paris. 7.0, Talk on Trees—the Poplar. 7.15, Light Music on Gramophone Records. 7.30, Time Signal. 7.32, News Bulletin. 7.45, Matrigal Concert: Bonjour mon cœur (Roland de Lassus); Soyons joyeux dans la plaisante verdure (Roland de Lassus); Anarchy (Béon); Ma Ravine (arr. Simon); La Fontaine de Caronnet (Loretory); Gang zum Lieben. Op. 31, No. 3 (Brahms); Heimut, Op. 64 (Brahms); O schöne Nacht, Op. 92, No. 1 (Brahms); Eleven Gipsy Songs, Op. 103. 8.50, Announcements. 9.0, Relay of a Ball from the Palais des Fêtes. 12 Midnight, Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW., and **FREIBURG**, 570 metres. 11.20 a.m., Recital of Unfamiliar Ballads by Ludwig Feuerlein: De Helwagrueter (Abraham Mendelssohn); Ackermann, Buermann (Abraham Mendelssohn); Die Waldhexe (Rubinstein); Die Mausehoelzei (Krug-Waldsee); Der Musikant (Berger); Die Mauthorner Fuge (Jensen); Graf Eberhards Weissdorn (Pflüdemann). 11.50, Zither Recital by Heinz Mönch. 12.30 p.m., See Frankfurt. 1.30, Time, Weather, News and Announcements. 1.40, Gramophone Concert: Overture, Così fan tutte (Mozart); Two Songs: (a) Aria from Hans Heiling (Marschner); (b) Valentine's Prayer from Faust (Gounod); Serenade (d'Ambrósio); Guitar (Moszkowsky); Two Songs (a) Aria from Tosca (Puccini); (b) They call me Mimi, from La Bohème (Puccini); Selection from Eugen Onegin (Tchaikovsky); Deutschland, blühe neu an! (Meyer-Helmund); Das Regiment Forcade bei Hochkirch (Koznick-Kies); Polpourri of Mecklenburg Melodies (Kies); Midnight Waltz (Anadiro); Neapolitan Nights (Zaoucenik); Maskenball im Gänselall (Schwabach); Selection from The Geisha (Jones). 2.30, See Frankfurt. 3.30, Gramophone Concert of Dance Music. 4.0, See Langenberg. 5.15, Time and Sports Notes. 5.25, Talk: How our Export Goods are Packed. 5.50, Talk: Careers for Educated Young People. 6.15, Time, Weather and News. 6.30 (from Karlsruhe), Mandoline Concert by the Edelweiss Club: Overture, San Giusto (Bilelli); Fantasia, Armonie alpine (Sartori); Pesoro mio (Brenner). 7.0, Concert of Viennese Music, relayed from the Liederkhalle. The Stuttgart Philharmonic Orchestra, conducted by Gustav Görlch, the Vienna Schrammel Quartet and Soloists. 9.20, Time, Weather, News and Announcements. 8.45, Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—5.45 p.m., Overture Music: Selection from (a) Rip Van Winkle (Plauquette); (b) Les Cloches de Corneville (Plauquette); (c) Les Noces de Jeannette (Masse); (d) La Mascotte (Audran). 6.0, News. 6.15, Spanish Caprice for Orchestra (Rimsky-Korsakov). 6.30, "Cello Solo": Melody from Madame Butterfly (Puccini); La Troycune (Masse); Adagio (Tartini); Melody (Falla). 6.45, Light Music. 7.0, Accordion Recital. 7.15, News, Horse Racing Results and Market Prices. 7.25, Announcements. 7.30, Programme by a Viennese Orchestra. 8.0, Opera Music: Selection from (a) Mirella (Gounod); (b) Le Chevalier (Leroux); and (c) Manon Lescaut (Puccini). 8.15, Orchestral Selection from (a) Les Vingt-huit Jours de Clairette (Roger); (b) Die Flodermans (Joh. Strauss); and (c) Countess Maritza (Kálmán). 8.30, Sound Film Music. 8.45, Music for Hunting Horn. 9.0, The Valkyrie—Opera (Wagner) (Concert version). 10.0, Instrumental Music: Meditation for Violin from Thais (Masse); "Cello Solo": Ständchen (Schubert); Clarinet Solo: Clair matin (Jeanjean). 10.15, North African News. 10.30, Concert for Listeners in Morocco: Selection from (a) Hans the Flute Player (Ganne); (b) Die Bayadere (Kálmán); Melody (Grotte); Melody from Sigurd (Reyer); La Czarine (Ganne). 11.0,

Variety Music. 11.30, Programme in English by the I.B.C. Dance Music: Marching along together; Lawd, you made the night too long; She was only somebody's daughter; Good-night Vienna; You; I love a Parade; I believe in you. 12 Midnight, Weather and Announcements. 12.5 a.m. (Sunday), Chansonnettes. 12.15, Dance Music. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—4.0 p.m. till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayed by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—4.0 to 5.0 p.m., Dance Music from the Savoia Dance Hall. 5.35, Giornale Radio, Announcements, and Agricultural Report. 6.0, Variety Concert on Gramophone Records. In the intervals at 6.25, Tourist Report, and at 6.30, Time and Announcements. 7.0, Giornale Radio, Weather, and Light Music on Gramophone Records. 7.30, Talk: Events and Problems. 7.45, A Radio Revue. 8.45, Review of New Books. 9.0, Variety Programme. 10.0, Giornale Radio.

VATICAN CITY

19.84 metres (Morning), and 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Announcements in Different Languages. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218 metres.—2.20 p.m., Moritz Rosenthal Concert on the Seventieth Anniversary of his Birth—Pianoforte Recital by Therese Tröster, Hilda Adler and Roslianda Rapin, from the Characteristic Pieces on an Original Theme, Johann Strauss Fantasia, Prelude, Romance, Papillons, Wiener Karneval. 2.55, English Lesson. 3.25, Talk: A Winter Journey to North Africa. 3.55, Hans Wagner-Schönkirch on his Sixtieth Birthday: The Vienna Teachers' a-capella Choir, conducted by the Composer. 4.40, Talk on Music, with Gramophone Illustrations. 5.10, Carnival in Vienna, Variety Concert. 6.30, Time, Weather, Sports Notes and Programme Announcements. 6.50, Talk: The Lives of Fishes. 7.15, Popular Song Recital by the Boheme Quartet. 7.45, The Ebergényi Case—a Radio Play (Wilhelm Fajstenthal). 8.45, News and Weather. 9.0, Concert by the Emil Bauer Orchestra: Overture, Jessonda (Spohr); Waltz, Ostsee Strandbilder (Emil Bauer); Selection from La rondine (Puccini); Intermezzo, Drauerer Porzellanpüppchen (Lincke); Französisches Brautfahrt (Rhode); Waltz, Illustrationen (Joh. Strauss); Viennese Dances (Ignaz Friedmann-Gärtner); Selection from The Betrothal by Lanterslight (Offenbach); Waltz, Heringspazier (Ziehrer); Kleine Suite (Rudolf Pohn); Potpourri, Fortissimo (Kálmán).

WARSAW

1,411 metres; 120 kW.—11.10 a.m., Light Music on Gramophone Records. 12.20 p.m., Weather Forecast. 2.10, News Bulletin. 2.15, Economic Report. 2.25, Answers to Military Correspondents. 2.35, Programme for Young People. 3.0, Popular Music on Gramophone Records. 3.40, Talk from Wilno (563 metres). 4.0, Programme from Lwow (381 metres). 4.30, News Bulletin. 4.40, Topical Talk. 4.55, Programme Announcements. 5.0, Light Music from the Café Italia. In the interval, News. 6.0, Miscellaneous Items. 6.20, Gardening Notes. 6.30, On the Horizon. . . . 6.45, Radio Journal. 7.0, Concert by the Station Orchestra, conducted by S. Návrot. Soloists: M. Fogg (Baritone) and L. Urstein (Pianoforte). March (Kálmán); Overture (Kármán); Danse (Malsu); Czardas, Ma bien-aimé (Gabriel-Marie); Baritone Solos: (a) Boston (Dymarski-Tom); (b) Adieu (Wlast); Auf wiedersehen, my dear (Hoffmann); Potpourri from The Gipsy Princess (Kálmán); Baritone Solos: (a) Deux fenêtres (Dan-Olden); (b) Je vix en peu de bonheur (Dan-Tom); Valse-caprice (Rubinstein); Suite, Impressions exotiques (Montini); Wedgwood Blue (Ketchey); Tango, Sevillana and Gitana (Leonavallo); Gallop (Lumbye); Melody (König); Mazurka (Namylovskii). In the interval, Sports Notes and Radio Journal. 9.5, Chopin Pianoforte Recital by Henri Sztompka. 9.40, Talk. 9.55, Weather Forecast and Police Notes. 10.0, Dance Music from the Bodega. 11.0, Close Down.

WILNO

563 metres; 16 kW.—6.0 p.m., Agricultural Talk in Lithuanian. 6.15, Talk: A Voyage in 1820. 6.20, See Warsaw. 7.0, Request Gramophone Records. 8.0, Concert from Warsaw. 9.5 till Close Down, See Warsaw. 11.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender.

NEWS of the WEEK

Still More Power

THE power of the Beograd (Belgrade) broadcasting station is to be raised from 2.5 to 40 kW.

A new 20 kW. station is to be erected at Zagreb.

Not Afraid

"MAY I see the captain?" asked the young lady passenger. "He's forward, miss," replied the first mate. "Oh, I'm not afraid," said the lady, "I've been out with radio salesmen."—From the Mullard Magazine.

Five Lady Announcers

OUT of sixty candidates for the post, five lady announcers are competing at Radio Algiers for the final vote by listeners. The odds appear to be most heavily in favour of Mlle. Coste, who, it is rumoured, gave great satisfaction at Poste Parisien during 1932.

Let us hope, writes a correspondent, that this judgment of Paris will not, like its classic precedent, provoke jealousy and trouble, of which there is already more than enough in the wireless domain!

Drastic Remedy

IF the report is to be believed, Groningue, Holland, now possesses the first "Association of the Victims of Radio." This comprises a group of citizens exasperated by the noisy loud speakers of their neighbours. To obtain official support they have adopted the drastic remedy of renting rooms near the houses of official personages in the town, including the Governor of the Province, the Mayor, Deputy Mayors, Magistrates, and police officers. In these rooms they have installed gramophone pick-ups with powerful amplifiers and loud speakers, and up to a late hour at night the dignitaries are feasted with music and song.

Rumour has it that the Mayor is drafting an order which will put an end to these nocturnal attentions.

Current Events in Brief Review

Poles May Now be "Hams"

THE Polish postal authorities have now authorised individuals and associations to operate radio transmitters on all waves provided that the tests are of a genuine experimental or amateur character.

A Correction

IT is regretted that in our issue of December 16th, 1932, it was suggested that A.V.R.O.—the neutral broadcasting association of Holland—had signed a contract for microphone facilities at Luxembourg. We are asked by the association in question to state that no such contract has been entered into.

200 kW. from Paris?

AT Villejust, near Paris, the French Government has decided to construct a 120 kW. broadcasting station to replace the present Paris PTT "poste," and we understand that the transmitter is already under construction by the Société Française Radioélectrique. The wavelength of the station will be 447 metres.

It is stated that, if necessary, it will be possible to raise the power to 200 kW.

Who's Huizen?

THE great Hilversum-Huizen controversy has been reopened by the change-over which occurred on New Year's Day when the long-wave station at Huizen was handed over to the A.V.R.O. and V.A.R.A. organisations, who nevertheless continue with the Hilversum announcement. Similarly, the K.R.O. and N.C.R.V. associations, in taking over the Hilversum station, retain the Huizen announcement.

So, for the next three months, if you hear Hilversum it's Huizen, and vice versa!

Echometer Reveals Errors

THE Marconi "Echometer," the sound apparatus for registering the exact depth of the sea under a ship, has undergone its first ship tests off the coast of Gambia, West Africa, in the trawler "Umberto Lupi." During the trials the echometer revealed many errors in existing charts of the ocean bed.

"Concert Hall" Studio for Hilversum

THE laying of the foundation-stone of the new offices of the A.V.R.O. Dutch broadcasting organisation in Amsterdam on December 17th is stated to be the prelude to big developments. Work is soon to be started on a great new broadcasting building at Hilversum with a concert hall studio.

200 Kilowatts Calling

LUXEMBOURG—Europe's giant transmitter—has sprung a surprise by starting tests with its maximum aerial power of 200kW. on a wavelength around 1,200 metres, despite the fact that it has been refused a wavelength of this order by the Madrid Conference. The station has been heard at great strength on several recent mornings.

Physical Jerks from South Africa

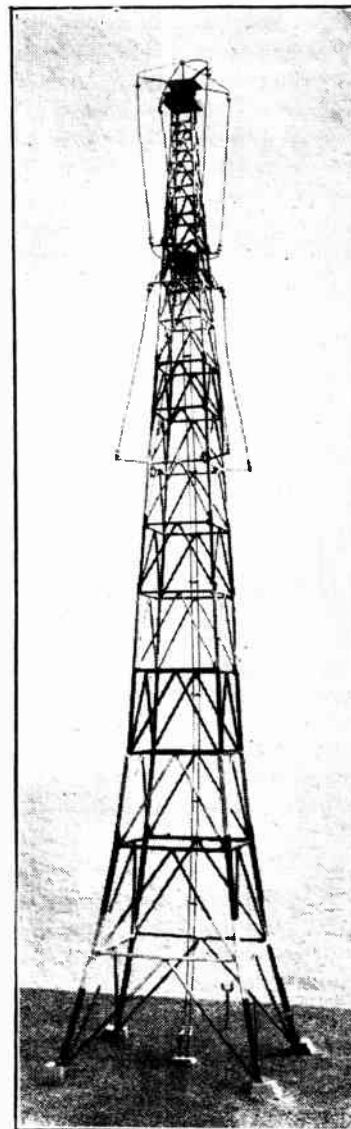
"PHYSICAL Jerks" can be picked up any morning between 4.45 and 5.20 (G.M.T.) broadcast from Johannesburg on 49 metres. The station, ZTJ, also works on 447 metres. The mid-day programme can be heard between 9 a.m. and 12 noon. South Africa's other large broadcasting stations are Cape Town (ZTC), on 371 metres, and Durban (ZTD), on 415 metres.

Radio Barter in Prague

THE first permanent radio junk sale has been inaugurated in Prague. The price of new radio sets having been found prohibitive, Prague listeners have instituted a central exchange where accessories of all nationalities, makes, and vintage years can be bargained for. In this way the humble listener or set constructor can acquire the parts he needs without recourse to the radio profiteers.

A New Power War?

THE decision of the Madrid Conference to limit the power of European broadcasting stations to 200 kW. has resulted in a general urge for more power among the lesser stations. It is understood, for example, that the projected power increase of the Brussels stations from 15 to 75 kW. is a move to counteract the expected interference from the new 120 kW. station at Bisamberg, near Vienna. Likewise, other countries are seeking to raise their broadcasting power up to the maximum number of kilowatts.



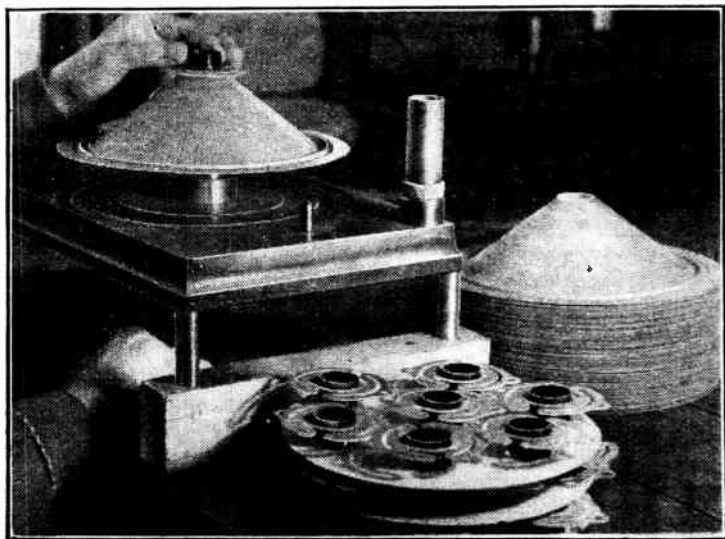
AN ANTI-FADING AERIAL. The Telefunken Company in Germany having set the fashion in aeriels for accentuating the ground wave, the Lorenz firm has retorted with a new type of mast-aerial aiming at the same effect. The photograph shows a model of the Lorenz aerial.

B.B.C. Chairman on Empire Broadcasting

THE Right Hon. J. H. Whitley, late Speaker of the House of Commons and Chairman of the British Broadcasting Corporation, will address a meeting of the Royal Empire Society at the Hotel Victoria on Tuesday, January 17th, at 8.30 p.m.

The subject of his address will be "Broadcasting to the Empire and the New Service," and the chair will be taken by Dr. Montague Rendall, who was a Governor of the B.B.C. from 1927 until the end of 1932.

Readers of *Wireless World* wishing to attend should make early application for a ticket, or tickets (for which no charge will be made), to the Secretary of the Royal Empire Society, Northumberland Avenue, London, W.C.2.



LOUD SPEAKERS IN THE MAKING. A photograph taken in a factory showing a moving-coil being fitted in position.

The MODERN D.C. THREE

Constructing the Receiver and Making Initial Adjustments

By W. I. G. PAGE, B.Sc.

IN last week's issue the chief considerations in designing a modern straight receiver for D.C. mains were discussed and stress was laid on the need for an energised speaker with a powerful magnetic field. Owing to depleted anode volts the output from a D.C. set is often disappointing unless the speaker is exceptionally sensitive. Moreover, there are other advantages of high magnetic field strength, such as better reproduction of transients giving colour and character to speech and music.

The tuning unit chosen for inclusion in the receiver has many circuit innovations which were explained at some length in the first instalment. Constant sensitivity over the wavebands is one development of importance, and a new aerial coupling scheme, which prevents slight misalignment of ganged circuits so often experienced with the more orthodox aerial coupling, is embodied. To improve selectivity and to ensure the highest possible rectification efficiency, a screen-grid detector is used. Curves under working conditions were given, and demonstrated that this type of valve is more than 2½ times as sensitive as a typical triode, and, furthermore, there is the minimum of de-ganging of the preceding tuned circuit.

The construction of the set should present no difficulty if reference is made to the various drawings and photographs in this and the first instalment. A start should be made with the Radiopak, which is bolted through the Plymax baseboard, and "local" earth is picked up under-

neath at all the four points of anchorage. There are two terminals marked "DG," and, as these are electrically the same, it is found better to use the left-hand contact, this giving the shortest lead. The metal strip supplied with the potentiometer holds both the latter component and the reaction condenser in position, and the whole assembly is held away from the base of the Radiopak by means of two distance pieces. It was found that, in order to provoke oscillation, only quite a small reaction condenser was necessary, the value chosen being 0.00015 mfd. This can be accounted for by the negligible damping of the tuned circuit by the screen-grid detector.

The next components to be mounted are the two L.F. chokes and the three valve holders, which complete the upper deck. On the underside the only difficulty that is likely to take place is the

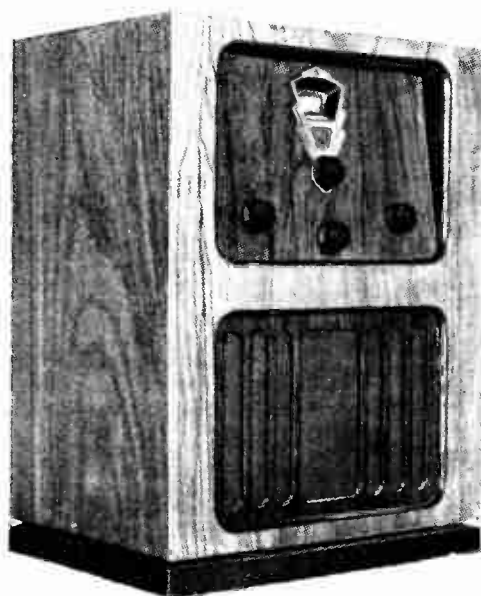
wiring of the strip resistances, which are built up vertically above one another in series of three. It should be noted that the resistance nearest the baseboard in the pack close to the H.F. valve holder is R6, the middle resistance is R3, and the top member R4. In the other pack the order outwards from the baseboard is R9, R10, and R11. Care must be taken to connect the Transceda correctly. Terminal HT1 is taken to the high-tension line, P to the H.F. choke, GB to C18 and R14, and HT2 to the decoupling condenser C17. The speaker is connected by a four-pin plug and a four-membered flexible cable, the transformer primary being joined to the filament pins and the field to the grid and anode.

The gram-radio switch is mounted on a small aluminium angle bracket which is supplied with the Plymax baseboard, and, to avoid instability, screened leads must be used where shown in the wiring plan.

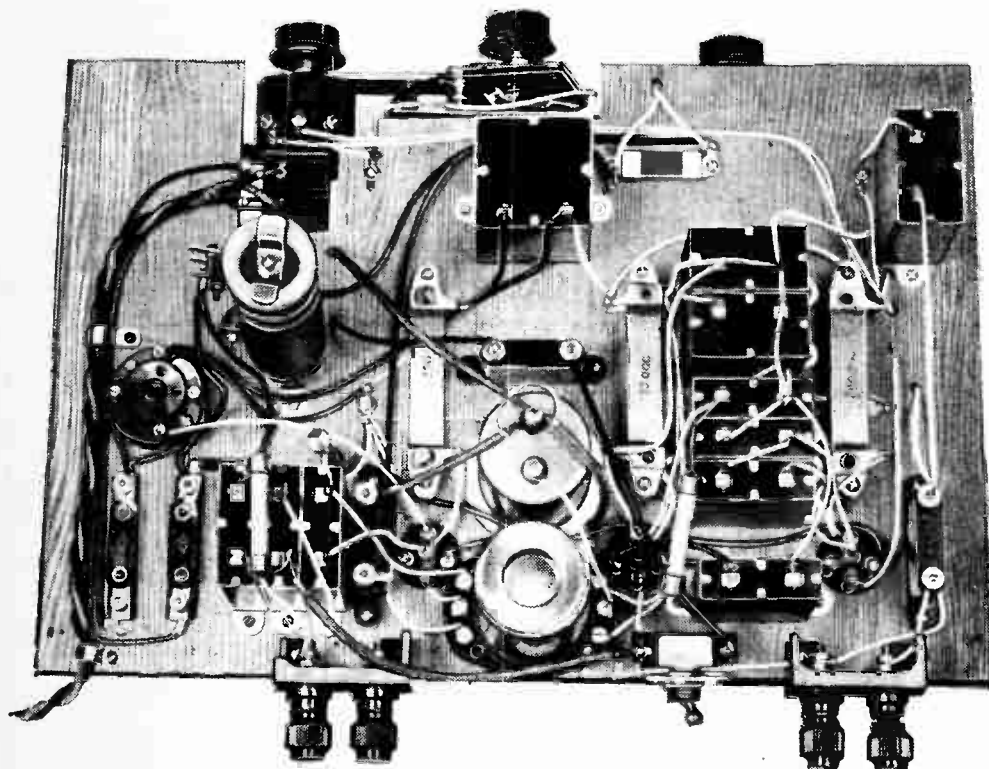
After the set has been completed and the lamp holder adaptor or plug connected to the supply mains, it may be found that signals cannot be obtained, although the pilot lamp and valve heaters are seen to be alight. This is, of course, due to a reversed polarity connection, and the plug or adaptor must be changed round. The heaters of the D.C. valves take rather longer to warm up than those of the A.C. type, and full emission must not be expected until some forty seconds after switching on.

Wavelength Calibration

The balancing of the three variable condensers of the Radiopak is extremely simple. It is only necessary to set the tuning dial, which is wavelength-calibrated, to the wavelength of a station near the lower end of the medium band, and change all three trimmers by means of the insulated tool provided until the signal is at a maximum. Those living in London or the Home Counties would cali-



The controls are arranged on a sloping panel which gives a pleasing appearance to the set.



Practically all the wiring is confined to the under-baseboard where the decoupling and by-pass components are housed.

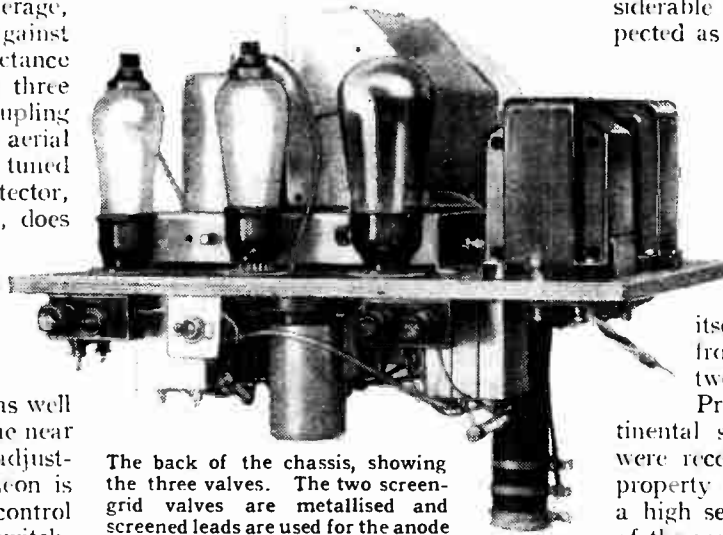
For the convenience of readers constructing this set, blue prints of the wiring diagram and general layout can be obtained from the publishers, price 1/6 post free.

The Modern D.C. Three—

brate the set using the London National station, turning the dial to 261 metres and adjusting the three trimmers. Provided the balancing is correct at the lower end of the medium band, it will be found to hold accurately over both ranges. Ganging with this receiver will be maintained with a precision that is above the average, owing to two factors which militate against unequal stray capacity and inductance being thrown on to two out of the three tuned circuits. First, the aerial coupling is unconventional and prevents the aerial reactance from de-ganging the first tuned circuit; secondly, the screen-grid detector, having a negligible "Miller" load, does not disturb the third circuit. A word of warning is necessary in regard to the trimming operation, for with mains in which the positive lead is earthed the whole Radiopak and all metal screening is "live," and it will be as well to slip a piece of thick paper over the near edge of the tuning unit while the adjustment is being made. The escutcheon is electrically isolated, and all the control knobs, including the radio-gramo switch, are "safe," as the grub screws, where these are used, are well countersunk.

The background is particularly quiet, and hum can only be detected when the ear is within a foot or two of the loud speaker with either a positive or negative

earth on the supply. With mercury-arc systems, which, fortunately, are few and far between, a negative-earth supply will not give much trouble, but in a house where there is a positive earth a certain amount of hum will be heard unless additional smoothing equipment is included. In this special case it will be as well to



The back of the chassis, showing the three valves. The two screen-grid valves are metallised and screened leads are used for the anode connections.

try the effect of two H.F. chokes of low D.C. resistance and a couple of series-connected 1-mfd. condensers as described by W. T. Cocking in an article entitled "Design of D.C. Sets," which appeared

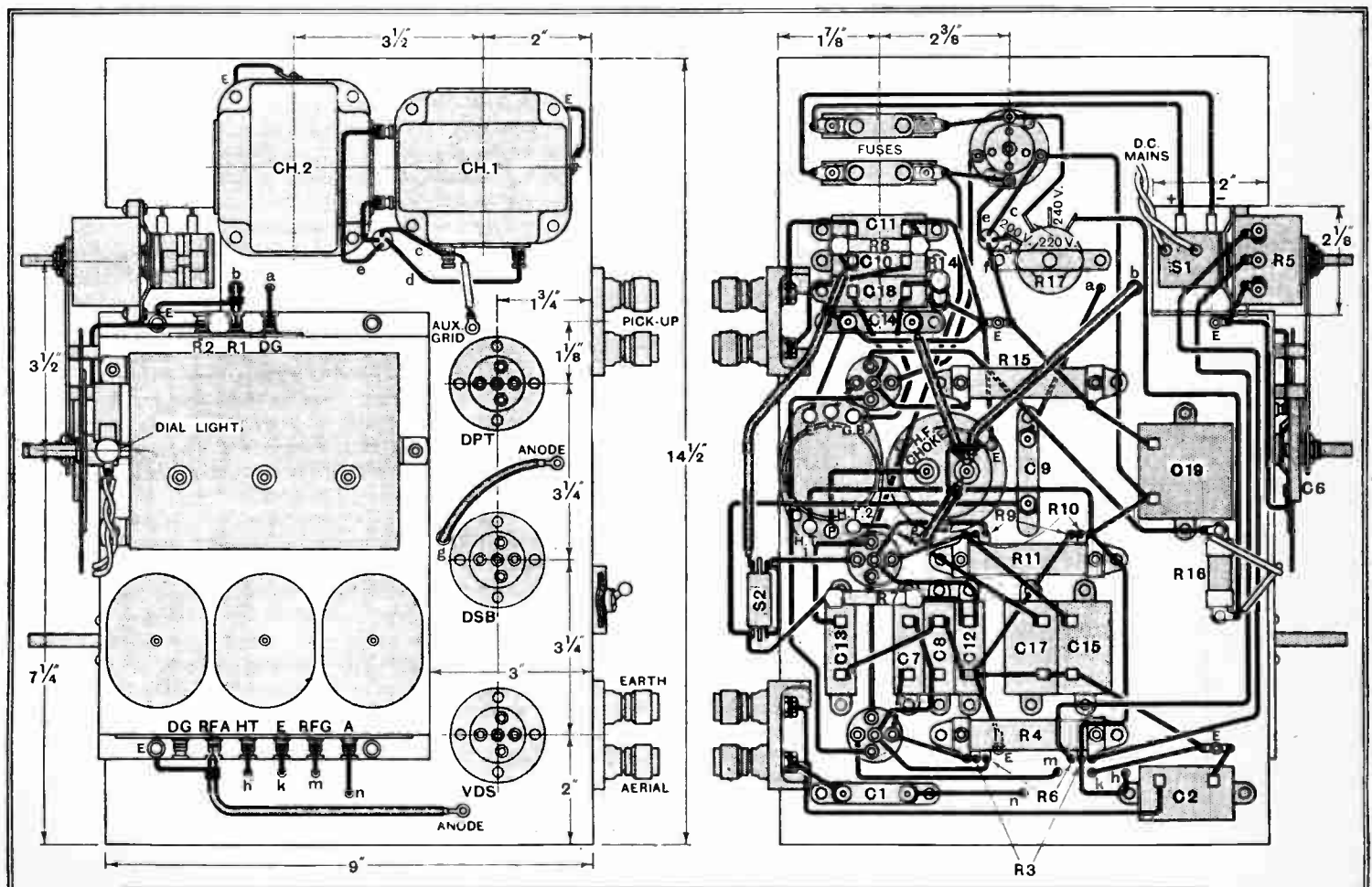
in the issue dated November 18th, 1932. The junction between the two condensers can be taken either to local earth (the Plymax baseboard) or be made the main earthing point of the set. If this does not effect a cure, more inductance must be put in series with CH1 and CH2 and additional capacity shunted to earth. Considerable improvement can also be expected as a result of increasing the capacity of C2 and including chokes capable of carrying 0.25 amp. in one or both of the heater leads.

High Sensitivity

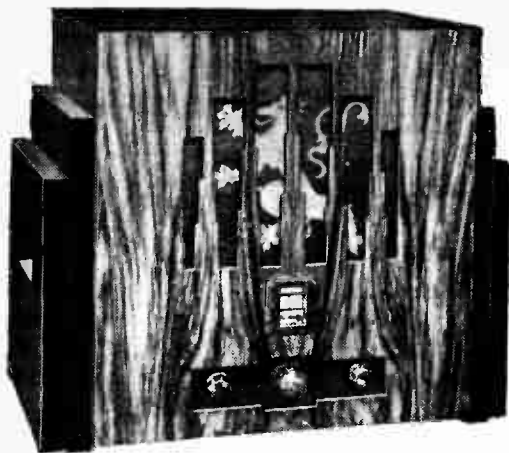
When tested a few miles from Brookmans Park the receiver gave a good account of itself, and a number of stations free from interference were logged between the two local transmissions. Practically all the British and Continental stations of entertainment value were received at good strength, and the property of the tuning unit of maintaining a high sensitivity level at the upper end of the waveband was most marked. Stations above, say, 420 metres, which usually require the assistance of reaction, came in at adequate strength without the use of subsidiary controls.

A specimen receiver built to this design is available for inspection at 116/117, Fleet Street, London, E.C.4.

DIMENSIONAL DATA AND WIRING PLAN OF THE MODERN D.C. THREE



The use of tuning and interval L.F. coupling units considerably reduces the number of connections which have to be made. Care must be taken in wiring the strip resistances which are built up into packs.



The Climax

BAND-PASS THREE

A Self-contained A.C. Mains Set

SO far as that most important attribute of a broadcast receiver, its power of reproducing without distortion, is concerned, the popular type of three-valve mains set need be in no way inferior to many more ambitious types of receiver; indeed, its very simplicity may give it some advantage in this respect. In the matter of sensitivity, too, it can meet most requirements, thanks to modern high-efficiency valves and circuits. It is usually on the score of selectivity that the simple three-valve set may prove inadequate to meet the demands of the long-distance listener, particularly when he happens to be situated within a few miles of a broadcasting station.

The selectivity of a receiver, however, depends not only upon the number of tuned circuits included in the design, but also upon their efficiency, and, by paying attention to detail, it is possible to effect considerable improvement. In the Climax set under review this has been done, as the results amply demonstrate. Although no one would expect the selectivity to compare with that given by a superheterodyne, for instance, there is no question that it is unusually high for a three-valve set, and it compares well with that obtained with the average four-valve straight set containing four tuned circuits.

At a distance of no more than nine miles from the Brookmans Park transmitters it proved possible to receive some six stations on wavelengths midway between those of the two locals, and the Scottish Regional station could be obtained clear of the London Regional. As these two stations are separated by only 46 kc., it will be seen that the spread of the local has been confined to remarkably small limits. The adjacent channel selectivity, as distinct from the power of eliminating a strong local, is also good, and all the more powerful of distant transmitters were receivable without serious interference from their immediate neighbours.

Resistance-coupled H.F. Filter

An examination of the circuit diagram reveals that the H.F. valve is of the screen-grid type, and is coupled to the power grid detector by the tuned anode circuit, to which reaction is applied in a conventional manner. In the pre-selector circuits, however, an unusual method of

coupling has been adopted. Instead of the normal capacity or inductance coupling, resistance is employed. On the medium waveband a low-value resistance is common to both tuned circuits, and provides the requisite coupling, while on the long waveband the coupling is augmented by the connection of a high-value resistance between the high-potential ends of the two tuned circuits.

Good Frequency Response

A variable condenser is connected in series with the aerial, and acts as the volume control, and it is in connection with this that the sole point of adverse criticism can be found, for the range of control which it affords is inadequate to deal with a powerful local. The difficulty

scanty, but this leads to no trace of observable feed-back effects, and the receiver is perfectly stable and has a satisfactory frequency response.

The H.T. supply is obtained by means of a valve rectifier, and the smoothing equipment is generous. Both the mains transformer and the choke are of large dimensions, and appear likely to perform their allotted functions indefinitely. The choke, in conjunction with electrolytic condensers, provides the initial smoothing, and this is completed by the field winding of the loud speaker; the result of this combination is highly satisfactory, and there is a total absence of hum when the ear is at a distance of only six inches from the speaker cone.

Mechanically, the construction is extremely clean, and there is evidence of careful thought in the layout of components. The chassis is aluminium finished and is rigid, and the majority of components are located on its under side. The valves are readily accessible for replacement, and, as a safety device, the hinged back of the cabinet is so arranged that it cannot be opened while the mains are connected.

The Controls

The tuning controls consist of the knob controlling the calibrated and illuminated dial, the reaction control, and the combined wave-change, radio-gramophone, and mains on-off switch. There is also the aerial volume control, and this is conveniently fitted in a recess at the left-hand side of the cabinet.

A mains aerial is incorporated, and proved surprisingly efficient. Even without an earth connection, numerous distant stations were available, but hand capacity to the volume control was then apparent. With an outdoor aerial and earth no trace of this effect could be found, and the set proved very simple to operate. The sensitivity was adequate for any ordinary conditions, and apart from the blanketing of the locals over certain portions of the tuning scale practically every worth-while station could be tuned in at full loud-speaker strength.

As already pointed out, the selectivity is very high for this class of set, and the quality of reproduction also proved to be exceptionally good. Both low and high notes were well represented in the output, and no part of the frequency range appeared to be over-stressed. The undistorted output obtainable is considerable, and the reproduction is singularly free from both harmonic distortion and noticeable resonances.

FEATURES

Circuit.—Screen-grid H.F. stage with tuned anode coupling and two-circuit resistance-coupled pre-selector. Power grid detector transformer coupled to a pentode output valve. Valve rectifier for the H.T. supply.

General.—Self-contained receiver with mains aerial and moving-coil loud speaker, the field of which is energised from the smoothing circuit. Provision for use of a gramophone pick-up.

Controls.—(1) Single tuning control with illuminated and calibrated dial. (2) Reaction control. (3) Combined wave-change, radio-gramophone, and on-off switch. (4) Volume control.

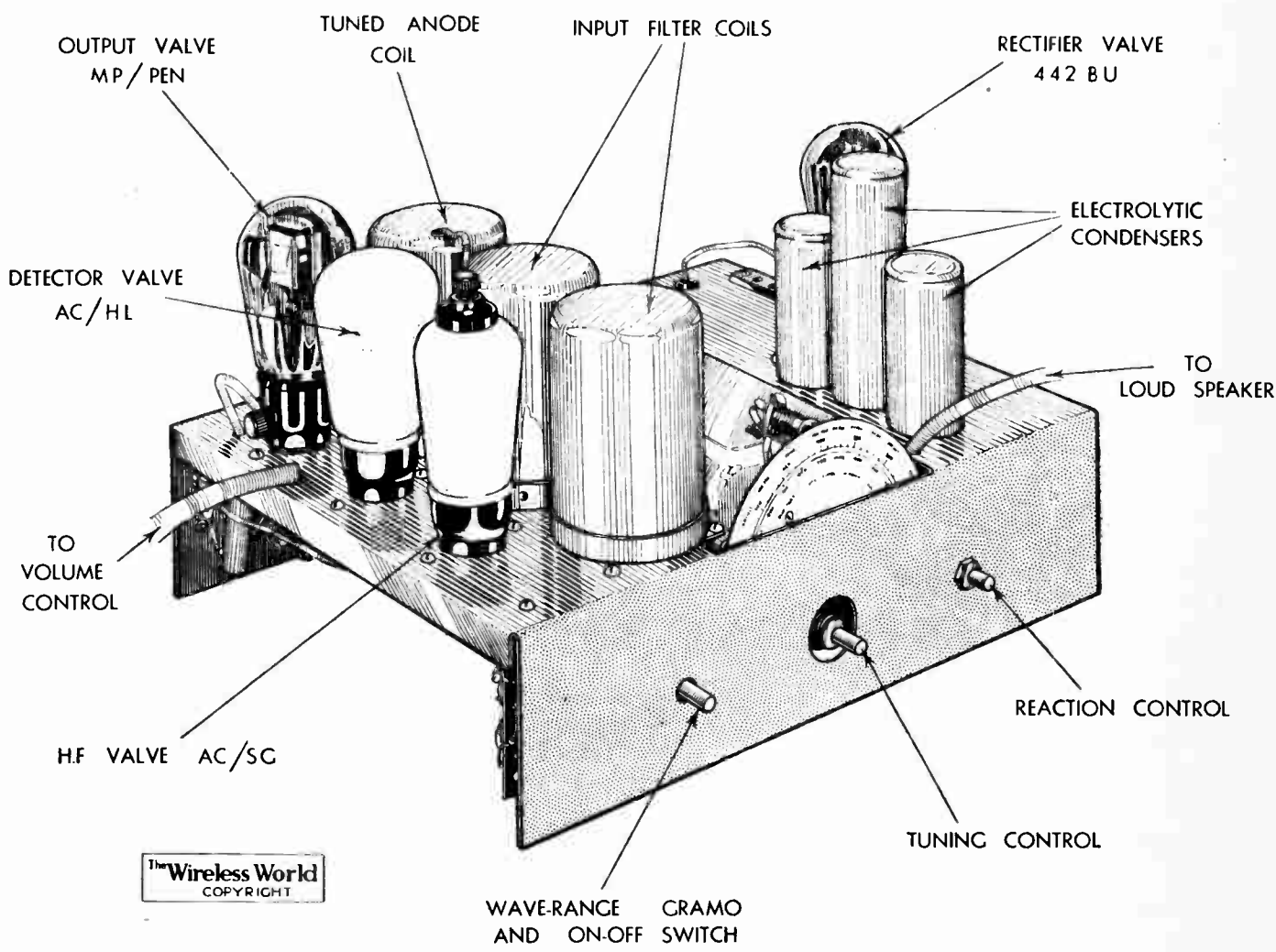
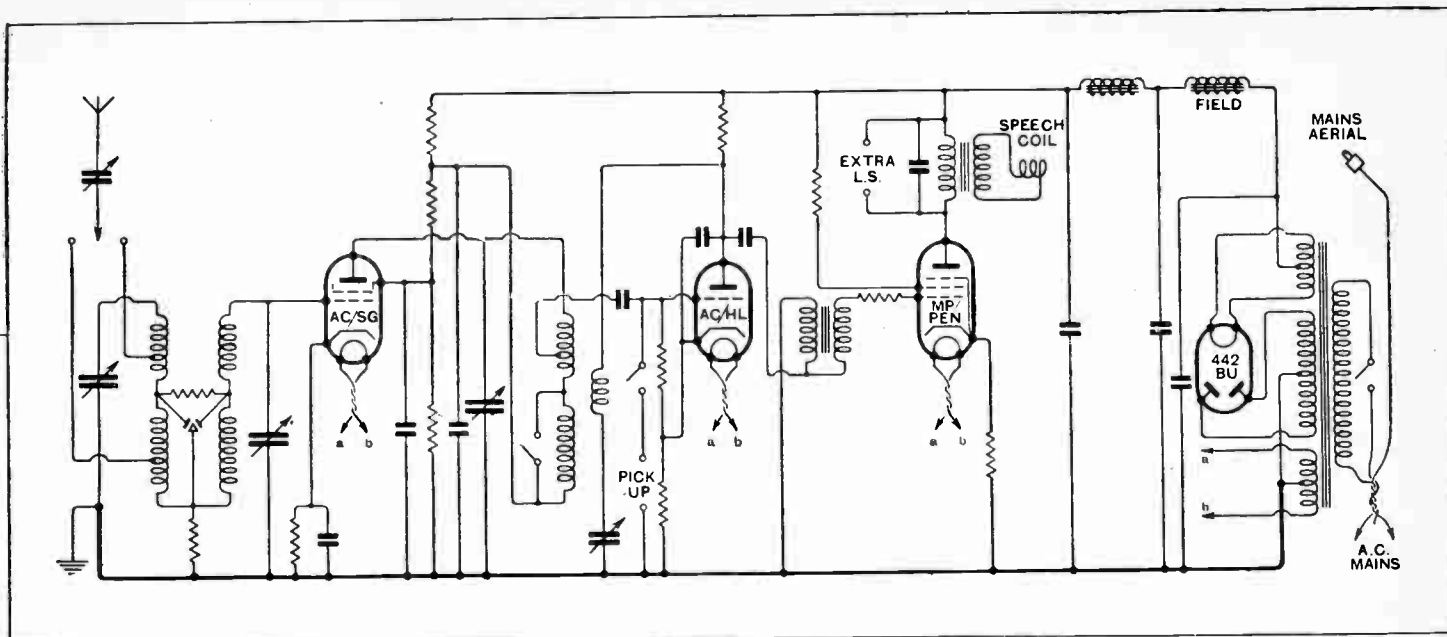
Price.—16 guineas.

Makers.—Climax Radio Electric, Ltd., Parkhill Road, Hampstead, London, N.W.3.

can, of course, be got over by the simple expedient of disconnecting the aerial for local reception.

The detector is transformer coupled to the output pentode, which in turn feeds the moving-coil loud speaker through a transformer. It is interesting to note that the bias resistances of both the output and the detector valves are not by-passed, nor are the grid circuits decoupled. This departure from normal practice naturally results in there being anti-phase feed-back from the anode to the grid circuit of the pentode, and the efficiency is reduced somewhat. Efficiency is of secondary importance to quality, however, and as the feed-back along a simple by-passed resistance is the same for all frequencies there can be no loss of bass. Actually, the insertion of the usual by-pass condensers, without decoupling resistances also, would give inferior quality. Decoupling in the anode circuits is equally

Highly Selective Straight Set



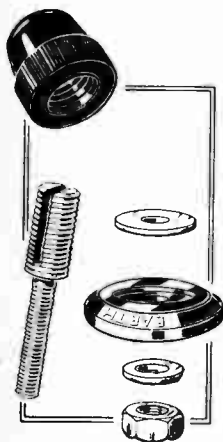
Circuit diagram and chassis details of the Climax Band-pass Three. An unconventional filter coupling is used in the pre-selector.

LABORATORY TESTS

B.B.C. TERMINAL

A NEW terminal made throughout of bakelite and fitted with a neat dome-shaped head has been placed on the market by S. Lilly & Sons, Ltd., 80, Alcester Street, Birmingham.

Known as the B.B.C. "All-insulated" terminal, it is designed to take either spade-end connectors, pin-type connectors, or bare wire. They are available in black or red and with all the usual



B.B.C. "all-insulated" bakelite terminal.

markings, and the price is 2½d. each.

Incidentally, the shank of the terminal is not insulated, so that when it is mounted on metal chassis or panels, insulating bushes must be used.

ROLA DUAL LOUD SPEAKERS

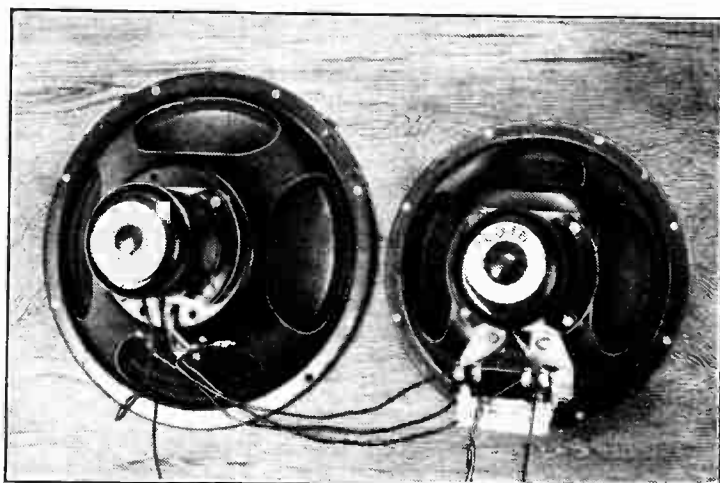
THE dual balanced pairs of Rola type F loud speaker units are available in a wide variety of combinations which include both permanent magnet and energised types. The pair tested comprised an F6 (7¼ in. cone) and an F7 (9 in. cone)—both energised and with 2,000-ohm field windings and hum-bucking or hum-neutralising coils.

A single output transformer is fitted to the F6 chassis and supplies both speech coils in parallel. As a result, the distribution of current tends to counteract the effects of mechanical resonances and to produce a smoother overall response. The benefits of this arrangement are most marked at the lower end of the frequency scale and result in a particularly rich and full bass response without any trace of boom. The output is well maintained down to 70 cycles, and there is only a slight falling-off even at 50 cycles.

There is a detectable resonance between 2,800 and 3,000 cycles, but this is not sufficient to cause shrillness, and the output in the middle and upper registers is well matched to the excellent bass response.

Care is necessary in connecting the units to see that the coils move in the same phase. This is easily judged by ear; if there is a poor bass response either the speech coil or the field winding on one of the units should be reversed.

The price of the combination tested is £4 5s., and the makers are The British Rola Co., Ltd., 179, High Road, Kilburn, London, N.W.6.



Rola type F6 and F7 mains energised units connected as a "dual balanced pair."

NEW RADIO PRODUCTS REVIEWED

BALDWIN TEST SETS

TWO exceedingly useful test sets, one for capacity measurements and the other for measuring resistances, have been developed by the Baldwin Instrument Co., 24, Well Hall Road, Eltham, London, S.E.9. The former is described as the "Mufer" Bridge, and has a range of from 0.00005 mfd. to 4 mfd., the actual capacity of the condenser under test being read off directly from the scale. It is constructed on the bridge principle, and is energised by a neon tube oscillator which requires between 120 and 160 volts, this being supplied by an external battery. The current consumed is very small, being less than 0.1 milliamp.

The bridge has two ranges, the lower extends from 0.00005 mfd. to 0.015 mfd., while the higher covers all capacities from 0.015 mfd. to 4 mfd.

On test we found this instrument to be exceedingly accurate, the largest error re-

ponent under test is read off directly from the scale and two ranges are provided. The lower range extends from 0.5 ohm to 150 ohms, and the higher range from 150 ohms to 40,000 ohms.

Our tests show that the accuracy obtainable with this instrument is exceptionally high, for measurements made with laboratory sub-standard resistances failed to reveal an appreciable error greater than that introduced in reading the scale over the major part of the range. Resistances can be measured within two per cent. of their actual value if a little care is exercised in reading the scale.



Baldwin "Mufer" condenser test bridge and "Log-ohm" resistance bridge, Mark II model.

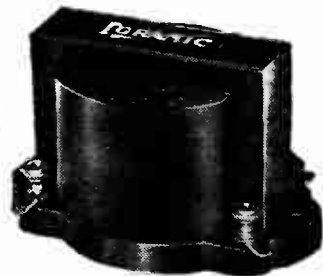
The Mark I model costs 70s., and the price of the complete instrument, Mark II, is 110s.

IGRANIC T.24B TRANSFORMER

MADE by the Igranic Electric Co., Ltd., 149, Queen Victoria Street, London, E.C.4, the Type T.24B intervalve L.F. transformer is available in two ratios, viz., 1:3 and 1:5, the price being 5s. 6d. in each case. Tests made with a specimen 1:3 model connected in the anode circuit of a valve of 10,000 ohms A.C. resistance and with 1.5 mA. flowing in the primary show the amplification to be sensibly constant above 1,000 cycles and up to 8,000 cycles. The greatest increase does not exceed 1.5 decibels over this part of the audible scale as compared with the amplification at 1,000 cycles.

Below 1,000 cycles the amplification falls off gradually and the level is depressed by about 15 decibels at 100 cycles. It is only below 300 cycles, however, that the reduction in amplification becomes apparent. Considering the very reasonable price of the component its performance is quite satisfactory, for over the major part of

Type T.24B Igranic L.F. transformer, ratio 1:3.



the audible scale the amplification is sufficiently well maintained to preserve a good balance of reproduction.

o o o o

The 1933 Radio Catalogue recently issued by Dayzite, Ltd., 17, Lisle Street, Leicester Square, London, W.C.2, contains 120 pages devoted to illustrations and descriptive matter of the extensive range of proprietary receivers and components handled by this firm.

corded being a shade over two per cent. Over the major part of the scale the error was of the order of one per cent. only, which, considering the very reasonable price, which is but 75s., is exceptionally good. It may reasonably be regarded as a precision instrument.

The "Logohm" resistance bridge is made in two types, a Mark I model and a Mark II model. Both embody the same general principle, the difference being that the Mark II style is a complete instrument and includes a galvanometer and a small battery. The Mark I model includes the essential parts of the bridge only and requires an external galvanometer and battery.

The D.C. resistance in ohms of the com-

BROADCAST

By Our Special Correspondent

Why America was Cross

WHILST agreeing with the attitude adopted by the B.B.C. in the matter of the King's Empire speech, I can understand the annoyance of the American Press. Repeated requests had been made that His Majesty's speech might also be extended to the broadcasting networks in the United States; when permission was refused, on the grounds that the broadcast was essentially of an Empire nature, the Americans were indignant.

Very sad. But the United States are not part of the Empire, however much they would like to be!

A Word for the Post Office

By the way, it seems to me that not enough credit has been given to the Post Office for the major part which it played in the great Empire programme on Christmas Day. Actually, the whole of the "Round the Empire" feature was conducted from the international switchboard of the Post Office at Carter Lane, E.C., through which the messages passed to and fro between Broadcasting House and the scattered outposts of the Empire.

How Others Heard

More than this. The Post Office also re-transmitted the programme by beam telephony to Canada and Australia, which (pace the B.B.C.) were the only parts of the Empire remaining in touch with the programme from beginning to end.

A New Record

DURING 1932 the B.B.C. stations broadcast for 58,163 hours with breakdowns amounting to only 0.023 per cent. of the total transmission period. This was even better than the year before, when the breakdown percentage was 0.03.

The Big Three

The "Three Big Events" of the year were: The opening of Broadcasting House, the inauguration of Scottish Regional and that of the Empire broadcasting station.

Provinces Not Forgotten

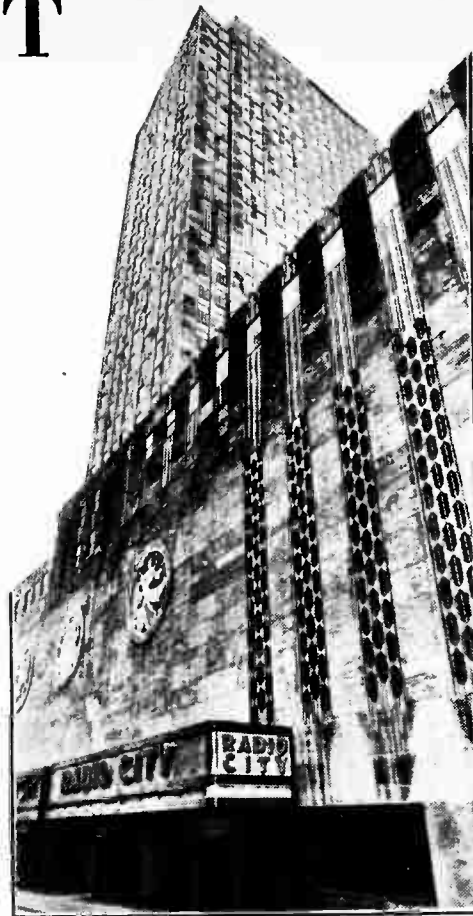
Any suggestions that the provinces were not being adequately looked after by the B.B.C. were swept aside during 1932 when the Corporation set about replacing studios and control gear all over the country.

Edinburgh and Manchester were both provided with studio accommodation second to none, while work is still proceeding at Birmingham on the new Midland Regional headquarters. Bristol will soon be provided with studios and offices worthy to be associated with the centre of West Regional broadcasting activities.

Success of Christmas "Proms"

The Old Year went out with the promise of still better things to follow. The last-minute decision to install the rebuilt long-wave National station at Wychbold, Droitwich, was announced during the last days of the year, and it was on New Year's Eve that an important experiment began—the broadcasting of Christmas "Proms."

The success of these new concerts is such that the B.B.C. have already practically decided to repeat the innovation a year hence.



THE FIRST STAGE. On December 29th New York flocked to the opening ceremony of the great theatre which forms part of the "Radio City" now being erected on Broadway. The photograph shows the imposing entrance.

Curious?

One curious feature of 1932 has been the absence of any great newcomers to the microphone. There has been no Kreisler or Carniso to burst upon the ether with a new style.

No showman has stepped along to demonstrate that present-day broadcasting technique is all wrong.

We welcome the opportunity of congratulating both the Post Office and the B.B.C. on their splendid co-operation on Christmas Day which resulted in the most impressive broadcast yet staged. Let us hope that this great event may be the prelude to still greater achievements in the cause of Empire unity.

An Empire Pamphlet

IN the making of B.B.C. pamphlets there is no end, but there seems reasonable excuse for the forthcoming "Empire Service" brochure, which will be chiefly for Empire consumption. It will tell briefly how the technical difficulties have been tackled at the Daventry short-wave station, how the programmes are being planned, and what the B.B.C. recommends that listeners should use in the way of receiving apparatus.

As regards Empire receivers, the general consensus of opinion is in favour of the simple "superhet." type, but the problem is complicated by the fact that three distinct classes of listener must be catered for.

BREVITIES

The Simplest Set

There are (a) the man with an electric mains supply, (b) the man with a battery charging plant within easy reach, and (c) the unfortunate who is many miles from even the smell of electricity, save in a thunderstorm.

The last-named class of listener wants the simplest and most economical form of set going, a description which hardly applies to a superhet.

"As You Were" at Daventry

THOSE of you who dwell on the fringe of the Daventry (5XX) service area will have noticed the increased signal strength since a return was made to the original single-wire "T" aerial three weeks ago.

Tests had been made on a high-capacity antenna, but although these provided some useful data for the design of the Droitwich aerial they were not otherwise successful.

Mr. Bartlett's Tours

PROBLEMS of the day in foreign countries are to be dealt with by Mr. Vernon Bartlett in a new series of talks which begins next week. Mr. Bartlett, who has been broadcasting from various countries to British listeners, will return home for one brief talk on January 12th and will then explain to listeners his plans for the ensuing series which involves a further foreign tour, in the course of which it is hoped that he will be able to bring to the microphone some of the men prominent in the political and public life of various countries.

"Hassan" Revival

IT is a sign of the growing antiquity of broadcasting that references are now made to "the older generation of listeners." These hoary folk are invoked by the B.B.C. in a publicity note concerning "Hassan"; they, it is urged, will associate the name of Cecil Lewis, the producer, with this great poetic play by James Elroy Flecker, which was broadcast in November, 1926.

The play is to be revived next month and will be broadcast in two parts. The music is by Frederick Delius.

The Flora of Portland Place

THESE must be great days at the Langham Hotel, which, of course, is the nearest hostelry to the new Broadcasting House. People are saying that already a definite track can be discerned on the roadway between the two buildings. This may be so, but I hesitate to associate the track with the new bar which, I am credibly informed, the Langham authorities have found it necessary to open recently.

Since the B.B.C. began the charming practice of filling its window-boxes with flowers, the Langham has followed suit.

A Collection of Fossils?

I ALWAYS visualise the staff of the B.B.C. as overflowing with the energy that comes with youth and a clear conscience, but one of their correspondents apparently holds a different opinion, as a letter recently arrived at Broadcasting House addressed to "The Curator, British Broadcasting Corporation."

READERS' PROBLEMS

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

L.F. Howling

A CORRESPONDENT tells us that his set works quite satisfactorily when it is used for the reception of near-by stations, but when reaction is applied for long-distance work there is a tendency for L.F. howling to develop. The set is a fairly conventional H.F.-det.-L.F. combination with grid leak detection.

An effect such as this is generally to be ascribed to the use of a detector grid leak of excessively high value; it may even be that the leak fitted is disconnected internally, and that the valve is only functioning by virtue of incidental leakages across its base or holder.

If the substitution of a new grid leak fails to put matters right, we suggest that the use of a lower ohmic valve than at present should be tried.

Grid By-pass Condensers

PROVIDED always that it be of fairly high capacity, "any old condenser" is generally considered to be good enough for decoupling or by-pass purposes in the grid circuit of an H.F. valve.

As the requirements here are perhaps rather less exacting than in an anode circuit, there is some justification for this attitude. A capacity of as little as 0.002 mfd. will often serve the purpose, but in cases of doubt it is wise to play for safety, and to adopt the more or less standardised value of 0.1 mfd.

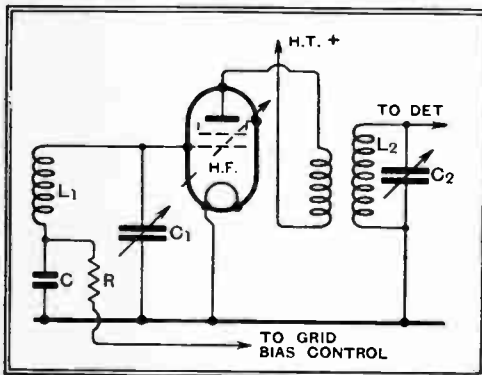


Fig. 1.—The capacity of the decoupling condenser C must be large in relation to that of the tuning condenser if accurate "ganging" is to be maintained. R is a decoupling resistance.

The ill effects of using too small a capacity are particularly likely to be noticeable when the condenser is included as a part of the tuned circuit, and trouble is almost certain to arise when this circuit is one of a series controlled by a ganged condenser. Unless the by-pass capacity be very large in comparison with that of the tuning condenser, perfect alignment of the circuits can hardly be obtained.

For instance, a reader submits a circuit diagram, of which the part in question is reproduced in Fig. 1. He finds that "ganging" does not hold, and asks for suggestions.

A value of 0.01 mfd. has been assigned to the by-pass condenser C, which is effectively in series with the circuit L1 C1. No such condenser figures in the circuit L2 C2, and so, even if these two circuits have identical coils and tuning condensers, their alignment cannot be perfect, as a condenser of 0.01 mfd. is small enough to affect appreciably the maximum capacity of the tuning condenser with which it is in series.

We suggest an increase to 0.05 mfd., or, even better, to the standard value of 0.1 mfd.

No Path for L.F.

SOME time ago attention was drawn to the fact that receivers with a simple tuned-anode H.F. coupling sometimes show signs of L.F. instability, especially when anode current for the valves is obtained through an H.T. battery eliminator. Briefly, the reason for this is that L.F. impulses may be fed back to the detector through the associated grid condenser, and appreciable voltages may be built up across the grid leak.

A correspondent, recalling this statement, goes on to ask whether the "Straight Three," described a few weeks ago, is likely to give trouble on this score.

Although it is true that a tuned circuit is interposed directly in the anode circuit of the H.F. valve of this set, matters are so arranged that appreciable feed-back of L.F. voltages to the detector grid can hardly take place. Although the anode circuit is tuned, it is almost completely isolated, so far as L.F. impulses are concerned, from the detector grid.

Pick-up for the "Straight Three"

SEVERAL readers have asked how a gramophone pick-up may be connected to the "Straight Three" (described in our issue of December 16th).

Although more complicated change-over systems can be employed, it is more than doubtful whether their complexity is justified, and so we suggest the simple scheme shown diagrammatically in Fig. 2, where the additions are shown in dotted lines.

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, Tudor Street, E.C.4, 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.

This represents the basic circuit arrangement, and does not include a volume control, which will in most cases be desirable. However, the diagram will serve as a guide to one querist, who states that his pick-up includes a built-in volume control; in this case he may join the leads shown as going to the pick-up to the input terminals of the particular accessory that he is using. Actually, of course, the appropriate connections to the controlling potentiometer will have been made internally by the manufacturers.

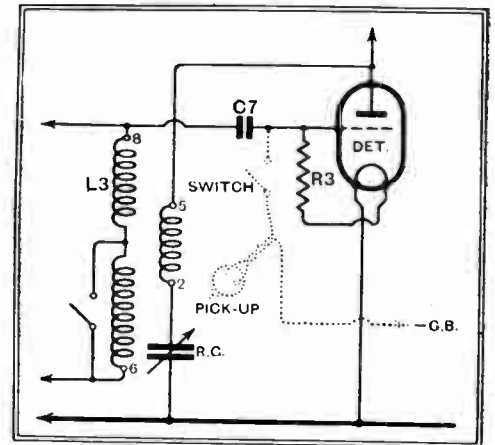


Fig. 2.—The simplest way of adding a gramophone pick-up to the "Straight Three."

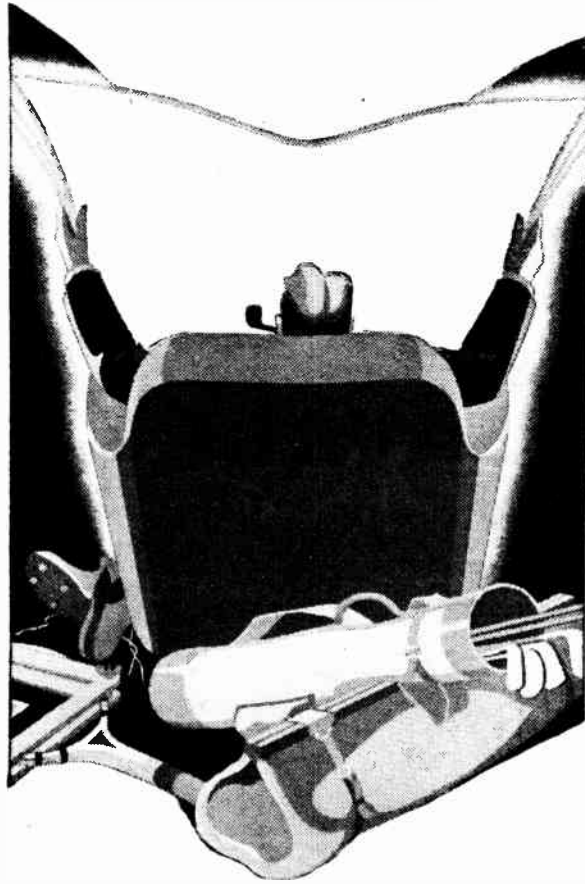
Those who are fitting a separate volume control potentiometer should join the ends of the resistance element directly across the pick-up; the switch will then be connected to the slider, and the low-potential end of the resistance to G.B. negative.

Without an Oscillator

THE fact that audible signals can be received with a superheterodyne when the oscillator valve is disconnected, or even totally removed, is not of necessity an indication that something is seriously wrong, although it certainly rather implies that the signal-frequency tuning system could be improved.

For instance, if signals from two stations operating in channels separated from each other by a frequency equal to that of the I.F. amplifier are allowed to reach the first detector grid, they will, in combination, produce signals of the I.F. amplifier frequency, and so both programmes will be heard simultaneously.

A reader who has noticed this effect need not, in our opinion, be unduly perturbed. The stations are only heard—and that very feebly—when the volume control is at maximum; under these conditions a local station may cause a heavy flow of grid current, with the result that one of the pre-selector circuits may be seriously damped. Selectivity will then be reduced, and the interference effect will be noticeable. In normal circumstances, with the oscillator in operation, these conditions are not likely to arise.



WHY EVERY SPORTSMAN SHOULD READ
The Daily Telegraph
NEXT MONDAY

Monday morning—what did HOWARD MARSHALL think of the Harlequins on Saturday? What has HOTSPUR got to say about the surprising defeat of the favourite in the 2.30: and what are his latest, up-to-the minute hints for to-day's meetings? Does FRANK COLES agree with what you were saying about the Arsenal's forward line? Whom does WALLIS MYERS favour among the younger lawn tennis players?

These are questions of peculiar interest to every follower of sport. And they are questions which are only answered in the Daily Telegraph. The fullest results of amateur and professional games, the scores in *your* Old Boys match, sports news and views of the moment, no aspect is forgotten or neglected in the Daily Telegraph.

THE 2^d PAPER SOLD FOR 1^d

MISCELLANEOUS ADVERTISEMENTS

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Each paragraph is charged separately and name and address must be counted.

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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

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 FOR SALE.

HIRE a McMichael Duplex Portable; 15/- weekly, £2/12/6 monthly; amplifiers for dances, etc., on hire.—Alexander Black, Wireless Consultant, 55, Ebury St., S.W.1. Sloane 1655. [0328]

PHILIPS 3-valve A.C., as new; exchange for 3-valve D.C. modern.—Colville, 9, Newhailes Av., Musselburgh. [1424]

£3/19/6 c.o.d., without valves; with valves, £5/19/6; Edisonian D.C. electric set, Power Pentode Three model, original packing, unused, list £21.—Kay, 167, City Rd., Finsbury, E.C.1. [8093]

1933 Receivers, kits or components, all makes; amazingly high part exchange allowance on old; any type of set or components accepted; send description; also details of receiver or components required; quotation immediately. [1450]

USED Bargains.—Philips' 3-valve all A.C. in excellent condition; £4/16. [1451]

EDISWAN All A.C. S.G. Det. Pentode, unscratched, terrific volume, £5/5; Osram Music Magnet 4, battery model, 1931, perfect, £4/16.—At Wood's Radio Exchange, Fowletoes Buildings, Holcombe Brook, near Bury, Lancs. [1451]

McMICHAEL S.C.4 Hide Portable, as new, £9; R. and A. Challenger, 22/-; Ferranti portable meter, volts, milliamperes, 37/-, makers' boxes.—Liberty 2811. [1450]

SNIP—Powerful radiogram, A.C., 4 watts, undistorted output, finest components only incorporated; please write for particulars.—Morgan, 7, Newton Rd., Bayswater, W.2. [1447]

W.W. Power Radiogram, Kalebox cabinet, Simpson turntable, Ferranti M.1 speaker, etc.; offers.—Williams, 41, Trinity St., Rhosyllten, Wrexham. [1436]

WIRELESS WORLD—Straight Five, complete with 5-watt amplifier, specially constructed and exhibited Radiolympia; price £20.—Partridge, Wilson, Davenset Works, Leicester. [1434]

G.E.C. Radiogram, A.C., few months old, perfect; cost £42, accept nearest £25.—Reynolds, 62, Gt. Ham Valley Rd., South Croxson. [1431]

EDDYSTONE S.G., det., 2 L.F., 14-500 m., oak cabinet, 150v. Fuller H.T. accumulators, charger for same, 2 large L.T., Celestion speaker, several extras; £9; heard any evening.—Snydenham 3575, or write Box 5730 c/o The Wireless World [1465]

ACCUMULATORS—BATTERIES.

OLDHAMS 120 volts, 5,500 hours, with oak grates, new condition, £2; 2 2-volt 80 amp. Oldhams, new, the 2 £1.—68, Jerningham Rd., New Cross, S.E. [1442]

CHARGERS AND ELIMINATORS.

TANTALUM for A.C. Chargers, H.T. and L.T.—Blackwell's Metallurgical Works, Ltd., Garston, Liverpool. [9346]

TRICKLE Chargers, ½ amp, Westinghouse rectifiers, enclosed transformers; 11/9.—Ardon Agency, Wollaton, Wellingborough [1360]

MEYVICK A.C. Eliminators, guaranteed new, complete with U.C.60, 250 Mazda valves, suitable for screened grid 3- or 4-valve receivers, output 200 volts, 30 ma., automatic bias, etc.; 47/6, carriage paid; c.o.d. or cash with order; send for list of other unused bargains.—Seekamp, 46, Farringdon St., London, E.C.4. [1426]

FKCO D.C. Eliminator, H.T. 60-120, L.T. and G.B.; reasonable offer, or exchange A.C. model.—Elmes, 4, Plough Lane, Wimbledon, S.W.19 [1430]

CLIMAX AUTOBAT D.C. Mains Unit, 100-250v.; 17/6.—Axtor, 65, Cecil Rd., Enfield. [1449]

VARSITY A.C. Eliminator, 200-250v., mains, 3 tapings, 30/-; All-Power unit, 20-2, 4v. L.T., 45/-; Frost Radio, 21, Red Lion St., E.C.1. [1472]

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We believe that our 200-page handbook, "ENGINEERING OPPORTUNITIES," will show you the way to well-paid, permanent and progressive employment. In any case the handbook costs nothing, and it will at least show you various surprising possibilities about which at present you know nothing. Can you, can any man, who cares a hoot about his future, afford to allow this opportunity for a worth while job to pass unheeded? Think it over. Can you? We want you to read "ENGINEERING OPPORTUNITIES." Among other things it gives details of all recognized Examinations (A.M., Inst. C.E., A.M.I. Mech.E., I.E.E., R.P.O., etc.) outlines modern Home-study Courses in all branches of Civil, Mech., Elec., Motor, Radio, Aero and Traffic Engineering, and explains the unique advantages of our Employment Department. The book is quite free. Send a post-card for your copy NOW. We promise that it will be a moment of your time well spent. **BRITISH INSTITUTE OF ENGINEERING TECHNOLOGY**, 387, Shaftesbury House, 29-31, Oxford St., London, W.1.

SAVAGE for

- MAINS TRANSFORMERS ● CHOKES
- SMOOTHING CONDENSERS
- PUBLIC ADDRESS EQUIPMENT

W. BRYAN SAVAGE, 56/58, Clerkenwell Road, E.C.1. Phone—Clerkenwell 3069/9.

GRESSALL RESISTANCES

"Gressall" Asbestos-Wire Woven Resistance Nets for voltage absorbing on D.C. Mains. Receivers. Mica-Wound Resistance Units. Sliding Resistances. Resistance Wires

Please write for Lists.

GRESSALL MANUFACTURING COMPANY, 31-32, TOWER STREET, BIRMINGHAM.

FOLLOW THE LEAD OF PURCHASERS OF THE MONODIAL... BUILT BY

SCOTT SESSIONS

"Wireless World" readers are loud in their praises of "The Monodial" as built and assembled by Scott Sessions' experts. The following actual extract is typical of the many unsolicited letters of appreciation we have received.

Ref. 10/11/32. Sir C. ... writes:

"I find I have logged 121 stations as 'identified' and 6 more as 'unidentified' or 'uncertain'. 27 are on the long wave-band ... you may like to know that I use an ind. or aerial ... 51 feet in length ... I cannot conclude without thanking you for the care and skill which has gone to the building of a set of such unusual station-getting power."

FOR D.C. MAINS USERS W.W. MONODIAL (D.C.) £30. 0. 0

(Exclusive of Cabinet and Speaker which will be supplied extra if required).

W.W. Monodial (A.C.) £29. 10. 0

W.W. Straight '5' £28. 15. 0

Monodial Receiver Chassis with Straight '5' 6-Watt (A.C.) undistorted output £34. 0. 0 (Including Valves, Royalties and complete assembly).

These sets may be obtained if required for a first payment of 12 1/2%.

TRADE ENQUIRIES INVITED.

SCOTT SESSIONS & CO.

RADIO ENGINEERS, MUSWELL HILL, LONDON, N.10 Telephone No.: Tudor 5326.

Contractors to H.M. Government Departments, Crown Agents for the Colonies, Electricity Corporations, etc.

Chargers and Eliminators.—Contd.

BROWN and SALTER, Vortexion, Wimbledon, for the finest transformers made regardless of price; all models guaranteed 12 months, tested on full load and 2,000 volts between windings before despatch; all finished in cast aluminium frames or die-cast shroudings.

VORTEXION—W5, 6 or 7 for Westinghouse H.T.5, 6, or 7, with 4v., 1.4a., C.T.; 11/6.

VORTEXION—W8, 9 or 10 for Westinghouse H.T.8, 9 or 10, with 4v. 1.2a. C.T., 4v. 2.5a., C.T., tagged leads, shrouded; 16/6.

VORTEXION—W11 for Westinghouse H.T.11, with 4v. 1.2, 4v. 1.5a., all C.T., shrouded; 40/-.

VORTEXION—250-0-250, 60 m.a., 4v. 1-2, 4v. 2-4a., all C.T., open type tagged leads; 11/6.

VORTEXION—350-0-350, 75 m.a., 4v. 1-2, 4v. 2-4a., all C.T., open type tagged leads; 13/6.

VORTEXION—350-0-350, 120 m.a., 4v. 2.5, 4v. 1.5, 4v. 2-4, all C.T., shrouded type tagged leads; 16/6.

VORTEXION—400-0-400 or 450 or 500-0-500, 120 m.a., open type, 4v. 2-4a., 4v. 2.5a., 4v. 2.5a., all C.T.; 19/-; tagged leads.

VORTEXION—500-0-500, 150 m.a., or 450-0-450, 160 m.a., or 400-0-400, 190 m.a., 4v. 2.5a., 4v. 4a., 4v. 2a., 4v. 2a., 4v. 2a., all centre tapped, any input, 50 C., beautifully shrouded, core size 2 1/2 x 3/4, screened primary and strips, a £5 model; 35/-.

VORTEXION Only Use Sankey Laminations, British Insulated Cables wire, and non-hygroscopic paper interlayering for 100% reliability and excellent regulation.

VORTEXION—30h. 50 m.a. chokes, 5/6; 20h. 120 m.a., 8/6; 15h. 350 m.a., excellent for rough D.C. shrouded; 15/-.

VORTEXION for Helsby Condensers, 750 D.C. working, 6 mil; 6/6 list price 21/6.

VORTEXION—Transformers made to your specification.

VORTEXION—Brown and Salter, 182, The Broadway, Wimbledon, Tel.: Liberty 2814. [1321]

CABINETS.

RADIO Cabinets Made to Your Own Design; estimates free. Cabinet, Thistle Hill, Kirkheaton, Huddersfield. [1439]

GRAMOPHONES, PICK-UPS, ETC.

FKCO Pick-up and Arm, complete with wire wound volume control and leads, stand for pick-up, arm, template and screws for fixing, same as listed with the Ekco recording outfit at 5 guineas, bargain, 16/6; 4 doz. lbs. 14/- each; doz. lbs. 12/9 each; all guaranteed brand new. Burns, 4, Lamba St., Haggerston, E.8. [1475]

LOUD-SPEAKERS.

B.T.H. R.K. Moving Coil Speakers, guaranteed new, unused, manufacturers' surplus, original price 6 guineas.

HIGHLY Sensitive and Wonderful Tone Response; will handle up to 10 watts output; available for 6v., 100v., 200v., 30; also A.C. models, £2/10.

CARRIAGE Paid, c.o.d., or cash with order; send for list of other unused bargains.—Seekamp, 46, Farringdon St., London, E.C.4. [1425]

R. A. ARNELL Offers the Best of the Bunch, guaranteed perfect; Magnavox D.C.144 (standard), 6 1/2 in. cone diameter; state whether 2,500 ohms or 7,500 field, and whether power or pentode is used; characteristics free if required; price 22/3.

MAGNAVOX D.C. 142s (cone diameter 8 1/2 in.); state requirements, as above; price 29/6, fully guaranteed.

MAGNAVOX (either of the above), but fitted with Westinghouse rectifier and T.C.C. smoothing condenser, on real steel cradle, sprayed green, to energise field direct from A.C.200 250v. mains; 17/9 extra on above prices; wired ready for use; these are fine for extensions; full instructions.

SEE Valves Advertisement—I can fill your requirements for almost anything radio, except out of date stuff; usual business hours.—Phone: Streatham 8209, 8, Fishponds Rd., Upper Tooting, S.W.17. Cross remittances J. C. Arnell, Mains units a speciality. Any outputs. [1456]

FERRANTI M1, latest type, still boxed, must sell; sacrifice £5; with Howe box baffle, £6.—Arthur, 97, Monkham Ave., Woodford Green, Essex. [1453]

R. and A. Challenger Loud Speaker; 21/-.—C. Capper, 234, Whalebone Lane, Chadwell Heath. [1443]

30/-—B.T.H. R.K. moving coil speakers, 6 in. cone, new and unused, guaranteed; these speakers are type as used in cinema sound equipment; weight 30lb., and are vastly superior to cheap speakers now on the market, 100 volts, 150 volts, and 200 volts D.C.

27/6—6v. D.C. speaker, as above; £2/7/6, speaker as above, for 100-250 A.C.

19/6—Ormond P.M. speakers, 7 in. cone, unused and perfect, 19/6; Ekco pick-ups, complete with volume control and recording attachment, brand new and perfect, carriage paid; cash with order or c.o.d.—Ward, 12, Tredgar Rd., Bow, E.3. [1478]

VALVES.

GUARANTEED Valves, as new, all latest types: Mullard P.M.1, H.T.5, Mazda H.L.210s, H.L.2 metallised, Osram H.L.2s, 2/9; Mullard P.M.2s, P.M.2A, Cosor 215Ps, Osram L.P.2s, Mazda P.200s, 4/9.

MULLARD 84V.B., metallised, 8/9; P.M.24s, 104Vs, 7/6; 354Vs, 484Vs, 7/-; Osram M.S.4Bs, D.S.Bs, 10/-; V.M.S.4 12/-; M.H.4, 7/-; D.H.S. 7/-.

MAZDA A.C. H.L.s, A.C. 2H.L.s, D.C./3H.L.s, 7/-; A.C. P.E.S.s, 11/6; A.C.P.S. 7/6; G.U.60, 250v., 8/3; A.T./82-, 8/9.

COSOR M.S.G./H.A.s, 8/-; M.V.S.G.s, 12/-; 41M.H.L.s, 6/9; 620Ts, 17/6; 660Ts, 55/-; 680Ts, 12/6; 660A.L., 33/-.

OSRAM H.O.60s, 60/-; other types in stock; emission of all valves guaranteed.

A.L.L. Valves Boxed, not wrapped.—R. Newman (First Floor), 309, Roman Rd., E.3. [1295]

Valves.—Contd.

VALVES, as new, emission guaranteed; Mazda A.C./Pen. 12/-, A.C./2H.L., 8/-; A.C./S.G., 9/6; U.U.120 350, 9/-; P.650, 9/-; A.C./p., 8/6; Mullard P.M.24A., 10/-; P.M.2A., 5/6; Cossor L.S.G./L.A., 9/-; M.P./Pen., 10/-; 41M.H., 7/-; Osram D.S.-D.S.B., 10/6; L.S.5A., 9/-; M.P.T.4, 12/-; J. F. Anderson, 35, Lansdowne Rd., Walthamstow, E.17. [1471]

R. A. ARNELL Offers the Following Valves, used testing only, guaranteed perfect; post free.

V.M.S.4s, A.C./S.G.s, A.C./Pens., M.P.T.4s, 12/9; A.C./H.L.s, 354V.s, M.H.4s, etc., 8/3; A.C./P.s, 104V.s, 10/3; D.W.3s, 10/3; M.S./Pen./A.s, 13/9; enquire other types; see Speaker advertisement; usual business hours.—Phone: Streatham 8209, 8, Fishponds Rd., Upper Tooting, S.W.17. Cross remittances J. C. Arnell. Full range of battery types available. [1455]

REPAIRED.—Any condition, make, or age, made new again, at our risk; general purpose, 2/9; power 3/7½; super power, 4/1; screened grid, 6/6; rectifiers 5/6; all mains I.F., H.F., det., power, or super power 6/6; screened grid 8/6; post them now; cash with order; money refunded if not satisfied.—Valve Repairing Co., 1a, Sunner St., S.E.1. [1467]

SPECIAL.—Mullard 8.4V.A.s, genuine set manufacturer's surplus, guaranteed as new, 5/11 each, post free.—Radio, 75, Woodland Rise, London, N.10. [1446]

COMPONENTS, ETC., FOR SALE.

WESTON Moving Coil Milliammeters (301). 0.15 upwards, 22/6; Turner ditto, 17/6; Turner thermo couple ammeters, 0.15, 25/-; 3-range moving coil meters, 0.3 m.a., 6 and 120 volts, 22/6; electrostatic and moving coil voltmeters, 0.2,000, 32/6; moving coil milliammeters, 0.10 upwards, 10/6; alterations and repairs of every description.—The Vesta Electrical Co., 47, High St., Battersea, S.W.11. [0355]

XMAS Demonstration Models. Blue Spot 100U, inductor for loud-speakers, 25/-; Amplicon cone loud-speakers, complete, 7/6; bargains in moving coil speakers; approval.—Evans, 77, Jermyn St., London, S.W.1. [1441]

BARGAINS.—Valves, forwarded carefully packed, at buyer's risk, guaranteed as new, filaments tested; Mullard D.F.A. 6, 2/-; D.F.A. 7, 2/-; D.F.A.8, 2/-; P.M.12, metallised, 7/6; S.A.V.B., 7/6; P.M.24A., 10/-; P.M.11.L.F., 2/6; P.M.11.H.F., 2/6; P.M.2, 2/9; P.M.26, 4/6; Marconi M.L.4, 3/6; P.N.A., 8/9; Osram L.610, 2/6; Mazda D.C. Pen., 0.5 amp., 10/-; each; D.C. S.G., 9/-; D.C. H.L., 6/-; D.C. and battery valves untested.

METERS (offers wanted), perfect.—Weston 0.15 amps. D.C., 301 flush; 0.25 m.a. D.C., 301 flush; 0.200 m.a. D.C., 301 flush; Turner, 0.2 m.a. D.C., 505 flush; Jewel 0.50 m.a. D.C., flush; Sifam M.C., 0.6 volts D.C., flush; foreign M.C., 0.10 m.a. D.C., flush (or projecting; Weston Galvo 375.

HETERODYNE Wavemeter Buzzer, modulated, medium and long wave, valve, I.T., 16v. H.T., calibration charts, working order; 55/-.

L.F. Transformers, nearly new.—Ferranti A.F.6, new, 12/6; A.F.5, 15/6; R.L. Dux, 3/3.

PICK-UP. B.T.H. 1932 model, gilt, perfect; £17/6.

NOVOTONE 105/- Type, low impedance; 35/-.

VARIABLE Condensers.—Wavemaster 0.0005, 9d. each; Utility 4-gang, shielded, disc dial, nearly new, 17/6; 3-gang, drum dial, 15/-; Cydon 0.0005, drum dial, 5/-; similar, earlier model, 3/-; J.B. 2-gang, 5/-; Astra 0.0005, slow motion dial, 2/-; Polar 0.0005, 2/3; Emkabe 0.0002, 1/6; J.B., drum dial, 2/6.

COILS and Chokes.—Lewcos H.F. choke, 3/6; Varley square peak extensor, 6/-; Ready Radio super-het. H.F. choke, 3/-; Wearite 2 O.T.2 and O.T.1 band filters, 16/6 the set; Magnum H.F. choke, 1/6; Burnped, 1/-.

FIXED Condensers.—Dubilier 1,000 mfd. 6-volt electrolytic, 2/6; Telsin 1 mfd., 8d.; 2 mfd., 1/-; Dubilier type 610, 0.001, 0.01, 0.0005, 0.0003, 5d. each; T.C.C. standard, 0.0005, 0.0005, 0.0002, 0.01, 0.00025, 0.0003, 0.001, 0.006, 6d. each; Dubilier type 620, 0.0005 and 0.001, 7d. each; 0.3 mfd. mica, 10/-; Pilot Isograd, 4 0.001, 3 0.002, 2 0.004, 1 0.0015, 4d. each; Formodons, 2 0.001 to 0.002, 7d.

GRID Leaks.—Dumetohm, Lissen, Telsin, various values, and dozens of other makes and sizes, 4d.; Dumetohm holders, 2d.; vertical type, 3d.

VALVE Holders.—Benjamin 2/- type, 4d.; W.B. Universal, 4d.; Benjamin 1/6 type, 4d.; Telsin, 3d.; Bowyer-Lowe, 3d.; Wearite 5-socket, 6d.; Benjamin 5-socket, 5d.

H.T. Battery Eliminator, Ekeo No. 4T60, D.C., 200-250 volts, tappings S.G., 0-120, 120-150 and power; 35/-.

MISCELLANEOUS.—Lewcos split-primary H.F. transformers (M. and L.), 2/6 pair; 4 Junit terminal blocks, 2d.; 2 Indragraph dials, 1/9; Dubilier 6 1 mfd. type L.D.M.G., 1.800 volt test, 3/9; Wearite H.T. choke, 9/-; R.L. 28 14 (terminal broken, otherwise O.K.), 8/-; Lewcos 6-pin base, 9d.; R.L. Varley double choke, 2/6; Igranic 15,000 enclosed divider, 5/6; J.B. Neut., 1/3; Westinhouse G.B.L., 7/-; Gambrell Voloverner, 2/6; Wearite L.T.L., 9/-; Metro-Vick 16-ohm resistances, 8d.; Lotus plugs, 6d.; output transformer, suit P.N.A., and 12/15 ohm A.C. resistance M.C., 7/6; Wearite 122 switch, terminals, bracket, 1/6; 3-point switch, 50,000 ohm wire pot combined, 3/-; Bulgin 2-point switch, 3d.

WIRE-WOUND Resistances.—Varley 10,000, 100,000, 150,000, 200,000, 250,000, 1/5; Varley 500,000, 5/6; R.L. Varley 10,000, holder, 1/6; Varley 20,000, holder, 1/6; Wearite 10,000, 5 m.a., 9d.; 25,000, 1/-; 600, 6d.

GARRARD Super Spring Gramophone Motor, totally enclosed, oil immersed, turntable and handle, cost £5/15, nearest offer £2 5 secure. Collection at 54, Linthorpe Rd., Stamford Hill, London, N.16, or carriage forward; offers.—Below.

ALL Goods can be Inspected after 7.30 p.m. most Evenings, or appointment; carriage extra on parcels below 10/-.—Radio, 402, Great Clowes St., Higher Broughton, Manchester. [1423]

SURPLUS Modern Components.—Parcel, 6/-, c.o.d.; 3-valve receiver, Philips eliminator speaker, £3; N.K. speaker, 25/-.—Bryant, 2, South Ridgway Place, Worplesdon, Wimbledon. [1444]

TRANSFORMERS.—Ferranti A.F.3, 12/-; Igranic J, 7/6; Radiogrand, 4/6; large R.F.I., 5/-; Lissen, 3/6; Varsity, 2/9; Chokes, 2/6; filament transformer, 7/-; Frost, 21, Red Lion St., E.C.1. [1475]

FOR EVERY SET—there's a PILOT AUTHOR KIT CASH—C.O.D.—or H.P. "WIRELESS WORLD" MODERN D.C.3 Described this week THESE ARE THE PARTS THE AUTHOR USED

Table listing components and prices: 1 BRITISH RADIOPHONE Radiopak, less potentiometer, but with two extra knobs and trimming, Type 55D, 3 0 6; 1 WEARITE Potentiometer, 3 watts, wire wound, 5,000 ohms, and 2-pole switch with fine spindle bush, supporting strip and distance piece, Type G.42, ganged Q.V.C., 8 6; 1 CLIX 3-pin Valve Holders, chassis mounting type, 2 3; 1 BULGIN 4-pin Valve Holder, Type V.H.4, 9 9; 1 PETO-SCOTT "KEYSTONE" H.F. Screened Choke, 3 6; 1 BENJAMIN Transieeda L.F. Transformer, parallel-fed, 11 6; 1 WEGO Fixed Condenser, 4 mfd., 250 volts D.C. working, Type A.L.U., 4 3; 1 WEGO Fixed Condensers, 2 mfd., 250 volts D.C. working, Type A.L.U., 7 6; 1 WEGO Fixed Condensers, 1 mfd., 250 volts D.C. working, Type A.L.U., 12 3; 1 T.C.C. Fixed Condenser, 0.002 mfd., mica, Type 34, 1 10; 1 T.C.C. Fixed Condenser, 0.001 mfd., mica, Type 34, 1 6; 1 T.C.C. Fixed Condenser, 0.002 mfd., mica, Type 34, 1 6; 1 CLAUDE LYONS Strip Resistance, 25 ohms, Type P.W.25, 1 6; 1 COLVER'S Strip Resistances, 1 each of 200, 250, 1,000, 2,000, 10,000, 15,000, 25,000 ohms, 12 3; 1 DUBILIER Metallised Resistances, 250,000 ohms, 1 watt, 2 0; 1 DUBILIER Metallised Resistance, 50,000 ohms, 1 watt, 1 0; 1 MICROFUSES, 500 millamps, and holders, 2 0; 1 BULGIN Single Pole Change-over Switch, "Radio and Gram.", Type S.H.I., 1 9; 1 BULGIN D.C. Mains Resistance, skeleton type, M.R.H., 5 6; 2 VARY L.F. Chokes, 250 ohms, 20 henrys, Type D.P.10, 1 10 0; 1 GRAHAM FARISH Reaction Condenser, 0.00015 mfd., solid dielectric, Type "Littos", 2 0; 4 BELLING-LEE Terminals, Aerial, Earth, Pickup (2), Type "H", 2 0; 2 BELLING-LEE Terminal Mounts, 1 4; 1 BULGIN Bulb, 6 volt, 0.15 amp., Type OB, 2 6; 1 "KEYSTONE" 4-pin Plug, 2 0; 3 ozs. No. 22 Tinned Copper Wire, 6 lengths Systoflex, length screened-sleeving, 5 8; 31 1/2 in. No. 4 Roundhead screws, 14 1/2 in. No. 4 Roundhead screws, 8 1/2 in. No. 4 " " " " 14 1/2 in. No. 4 " " " " 2 1/2 in. No. 4 " " " " 4 6 BA. 1/2 in. " " " " 4 4 BA. washers for speaker. With nuts and washers. 1 PETO-SCOTT PLYMAX Baseboard, 9 1/2 in. x 14 1/2 in. x 1/2 in., with two side baffles, 9 1/2 in., ready drilled for valve holders and assembled, 9 0; 1 PETO-SCOTT Angle Bracket for Radio-gram switch, 6

KIT "A" Author's Complete Kit of specified components with Ready Drilled and Assembled Plymax Baseboard, but excluding Valves and Cabinet. CASH or C.O.D. Carriage Paid. £9-15-0 or 12 monthly payments of 18/-

KIT "B" As Kit "A", but with specified Valves. CASH or C.O.D. Carriage Paid. £12-13-0 or 12 monthly payments of 23/3.

"WIRELESS WORLD" STRAIGHT THREE

KIT "A" Author's Kit of specified components including Ready Drilled polished Oak Ply Panel and ready drilled and assembled baseboard, but less Valves and Cabinet. CASH or C.O.D. Carriage Paid £5-7-6 or 12 monthly payments of 9/9

KIT "B" As for Kit "A" but with Valves. Cash or C.O.D. Carriage Paid £6-19-9 or 12 monthly payments of 12/9.

D.C. MONODIAL

KIT "A" Author's Kit includes all components for Set only, as specified, with Ready Drilled polished Oak Panel, ready assembled and drilled Set Chassis, screws, wire, sleeving, but EXCLUDING Eliminator, Components, Valves and Cabinet. CASH or C.O.D. Carriage Paid £9-13-9 or 12 monthly payments of 17/9

POWER PACK £7-10-9 Containing Author's specified parts. CASH or C.O.D. Carriage Paid. or 12 monthly payments of 13/10 including all specified components for Set and Power Pack, Less Valves. £17-4-6 CASH or C.O.D. Carriage Paid, or Deposit £2-15-0 and 11 monthly payments of 30/-

COMPLETE KIT comprising all specified parts for Set and Power Pack including specified Valves, but excluding Cabinet. CASH or C.O.D. Carriage Paid. £23-8-6 or Deposit £4-8-6 and 11 monthly payments of 38/-, Set of 7 specified Values £6-4-0.

IMPORTANT. Parts Kits, Miscellaneous Components and Accessories can be supplied under our own Easy Way System of H.P. Send us a list of your wants for quotation by return. To PETO-SCOTT CO., LTD., 77, City Road, E.C.1. West End Showrooms: 62, High Holborn, W.C.1.

Components, etc., for Sale.—Contd.

APPLEBY, London.—Bargains, slightly used material, to our usual standard; continued from, and see "Wireless World," last week. Prices quoted are net cash; carriage chargeable on orders under 20/- and bulky items. Enquiries, stamp please!

METERS.—Flush mounting unless otherwise noted: Moving coil, Ferranti, 0.75w., 20 : 0.15 amp., 20/-; 0.50 m.a., 22/6; Weston 301, 0.100v., 18/6; Hunta 0.8-120v., 2/6; Hunta 0.5-150v., 12/6; Sifam 0.6-120v., projecting, 10/6; Jewel 0.12-120v., portable, 17/6; moving iron meters, Bulgin Midget ammeter, 0.1a., 5/6; ditto 0.20 m.a., 6/-; Sifam 0.8v., 4/9.

OUTPUT Transformers.—Ferranti O.P.4C, 13/9; O.P.M.I.C. or O.P.M.4C, 16/9; Ready Radio Instana and Multi ratio, 17/6; Major model, 25/6; British General multi ratio, 6/9; Marconi, 20-1, 8/6; Marconi Universal, 9/-; Varley P/P double ratio, 12/-.

L.F. Transformers.—A.F.6, 19/6; A.F.3, 12/6; A.F.4, 7/6; A.F.10, 4/-; Igranic G. or Hypernu, 8/6; Marconi Ideal, Permucore, Igranic J. or R.1 multi ratios, 7/6; B.T.H., G.E.C., Thordarson, or Marconi Universal, 6/6; Pye 4.1 Hypermitre or Ediswan, 5/3; Telsin Ace 3.1, 3/6; Radiogrand 5.1, 4/9; Brown De Luxe A, 12/9; Marconi Ideal Junior, Igranic E, Sterling, Lissen, Eureka, R.1 (open pattern), all at 3/- each.

L.F. Chokes.—Atlas, tapped, shrouded, Pentode output, 13/6; Varley high inductance, 12/-; Varley dual, 11/6; Varley 3 amp. I.T., 11/-; Pye heavy duty, tapped, 300 m.a. max., 21/6; B.T.H. heavy duty, 500 m.a. max., 21/-; Rich and Bundy high inductance, 300H, 12/6; Ferranti B.2, 12/6; B.3, 7/-; R.1 C.T. Pentomite, 9/6; Heavy-duty 1 amp. I.T., 7/6; Varley Nichoke, 2/7; Pentokle Nichoke, 8/6; Marconi heavy duty or Pye, 32H, or 20H, 7/6; Wearite H.T.2, 3 or 4, 9/6; Lotus, Lissen Output, Thordarson, or Savage, 30H, or R.1, 100H, 6/9; Climax, Radiocore 30H, Sterling 30H, or Eureka coil output, 5/-; Formo or Igranic dual impedance choke coupling units, cost 30/- each, 7/6; Success, small Lissen or small R.1 chokes, suitable for small output, 2/3; Wearite eliminator H.F. chokes, heavy duty, 6/9; Bulgin ditto, 6/-.

ODD Bargains.—T.C.C. 2,000 mfd. electrolytic condensers, 8/6; double type 2,000x2,000, 14/6; Westinghouse A.3 rectifiers, 13/6; Pye or G.E.C. transformers for same, input 200 250v., 11/6; S.W. plug-in coils, per set of 4, Igranic 6/9, Atlas 5/9, D.X., 3/9; set of Aero S.W. coils on stand, with extra medium wave coil (all unused), 25/6; Pilot Wasp 4v. S.W. receiver kit, with pilot metal cabinet and full set of coils, 25/-; 1930 Concor Melody Maker Three kit, 25/-; Somechoke latest standard P.M. M.C. units, with tapped transformers, 25/6; baffles cut to fit, 2 1/2 in. sq., 4/6.

OUR Normal Part Exchange Service for the Supply of New Material, as distinct from used bargains, offered here, continues as usual and particulars will be forwarded on application. Applications for quotations of approximate allowances should be accompanied by two 1/2d. stamps.

FURTHER Quantities of Bargains Next Week.—Appleby's, Radio House, 198, Finchley Rd., Hampstead London (opposite L.M.S. Station). Hampstead 3108. Open until 7 p.m., Saturday 1 p.m. [1461]

TWO-VALVE Transmitting Sets, 15/-; two-valve receivers, 10/-; pedestal phones, 7/6; microphones, 4/6; telephone magnetos, 4/6; buzzers, 2/3; morse keys, 4/6.—Below.

DYNAMOS for Accumulator Charging.—50v.-5a., 37/6; 100v.-3a., 45/-; 50 to 75v.-15 amps., £5; 100v.-40a., £14; 220v.-11a., 45/-; 100v.-20a., £7/10; also volt-meters, ampmeters, regulators, cut-outs, etc.—Below.

A.C. Induction Motor, 1/2 to 1/4 h.p., 220v. 50 cycles, single phase, self starting, just switch on, 1,500 r.p.m., ball bearing, double-ended shaft, new, modern motor, reversible, ready for immediate work, £3/15; B.T.H. motor, 1/2 h.p., 220v.-50-1, repulsion induction, silent running, as new, self starting, £4/10.—Below.

TWO-VALVE Amplifiers, 8/6; galvanometers, 5/-; 2in. spark coils, 17/6; 10-amp. twin tumbler switches, 1/3; new H.T. transformer, 1 kw., 100v. to 10,500v., 25/-; microphone amplifier, for public address, 50/-; Neville cut-out, for 220v. A.C. main, 35/-; large charging board, with rheostat, £5; 110v. motor 1/2 h.p., shunt wound, 35/-.—Below.

GALPIN, 23, Tyrwhitt Rd., Brockley, London, S.E.4. Terms cash with order or c.o.d. (charges extra); all goods guaranteed; 3 days' approval from date of delivery; list free; nearest station for visitors St. John's, Lewisham. [1429]

AS NEW, D.C. S.G., 8/6; D.C. H.L., 6/6; D.C. Pen., 9/-; U.12, 7/6; 350v., 4v. transformer, 9/6; A.F.5, 15/-; A.F.3, 10/-; many others.—24, Fargeter Rd., Birmingham. [1437]

PUSH-PULL Two A.F.3(C)s, 12/6 each, guaranteed.—Wynmore Radio, Scotswood Av., Blackpool, 8.8. [1438]

SHAFTESBURY SUPPLIES—enormous bargains—224, Shaftesbury Av., W.C.2 (Temple Bar 4175).—Limited quantities: everything just paid! Heavy duty Heavyberd chokes, 50 hen. 150 m.a., 14/-; others, 50 hen. 50 m.a., 5/6; 20 hen. 30 m.a., 3/-; last few Polar 3-gang 0.0005, with trimmer, 6/10; mains transformers, 350-0-350, 60 m.a., 4v. 4 amp., C.T. and 4v. 2a., best makes, 13/-; special transformers for chargers, speaker fields, models, etc., 200-250 in sec., 7. 11. 15v. 2 1/2 amp., 10/-; 65-watt volt changers, 100-120, 200-250, vice versa, 18/-; high grade microphones, on copper stand, with rubber suspension, modulation transformers, 16/6; also Reisz mics, big range; we can save you pounds; every article sold fully guaranteed by Shaftesbury Supplies. [1433]

WHISTLE Suppressor Chokes to Specification; 5/-, post free.—Beecham, 67, Kensington Gardens, Hford. [1435]

KILBURN SURPLUS STORES Offer Wireless Bargains, manufacturers' stock.—Ekeo pick-ups, with volume control, 16/6.

AMPLION Moving Coil Speakers, 100-250 D.C., pot resistance 2,000 ohms, with speech transformer; 14/-.

MAINS Transformers, 200-250 input, outputs 250-0-250 60 m.a., 4 volt 3 amp., 4 volt 1 amp., 11/-; brand new 5-valve portables, complete, 55/-.

PHILIPS 2-valve All-electric; list £12/10. 79/6, as new.

ALL Types Mains Valves in Stock; number P.M. moving coil speakers, all makes, at surplus prices; special bargains to callers; call or write. Kilburn Surplus store, 19, High Rd., Kilburn, N.W.6. Phone: Maids Vale 2436. [1452]

POWER PACK for all-mains RADIOGRAMS



If you are considering the construction of an all-mains Radiogram or Receiver, here is a Unit that will give you High and Low Tension from the Mains at very low cost. Complete in a neat steel case, crystalline finish, this Power Pack incorporates Heayberd Transformer, Choke and 16mf. condensers together with Westinghouse Rectifier. You arrange the tappings in your receiver to suit your own particular requirements. Supplied with flex and adapter—ready to switch on. **GUARANTEED 3 YEARS.**

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Outputs:
40 m.a. at 200 v. High Tension.
4 v. 4 amps. A.C. Low Tension.

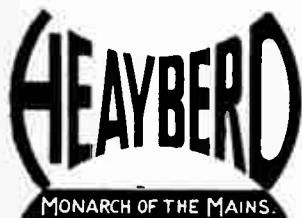
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Send me the Heayberd Handbook "Mains Power for your Radio" packed with diagrams, hints and tips on constructing Mains Units, Battery Chargers, etc. I enclose 3d. stamps.

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STENIBAC RADIO CABINETS



Model No. A.7 Radio-Gram Cabinet, 3ft. 3in. high, 2ft. 5in. wide, 11in. 6in. deep. Takes baseboard 12in. x 16in. Garrard Automatic Record Changer or any type of Gramophone motor can be fitted without alteration to Cabinet. Accommodates 60 records at sides of set. Baffle Board included. Height between baseboard and motor board 12in. Hand polished.

OAK - £5 10 0
MAHOGANY - £6 0 0
WALNUT - £6 10 0

STENIBAC LTD.,

Dept. W.W., 303, Essex Road, Islington, London, N.1.
Phone: Clissold 8056.

THE MOTOR CYCLE

Every Thursday 3d. w.w.15

Components, etc., for Sale.—Contd.

R.
SELECTED Parts for Sale, as new; any e.o.d. or "Wireless World" deposit system, which we recommend if in doubt as to the splendid value offered; we take all risk of damage in transit to our customers; all goods tested for callers and guaranteed, however low price. Notice.—Payment by cheque; no goods despatched until these are cleared.

T.C.C. 1 mfd., type 65. 1/3; T.C.C., type 85, 1 mfd. 375v. working, 1/6; T.C.C. 2 mfd., 250v., type 65. 1/6; T.C.C. 2 mfd., 375v. working, 1/9; Hunt's Polymet, 2 mfd., 250v. working, 1/6.

RYALL'S Own Mains Transformers, 250v. 60 m.a., 4v. 1a., 4v. 3a., 10 G; constant inductance choke, 20h. 120 m.a., D.C., resistance 260 ohm, 8/9.

MAGNAVON D.C. 144, with transformer, 2,500 ohm, 22/-; Rola D.C., 2,500 ohm, with pentode transformer, 22/-; 6,500 ohm, ditto; post free.

SET Cabinets for 3v. A.C. sets, room for speaker, suit "W.W." A.C.S. etc., brand new, in cartons, ready for immediate despatch, fitted escutcheon, suitable Polar Star; few only; 16/-.

VALVES, used, many as new: 1625A, 5/- each; M.H.L.4, 244v., L.F., 484v., L.F., 83v., 41M.L.F., 10/210, Marconi P.2H 2v. super, new, 7/6 each; P.M.3, 2/3; Tungram P430, P2, Philips 505 rectifier, 4/6 each; P.X.4, 10/-; Mullard 84VA., A.C.-S.G., M.S.4B., P.M.24B., 9/-; M.P.T.4, 12/-; D.P.T., 12/-; D.H., 8/6; M.S.4, 7/6; 84V.B., 8/-.

RADCROIX Eliminator, complete, 200v. 30 m.a., 31/6; Ferranti D.C. speaker, D.C. 25/-.

WEARITE 4 coil Chassis for Simple Super, 35/-; set Lewcos superhet. coils, 25/-; Polar 3 gang tub, with drive, new, genuine article, 18/6; Hydra and Sterling 10 mt. 250v. working, 3/6; meters: Turner 0-20 amp. m.a. flush metres, 10/-; Weston 506 type flush, 0-500 m.a., 20/-; Weston 0-8 amp. flush, 20/-; Weston 0-15 amp. projecting, 20/-; Weston 506 0-150v., 0-200v., 20/-; Turner 0-250 m.a. flush, m.c., 15/-.

SPECIAL Offer of Pye 20h. chokes, 40 m.a., 130 m.a. maximum, D.C. resistance 300 ohms, in brown crystalline finish, new, unused, Pye 32h. chokes, D.C. resistance 750 ohms, 30 m.a., 80 m.a. maximum, ditto, 6/3 each, post free.

M1, Anode Converter, 325v. 40 m.a., 35/-; Electro-dynamic converter, 180v., £7; Ferranti O.P.M.10, 16/6; Ferranti O.P.M.20, 15/6; Ferranti O.P.M.4, 14/6; Marconi Senior P.M. speaker, £3; B.T.H. D.C. speaker, with transformer, 2,500 ohm Ekko K18 eliminator, 55/-; with transformer, 27/6; 6,500 ohm Ekko K18 eliminator, 55/-; Atlas ditto; Philips, with valve rectifier, 32/6; 150v. 30 m.a. Super Selective Five, in specification, with valves, £6/10; Pye M.M. set, shop soiled, only £11/15; Oran 33 kit, £5 15; Lassen Skyscraper kit, 55/-; B.T.H. Senior, Universal motor, 55/-; Garrard D.S. motor, 20/-; S.S. ditto, 13/-.

IGRANIC Full Wave Mains Transformers, to clear, at 17/6; 460v., 7.5v., 4v., etc., 120 m.a., universal input, new; Lewcos and Wearite superhet. coils, 6/- each; pair Varley P.P. transformers, separate G.B., 32/6.

AMPHION 4-gang Condenser, with trimmers, split end valves, new 0.0005, 9/6; T.C.C., 1 mfd., 400v. working, 2/-.

POLAR Star 3-gang, new, 16/6; with drive, 19/6; H.T.8, with transformer, 27/6; Igranic 300h. sp. chokes, new, 10/6.

WRITE for Copy of Our Free List, now ready. Note.—All valves offered are used, tested O.K.

TRANSFORMERS and Chokes, Ferranti O.P.M.2, new, 14/- each; O.P.3C, 1-1, 10/6; Nicore 1, 9/-; Igranic 3 1/2, 8/9, new.

PERMAGORE, 9/-; Ferranti B1 choke, new, 15/6; Edison Bell, new, 100 m.a., 50h. power chokes, 12/-.

AMPHION Lion Cage Units, L1, 15/6, new; A.P.6, new, 15/6; Culvert T.C.B. coils, to clear, as formers, at 2/6 each; Culvert T.C.S.C. coils, 5/-.

SPEAKERS.—D.C. Amphion, 2,500 power of pentode, 14/6; new, 20/-; Kolster-Brandes, new, 4v., L.R., 9/6.

SUITCASE Cabinets in Best Crocodile Leather, 14/-; 14 x 9, ample room for 12in. turntable and pick-up; 15/-; new.

WEARITE Lever and Rotary Switches, 4-5 poles, D.T., new, 2/6, or 10/6 dozen; Mullard fixed condensers, boxed, new, 0.001-6, 0.0005, etc., 3/- dozen.

MAINS Transformers.—All standard inputs, Ryall's own, 250v. 60 m.a., etc., guaranteed 12 months, 18/9; ditto 350v., Menoidal test, 25/-; Igranic new full wave, 110-250v. input, output 250v. 75 m.a., 4v. 1a., 12/-.

RESISTANCES.—Mullard 5,000, 70,000, 1/6; Edison Bell 10,000, Eireka wire wound, with holders, 1/-; Graham Farish 1/2 meg. anode resistances, 6d.; Edison Bell 0.0005 universal log all metal condensers, 2/-; new.

RYALL'S RADIO, 33, Chancery Lane, London, W.C.2. (Nearest Tube, Chancery Lane; bus 67 passes door, or tram to Savoy St.), Holborn 3529. Open Saturday afternoon. Close 7 p.m., Thursdays 1 o'clock. [1459]

GILBERT INDUSTRIES Special New Year Offer, all post free and guaranteed.

CONSTRUCTORS' Pattern Heavy Mains Transformers, boxed, 350-0 350 at 60 m.a., 4v. to 6a, C.T., 4v. 2a, rect., 10/6; standard pattern, as preceding, but 325-0-325 at 85 m.a., 12/6; condensers: 8 mfd. Polymet electrolytics, 435v. working 3/-, 2 mfd. 500 test 1/9, 4 n.f.l. 500 test 2/9.

CHOKES, Heavy duty, 50 h., 50 m.a., smoothing, output or tapped pentode, 4/6; good 20 h. eliminator, 2/3; H.M.V. screened H.F., 9d.; Westinghouse rectifiers, 180v. 30 m.a., 6/-; cadmium plated chassis, 9in. x 14in. x 2in., 3/6; Ormond balanced armature unit, mounted 12in. baffle, with 10in. cone, hall price, 10/6.—Gilbert Industries, 519, London Rd., Westcliff-on-Sea. [1457]

AMPHION Moving Coil Speakers, as fitted in McMichael receivers, 10/-; Simpson's all-electric turntables, 32/6; Barnhart all-mains 4-valve screen grid receivers, 8 guineas, listed £17; Deemark E-Lipse coils, 3/6 (S.T. 400), coils, Denmark, 5/6 pair.

ET.A. 2-volt H.F. Valves, 3/6; Formo condensers, variable, 1/6; slow motion dials, 1/3; transformers, Siemens wound, 2/6.

ELIMINATORS, metal rectifiers, A.C. 200-240 volts, £2 2; Met-Vick D.C. Eliminator, 15/-; Radio Supplies, 131, Lee Rd., Blackheath, London, S.E.3. [1454]

Electradix

PARCELS of useful oddments for the Experimenter who wants a junk-box of Coils, Magnets, Wire, Chokes, Condensers, Switches, etc., mostly ex W.D., parts worth a lot more than 10 lbs. 7/-, or 7 lbs. for 5/-, post free. British Isles only.



Get a GENEROMETER BATTERY SUPERSEDER. No H.T. Batteries needed for your set even if you are not on the mains. An H.T. battery, run down to 30 volts, is useless and has to be thrown away. Yet you pay for the wasted volts. The Generometer makes H.T. from your L.T. 2-volt battery rectified and smoothed. Gives 3 tappings and lasts indefinitely. A boon and blessing to all using H.T. Reduced from £3 15s. New and Guaranteed. From us only. **PRICE 37/6**

YOU CAN TAKE IT FROM ME!

NO STORE in LONDON has so comprehensive a stock of Scientific Apparatus at such low BARGAIN PRICES for

Aerials, Buzzers, Bells, Batteries, Condensers, Cable, Cases, Chokes, Microphones, Meters, Transmitters, Testers, Coils, Chargers, Dynamos, Motors, Engines, Instruments, Lamps, Neons, Receivers, Spark Sets, Valves, Wavemeters.

1,000 other Bargains in our new Sale List W. Send addressed envelope for this money sav.

ELECTRADIX RADIOS
218, Upper Thames Street, E.C.4.

BURTON FOUR POSITION ROTARY SWITCH

(Patents pending.)

A component which meets most switching requirements of modern Receivers. Will short three coils for long or short waves, operate gramophone pick-up and 'On and Off' at mains voltage. Maintains firm uniform pressure between surfaces. Ask your dealer for it.

6/- EACH

C. F. & H. BURTON
PROGRESS WORKS, WALSALL, ENG.

EPOCH MOVING COIL SPEAKERS

The Finest in The World in Each of Their Price-classes.

Ask your dealer or call for a demonstration at Exmouth House.

Send for New Booklet W.S.S. (free).

EPOCH RADIO MANUFACTURING Co. Ltd.
Exmouth House, Exmouth St., London, E.C.1
At the Junction of Roebury Avenue and Parrington Road.
Phone: Clerkenwell 5666; 4 lines.

Components, etc., for Sale.—Contd.

PREMIER SUPPLY STORES Offer the Following Brand New Goods at a Fraction of the Original Price; all goods guaranteed perfect; carriage paid over 5/-, under 5/- postage 6d. extra. (Ireland carriage forward.)

PREMIER—Mains transformers, all guaranteed, terminal connections, 200-250 input 40-100 cycles, output 135 volts at 80 m.a. for voltage doubling, 8/6; 4 volts 4 amps C.T. low tension, 2/- extra; Westinghouse rectifier for above, 8/6.

MAINS Transformers, primary 200-240 volts, secondary 350-0-350 volts at 90 milliamps., 4 volts at 3 amps. (C.T.), 4 volts at 2 amps. (C.T.), 12/6.

AMPLION Transformers, input 100-250 volts, output 350-350 volts, 120 milliamps., 4 volts at 5 amps., 4 volts at 2 amps., 6 volts at 1 amp., all centre tapped; 17/6.

MAINS Transformers, 12 volts 1 amp., 7/6; 9 volts 1 amp., 7/6; 4 volts 4 amps., and 4 volts 2 amps., 8/6; 14 volts 4 amps., 12/6; 4 volts 3 amps., 7/6; 4 volts 5 amps., 8/6; 6 volts 2 amps., 7/6; 7 1/2 volts 2 1/2 amps., 7/6; 10 volts 3 amps., 10/-.

H.T.9 Transformer, 230 volts 200 milliamps., with 4 volts 4 amps. (C.T.) winding; 17/6 (with screened primary).

H.T.8 Transformer, 10/-; with 4 volts 3.5 amps. low tension C.T., 15/-; complete with Westinghouse H.T.8 rectifier and L.T. winding, 27/6 (with screened primary).

MAINS Transformers, output 250-0-250 volts at 60 milliamps., 4 volts at 1 amp., 4 volts at 2 amps., 4 volts 3-amps., all centre tapped; 15/- (with screened primary).

MULTI-RATIO Output Transformers, 15 different ratios; 7/6.

PREMIER Chokes, 40 milliamps. 25 henries, 4/-; 65 milliamps. 30 henries, 6/-; 150 milliamps. 30 henries, 10/6; Pentode output chokes, tapped, 7/6.

PYE Chokes, 110 henries, 4/-; 20 and 32 henries, 4/6.

SMOOTHING Chokes for Series Connected Filaments from D.C. mains, carry 1 amp., 7/6.

KOLSTER-BRANDES 80 milliamp. 30 henry Chokes, tapped, 1/3 and 2/3; r.f.s., 7/6; McMichael binocular H.F. chokes, 2/-.

T.C.C. Condensers 2 mfd. 750 volts working, 4/-; 4 mfd. 750 volts working, 6/-; 4 mfd. 400 volts working, 4/-; 4 mfd. Electrolytic, 440 volts working, 4/-; 8 mfd., 4/6.

T.C.C. Block Condensers, 250 volts working, 8/24 2 1/2 mfd., 5/6; 375 volts working, 1 1/2 0.1-0.1-0.1-0.1 mfd., 2/-; 375 volts working, 6/4 2-2-2 1/2 mfd., 10/-; 250 volts working 2 1/2-2-2 1/2 mfd., 5/6.

WESTERN ELECTRIC 2 mfd. 500 volts test, 1/-; 1-1-1 mfd. 500 volts test, 1/3; 0.01+0.01 mfd. 400 volts working, 1/-; blocks 4-2-2 1/2-1 1/2 0.09 mfd., 400 volts working, 6/-; 1 mfd. 500 volts test, 6d.; 4 mfd. 400 volts working, 3/-; 10 mfd. 400 volts working, 5/-.

FERRANTI Condenser Blocks, 300 volts working, 4-4-2-2 mfd., 10/-; T.C.C. 1 mfd. non-inductive condenser, 9d.

VARIABLE Condensers, Polar 3-gang tube type, fully screened, split end vanes and disc drive, 0.0005, 12/6.

ORMUND All-brass 2-gang Condensers, semi shielded, 0.0005, 5/-; Ormund or Polar all-brass 0.0005 slow-motion condensers, with knob and dial, 3/6; Polar 0.0005 and 0.00035 Bakelite Dielectric condensers, with knob, 1/-.

PREMIER Eliminators, input 200-250 A.C., 40-100 cycles, output 250 volts at 60 milliamps., 80 volt and 120 volt taps, incorporating Westinghouse rectifier, 42/6; with 4 volts 4 amps. L.T., 7/6 extra.

PREMIER Eliminators, input 200-250 A.C., output 80, 100 and 120 volts, at 20 milliamps, incorporating Westinghouse rectifier, 27/6; with L.T. charger incorporated, 35/-.

D.C. Eliminators, output 60, 90 and 120 volts, at 120 milliamps, 15/-; larger model, output 80, 120 and 200 volts, at 50 milliamps, 25/-.

ACCUMULATOR Chargers for A.C. Mains, input 100-250 volts, 1-2 amp., 17/6; 1 amp., 22/6.

PREMIER Eliminators, input 200-250 A.C., output 150 volts at 30 milliamps, 2 lower taps, incorporating Westinghouse rectifier, 37/6, with 4-volt 3-4 amp. L.T.

AMPLION Moving Coil Speakers, type E.M. 644, dual fields, 2,500 and 5,000 ohms (100 or 200 volts), with multi-ratio output transformer; 15/-.

B.T.H. R.K. Minor, moving coil speaker, 2,500 ohm field; 15/-, with multi-ratio transformer.

KOLSTER BRANDES Moving Coil, 4-6 volt field, with multi-ratio output transformer; 10/-.

K.B. Auditorium Speaker, 6 volt model, 25/-; A.C. model, £2, with output transformers.

S. G. BROWN Permanent Magnet Speakers, giant model, 12in. cone, high resistance speech coil; listed £8, our price £2.

AMPLION Permanent Magnet Moving Coil Speakers, type M.C.22, complete with multi-ratio transformer; 30/-.

SINCLAIR Permanent Magnet Moving Coil Speaker, with multi-ratio transformer; 18/6.

15,000 Ohm Wire Wound Potentiometers, 1/6; Centralab potentiometer volume controls, 50,000 ohms, 2/-; Colverstats, logarithmically wound potentiometers, 6,000 ohms, 1/9.

WIRE Wound Resistances, any value, carry 20 m.a., 2/-; 40 m.a., 3/-; 60 m.a., 4/-.

WIRE Wound 5-watt Resistances, 3,500, 4,000, 7,500, 8,500, 9,000, and 10,000 ohms; 1/- each.

EDISON BELL Wire Wound Clip-in Resistances, 10,000, 60,000, 70,000, 80,000, and 90,000 ohms; 1/3 each.

CLAROSTAT Wire Wound Potentiometers, 50,000 ohms; 2/6.

HEAVY Duty Variable Resistances (slider type), wound on porcelain, 200 ohms 1 amp., 2/6; 350 ohms 1 amp., 2/6; 2,000 ohms 1/2 amp., 5/-; 500 ohms 1/2 amp., 5/-; 50 ohms 2 amps., 2/6; B.T.H. electric gramophone motors, induction type, 100-250 volts A.C., 30 complete; double spring gramophone motors, complete 15/-, single spring 9/-.

(This advertisement continued in third column.)

BUY WATMEL THIS YEAR WATMEL POTENTIOMETER (TYPE 2)

This Potentiometer is suitable for all purposes of voltage regulation, H.T. Supply, volume control, etc. A particular feature is that owing to its high inductance value, the high note response is preserved and a smooth silent control is obtained. These points are worth consideration :-



- 1 Polished pointer-knob.
- 2 Engraved Bakelite Front-plate.
- 3 Wire-wound Former. N.B. The resistance is wire, not compound with wire contacts.
- 4 Large Contact Plate.
- 5 Contact Finger, Phosphor-Bronze.
- 6 One-hole fixing brass-bearing bush resulting in perfect bearing.
- 7 Bakelite case—protects winding.
- 8 Back self-cleaning contacts.
- 9 Insulating bush to insulate spindle from panel.
- 10 Stops at end of wiring.

Any Resistance up to 50,000 ohms .. 5/6 Standard winding .. 6/6
to 50,000 ohms .. 5/6 Square Law .. 6/6

Ask your dealer for full particulars or write to us. Try Watmel components in your new sets this season. WRITE for Catalogue

TRADE ENQUIRIES INVITED.



WATMEL WIRELESS CO. LTD.

Imperial Works, High Street, Edgware.

Telephone: Edgware 0323.

M.C.79.

Components, etc., for Sale.—Contd.

(This advertisement continued from first column.)

WESTINGHOUSE Rectifiers, 120 volts at 20 m.a., 6/6; 180 volts at 30 m.a., 8/6; 8 volts at 0.5 amp., 6/6.

AMPLION Pick-up Arm, with volume control; 18/6.

B.T.H. Gramophone Motors, Universal A.C. and D.C.; 55/-.

ALL the Following Lines 6d. Each, or 5/- dozen assorted:—Trimming condensers; Mullard half-watt resistances, 60,000 and 16,000 ohms; vacuum resistances, 15,000 and 10,000 ohms; shielded S.C. or Pentode leads; Dubilier 0.01 condensers; 2 meg., 1 meg., 1/2 meg. metalised resistances; 2ft. lengths of screened wire; 5-pin valve holders; 4-pin valve holders; 0.1 T.C.C.; any size grid leaks and condensers; fuse bulb with holder; Crabtree sunk 5-amp. switches.

FOR Callers Only.—The following guaranteed valves at 60% off list price: M.P.Pen.; U.C.60 250; P.T.625; M.V.S.G.; A.C.H.L.; A.C.Pen.; V.D.S.; U.C.120/350; D.H.A.C.P.; D.P.T.; S.V.A.; M.S.4B.

ALL Orders to 20-22-24, High St., Clapham, S.W.4. Callers to High St., Clapham (Macanlay 2188). Closed 1 o'clock Wednesday, Open till 9 o'clock Saturday. Nearest Station Clapham North Underground. [1476]

MORE Power Transformer and Choke Bargains.

250-0-250v. 60 m.a., 4v. 1-2a. C.T., 4v. 2-3a. C.T.; 10/-; post 9d.

350-0-350v. 70 m.a., 4v. 2-5a. C.T., 4v. 3-4a. C.T.; 12/6; post 1/-.

350-0-350v. 120 m.a., 4v. 2-5a. C.T., 4v. 4-6a. C.T., 4v. 1-2a. C.T.; 15/-; post 1/-.

500-0-500v. 120 m.a., 4v. 2-5a. C.T., 4v. 4-6a. C.T., 4v. 2a. C.T., 4v. 2a. C.T.; 25/-; post 1/3.

WESTINGHOUSE Model, 150, 200, 240v. 300 m.a., 4v. 2a. C.T., 4v. 2-6a. C.T., suitable for H.T.8, H.T.9, or H.T.10; 15/-; post 1/3.

CHOKES and Audio Transformers.—20h. 120 m.a., 8/6, post 9d.; 30h. 60 m.a., 6/-, post 6d.; 30h. 30 m.a., 3/6, post 6d.

AUDIO Transformers, ratio 3/1, max. primary D.C. not to exceed 5 m.a., manufacturers' model, 3/6, post 4d.; or bakelite case, 3/-, post 4d.

CONDENSERS, Resistances, M.C. speakers in stock; write your requirements for bargains.

ALL Transformers are Guaranteed for 12 Months, and made from the finest material, primaries tapped and screened, clamped in aluminium frames and fitted with clearly marked terminal strip; better components are not available at double the price.

M. J. HOYNE, Offices and Works, 8a, Gladstone Rd., East Sheen, S.W.14. Tel.: Liberty 3303. [1460]

AMPLION Six Walnut Table Type Cabinets, a few left, slightly soiled; at 10/6 each, plus 1/- packing, carriage forward.

A SELECTION of Second-hand Valves at 3/- each, for callers only, in the following types: D.O.20, U4, U8, P625, R.H.1, U 65/550, B12, P.P.3 425, D.F.A.7.

A FEW L.S.5, L.S.5a, L.S.5b valves, at 5/- each; L.S.6a, 7/6; also for callers only: call early and make sure of your purchase; Tungar rectifier valves, type 178, 149, 6 amps. at 80 volts, 7/- each.

A QUANTITY of Second-hand American Valves for Callers, types as follows, 4/- each, 250, 280, 281, 227.

ETA Screened Grid Valves for American Mains Sets, E type 624, brand new and unused; 7/-.

ROLA D.C. Moving Coil Speakers, American model K, with 2,500-ohm field and speech transformer for pentode output, brand new, boxed and unused; marvellous value at 17/6.

MAINS Transformers, 100-240 volts input, output 350-0-350 100 milliamps., 4 volts 4 amps. C.T., 4 volts 2 amps. brand new and perfect; a really sound job for 12/6.

MAINS Transformers, 100-250 volts input, outputs 150-0-150 30 milliamps., 4 volts 1 amp. C.T., 4 volts 1 amp. C.T.; 6/-.

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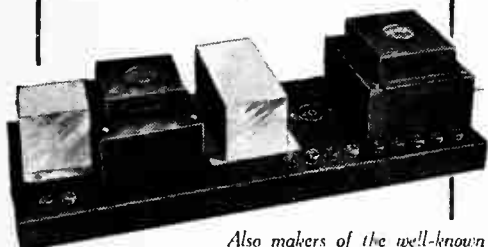
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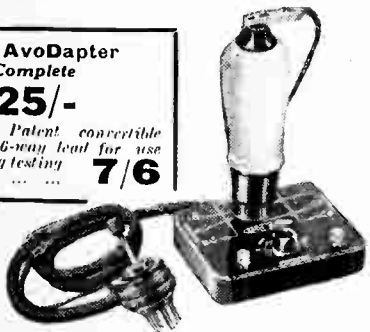
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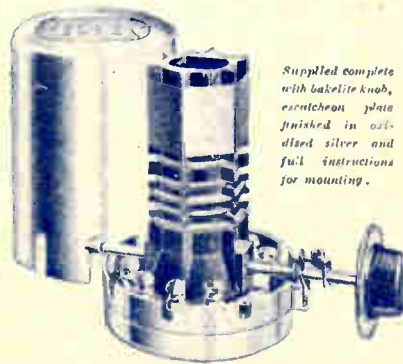
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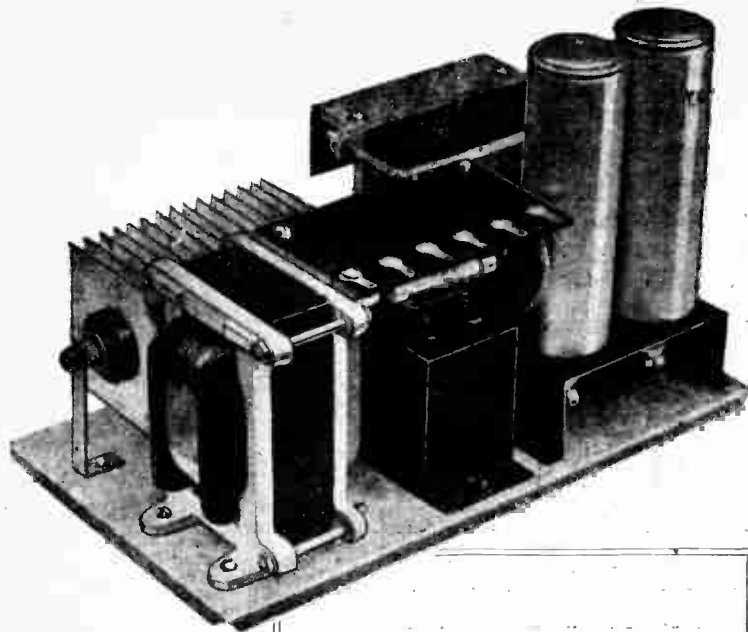
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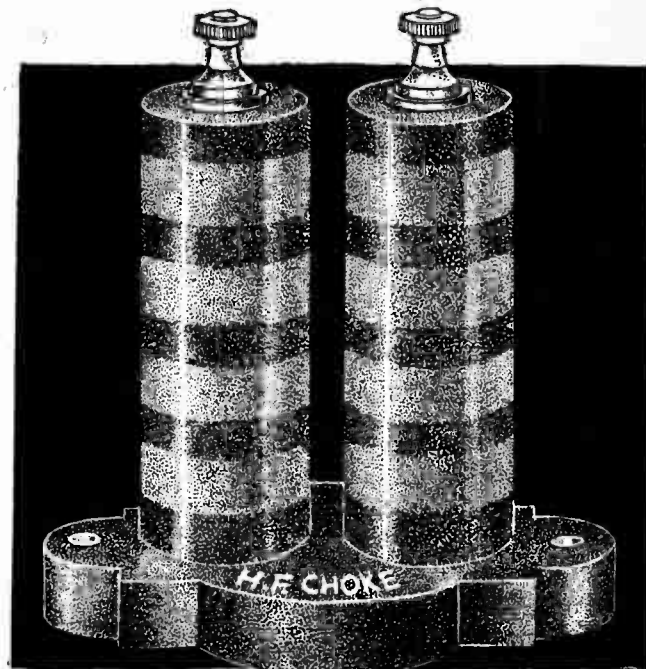
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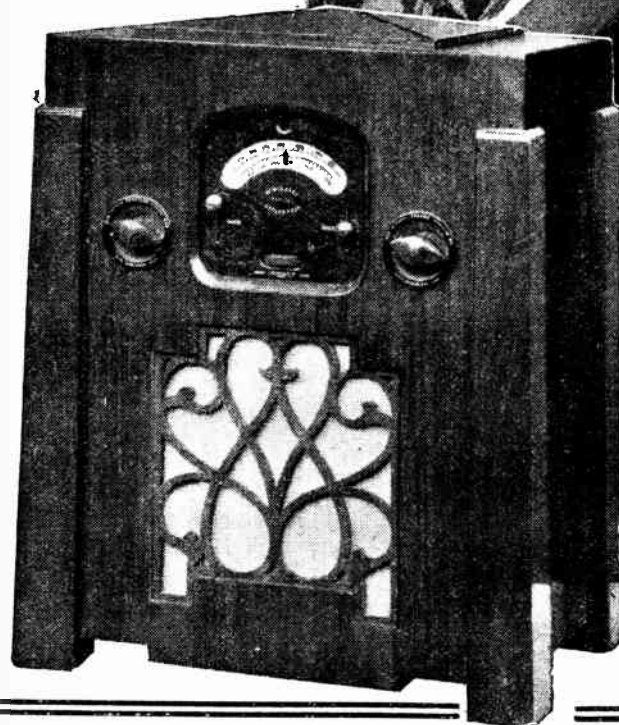
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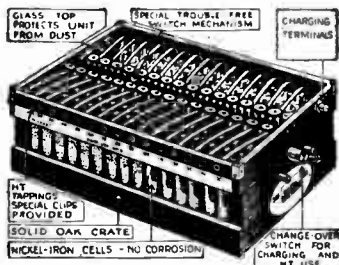
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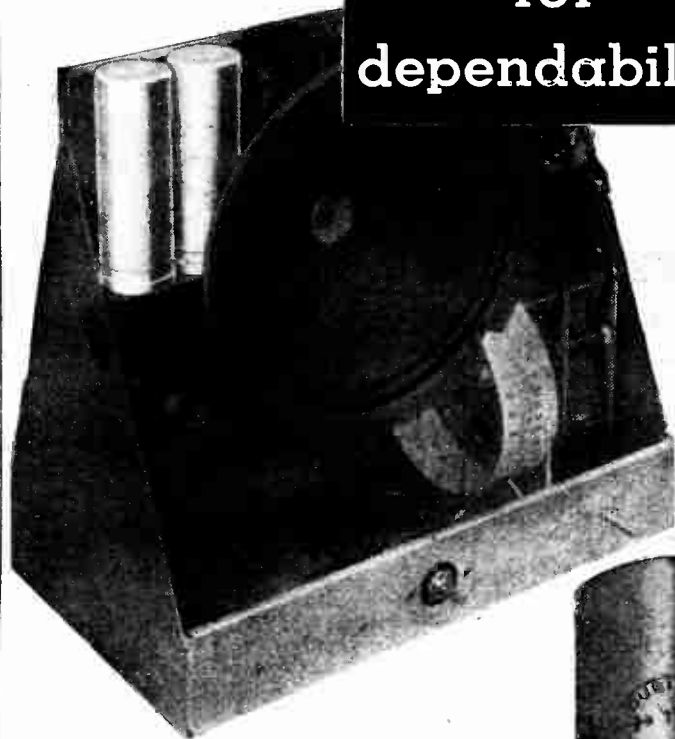
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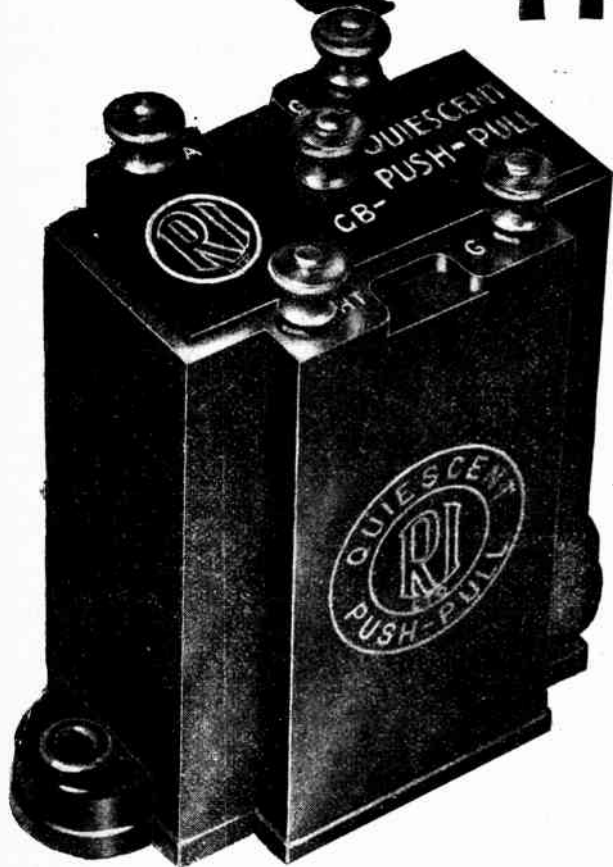
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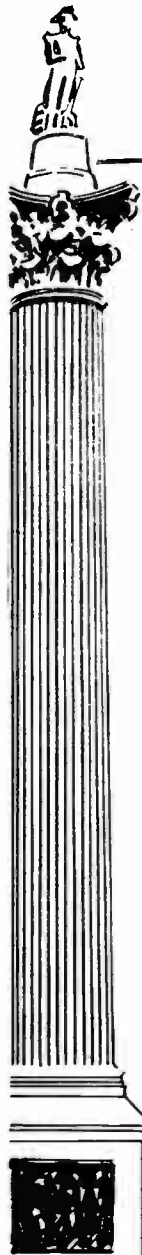
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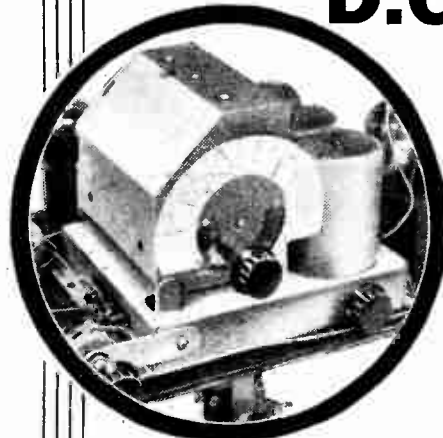
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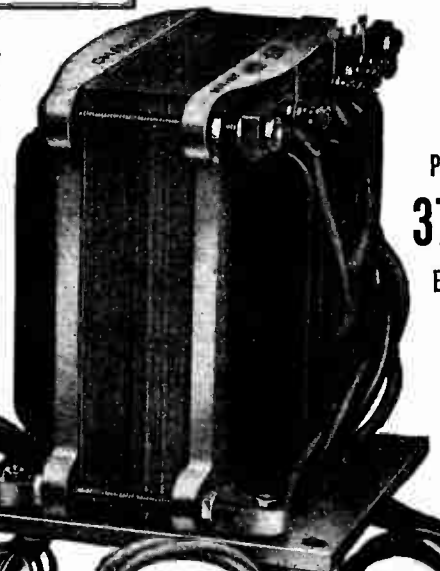
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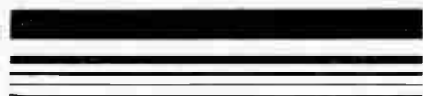


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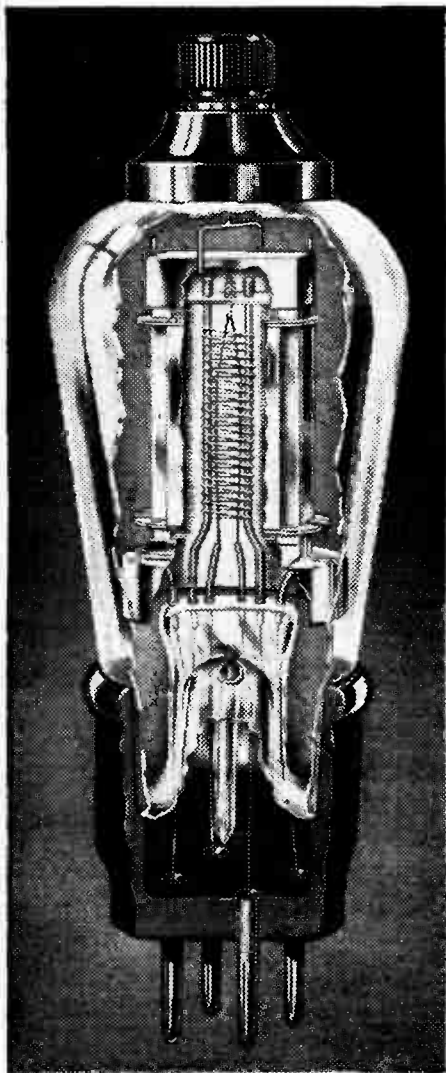
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EDITORIAL COMMENT

Ether Congestion

Conditions Unlikely to Get Worse

A GREAT deal of exaggerated talk occurs to-day on the question of ether congestion and the difficulty of separating stations, and we are often told that sets of to-day are already mostly out of date and will be hopelessly unsuitable in a short time to come through lack of selectivity.

But let us examine the position from an unbiased point of view. It must be conceded at once that in this country the introduction of the alternative programme scheme put out of commission a large number of sets which were so unselective as to be unable to differentiate between, say, London Regional and London National.

Steps were at once taken to meet this new situation by designing receivers capable of giving selectivity sufficient to provide for foreign station reception under the most exacting conditions which can be imagined, namely, with a high power local station close by, when the foreign stations to be received were weak in strength by comparison. Increasing the power of foreign stations will, in a way, actually simplify the reception of these stations as alternatives to the local transmitter, for with field strength of foreign stations increased, any tendency on the part of the local transmitter to swamp them will be counteracted.

Only pessimists would visualise a state of affairs in Europe where the broadcasting authorities disregarded any attempt at organisation and grabbed each other's wavelengths without regard to overlapping. If we anticipated such a possibility, then indeed the outlook for reception in any part of Europe would be a sorry one, but we need not have any such misgivings, for organisation must re-

main, as otherwise reception, even of the local stations, would soon become impossible. Except in a few particularly ill-favoured localities, increase in power of Continental stations can only be regarded as a development which will give listeners a wider choice of programmes at better strength than they have hitherto enjoyed.

"What Station Is That?"

A Direct Answer at Last

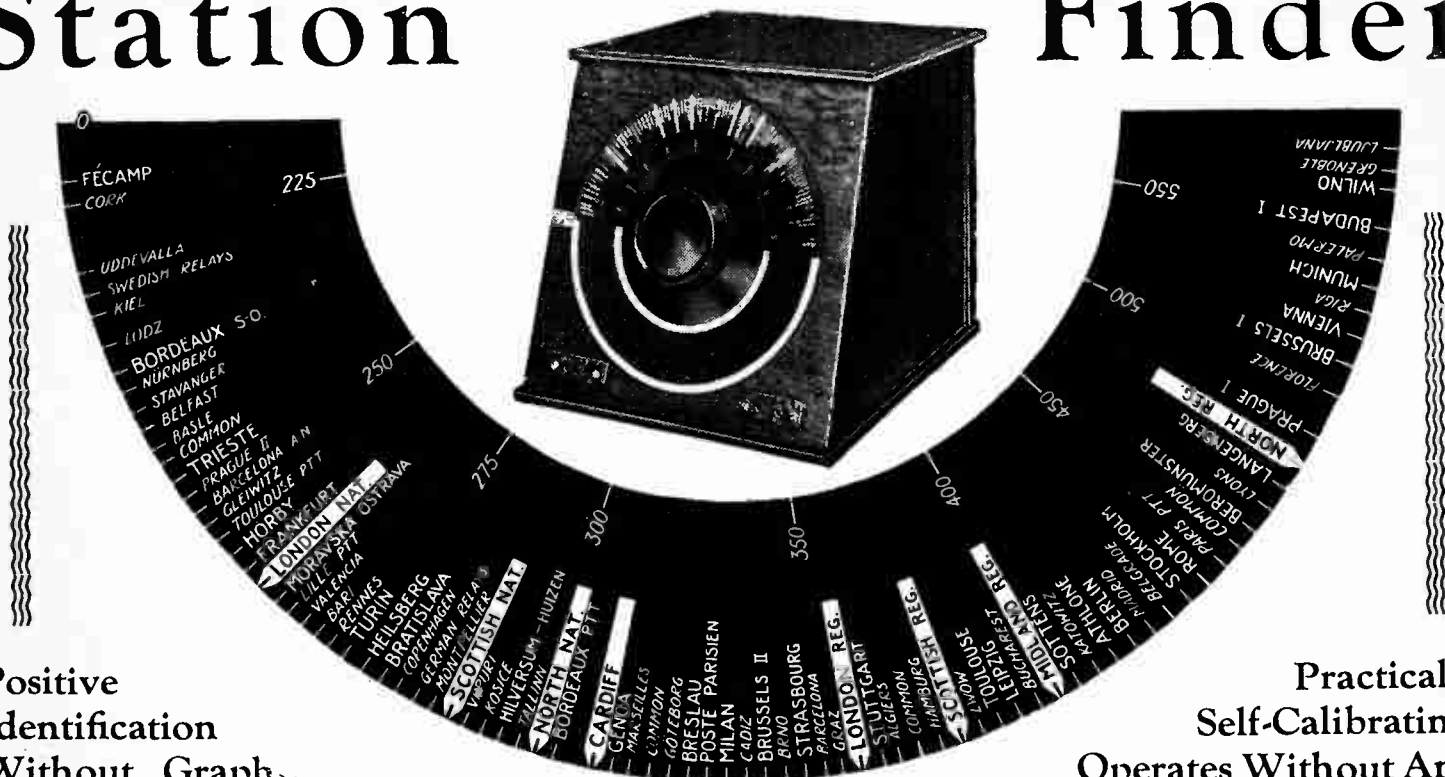
ALL listeners who ever hesitate over the identification of a foreign transmitter—and who does not?—will be interested in the new device described in this issue.

Ordinary wavemeters, if accurate enough for modern conditions, are fairly satisfactory as an aid to the positive identification of foreign transmissions. But, calibrated in the usual way, they have in the past failed to appeal to the average wireless user; perhaps the main reason for their lack of popularity is the fact that identification is only secured after going through a more or less complicated series of operations. The Station Finder indicates the name of the station actually being received, all intermediate processes being eliminated.

Such a station identifier is easy enough to make, but the finished article will be quite useless unless it can be accurately calibrated. The most attractive feature of the *Wireless World* Station Finder is that it is virtually self-calibrating, and that the simple initial adjustments that are necessary may be made without the use of instruments.

The form in which the device is presented is certainly the best for general use, and it will operate satisfactorily with the majority of receivers without any alteration.

The Wireless World DIRECT-READING Station Finder



Positive Identification Without Graphs, Charts, or Cross-References

By H. F. SMITH

Practically Self-Calibrating. Operates Without Any Alteration to Existing Sets

WHEN conditions are favourable, a good modern set will tune in a transmission at practically every scale division of a 0-100 dial. Probably the average listener cannot identify one-tenth of the stations receivable on such a set without a wearisome wait for an announcement—which does not always come, and, if it does, may convey no clue to identity. Even if he has taken the trouble to calibrate his set, a somewhat complicated process is necessary before he can be sure of the station that is being received.

No useful purpose would be served by a discussion of the shortcomings of the usual methods of identification, or by invidiously stressing the merits of the few receivers in the design of which a determined effort has been made to solve the problem.

Until all receivers are station-calibrated in a definite and really dependable manner, it would seem that there will always be a use for a "Station Finder." Without a trial, it is difficult to realise the interest that it adds to long-distance reception.

The simple device to be described in this article is a form of wavemeter, but, instead of being calibrated in wavelengths or on an arbitrary scale, has an indicating dial directly marked in the settings corresponding to each important European station with an "official" place in the medium broadcasting waveband. It is intended to be inserted in the aerial circuit, and will function satisfactorily with the great majority of receivers, irrespective of the type of tuning dial fitted. Exceptions are those with automatic volume control and a few others which include a series aerial condenser of extremely low capacity. For use with these sets a buzzer and dry battery may be added, as will be described later, without prejudice to the accuracy of the meter.

After careful consideration and comparative tests, the absorption method of obtaining an indication was adopted. The most

obvious advantages are simplicity and cheapness, but there are other strong points. A buzzer wavemeter is noisy, and needs periodical adjustment and renewal of its battery; the absorption instrument, apart from requiring no maintenance, is silent in operation, giving its indication by reducing the loudness of incoming signals. As shown in Fig. 1, the Station Finder comprises nothing more than a tuned circuit—coil and variable condenser—with means for coupling it suitably to the aerial circuit.

Anyone with access to an accurate standard meter can construct and, given sufficient patience, can calibrate a station indicator, but special precautions have to be taken to ensure that an instrument that is virtually self-calibrating may be set up with the required degree of accuracy by the amateur without special facilities. An error of more than about one part in 200 will lead to ambiguity between stations; but the degree of accuracy implied is much easier of attainment than would appear, and the writer has made so many tests that he is convinced that no reader who is prepared to take reasonable care should fail to better this figure, as an average.

A great deal depends on the tuning condenser, and the Cydon component specified is highly suitable for this particular purpose. Discrepancies between individual specimens have in no case been found to be greater than can be corrected by the simple method of adjustment to be described. As an additional safeguard, the makers have undertaken to supply, for use in building the Station Finder, condensers which follow the same law as the specimen used in making the original calibration.

Of almost equal importance is the tuning-coil assembly, of which the tuned section is wound with fifty turns of No. 22 D.C.C. wire on a 3in. paxolin former. The coupling coil, of six turns of No. 30 D.S.C. wire with a tapping at the fourth turn, is space-wound over one end of the tuned section. It is

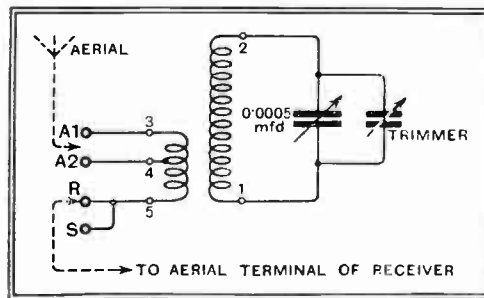


Fig. 1.—Complete circuit diagram; external connections to receiver in dotted lines.

Direct-reading Station Finder—

obviously necessary that all coils should be matched to a standard, and so arrangements have been made with Tunewell Radio to produce suitable assemblies with inductance values within the prescribed limits.

Constructionally, there is not much difficulty in planning a layout for the few components needed, but care must be taken to see that the front panel is large enough for the station-indicating dial, which has a diameter of 7in. Although a plain square box would do as a container, a sloping front panel is more convenient, as it allows the dial to be read more easily. The Myers-Hunt cabinet specially designed for the Station Finder is supplied in parts, at the suggestion of the writer, so that the components may be fully accessible for assembly and

It is natural that the majority of constructional articles should appeal only to a more or less limited number of readers. The Direct-Reading Station Finder, on the other hand, will be of interest to everyone who has a receiver capable of anything more than local-station reception. Although the device is so accurate as to ensure positive identification of practically any medium-wave European station, it may be built and operated successfully even by those with no previous experience of home construction.

cating dial must be prepared. The semi-circular scale printed at the head of this article may be cut out and pasted on a disc of good quality pasteboard, about $\frac{1}{8}$ in. thick and 7in. in diameter, with a hole of a full $\frac{1}{2}$ in. in diameter through the centre. A 4in. tuning dial of conventional type is then mounted concentrically on the disc by means of Seccotine or similar adhesive; it is advisable to roughen the underside of the dial with sandpaper before glueing it. Plenty of time should be allowed for the adhesive to set thoroughly.

Instead of this improvised dial a more workmanlike and permanent job can be made by fitting one of the engraved ivory discs which are being issued by the publishers of *The Wireless World*. One of these scales may be glued to a 4in. dial in the same way as a pasteboard disc; again, both surfaces should be roughened. Finally, the completed dial is secured to the spindle by means of the grub-screw, an indicating mark having previously been fixed to the panel. The zero mark on the dial should coincide with this indicator when the moving condenser vanes are fully out of mesh with the stator.

We are now ready to start operations. Remove the aerial from the receiver and connect it to a plug inserted in socket A2. Join socket R to the aerial terminal of the receiver and make sure that absorption is taking place. With the set tuned to a transmission at about 250 metres rotate the station finder dial slowly until a point is reached where signal strength is reduced to a minimum; a little practice and it will be possible to determine the corresponding setting to within a small fraction of a degree. It should be noted that the "unders and overs" method should not be employed, as apparent signal strength usually varies asymmetrically about the point of resonance, rather as shown in Fig. 3. As the dial is steadily turned in one direction there is a sudden weakening, followed by a more gradual accession of strength to the normal level. Of course, a meter in the detector anode circuit is a useful aid to determining the correct tuning

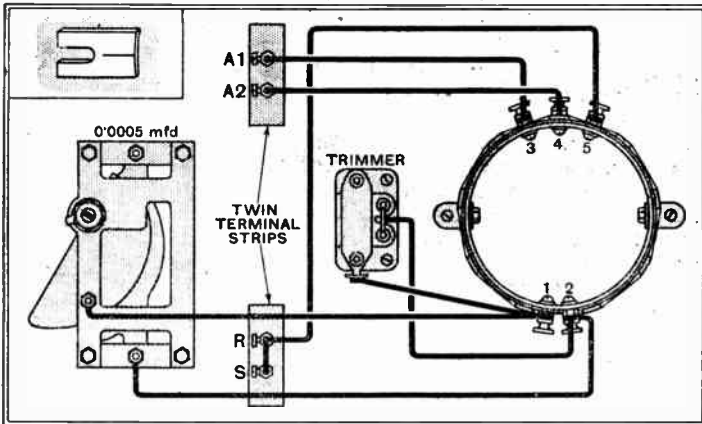


Fig. 2. Practical wiring plan. Inset: a slip of cardboard, shaped and marked as shown, may be screwed to the front panel as a datum mark.

wiring, and thus avoiding the risk of damaging them, which is certainly increased when one is obliged to work in a restricted space. As shown in an accompanying photograph, all the parts may be mounted and wired with the base, front panel, and one side of the cabinet fitted together. Well-seasoned wood, which will not warp, is almost essential for the container.

Relative positions of the components are comparatively unimportant, but a minimum spacing of a full inch should be given between the coil and tuning condenser. Initial adjustment of the trimming condenser is effected by means of a screwdriver through a hole in the bottom of the box, and this component must be mounted so that its control screw-head registers with a hole of about $\frac{1}{16}$ in. diameter, previously drilled. Mounting of the coil and variable condenser is quite straightforward.

Assembled and Wired in an Hour

Those who are accustomed to building sets will find the wiring ridiculously easy, as there are only eight connections to be made. The coil terminals are numbered to correspond with both the circuit diagram and the practical plan (Fig. 2), and there is consequently no risk of error. It should be noticed that the lower end of the tuned coil (terminal No. 1) is joined to the metal frame of the tuning condenser, and also to the springy vane of the trimming condenser.

To allow of better accessibility, the terminal strips through which connection is made to the unit are mounted on the front panel. That on the left-hand side carries sockets for connection of the aerial, marked A1 and A2, while the other, being blank, has been allotted arbitrary lettering; R corresponds to the socket through which connection is made to the aerial terminal of the receiver, and S indicates a short-circuiting socket. By inserting the aerial plug in this socket the station finder is thrown out of circuit entirely.

After having assembled and wired the components the indi-

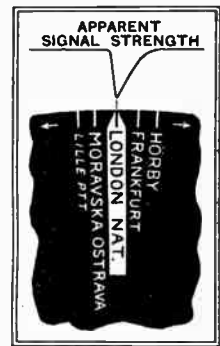
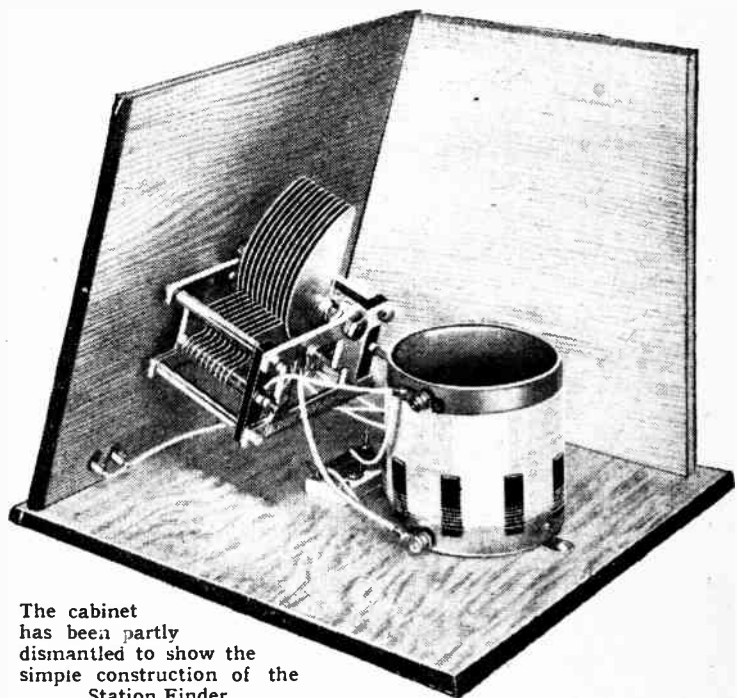


Fig. 3.—Illustrating the asymmetrical effect of absorption.



The cabinet has been partly dismantled to show the simple construction of the Station Finder.

point, but is by no means essential.

So far, station indications given by the dial will have no

Direct-reading Station Finder—

significance, as the operation of zero-adjusting has not yet been carried out. To do this, tune the receiver to a dependable station working on a wavelength of about 250 metres, and set the station finder dial accurately to the setting corresponding to that station. With a wooden-handled screwdriver adjust the trimming condenser for weakest signals without touching the dial; this operation should be carried out with patience and extreme care.

A check reading should now be made by tuning in another reliable known station at a much longer wavelength—say, about 500 metres. In order to get sufficient absorption it will generally be necessary to increase coupling by transferring the aerial plug to A1. If the name of the station being received is now accurately indicated on the dial—and with a modicum of luck it will be—all is well, and no further adjustment will be necessary; any station which adheres to its official wavelength may be identified with confidence. As a rule, use the A2 socket for stations under 300 metres and A1 for higher wavelengths.

How Accuracy is Ensured

If, on the other hand, there is a discrepancy at the top end of the tuning scale, a further operation is necessary. Irrespective of station indication, set the dial accurately for minimum signal

For the benefit of readers who prefer not to use a cardboard indicating disc, an engraved ivory scale for the Station Finder has been prepared. Applications for this scale, accompanied by a remittance of 2/- to cover the cost, should be made to our publishers, Iliffe and Sons Ltd., Dorset House, Tudor Street, London, E.C.4.

strength on the longer-wave station, and then, without disturbing the position of the variable condenser vanes, slacken the condenser grub-screw and rotate the dial on its spindle so that it indicates accurately the name of the station. Secure the dial firmly again, and return to the shorter-wave station; a very slight readjustment of the trimming condenser will now be necessary.

In some cases it may be necessary to repeat these operations several times, not forgetting to transfer the aerial coupling plug to the appropriate socket for the long- and short-wave station. At each repetition the discrepancy will become less.

It may be helpful to summarise these two zero-adjusting operations, which determine the accuracy of the instrument,

LIST OF PARTS

- 1 Variable condenser, 0.0005 mfd. Log. mid-line
Cylcon, Type D5
 - 1 Semi-variable condenser, 0.0007 max.
Cylcon, Type ST70
 - 1 Special dial, 4in. diameter
Cylcon
 - 1 Station Finder coil assembly
Tunewell
 - 2 Twin socket strips, "A1, A2"; "blank."
 - 1 Cabinet
Belling-Lee
Myers-Hunt Cabinet Co., Ltd.
- Screws: 6 2in. No. 4 R/hd., 2 1/2in. No. 6 R/hd.
Two lengths sleeving; 2 yds. No. 22 tinned copper wire.

although the second will seldom be needed.

(1) Set dial to name of short-wave station and adjust trimmer for minimum signal strength.

(2) Tune for minimum signal strength on long-wave station, and slip dial so that station name coincides with datum mark.

If occasion arises to repeat these operations they should always be done in the sequence given. Never adjust the trimmer at a long wavelength or slip the dial at a short one.

A specimen Station Finder is available for examination by readers at 116-117, Fleet Street, London, E.C.4.

DISTANT RECEPTION NOTES

THERE have been occasional slight atmospheric of late, but they have never been sufficiently serious to cause any real interference with long-distance reception. I notice, too, distinctly less spark signal interference, but heterodynes have unfortunately increased to some extent.

Stations affected recently by heterodyne interference are Lyons Doua, the Ecole Supérieure, Beromünster, the Poste Parisien, and Bratislava. The cause of the heterodyne on Beromünster is something of a mystery. When it first occurred some weeks ago it was supposed to have been caused by an unauthorised station working in Berlin. This was closed down by the authorities and the heterodyne ceased temporarily. Now, however, it is worse than ever, completely ruining the Swiss station's transmissions. According to the U.I.R. Report for November no fewer than three unknown stations were fairly regularly at work on wavelengths between those of Lyons and Beromünster.

The 20-kilowatt Italian station Bari, working on 269.8 metres, is often to be received, though the strength is not what one would expect, particularly when compared with that obtained from the 7-kilowatt Turin. Bari unfortunately shares a wavelength with the 1-kilowatt Bremen, and if both are working simultaneously there is distinct interference. The Athlone transmitter of the Dublin station appears to be at work, at intervals at any rate, though it would seem that it is not yet using full power, for the strength of the transmission is not greatly in excess of that of the old Dublin station on its good nights.

Transatlantic reception continues to be extraordinarily good. In addition to the U.S.A. stations it is frequently possible to hear transmissions from the Argentine, and

I have once or twice picked up Mexican stations at very fair strength.

Of the long-wave European stations both Huizen and Kalundborg have shown a certain weakness on odd days recently. Motala, on the other hand, is improved, and I have from correspondents accounts of good reception from Reykjavik on 1,200 metres, though this is a station that very seldom comes in well in my own locality.

On the medium waveband there has been very little fading, even below 300 metres. Wavelength-wandering on the part of certain stations still continues to cause trouble towards the lower end of the band, but the number of stations in that region now receivable clear of serious interference is surprisingly good. Fécamp, in particular, is in excellent form. Both Nürnberg and Trieste are well heard. Gleiwitz varies somewhat though good reception is usual. Turin is very much improved and is to be heard well on most evenings. Both Heilsberg and Hilversum are completely reliable, and Bordeaux has been coming through splendidly for some time.

Unhappy Neighbours

Genoa is seldom heard at better than moderate loud speaker strength. Göteborg is still not at its best; Breslau is well heard but Milan and the Poste Parisien do not seem to be quite happy as next-door neighbours.

Brussels No. 2 and Strasbourg are always to be found. Hamburg is not constant being occasionally very good, though some times quite poor. Toulouse has shown certain ups and downs. Some station, not positively identified, but probably Archangel, has caused occasional trouble with Leipzig, despite the latter's enormous strength.

Madrid Union Radio can be received, though not as a rule strongly. Berlin Witzleben, too, is not so strong as it was a week or two ago. Rome Langenberg, and Prague have all been first rate. Florence shows a slight falling off, and Brussels No. 1 has some times been received at rather less than normal strength. Both Munich and Vienna have varied a good deal in strength, and Budapest, which until recently was generally receivable long before dark, has once or twice been weak late in the evening.

D. EXER.



FIELD WIRELESS IN N.Z. Amateur transmitters in New Zealand have formed a chain of portable stations for use in emergencies. The photograph shows Wellington amateurs assisting in the search for a wrecked aeroplane.

Practical HINTS and TIPS

AIDS TO BETTER RECEPTION

A CERTAIN amount of care should be taken in arranging the leads which, in an A.C. set, connect the power rectifier to the reservoir condenser and smoothing apparatus. Of course, the need for adequate insulation has always been recognised, as the positive lead is at a high voltage with respect to earth.

Rectifier Output Leads

Experience shows that, apart from the risk of insulation breakdown, there is a distinct risk of introducing hum if the leads in question are in inductive relationship with other leads and components in the receiver. The wave-form of the current flowing in these wires is such that troubles of this nature are particularly likely to be provoked.

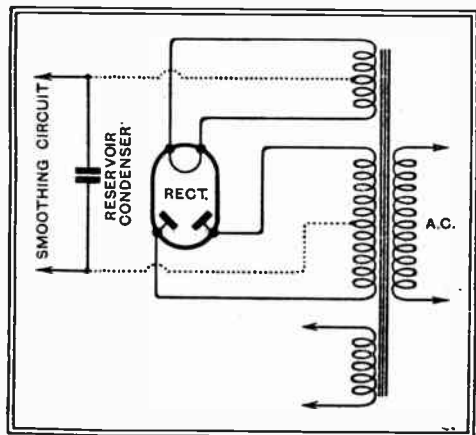


Fig. 1.—The rectifier output leads, shown in dotted lines, should be short and direct.

Fortunately, it generally happens that the rectifier, power transformer, and smoothing components are all mounted in close proximity to each other, and so the trouble does not often arise. But it is worth while bearing in mind, when a set is to be fed from a separate power supply unit that does not include smoothing equipment, that the reservoir condenser should be mounted close to the rectifier valve.

The two leads which are likely to give rise to induction troubles are shown in dotted lines in Fig. 1.

ONE of the advantages of feeding an L.F. coupling transformer through a resistance-capacity combination (instead of connecting the primary directly in the anode circuit of the preceding valve) is that bass response may be artificially "boosted." To do this, the value of the coupling condenser is so chosen that, in conjunction with the inductance of the primary, it will resonate at a very low frequency—towards the lower limit of audibility.

Parallel-fed Transformers

It sometimes happens that this state of affairs is brought about accidentally, perhaps by using for coupling purposes a condenser that happens to be available at the moment. In such cases all may be well, but there is a risk if the resonance happens to occur at about 100 cycles, that mains hum will be unduly accentuated and will be very difficult to eliminate by ordinary means.

The simplest remedy for the trouble is, of course, to use a different value of coupling condenser—generally larger than the original component, although sometimes a smaller capacity will be found to be actually better. This is largely a matter of trial and error.

CONSIDERING the relatively large number of tuned circuits in the average superheterodyne, it is surprising that in most cases this class of receiver can be persuaded to function in an entirely satisfactory manner with a minimum of difficulty.

Oscillator Reaction Adjustments

The few difficulties that arise are, more often than not, associated with the oscillator valve or its circuits, and when results are not up to expectations, time may often be saved by devoting attention to this part of the set before looking elsewhere for the trouble.

Everyone knows that a superheterodyne receiver cannot work properly unless the valve in question is generating oscillations. But it is not so generally appreciated that results may be poor, at any rate over a section of the tuning scale, if it is oscillating too fiercely. This state of affairs is generally due to excessively tight coupling between plate and grid circuits, and it will sometimes manifest itself as a buzzing sound, audible in the loud speaker at certain settings of the tuning condenser.

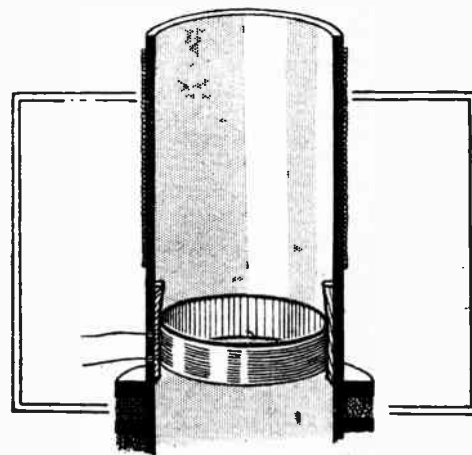
When results are for any reason unsatisfactory, and particularly when the effect mentioned in the previous paragraph is noticed, it is worth while to assure oneself that the reaction winding of the oscillator coil assembly has not become displaced. This coil is sometimes wound on a small former, which is mounted inside the main former on which the grid and plate coils are supported. Even if buzzing does not take place, it is possible that general results may be improved by a slight alteration in the position of the coil; it must not, however, be moved to such an extent that self-oscillation ceases entirely at one end of the tuning scale.

THE best-known property of reaction is to increase the strength of signals, but it has another application which is almost equally important. Properly used, it may be applied to increasing the selectivity of the set; the usual procedure is to reduce input either by loosening aerial coupling or by applying some other form of H.F. volume control, and then to make good the loss of signal strength thus brought about by increasing reaction.

This is an important application to many "2-H.F." sets that were designed a year or two ago. Many of these sets, now found to be insufficiently selective, do not include a reaction control. But even if the detector grid tuning coil does not embody a reaction winding it is generally a fairly easy matter to add one without structural alteration.

In most cases about thirty turns of fine wire—No. 36 D.S.C. is generally about right—will be sufficient for the purpose. As to the actual disposition of the extra winding, a good deal depends on the construction of the coils, and very often it will be possible to wind it in the form of a hank or piled winding. The best position will be such that the added coil is in inductive relationship with both medium- and long-wave windings. As a rule it should be rather nearer to the latter to give satisfactory control on both wavebands.

Where an external winding is not convenient it may be preferred to wind the reaction coil on a short length of tube, which may be inserted inside the main coil former in the manner shown in the accompanying sketch. The coil may be wedged



Fitting a reaction winding inside the former of an existing two-range coil.

in position by means of a couple of thin slips of wood; connections may be brought out through the wall of the main former, or passed through into the base, as may be most convenient.

Electrolytic Condensers

Their Properties and Uses

By PHILIP R. COURSEY, B.Sc., M.I.E.E.

(Chief Engineer, the Dubilier Condenser Co., Ltd.)



SINCE electrolytic condensers differ from all other types of condenser, not only in their construction but in their electrical properties as well, it is very desirable that all users of them should appreciate these differences and what they imply. It is true that electrolytic condensers possess certain features in common with other well known types of condenser (such as paper or mica dielectric ones) in that they have metallic electrodes, separated by a dielectric, and give a capacity effect expressible in microfarads; but the nature of the dielectric is so different that entirely different characteristics result therefrom.

How they Differ

In all other types of condenser, the dielectric is a separate and tractable material—e.g., a strip of paper, or a sheet of mica—and it is assembled with the metallic strips or plates forming the electrodes or armatures of the condenser. In electrolytic condensers the dielectric is too thin and delicate to be able to be dealt with separately (even supposing that it could be manufactured in a separate form). It is produced by an electrochemical or electrolytic process on the surface of the metal sheet or plate that forms one of the electrodes of the finished condenser. This alone might justify its name of electrolytic condenser, distinguishing it from other types; but the difference extends farther, in that an electrically conducting liquid, or electrolyte, is still required to complete the condenser in order to provide an electrical contact or connection to the outer surface of the electrochemically prepared dielectric film. Fig. 1 may make the distinction clearer. Fig. 1 (a) is intended to represent a single layer or plate of an ordinary condenser, M1 being one of the metal electrodes and M2 the other. Between them, and as closely as possible in contact with both of them, is the dielectric sheet D, which may, for example, be mica or paper, while any minute interstices between the adjacent surfaces are usually filled with some filling or "impregnating" medium, such as paraffin wax or oil. In Fig. 1 (b), the main metallic electrode of the condenser is indicated at M1 on the surfaces

WHY have electrolytic condensers made their appearance in recent receiver designs? And what are the special properties and advantages of these over the more familiar mica or paper dielectric condensers? This article describes the construction of electrolytic condensers of various types and gives the reasons for their employment in special cases.

of which have been "formed" the electrochemically produced dielectric layer D1 D2, closely adhering to it. Outside this layer is disposed the other metal electrode of the condenser, designated by M2 M2', and shown in two parts for the purposes of the diagram. This electrode M2 M2', even if pressed up closely to the surface of the dielectric film D1 D2, would be likely to touch it in a few places only, giving a very poor capacity; so that the space between is filled with the working electrolyte E E. This is a conducting material, liquid, paste or solid, and by making close contact with the whole surface of the dielectric layer D1 D2, provides a good connection between it and the second metal electrode of the condenser M2 M2'.

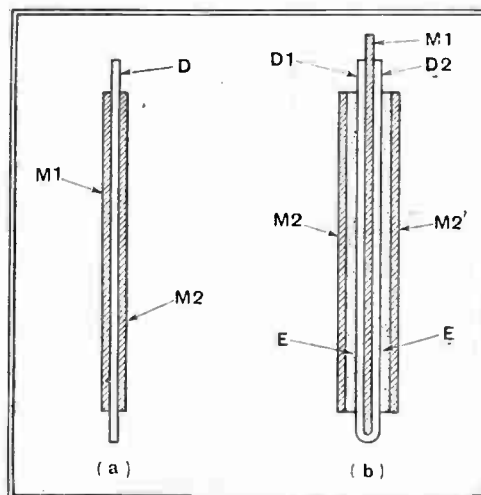


Fig. 1.—Comparison of structure of electrolytic with ordinary condensers.

The function of the electrolyte does not, however, end here. It would, if a perfect dielectric film could be prepared, but for various reasons these dielectric coatings are more or less pervious. They have minute holes or perforations—perhaps only of molecular dimensions, but sufficient to permit the passage of a considerable current through them, and so produce practically a short-circuit between the metal electrodes. The passage of the current, however, through the electrolyte decomposes it to some extent, liberating minute gas bubbles in the dielectric perforations and so largely sealing them against the passage of further current; or, provided that the electrolyte contains the appropriate chemicals, actually forming new dielectric film on the surface of the main metal electrode, and so more or less filling up the perforations. These actions of the electrolyte are quite as important as the contact making action, first mentioned, and contribute largely to the successful working of the complete condenser.

Polarised Condensers

In paper and mica dielectric condensers, the nature of the metal used for the electrodes plays only a very secondary part; in electrolytic condensers it is all important, since the essential dielectric film can be formed easily only on certain metals. Of the common metals, aluminium is the most suitable in this respect, and is the one used in commercial electrolytic condensers.

The dielectric film is produced on the aluminium electrode by electrochemical treatment in a solution such that oxidation of the metal takes place. The dielectric film thus consists mainly of aluminium oxide. The dielectric strength of these films—that is to say, the voltage that they will stand up to when made up into a finished condenser—is determined by the thickness of the film and its physical structure, factors which are both controlled by the nature of the electrolyte in which the formation of the film takes place, as well as by the details of the electrochemical forming treatment.

In the completed condenser the aluminium electrode upon which the dielectric film has been formed *must always form the positive pole of the condenser*. Electro-

Electrolytic Condensers—

lytic condensers are polarised, and in general terms, therefore, they are only suitable for use in circuits where they are subjected to unidirectional voltages, so that the current through them is not reversed. In Fig. 1 (b) the electrode M1 must always be positive, while the second electrode M2, which has no dielectric coating on it, is the negative.

Electrolytic condensers are fundamentally different from other condensers in this respect. Since for the reasons already stated the working electrolyte between the metal electrodes in the finished condenser contains some chemi-

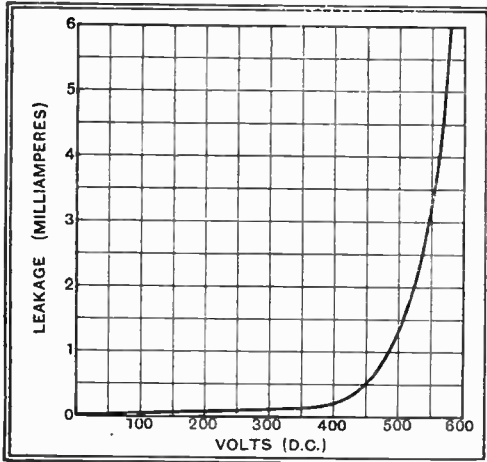


Fig. 2.—Voltage characteristic of electrolytic condenser.

cal materials which can continue the oxidising or forming action on the dielectric film by the small leakage current flowing through the condenser, it follows that the correct polarity of the terminals of these condensers must always scrupulously be observed. Otherwise the dielectric coating will tend to go into solution in the electrolyte and so be destroyed; while at the same time the vigorous electrolytic action accompanying the comparatively large current which would pass in the reverse direction would liberate a quantity of gas, the pressure of which might fracture the condenser container.

Leakage Current

Another important feature wherein electrolytic condensers exhibit abnormal properties as compared with other condensers is to be found in the leakage current which is always flowing through them when they are in use. This current, although small in value, is vastly greater than the minute leakage current which flows through the insulation of a paper or mica dielectric condenser. Electrolytic condensers have no insulation resistance in the usually accepted sense of the expression. Actually, of course, the dielectric film of these condensers has a resistance amounting to perhaps 2 megohms in the case of a standard 8 microfarad 450-volt condenser—a value equivalent to an "insulation resistance" of 16 megohm-microfarads, compared with which the corresponding figure for a good

paper condenser of some thousands of megohm-microfarads is of an entirely different order. Furthermore, this figure is not a constant, but varies widely with the voltage applied to the condenser terminals, since the leakage current is very minute for low voltages, rising rapidly as the voltage is increased beyond the rated value for the condenser. The mode of this variation for a typical condenser is depicted in Fig. 2, while Fig. 3 gives the corresponding figures of so-called "insulation resistance."

The shapes of these curves indicate further another feature in which electrolytic condensers differ from paper or mica dielectric types. With the latter types of condensers the voltage applied to them can be increased up to a certain critical figure—the breakdown voltage—when sudden puncture of the dielectric occurs; with electrolytic condensers, on the other hand, the value of the leakage current gives a very fair indication of the nearness or otherwise to the maximum limiting voltage that may be applied to the condenser. Examining Fig. 2, it is seen that as the voltage is raised, the leakage current increases slowly at first, and then more and more rapidly. The larger increase generally determines the safe maximum voltage. The reason for this is mainly a thermal one—when the leakage current becomes large, the energy loss in the condenser and the consequent heating occasioned thereby also becomes large. This generally results in a further increase in leakage current and the operating conditions then become unstable until failure of the condenser occurs.

Electrolytic condensers show a measure of self-sealing effect, so that the failure of such condensers under excessive voltage may take several forms depending upon the particular construction given to the condenser. Some of these condensers—the so-called "wet" types—have very fluid electrolytes, made usually of an aqueous solution of some salt or salts; others—the semi-dry type—have a thick viscous paste-like electrolyte; while still others—the "solid dry" type—have a hard, solid electrolyte. With the first type, excessive voltage punctures the dielectric film, and audible sparking takes place under the liquid. This causes heating and rapid evaporation of the liquid, both by the heat and the electrolytic action of the large leakage current. With the second type, excessive voltage pro-

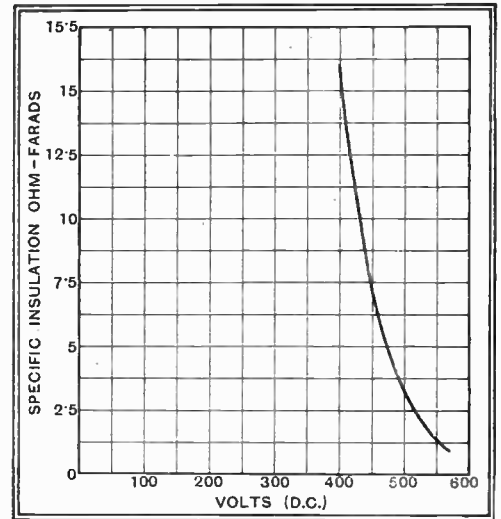


Fig. 3.—"Insulation Resistance" of electrolytic condenser.

duces ultimately charring of the mechanical spacer (cloth or paper) between the plates, by excessive local heating. Puncture of the film may also take place, liberating gas, which will usually in such cases mechanically separate the plates by its sudden liberation, and so prevent them from producing a short circuit. A momentary overload will thus reseal, much as with the wet type; but a maintained overload will likewise destroy the condenser by the overheating. With the third type, excessive voltage generally produces a much more sudden puncture much resembling that of the more ordinary condensers.

The increase in the leakage current that occurs with excessive voltage acts as a certain measure of protection for the condensers when they are used in radio receivers, as the increased load on the rectifier will tend usually to keep the voltage rise down; but even so, thermal damage may still result if the overload persists.

Electrolytic condensers differ from the more ordinary types of condenser in being operated usually at a voltage very much nearer the limiting value than is the case with paper or mica. With the latter,

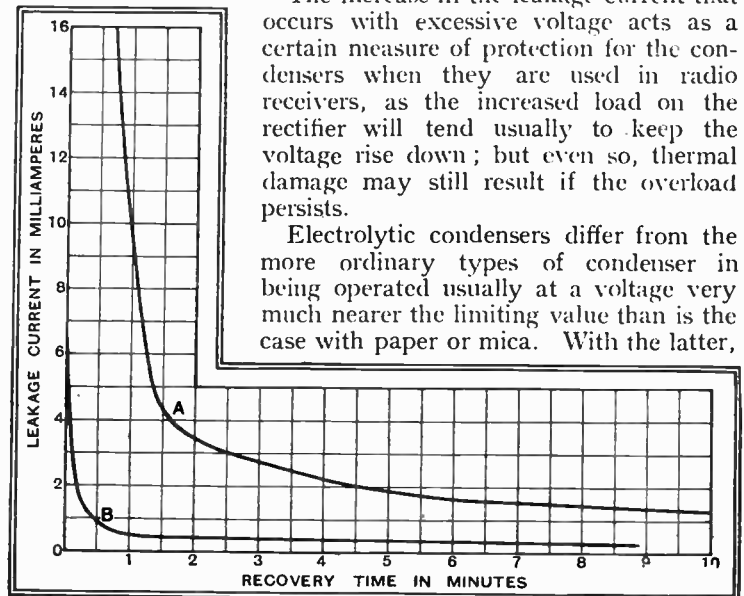


Fig. 4.—Recovery curves for electrolytic condensers, plotted from tests on commercial condensers. Curve A shows poor, and curve B good recovery or "reforming" time.

a ratio between the limiting puncture voltage and the working voltage of at least 5 to 6 is generally desirable; while with the former a value round about 1.2 to 1.5 is seldom exceeded. There is, therefore, with electrolytic condensers much less margin of safety to deal with voltage variations due to adjustments or other causes, which may or may not be under the control of the user of the radio set in which they are incorporated.

Electrolytic Condensers—

Still another feature in which electrolytic condensers differ from others shows up in their quantitative electrical properties as their "power factor." The electrolyte is, from its nature, not a perfect conductor, but it possesses a certain resistance to the flow of current through it. With the wet types this resistance is usually fairly considerable, but with the drier types the very much closer spacing of the electrodes brings with it a considerably lower resistance value. The flow of alternating, or ripple current, through this resistance is necessarily accompanied by a loss of energy as heat, which is generally expressed numerically by the power factor. For the dry types a power factor of 5 per cent. to 10 per cent. is possible; while for the wet types it may reach values as high as 25 per cent. to 30 per cent. The value of the power factor sets the limit to the maximum permissible ripple voltage which may be superimposed upon the normal d.c. voltage of the condenser without causing overheating and damage. Manufacturers of these condensers usually specify this limiting figure—which depends upon the particular form of their condensers.

Intimately connected with this value of power factor is the effective value of the capacity of the condenser and the manner in which it changes with variations in the frequency of the ripple voltage. The series resistance of the electrolyte reduces the effective capacity of the condenser to alternating currents; and as these condensers are customarily used for smoothing rectified alternating currents, the effective a.c. capacity is the only one with which the user is really concerned. This value in microfarads is generally measured and quoted at 50 cycles, and with condensers having a small power factor the change between 50 cycles and 100 cycles (which is the normal ripple frequency for double wave rectification) is negligible. With high power factor condensers the difference becomes more important.

Pronounced Absorption Effect

Finally, another point of peculiarity of these condensers resides in the degree of stability of the dielectric itself as compared with, say, paper or mica. With these latter no changes in the condenser should take place when the condenser is standing idle, unused, or with no voltage applied to it. With electrolytic condensers some changes often occur under these conditions; but the trend of research and development is in the direction of eliminating these changes. When an electrolytic condenser has been standing idle, and a d.c. voltage is suddenly applied to its terminals, there is an initial rush of charging current just as there is with any condenser; but this current does not immediately disappear, but only gradually decreases to the normal leakage value. This effect is analogous to the so-called "absorption" found with paper and mica condensers, but is much more pro-

nounced. With the best types of electrolytic condenser this abnormal leakage current is finished for all practical purposes in a fraction of a minute, but with the older types it persisted for much longer periods. Typical values are shown by the curves in Fig. 4.

Summarising the chief points regarding electrolytic condensers and the merits of their use, it appears that their sole advantages lie in their small size for a given microfarad capacity, and consequent lower cost; while the attendant disadvantages are to be found in their peculiar properties, which, as indicated above, require special consideration in the practical

use of the condensers. These special properties almost limit their use to the smoothing of d.c. circuits, with a comparatively small superimposed a.c. ripple voltage. In general, the design of these condensers must of necessity be a compromise between the effects of conflicting properties and requirements, and taking everything into consideration the best compromise is probably found in those types having the "semi-dry" or paste-like electrolytes, which give a good all-round performance, while avoiding the special disadvantages associated with the extremes of both the wet and the super-dry types.

In Next Week's Issue:—**THE QUIESCENT PUSH-PULL TWO**

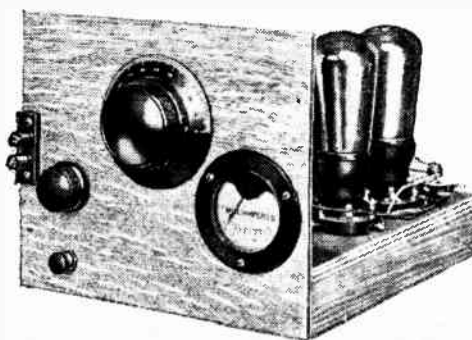
A Two-stage Local Station Battery Set giving Generous Moving-coil Output with a Total Working H.T. Consumption of 8 mA.

THIS striking receiver, embodying the principles outlined in last week's issue under the title "Outstanding Battery Set Development," comprises a detector coupled by a high-ratio transformer to two Pen.220A valves in quiescent push-pull. The output delivered to the moving-coil speaker, either from radio or gramophone, reaches the remarkable figure of about 1½ watts speech, although the H.T. battery used is only of the smallest type. Thus the listener without access to electric supply mains is now able to enjoy the volume and quality of reproduction hitherto regarded as the prerogative of the mains user. The new development gives all listeners an equal opportunity to obtain reproduction and a volume-level constituting a lifelike representation of the original.

LIST OF PARTS

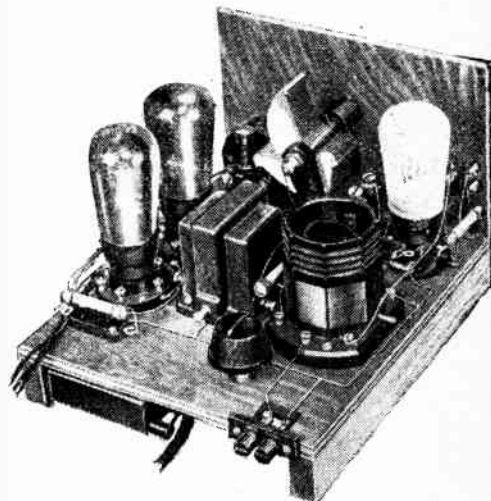
After the particular make of component used in the original model, suitable alternative products are given in some instances.

- 1 Slow motion variable condenser, 0.0005 mfd. Formo No. 10C
- 1 Intervalve L.F. transformer, 9:1 Sound Sales SS/PP9
(Multitone, Ferranti, R.I.)
- 1 Dual range coil Govern RM2S
(Lissen)
- 1 Milliammeter, 0-10, moving iron Sifam E66
- 1 On-off switch, with clips for meter Benjamin Type B
- 3 Valve holders, 5-pin Junit



A meter is included for matching the valves.

- 1 Potentiometer, 25,000 ohms Rotorohm
- 1 Pair C.B. battery clips Cripsco
- 1 Switch, 3-pt. Telsen
- 1 H.F. choke McMichael Binocular Junior
- 1 Reaction condenser, 0.0003 mfd. Polar "Compax"
- 2 Twin socket strips, aerial, earth, 2 pick-ups Belling-Lee
- 1 Grid leak, 1 megohm Dubilier
- 1 Metallised resistance, 5,000 ohms, 1 watt Dubilier
- 1 Metallised resistance, 20,000 ohms, 1 watt Dubilier
- 1 Metallised resistance, 75,000 ohms, 1 watt Dubilier
- 1 Metallised resistance, 150,000 ohms, 1 watt Dubilier



MULTUM IN PARVO. The receiver chassis measures only 9½ ins. × 8 ins. × 6½ ins., but the output is equal to that from a mains set.

- 1 Fixed condenser, 0.005 mfd. Dubilier No. 670
 - 1 Fixed condenser, 0.0001 mfd. Dubilier No. 655
 - 1 Fixed condenser, 0.0003 mfd. Dubilier No. 665
 - 1 Fixed condenser, 1 mfd., 250 volts, D.C. working Peak
 - 1 Fixed Condenser, 2 mfd., 250 volts, D.C. working Peak
 - 3 Wander plugs, Grid 1, Grid 2, Grid 3 Belling-Lee "Bow Spring"
 - 1 Battery cable, 6-way, 30 ins. Belling-Lee
 - 1 C.B. battery, 10½ volts
 - 1 H.T. battery, 130 volts Drydex Special Quiescent Push-pull, Yellow Triangle
 - 1 Loud speaker, with transformer Celestion QPT19A
- Cabinet with wood panel, baseboard and battens
Clarion Radio Furniture,
28/38, Mansford Street,
Hackney, E.2.
- Systoflex, 1 oz. No. 22 tinned copper wire, etc.
Screws, 12 1/16 in. No. 4 R/hd., 8 1/16 in. No. 4 R/hd., 6 1/16 in. No. 4 R/hd., 4 1/16 in. No. 4 C/sk., 2 1/16 in. No. 6 C/sk.
Valves, 2 Mazda Pen.220A, 1 Mazda H.L.2 metallised.

UNBIASED

Simple and Good

By

FREE GRID



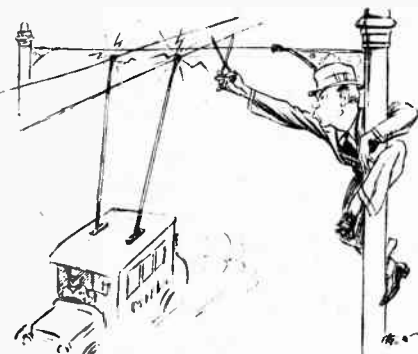
Suspected!

GADGETS have always been a source of delight to me, but I must confess that when the Editor posted to me an advance model of *The Wireless World* Station Finder I was rather dubious, having been stung more than once by so-called station locators and patent tuning charts of the jig-saw-puzzle variety.

A few minutes' handling of the instrument speedily reassured me, however. To my mind, the great thing about it is its simplicity, there being no need for Bradshavian juggling with calibration charts and lists of stations; even Aunt Agatha, with all her adroitness in these matters, would find it a difficult task to mess it up.

Is the Menace Real?

I OFTEN wonder what is the real truth about the great trolley-bus menace to radio reception, as such conflicting reports seem to come from people who



Averting the trolley bus menace.

dwell near roads over which these juggernauts run.

On the one hand, I read that it is quite easy for interference to be completely eliminated and, incidentally, that this has been done by the Southend-on-Sea Corporation; yet, on the other hand, according to a well-known East Anglian journal, "very exhaustive tests were made in Ipswich about a month ago when it was admitted by the Post Office and the B.B.C. officials that there was no known method of eliminating these disturbances."

Are the Gippesvicensian engineers incompetent, or can it be that the trouble has not yet been so completely eliminated in Southend as we are led to believe? Perhaps I shall be able to get an answer to this question at the Southend Radio Show, which I hope to visit on the 28th of this month.

Set Tracking at Speed

ACCORDING to one of the oldest of our weekly journals, the Post Office are now using a special detector van capable of doing its stuff while travelling at over seventy miles an hour, the idea being

to detect the presence of unlicensed sets used in cars.

If the report be true, a wicked waste of public money is entailed. Cannot an ordinary detector van deal with the cars when they are in their garages? For the purpose of detection it does not matter in the least whether sets are being operated or not. The idea of providing a special high-powered van is rather Gilbertian and reminds me of the man who, having cut a hole in his study door so that his cat could come in without disturbing him, afterwards made four additional small holes for its quartet of kittens.

Grave Form of Static

IT is well known among old listeners that in the early days of broadcasting a considerable amount of local interference was experienced from electrical machinery installed in cinemas. In fairness to the managers and proprietors of these establishments, I must place it on record that in most cases, when a complaint was made, they went to considerable trouble and expense in getting remedial measures applied to their machines by a competent firm of electrical engineers.

Since those days, however, what Kipling calls "a baser breed without the law" seems to have arisen among the ranks of these gentry. Possibly the coming of the talkies has had something to do with it.

Let a few facts speak for themselves. A friend in a small country town recently asked me to diagnose the cause of certain interference with radio reception which was troubling not only him but a great many of his neighbours. My investigations leading me to believe that the trouble was coming from the local sob-stuff saloon, I hoped that a tactful interview with the manager would speedily put matters right. But before the interview took place I made the disturbing discovery that the interference was being deliberately manufactured in order to drive local yokels from the solid comforts



Disturbing discovery.

of the fireside to the more exotic delights of the "hot house." It appears that the owner-manager of the little tin shack that does duty for a cinema, realising that radio was gradually weaning his patrons away from his pestiferous picture palace, had hit upon this plan of driving them back again, fully realising, of course, that the law could not touch him.

If this sort of thing is allowed to go on unchecked it will not be long before the proprietors of tea-shops, art galleries, and museums adopt similar tactics, and pandemonium will be let loose.

Although I am preparing a full report for presentation to the proper quarter, a little publicity here and now may scotch this snake in the grass.

The Old Geyser

IT would, to say the least, be boorish and unmannerly of me if I failed to give thanks in these columns to the many public-spirited citizens who responded to my appeal for assistance in a recent delicate mission. It will be remembered that it fell to me to make tactful representations to an old "geezer," whose practice it was to take power for her bath geyser from the 105 volts local electricity supply at an hour in the evening which was distinctly inconvenient to owners of mains radio sets. Advice came, not only from this country, but even from the Continent.

Readers will be pleased to learn, however, that I was spared the necessity of approaching the lady by a purely coincidental action on the part of the local Electric Supply Company, who suddenly decided to change the local voltage from 105 to 240. As the more advanced of my technical readers know, this action in itself, by more than halving the current, will do a like service to the voltage drop along the lengthy feeder line. Quite apart from this, however, the Electric Supply Authorities are endeavouring to persuade her to change her geyser for a modern electric thermal storage tank. I understand that, owing to the heavy and fitful loading which electric geysers impose on the line, they are not looked upon with favour by Electric Supply Authorities.

Thank You

I SHOULD like to take this opportunity to give somewhat belated thanks to all those readers who have been so kind in sending me little tokens of their esteem during this festive season. I have now enough hand-knitted bed-socks to last me for several years.

More Kilowatts

BERLIN'S new 120-kW. broadcasting station, replacing Witzleben, is expected to make its first bow in the early summer.

Joking at 7.30 a.m.

POSTE Parisien is arranging morning broadcasts between 7.30 and 9 o'clock consisting of news, physical training, jokes and gramophone records. Listeners' suggestions should be sent to 116, Ave des Champs Elysées, Paris.

Dentist v. Decibels

A CREWE dentist, complaining to the Town Council in regard to a noisy loud speaker, said that he had sometimes to wait till the noise stopped before administering an anesthetic, as it was impossible to hear whether the patient was breathing or not.

House Builders and Man-made Static

THE French semi-official newspaper, *Le Temps*, publishes an article by M. Jacques Pipoul in which house builders are appealed to on behalf of radio listeners. All specifications for new houses, remarks the writer, should include provision for anti-static devices so that tenants can listen in comfort without disturbance from lift motors, electric bells, and the other usual-sources of interference.

Mr. G. S. Kemp

MR. G. S. KEMP, who was Marchese Marconi's first assistant when the young inventor came to England in 1896, has died at the age of seventy-six. A familiar figure at Marconi House until quite recently, Mr. Kemp had completed over thirty-five years of service with the company. It was in December, 1901, that he accompanied Marconi to St. John's, Newfoundland, and heard the historic first radio signals across the Atlantic, transmitted from Poldhu, Cornwall.



AN HISTORIC GROUP.—The death of Mr. G. S. Kemp (seen on left) recalls the famous occasion at St. John's, Newfoundland, in 1901, when the young Marconi (seated in front) succeeded in picking up signals from Carnarvon on a kite aerial, his assistants being Messrs. Kemp and Paget.

News of the Week

Current Events in Brief Review

Railway Time by Radio

TWO hundred railway clocks on the French State Railways around Rouen are set daily by wireless from the Eiffel Tower. The master receiver at Rouen station is operated by a mercury relay which switches it on just before the morning time signal.

Scope for Radio Architects

BRUSSELS architects are being invited to submit designs for the projected "Broadcasting House" to be occupied by the Belgian National Radio Institute at Ixelle, on the outskirts of the city. The present headquarters are in a private house, and the main studio is an old dance hall.

U.S. Broadcasting Flourishing

DESPITE business depression in America, as elsewhere, the National Broadcasting Company and the Columbia Broadcasting System both report record revenues for eleven months of 1932. Up to November the two organisations had together profited to the extent of \$36,107,093, as compared with \$35,791,999 for the whole of 1931.

The Listening Age

THE majority of wireless listeners are between the ages of thirty and fifty, according to the investigations of the Austrian broadcasting authorities, who recently initiated a voluntary census. Fifty per cent. of listeners are middle-aged, some 25 per cent. are classified as "old" (over fifty?), and 20 per cent. young.

These figures, as a correspondent points out, are valid only for 1933. Very soon all baby carriages will be equipped with receivers, and children may eventually be born wearing natural headphones.

A Popular Deputy

A FRENCH deputy has advanced the following reasons for voting against the proposed radio listening tax:—

(1) It would be too difficult to discover all the owners of wireless sets. (2) This "lamentable" tax would put a stop to the wireless business, as listeners would dread, rightly or wrongly, that their addresses would be communicated to traders. (3) The set would be flung into the corner and family groups around the loud speaker would become a memory of the past.

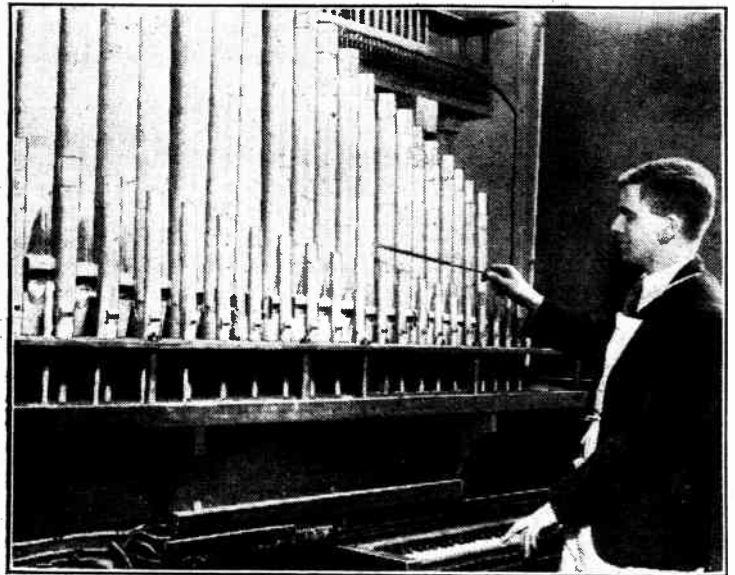
Happy Amateurs

WHATEVER other interests may have suffered or failed to find satisfaction at the recent Madrid Conference, the amateur transmitters did well. Opposition to the amateur movement was offered by several nations, but a coalition of the English-speaking countries overcame all threats.

Major Kenneth B. Warner, Chairman of the amateur delegations, has gratefully acknowledged the support of the United States, British and Canadian delegations, assisted by British Honduras.

Radio for London Police

ST. ANNE'S ROAD (Tottenham) Police Station, which will probably be one of the three new Metropolitan police wireless centres, was the scene of a special demonstration during the night of



AN ORGAN FOR BROADCASTING.—Voicing the pipes of the new £10,000 instrument for erection in the Concert Studio at Broadcasting House. The organ, which includes 2,326 pipes, is being built by the John Compton Organ Company.

That Empty Inch

A FEW days ago the head office of "His Master's Voice" received a telephone message from a lady who complained that there was an inch of space at the end of a recently purchased twelve-inch record. After it had been explained to her that the piece recorded had been too long for a ten-inch record, she expressed regret that in these days of economy the remaining inch had not been filled up with music, and enquired whether she could return the record for this to be done.

Storm in a Teashop.

SOME time ago, according to a correspondent in Japan, a well-known tea shop in Kioto was infested with a plague of flies, and the proprietor, being of an inventive turn of mind, got rid of them by steaming the shop with two separate jets of steam from boiling kettles attached by wires to the anode and cathode respectively of a battery. One cloud of steam laden with a positive charge came into collision with the opposite cloud negatively laden, and there ensued a miniature thunderstorm, which electrocuted the flies.

January 3rd and 4th, when telephony messages radiated from a station erected by an R.A.F. wireless section were picked up in cars at such places as Potters Bar, Barnet, South Mimms, Elstree, Hampstead and Hendon.

Less Education in German Ether

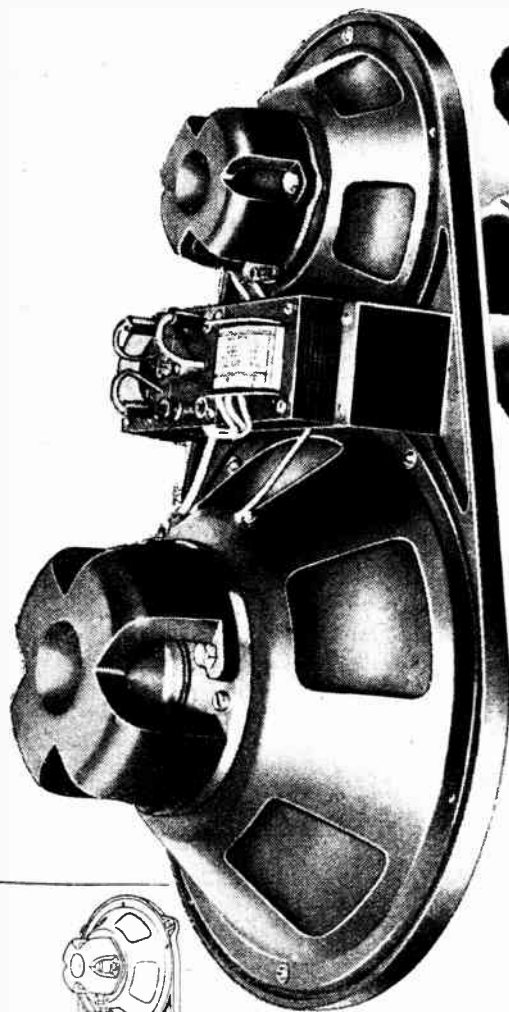
GERMANY'S educational broadcasting concern, the *Deutsche Welle*, ceased to exist at midnight on December 31st. This organisation made use of the Königswusterhausen transmitter daily until 8 p.m., and dealt almost exclusively in educational transmission. Its successor, the Deutschlandsender G.m.b.H., is responsible for all programmes from Königswusterhausen, and these, we learn, are to be less educational in character. The new station call is "Hier ist der Deutschlandsender Königswusterhausen."

High-voltage Valves

MR. EUGEN FORBAT, British representative for the Ostar Ganz high-voltage valves described in our issue of December 23rd, 1931, will lecture on the valves at a meeting of the Bristol and District Radio and Television Society on January 20th, at 7.30 p.m.

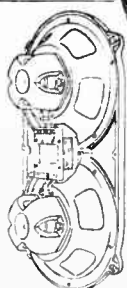
REETONE-*Two Speakers as one*

For
the
very
first
time —
sound
reproduced
Naturally



The Celestion Dual Speaker consists of two units so coupled that the treble is accepted by the treble unit, and the bass accepted by the bass unit. The performance of the combination must be heard to be appreciated. The illustration shows Model S29. Price £6.0.0. Other models available.

When Celestion announce a new speaker the great listening public expects a definite advance in sound reproduction. In introducing the Reetone Range of Dual and Matched Speakers, Celestion are confident that nothing finer has ever been offered to discriminating listeners. Tonal quality far superior to anything previously imagined, let alone heard; a rich beauty of reproduction never previously associated with anything but the actual performance. These are the qualities that stamp the Reetone Range of Speakers vastly superior instruments.



CELESTION "REETONE" MATCHED SPEAKER

Whereas the Dual Speaker has differently sized diaphragms, the Matched units are nearly similar in all respects, except that the mechanical resonances in the lower register are "staggered." This "staggering" eliminates the tendency to "boom" evidenced in all small moving coil speakers in which the bass has not been suppressed and generally augments the output below 150 cycles.

The following models are available:—

TYPE NO.	MATCHED	LIST PRICE
99	Two Perm. Magnets	£4.5
88	Two Energised One Perm. Magnet	£4.5
98	One Energised One Perm. Magnet	£4.5

CELESTION

The Very Soul of Music

To CELESTION LTD.,
London Rd., Kingston-on-Thames.

Please send me illustrated folder giving full details of "Reetone" Speakers, together with constructional details and data.

Name

Address

W.W.

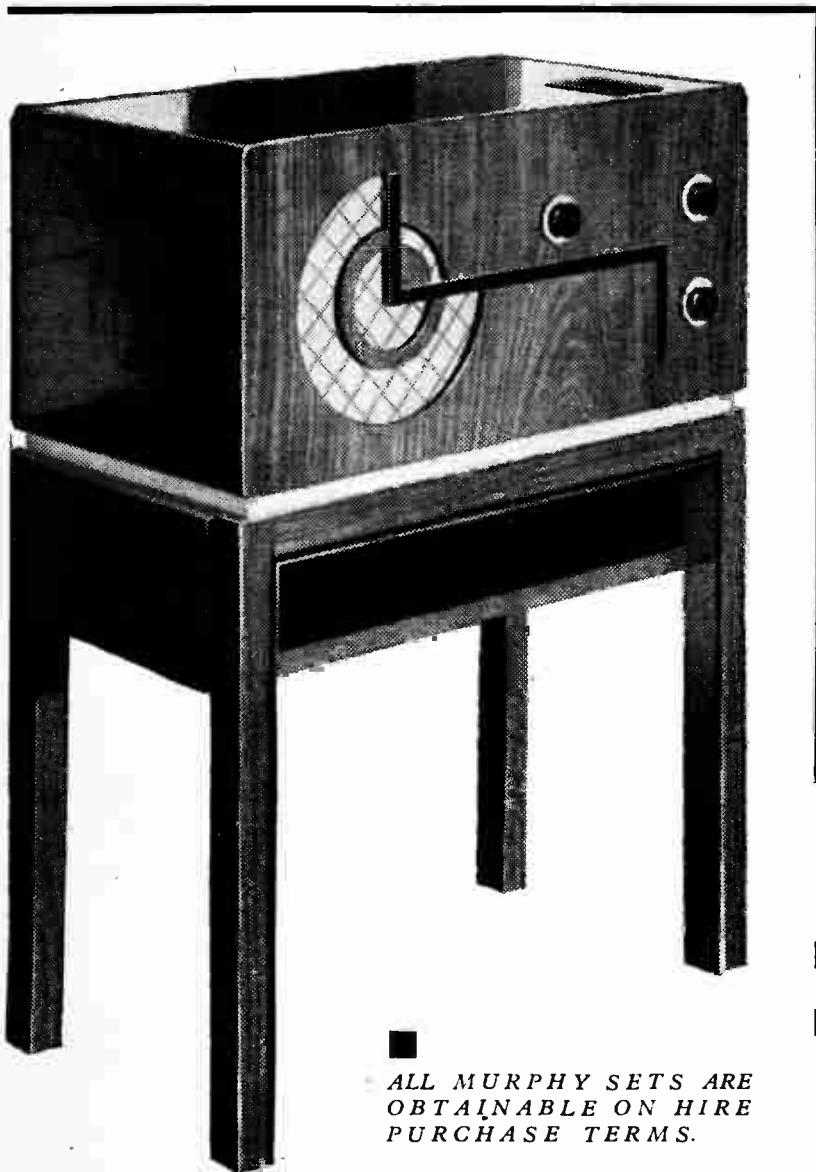
FOREMOST NAME IN SOUND REPRODUCTION

CELESTION LTD., LONDON ROAD, KINGSTON-ON-THAMES. London Showrooms: 106 Victoria St., S.W.1

MURPHY RADIO

When I started advertising just over two years ago, the "Wireless World" was one of the first papers chosen. It was chosen because I knew that you appreciated a good "job of work" in wireless, and I felt that your word would carry a good deal of weight with the ordinary public. Those first advertisements were to introduce a 4 valve battery model to you. Now I'd like to hear what you think of my 8 valve superhet. I have written a booklet "The A.8" which gives details of some of the problems which face a manufacturer of such a set. I think you will find it interesting reading, and I hope it will make you want to handle an A.8 for yourself. Any Murphy dealer will be glad to give you a free copy.

Frank Murphy
B.Sc., A.M.I.E.E., A.I.Rad.E.,
Chartered Elect. Engineer.



■ ALL MURPHY SETS ARE
OBTAINABLE ON HIRE
PURCHASE TERMS.

A.8 SUPERHETERODYNE RECEIVER

Nine valves, including mains rectifying valve. *Automatic volume control*, using double diode valve. This eliminates to a great extent fading on distant stations, and forms a necessary control of volume when receiving the local stations. Manual volume control also fitted. This controls both radio and gramophone record reproduction. Single dial tuning. Scale illuminated and calibrated in wavelengths. One main switch used for switching on set, changing from medium to long waves and putting gramophone jack in circuit. Moving Coil Speaker; undistorted power output approximately 2 watts.

£24-0-0

■ 4 VALVE BATTERY OPERATED - £12-10-0

■ 3 VALVE ALL-ELECTRIC with Pedestal £15-5-0

without Pedestal £13-10-0
Nett cash with order.

MURPHY RADIO LTD., WELWYN GARDEN CITY, HERTS. TELEPHONE: WELWYN GARDEN 800.

PROGRAMMES FROM ABROAD

SRJ

Broadcasting Stations Arranged in Alphabetical Order

Times and Details of Full Week's Foreign Transmissions

Station.	Tuning Positions.	Metres.	Kc.	kW.	Station.	Tuning Positions.	Metres.	Kc.	kW.
Aalesund		447.1	671	0.35	Hörby (Sweden). (Relays Stockholm)		257.1	1167	10
Aberdeen		214.3	1400	1	Hudiksvall (Sweden). (Provisional)		222.9	1346	0.15
Algiers (Algeria)		363.6	825	13	Huizen (Holland). (Up to 4.40 p.m.)		296.1	1013	7
Almeria, E.A.18 (Spain)		252	1193	1	Huizen (Holland). (After 4.40 p.m.)		296.1	1013	20
Ankara (Angora) (Turkey)		1538	195	7	(Exchanges wavelengths with Hilversum every three months.)				
Archangel, RV36 (Russia)		389.6	770	10	Innsbruck (Austria). (Relays Vienna)		283.6	1058	0.5
Astrakhan, RV35 (Russia)		509	589	10	Irkoutsk, RV14 (Russia)		1600	187.5	10
Athlone (Irish Free State)		413	725	80	Ivanovo-Voznesenk, RV33 (Russia)		480	625	10
Augsburg (Germany). (Relays Munich)		560	536	0.25	Juan-les-Pins, Nice (France)		249.6	1202	0.8
Baku, RV8 (Russia)		1260	238	10	Kaiserslautern (Germany). (Relays Munich)		560	536	1.5
Barcelona, E.A.11 (Spain)		348.8	860	7.6	Kalmar (Sweden)		247.7	1211	0.2
Barcelona, E.A.15 (Assoc. Nat.) (Spain)		252	1193	1	Kalundborg (Denmark). (Relays Copenhagen)		1154	260	7.5
Bari (Italy)		269.8	1112	20	Karlskrona (Sweden)		195	1530	0.2
Basle (Switzerland). (Relays Beromünster)		244.1	1229	0.5	Karlstad (Sweden)		217	1382	0.25
Belfast (N. Ireland)		242.3	1238	1	Katowitz (Poland)		408.7	734	16
Belgrade (Yugoslavia)		430	698	2.5	Kaunas (Kovno) (Lithuania)		1935	155	7
Bergen (Norway)		361.1	824	1	Kharkov, RV4 (Russia)		938	320	20
Berlin, No. 1, Witzleben (Germany)		419.5	715	1.5	Kharkov, RV20 (Russia)		368.1	815	10
Berne (Switzerland). (Relays Beromünster)		245.9	1220	0.5	Kiel (Germany). (Relays Hamburg)		232.2	1292	0.25
Beromünster (Schweizerischer Landessender) (Switzerland)		459.4	653	60	Kiev, RV9 (Russia)		1035	290	36
Béziers (France)		219.9	1365	1.5	Klagenfurt (Austria). (Relays Vienna)		453.2	662	0.5
Boden (Sweden). (Relays Stockholm)		1229.5	244	0.6	Königsberg (East Prussia) (Germany)		217	1582	0.5
Bodö (Norway)		453.2	662	0.5	Kosice (Czechoslovakia)		293.5	1022	2.6
Bolzano (Italy)		368.1	815	1.0	Kristiansand (Norway)		235.5	1274	0.5
Boras (Sweden)		207	1450	0.15	Kristinehamn (Sweden)		202.7	1480	0.25
Bordeaux Lafayette, PTT (France)		304	986	13	Lahti (Finland)		1796	167	40
Bordeaux Sud-Ouest (France)		237.2	1265	3	Langenburg (Germany)		472.4	635	60
Bratislava (Czechoslovakia)		278.8	1076	13.5	Lausanne (Switzerland). (Relays Sottens)		680	441.2	0.6
Bremen (Germany). (Relays Hamburg)		269.8	1112	0.25	Leipzig (Germany)		389.6	770	120
Breslau (Germany)		325	923	60	Leningrad (Russia)		835	359	100
British Relay Stations (Bournemouth, Plymouth)		288.3	1040	--	Leningrad, RV70 (Russia)		348.8	860	10
Brno (Brum) (Czechoslovakia)		341.7	878	35	Lille, PTT (France)		265.8	1128.5	1.3
Brussels, Radio-Chatelineau		215.6	1391	0.1	Limoges, PTT (France)		293.5	1022	0.7
Brussels No. 1, Velthem (Belgium). (French Programme.)		509	589	15	Linz (Austria). (Relays Vienna)		245.9	1220	0.5
Brussels II, Velthem (Belgium). (Flemish Programme.)		338.2	887	15	Lisbon (T 1AA (Portugal). (Short-wave Station on 31.25 m.)		282.2	1063	2
Bucharest (Roumania)		394.2	761	12	Ljubljana (Yugoslavia)		574.7	522	2.5
Budapest (Hungary)		840	357	18.5	Lodz (Poland). (Relay Station)		235	1283	1.65
Budapest No. 1, Lakihegy (Hungary)		550	545	18.5	London National (Brookmans Park)		261.5	1147	50
Cadiz (Spain)		335	896	5	London Regional (Brookmans Park)		355.9	843	50
Cardiff		309.9	968	1	Lwow (Lemberg) (Poland)		381	788	16
Cassel (Germany). (Relays Frankfurt)		245.9	1220	0.25	Lyons (Radio-Lyon) (France)		265.1	1052	0.7
Copenhagen (Denmark)		281.2	1067	0.75	Lyons la Dona, PTT (France)		465.8	644	1.5
Cork (Irish Free State)		224.4	1337	1	Madrid, EA12 (Radio Espana). (Up to 7.0 p.m.)		424.3	707	1.3
Cracow (Poland)		312.8	959	1.7	Madrid, EA17 (Union Radio). (After 7.0 p.m.)		424.3	707	2
Danzig. (Relays Heilsberg)		453.2	662	0.5	Magyarovar (Hungary)		209	1430	3
Dauntrey National. (S.W. Stn. G5SW on 25.53 m.)		1554.4	193	30	Marseilles, PTT (France)		315.8	950	1.6
Dresden (Germany). (Relays Leipzig)		318.8	941	0.25	Midland Regional		398.9	752	25
Eiffel Tower, FL, Paris		1446	207.5	13	Milan (Italy). (Relays Turin)		331.5	905	50
Eskilstuna		245.9	1220	0.2	Minsk Koloditschi, RV10 (Russia)		1105	271.5	35
Falun (Sweden)		307	977	0.5	Montpellier (France)		286	1049	0.8
Fécamp, Radio-Normandie (France)		223	1345	10	Moravska Ostrava (Czechoslovakia)		263.8	1137	11.2
Flensburg (Germany). (Relays Hamburg)		227.4	1319	0.5	Moscow, Imini Stalina (Russia)		424.3	707	100
Florence, IFl (Italy). (Relays Turin)		500.8	599	20	Moscow (Russia)		1000	300	100
Frankfurt-a.-M. (Germany)		259.3	1157	17	Moscow, RV2 (Experimental) (Russia)		720	416.6	20
Fredriksstad (Norway). (Relays Oslo)		367.6	816	0.7	Moscow, Popoff RV58 (Russia)		1117	268.5	40
Freiburg-im-Breisgau (Germany). (Relay Station.)		569	527	0.25	Moscow, RV1 (Old Komintern) (Russia)		1481	202.5	100
Gävle (Sweden)		204.1	1470	0.2	Moscow, WZSPS (Trade Union) (Russia)		1304	230	100
Geneva (Switzerland). (Relays Sottens)		760	395	1.3	Motala (Sweden). (Relays Stockholm)		1348	222.5	30
Genoa, IGE (Italy). (Relays Turin)		312.8	959	10	Mühlacker (Stuttgart) (Germany)		360.6	832	60
Gorman Relay Stations (Berlin, Magdebourg, Stettin)		283.6	1058	0.5	Munich (Germany)		533	563	60
Gleiwitz (Germany). (Relays Breslau)		253.1	1185	5	Naples, INA (Italy). (Relays Rome)		318.8	941	1.5
Göteborg (Sweden). (Relays Stockholm)		321.9	932	10	Newcastle		211.3	1420	1
Graz (Austria). (Relays Vienna)		352.1	852	7	Nijni Novgorod, RV42 (Russia)		501.7	598	10
Grenoble (France)		568.1	528	2	Nimes (France)		238	1260	1
Halmstad (Sweden)		215.6	1391	0.2	Norrköping (Sweden)		230.6	1301	0.25
Hälsingborg (Sweden)		201.3	1490	0.25	North National (Manchester)		301.5	995	50
Hamar (Norway). (Relays Oslo)		560	536	0.7	North Regional (Manchester)		480	625	50
Hamburg (Germany)		372.2	806	1.5	Notodden (Norway). (Relays Oslo)		447.1	671	0.08
Hanover (Germany). (Relays Hamburg)		566	530	0.25	Novosibirsk, RV6 (Russia)		1380	217.5	100
Heilsberg (Germany)		276.5	1085	60	Nürnberg (Germany). (Relays Munich)		238.9	1256	2
Helsinki (Finland). (Relays Lahti)		368.1	815	10	Odessa, RV13 (Russia)		450.4	666.7	10
Hilversum (Holland). (Exchanges wavelengths with Huizen every three months.)		1875	160	8.5	Ornsköldsvik (Sweden)		206	1460	0.2
					Oslo (Norway)		1083	277	60
					Ostersund (Sweden). (Relays Stockholm)		770	389	0.6
					Ofna, RV22 (Russia)		486.2	617	10
					Oulu (Uleaborg) (Finland)		690	434.6	1.5
					Palermo (Italy)		342	554	3
					Paris, Ecole Supérieure PTT		447.1	671	7

BROADCASTING STATIONS ABROAD (In Alphabetical Order)

Station.	Tuning Positions.	Metres.	Kc.	kW.	Station.	Tuning Positions.	Metres.	Kc.	kW.
Petrozavodsk, RV29 (Russia)		779	385	10	Stockholm, SASA (Sweden)		435.4	689	55
Pietarsaari		245.9	1220	0.5	Strasbourg, PTT (France)		345.2	869	11.5
Pori (Finland)		453.2	662	1	Sundsvall (Sweden) (Relays Stockholm)		542	554	10
Porsgrund. (Relays Oslo)		453.2	662	0.7	Sverdlövska, RV5 (Russia)		825	363.6	50
Poste Parisien (France)		328.2	914	60	Swansea		245.9	1220	0.1
Poznan (Poland)		334.4	897	1.9	Swedish Relay Stations. (Malmö, Umeå)		230.6	1301	—
Prague, No. 1 (Czechoslovakia)		488.6	614	120	Tallinn (Estonia)		298.8	1004	11
Prague, No. 2 (Czechoslovakia)		249.6	1202	—	Tampere (Finland) (Relays Helsinki)		558.6	537	1
Rabat (Morocco)		416.4	720.5	5	Tashkent, RV11 (Russia)		1170	256	25
Radio, L.L. Paris		370.1	810.5	0.8	Tiflis, RV7 (Russia)		1071	280	10
Radio Paris, C.F.R.		1725	174	75	Toulouse, PTT (France)		255.1	1176	0.7
Radio Vitus (Paris) (S.-W. Stn. on 43.75 m.)		307	977	0.7	Toulouse (Radiophonie du Midi) (France)		385.1	779	8
Rennes, PTT (France)		271.5	1105	1.3	Trieste (Italy)		247.7	1211	10
Reykjavik (Iceland)		1200	250	21	Trollhättan (Sweden)		230.6	1301	0.2
Riga (Latvia)		525	571	15	Tromsø		453.2	662	0.1
Rjukan		447.1	671	0.15	Trondheim (Norway)		493.4	608	1.2
Rome, IRO. (S.-W. Stn., 2RO on 25.4 m.)		441.2	680	50	Tunis-Kashah (Tunisa)		1350	222.2	0.5
Rostov-on-Don, RV12 (Russia)		849	353.4	4	Turin (Italy)		273.7	1096	7
Säffle (Sweden) (Relays Stockholm)		245.9	1220	0.4	Turku (Abo) (Finland) (Relays Helsinki)		245.9	1220	0.5
Salamanca, EAJ22 (Spain)		453.2	662	1	Uddevalla (Sweden)		229	1310	0.5
Salzburg (Austria) (Relays Vienna)		218.5	1373	0.5	Uppsala (Sweden) (Relays Stockholm)		453.2	662	0.1
Samara, RV16 (Russia)		575	521.5	1.2	Valencia (Spain)		267.6	1121	1.5
San Sebastian, EAJ8		453.2	662	0.6	Varberg (Sweden) (Provisional)		249.6	1202	0.3
Schaerbeek (Belgium)		245.9	1220	0.1	Vienna (Rosenhügel) (Austria)		517	580	15
Scottish National (Falkirk)		288.3	1040	50	Viipuri (Viborg) (Finland) (Relays Helsinki)		291	1031	10
Scottish Regional (Falkirk)		376.4	797	50	Warsaw 1 (Poland)		1412	212.5	120
Seville, EAJ5 (Union Radio) (Spain)		368.1	815	1	Warsaw, No. 2 (Poland)		214.3	1400	10
Sofia (Bulgaria)		318.8	941	0.5	Wilno (Poland) (Relay Station)		563	533	16
Sottens (Radio Suisse Romande) (Switzerland)		403.8	743	25	Zagreb (Yugoslavia)		307	977	0.7
Stalino, RV26 (Russia)		385.1	779	10	Zeesen (Königswusterhausen) (Germany) (Generally relays Berlin.) (S.-W. Stn. DJA on 31.38 m.)		1635	183.5	60
Stamboul (Turkey)		1200	250	5					
Stavanger (Norway)		240.6	1247	0.5					

PRINCIPAL SHORT-WAVE STATIONS.

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

Metres.	Kc.	Call Sign.	Station.	Tuning Positions.	Metres.	Kc.	Call Sign.	Station.	Tuning Positions.
80.0	3,750	2RO	Rome		39.7	7,556	HKF	Bogota (Colombia) (Westinghouse Labs.)	
70.2	4,273	RW15	Kharkovsk (Russia) (Daily 09.00-12.00)		39.4	7,612	X26A	Nuevo Laredo (Mexico) (Thurs. 16.00)	
62.56	4,795	VE914Y	London, Ont. (Canada) (Sun. 06.00)		38.7	7,797	HBL	Radio Nations, Prangins (Switzerland) (Sun. 22.00-22.45)	
62.5	4,800	W2XV	Long Island, N.Y. (U.S.A.) (Fri. 24.00)		36.92	8,125	PLW	Bandoeng (Java) (Daily 10.00-14.00)	
58.3	5,146	PMY	Bandoeng (Java) (Daily 12.20 and 07.00)		34.68	8,650	W2XV	Long Island, N.Y. (U.S.A.) (Fri. 23.00)	
58.0	5,172	OK1MPT	Prague (Czechoslovakia) (Tues. and Fri. 19.30)		34.68	8,650	VE914Y	London, Ont. (Canada) (Mon. 21.00)	
54.52	5,502	W2XBH	Brooklyn, N.Y. (U.S.A.) (Relays WCGU)		33.50	8,928	TGX	Guatemala City (S. America)	
52.7	5,690	PIU1	Tananarive, P.T.T. (Madagascar)		32.26	9,300		Rabat (Morocco) (Sun. 21.00)	
52.5	5,714	HG1B	Quito (Ecuador) (Daily 12.30)		31.58	9,500	PRBA	Rio de Janeiro (Brazil) (Daily 21.30)	
51.22	5,857	XDA	Chapultepec (Mexico)		31.55	9,510	VK3ME	Melbourne (Australia) (Wed. and Sat. 10.00)	
50.6	5,930	HKO	Medellin (Colombia)		31.54	9,510	GSB	Empire Broadcasting, Zones 2, 4, 5	
50.26	5,970	HVJ	Vatican State, Rome (Daily 19.00)		31.51	9,520	OXY	Skamlebaek (Denmark) (Relays Copenhagen)	
50.0	6,000	ZL3ZC	Christchurch (New Zealand) (Wed. 03.00-07.30)		31.48	9,530	W2XAF	Schenectady, N.Y. (U.S.A.) (Relays WGF)	
50.0	6,000	RW59	Bucharest (Roumania)		31.38	9,560	DJA	Zeesen (Germany) (Daily 13.00)	
50.0	6,000	EAJ25	Moscow		31.35	9,570	SRI	Posen (Poland) (Tues. and Thurs. 17.30)	
49.96	6,005	VE914C	Barcelona, Radio Club (Spain) (Sat. 20.00)		31.35	9,570	W1XAZ	East Springfield, Mass. (U.S.A.) (Relays WFF)	
49.96	6,005	HRB	Drummondville (Canada) (Relays CFCE, 01.00-05.00)		31.3	9,582	W3XAU	Philadelphia, Pa. (U.S.A.) (Daily ex. Thurs. and Fri. 21.00)	
49.83	6,020	W9XF	Tegucigalpa (Honduras) (Daily ex. Sun. 00.00-05.00)		31.3	9,580	HBL	Radio Nations, Prangins (Switzerland) (Sun. 22.00-22.45)	
49.8	6,023	XEW	Chicago, Ill. (U.S.A.) (Relays WENR)		31.29	9,585	GSC	Empire Broadcasting, Zone 3	
49.67	6,042	W2XAL	Mexico City (Mexico) (Daily 01.00)		31.28	9,590	VK2ME	Sydney (Australia) (Sun. 10.00)	
49.59	6,050	VE9HX	Carysville, N.J. (U.S.A.) (Relays WRN F)		31.25	9,598	CT1AA	Lisbon (Portugal) (Tues. and Fri. 22.00-24.00)	
49.58	6,050	GSA	Halifax (Nova Scotia) (Relays CHNS)		31.10	9,640	HS2PJ	Bangkok (Siam) (Mon. 02.00-05.00)	
49.5	6,060	VQ7LO	Empire Broadcasting, Zones 4-5		30.43	9,869	EAQ	Aranjuez (Spain) (Daily 23.30, Sat. 18.00)	
49.5	6,060	W8XAL	Nairobi (Kenya Colony) (Daily 16.30)		30.0	10,000		Belgrade (Yugoslavia) (Mon. 19.00)	
49.5	6,060	W3XAU	Mason, Ohio (U.S.A.) (Relays WLW)		29.3	10,228	T14NRH	Heredia (Costa Rica) (Daily 22.00 and 02.00)	
49.43	6,069	VE9CS	Philadelphia, Pa. (U.S.A.) (Relays WCF)		28.98	10,350	LSX	Buenos Aires (Argentina) (Daily 20.30)	
49.4	6,072	UOR2	Philadelphia, Pa. (U.S.A.) (Relays WCF)		26.83	11,180	CF3AQ	Funchal (Madeira) (Tues. and Thurs. 10.30-12.30)	
49.34	6,080	W2XCX	Vancouver, B.C. (Canada)		25.63	11,700	FYA	Pontoise (France) (Colonial Stn. E-W, daily 20.00)	
49.34	6,080	W9XAA	Vienna (Tues. 13.00, Thurs. 15.00, Sat. 23.00)		25.6	11,720	VE9JR	Winnipeg (Canada) (Daily ex. Sat. and Sun. 17.45)	
49.22	6,095	VE9GW	Kearny, N.J. (U.S.A.) (Relays WOR)		25.53	11,750	GSD	Empire Broadcasting, Zones 1 & 4	
49.2	6,098	ZTJ	Chicago, Ill. (U.S.A.) (Relays WCF)		25.5	11,760	XDA	Chapultepec (Mexico) (Daily 20.00)	
49.18	6,100	W3XAL	Bowmanville, Ont. (Canada) (Daily 20.00)		25.4	11,810	VE9GW	Bowmanville (Canada) (Daily 18.00)	
49.1	6,110	VUC	Johannesburg (S. Africa) (Weekdays 09.00-11.00 [Sat. 14.30] and 17.00, Sun. 13.00 and 17.30)		25.4	11,810	2RO	Prato Smeraldo, Rome. (16.00 and 19.30)	
49.02	6,120	W2XE	Bound Brook, N.Y. (Relays WJZ)		25.34	11,840	W9XAA	Chicago, Ill. (U.S.A.) (Relays WCF)	
48.86	6,140	W8XK	Calcutta, India. (Daily 13.00)		25.28	11,865	GSE	Empire Broadcasting, Zone 2	
48.8	6,147	VE9CL	Long Island, N.Y. (U.S.A.) (Relays WABC)		25.27	11,870	W8XK	East Pittsburg, Pa. (U.S.A.) (Relays KDKA)	
48.65	6,167	X1F	East Pittsburg, Pa. (U.S.A.) (Relays KDKA)		25.2	11,905	FYA	Pontoise (France) (Colonial Stn. N-S)	
48.35	6,205	HKC	Winnipeg (Canada) (Daily ex. Sun. 00.30)		23.38	12,830		Rabat (Morocco) (Sun. 11.30)	
48.2	6,220	2RO	Mexico City (Mexico)		20.5	14,630	XDA	Chapultepec (Mexico) (Daily 19.30)	
48.05	6,243	HKD	Bogota (Colombia) (Daily 15.00)		19.81	15,140	GSF	Empire Broadcasting, Zone 5	
48.0	6,250	CN8MC	Rome (Italy)		19.9	15,075	T14NRH	Heredia (Costa Rica) (Sat., Sun., Mon. 16.00 and 21.00)	
47.0	6,382	HCDR	Barranquilla (Colombia) (Weekdays 23.45)		19.84	15,120	HVJ	Vatican State, Rome (Daily 10.00)	
46.69	6,425	W3XL	Casablanca (Morocco) (Relays Rabat)		19.73	15,200	DJB	Zeesen (Germany) (Daily 13.00-17.00)	
46.67	6,425	W3XL	Quito, Ecuador (Daily 01.00)		19.72	15,210	W8XK	East Pittsburg, Pa. (U.S.A.) (Relays KDKA)	
46.67	6,425	W3XL	Bound Brook, N.J. (U.S.A.) (Relays WJZ irregular)		19.68	15,244	FYA	Pontoise (France) (Colonial Stn. E-W)	
46.67	6,425	W3XL	Bound Brook, N.J. (U.S.A.) (Relays WJZ irregular)		19.56	15,310	W2XAD	South Schenectady, N.Y. (U.S.A.) (Daily 18.00)	
46.67	6,425	W3XL	Bound Brook, N.J. (U.S.A.) (Relays WJZ irregular)		16.9	17,750	HSP	Bangkok (Siam) (Sun. and Tues. 21.00)	
46.67	6,425	W3XL	Bound Brook, N.J. (U.S.A.) (Relays WJZ irregular)		16.88	17,770	GSQ	Empire Broadcasting, Zone 2	
46.67	6,425	W3XL	Bound Brook, N.J. (U.S.A.) (Relays WJZ irregular)		16.87	17,780	W3XAL	Bound Brook, N.J. (Weekdays 13.00)	
46.67	6,425	W3XL	Bound Brook, N.J. (U.S.A.) (Relays WJZ irregular)		16.57	18,105	W9XAA	Chicago, Ill. (U.S.A.) (Relays WCF)	
46.67	6,425	W3XL	Bound Brook, N.J. (U.S.A.) (Relays WJZ irregular)		14.47	20,730	LSY	Buenos Aires (Argentina) (Sun. 21.00)	
46.67	6,425	W3XL	Bound Brook, N.J. (U.S.A.) (Relays WJZ irregular)		13.97	21,470	GSF	Empire Broadcasting, Zone 3 (Daylight working)	
46.67	6,425	W3XL	Bound Brook, N.J. (U.S.A.) (Relays WJZ irregular)		13.92	21,540	W8XK	East Pittsburg (Relays KDKA)	

FOREIGN SUNDAY PROGRAMMES

JANUARY THE FIFTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

- NATIONAL** Pianoforte recital. Recital of gramophone records of light French music. Military Band programme. Orchestral concert. Vocal recital. "God and the World Through Christian Eyes" (1), by the Archbishop of York. "Juniper's First Sermon," a play by Laurence Housman.
 - LONDON REGIONAL** National programme. "Readings from Classical Literature" (1). Roman Catholic Service, from a studio. Orchestral concert from the Park Lane Hotel.
 - MIDLAND REGIONAL** Choral concert. London Regional programme. Roman Catholic Service, from St. Chad's Cathedral, Birmingham.
 - NORTH REGIONAL** National programme. Orchestral concert. Service from Egremont Presbyterian Church, Wallasey.
 - WEST REGIONAL** National programme. Carolare No. 4.
 - SCOTTISH REGIONAL** Service from Govan Parish Church. London Regional programme.
 - BELFAST** Evensong from St. James's Parish Church, Belfast.
- ABROAD**
- BRESLAU** Popular concert by the Silesian Philharmonic Orchestra.
 - EIFFEL TOWER** Gramophone records: Acts 1 and 2 of "Carmen."
 - HAMBURG** Operatic music by the Philharmonic Orchestra conducted by R. Richter.
 - HILVERSUM LEIPZIG** Concert by the K.R.O. Orchestra.
 - STRASBOURG TOULOUSE** The Dresden Philharmonic Orchestra, conducted by Werner Ladwig.
 - Gala concert relayed from Haguenau.
 - Selections from opera and operetta.

BARCELONA

RADIO-BARCELONA, Call EAJ1. 348.8 metres; 8 kW.—11.0 a.m., Chimes from the Cathedral and Weather Forecast. 1.0 p.m., Variety Music on Gramophone Records. 1.30, Theatre Notes, followed by Gramophone Concert (contd.). 2.0, Film Review, followed by Sextet Concert. 3.0, Programme for Hospitals and Benevolent Institutions, with Gramophone Records. 4.0 to 5.30, Interval. 5.30, Part Relay of an Opera from the Gran Teatro del Liceo. In the interval, Agricultural Talk in Catalan. 9.0, Concert of Request Gramophone Records. 10.45, Chess Lesson. 11.0 (approx.), Close Down.

BARI

270 metres; 20 kW.—9.45 a.m., Agricultural Report. 10.5, Religious Reading. 10.30, Sacred Music from the Church of San Domenico. 12 Noon, Giornale Radio. 12.10 p.m., Concert of Light Music. In the intervals at 12.55, Weather, and at 1.0, Time and News. 1.15 to 4.30, No Transmission. 4.30 to 5.30, Popular Music on Gramophone Records and Sports Notes. 7.0, Giornale Radio. Sports Notes and Announcements. 7.30, Time and News. 7.35 (approx.), Concert of Popular Music. In the interval, Art Notes. 9.30, Concert relayed from the Gran Caffè del Levante. 9.55, News.

BASLE.—See Schweizerischer Landessender.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—10.30 a.m., See Leipzig. 11.0, Festival Programme for the sixty-second Anniversary of the Foundation of the Reich, relayed from the Sportpalast. Two Pieces for Male Voice Choir: (a) Das deutsche Lied (Kalliwoda); (b) Flammempor (Traugott Gläser); Address by General von Horn, President of the Kyffhäuser Union of Ex-Servicemen; First Verse of Ich hatt einen Kameraden; Address by General von Schleicher; Address by General von Horn; The Deutschländchen. 11.55, Nauen Time Signal. 12.0 Noon, Concert from Vienna. 1.0 p.m., Talk for Parents. 1.30, See Berlin (Witzleben). 2.20, Talk: The Political Struggle on Germany's Eastern Frontiers.—From Frederick the Great to Bismarck. 2.50, Contemporary Music for Children. 3.35, See Berlin (Witzleben). 4.30, Talk on Weaving. 4.50, Folk Songs by the Felix Schmidt Quartet and the Double Quartet of the Berlin Teachers' Association. 5.30, Talk: The College Spirit in Business and Professional Life. 6.15, Talk on Music. 6.0, Trio Concert. Trio in B Flat, Op. 97, for Pianoforte, Violin, and Cello (Beethoven); Trio in C, Op. 67, for Pianoforte, Violin and Cello (Brahms). 8.10, Concert from Breslau. 9.10, Weather, News and Sports Notes. 9.45, Weather Report for Shipping, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—10.30 a.m., See Leipzig. 11.0, See Vienna. 1.0 p.m., Talk for Parents. 1.30, A Mystery Play for Young People. 2.20, Concert by the Berlin Concert Society. Conductor: Clemens Schmalstieg. Overture, Sakuntala (Goldmark); Small Symphony for String Orchestra (Juno); Three Preludes to Die KönigsKinder (Humperdinck); March in B Minor (Schubert-Liszt); Hungarian March (Berlioz). 3.20 (approx.), Hans Reibelberg reads from his own Poems. 3.35, Orchestral Concert (contd.): Overture, Rosamund (Schubert); Das tapfere Schneiderlein (Zimmer); Selection from Cavalleria Rusticana (Mascagni); Slav Dances (Dvorák); Waltz, España (Waldteufel). 4.30, Talk: Is it possible to alter one's Character? 4.50, Talk by Werner Sombart. 5.10, Pianoforte Trio in A Minor (Tchaikovsky). 6.0, The Law of the Wild—a Scandinavian Saga (J. Gäver), arranged for Radio by Ernst Bringolf. 6.55, Sports Notes. 7.0, See Langenberg. 9.0, Weather, News and Sports Notes, followed by a Sports Report and Dance Music by the Waldemar Bass Orchestra. 11.0 (approx.), Close Down.

BERNE.—See Schweizerischer Landessender.

BEROMUNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—12 Noon, Programme relayed from Paris (Ecole Supérieure) (447.1 metres). 2.0, Relay from Paris or Relay of a Local Festival. 3.0, Conservatoire Concert, relayed from Paris (Ecole Supérieure). 7.0, Radio Journal. 7.45, Sports Notes. 8.0, Talk for Ex-Servicemen. 8.15, Lottery Results. 8.30, Variety Music on Gramophone Records. 9.0, See Strasbourg.

BRATISLAVA

279 metres; 14 kW.—3.0 p.m., Concert by the Station Orchestra, conducted by F. Dyk; National Overture (Mach); Selection from In the Well (Blodek); Slav Rhapsody, No. 3

BRNO

342 metres; 35 kW.—4.30 p.m., Sextet (Hubert) by the Moravian Wind Instrument Ensemble. 5.0, German Transmission; Erwin

religious Address. 7.30, Music Review. 8.0, Die tote Stadt—Opera (Korngold), relayed from the Royal Flemish Opera House, Antwerp. In the intervals, Songs and Monologues and Le Journal Parlé. After the Programme, Gramophone Concert: Folk Music from Belgium, Russia, America, Tahiti, Spain, Catalonia, Poland, Hungary, Armenia, France, and Hebrew Songs. 12 Midnight, Close Down.

BUCHAREST

394 metres; 12 kW.—4.0 p.m., Concert of Light Music and Romanian Music by Jean Marco and his Orchestra. 5.0, Time Signal. 5.10, Talk. 5.25, Concert by Jean Marco and his Orchestra. 6.0, Talk: Native Romanian Vertebrata. 6.40, Variety Music on Gramophone Records. 7.0, The Chocolate Soldier—Operetta in Three Acts (O. Strauss). News in the interval.

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on 840 metres from 6.0 p.m. till Close Down. 10.15 a.m., Protestant Service, followed by Time, Weather and Concert by the Opera House Orchestra, conducted by Friedrich Friedl. 1.0 p.m., Gramophone Concert of Classical Music. 2.0, Agricultural Talk. 2.45, Talk for Schools. 3.30, Concert by the Pali Pertis (Gigany Band. 4.30, Programme by Ervin Bataky. 5.0, Concert of Light Music. 6.0, Talk. 6.30, Variety Programme. 8.15, Sports and Racing Results. 8.30, Concert of Light Music. 10.0, Dance Music from the Hotel St. Gellert.

CASSEL.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG**, 1,153 metres; 7.5 kW.—9.0 a.m., Divine Service. 10.30, Weather. 10.40, Announcements. 11.0, Time Signal and Chimes from the Town Hall. 11.2, Concert by Carl Rydalls Instrumental Ensemble: Overture, Prechosa (Weber); Waltz, Très jolie (Waldteufel); Selection from The Gipsy Baron (Joh. Strauss); Ideale (Tosti); Hungarian Dances Nos. 5 and 6 (Brahms); Serenade (Muszkowsky); Comedy Overture (Kéler-Bela). 12 Noon, Talk in English: The Grand Tour of England. 12.20 p.m., Talk in German: Gerhard Hauptmann. 12.40, Talk in French: The New Year. 1.0 to 1.25, Interval. 1.25, Gramophone Concert. 1.55, Programme for Children. 2.25, Symphony Concert by the Station Orchestra, relayed from the Oddfellows' Hall. Conductor: Egisto Tango. Soloists: Victoria Tango (Songs) and Louis Jensen (Cello). Symphony in E Flat (Mozart); Sonata di Concerto for Cello, String Orchestra and Harpsichord (Vivaldi); Sonata in D Minor for Cello and Orchestra (Veracini); Overture, The Barber of Seville (Rossini); Marguerite's Aria from The Damnation of Faust (Berlioz); Bacchanale from Samson and Delilah (Saint-Saëns). 4.0 (also relayed by Skamleback on 31.51 metres), Divine Service from Christiansborg Castle Church. 5.20, Talk: The Peasant in Danish Literature. 5.50, Weather. 6.0, News. 6.15, Time. 6.16, Sports Notes. 6.30, Talk on Economics. 7.0, Time Signal from the Town Hall. 7.1, Concert of Music by C. E. F. Weyse and E. Kuhlhan by the Station Orchestra. Conductor: Lanny Gründahl. 8.0, Gammløholm and its History—Talk, Songs and Readings. 8.50, Trio in B Minor for Flute, Violin, Harpsichord and Cello (K. P. E. Bach). 9.5, News. 9.15, Concert by the Station Orchestra: Overture, Fra Diavolo (Auber); Waltz (Ivanovici); Norwegian Dance in D Minor (Grieg); Suite, Un bal costumé (Rubinstein). 9.50, Dance Music, relayed from the Wivex Restaurant. In an interval at 11.0, Time and Chimes from the Town Hall. 11.30 (approx.), Close Down.

CORK.—See Dublin.

DANZIC.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN, 413 metres; 1.2 kW.; and **CORK**, 224.4 metres.—8.30 p.m., Time Signal. 8.34, Orchestral and Choral Concert with a Dramatic Interlude. Music by an Orchestra, the Dublin Orpheus Male Choir, and May Doyle (Soprano). 11.0, Time Signal, News, Weather Report and Close Down.

FECAMP

223 metres; 10 kW.—12 Noon, Radio Gazette. 12.30 p.m., News Bulletin. 12.45, Variety Concert. 2.0, Running Commentary on a Football Match, relayed from Caen. 4.0 to 8.0, Programme in English by the I.B.C. 4.0, International Broadcasting Club Concert: Let's all sing like the Birds; sing; Venetian Lady; Let's all be Fairies; Toasts; In charge of a Bookstall; You loving me; Little Yvonne. 5.0, Programme for Children. 5.30, Concert: Grasshoppers' Dance (Bucalossi); Missette (Le Grand); Moonbeams' Dance (Gibbons); Star of Love (Ponce); Baci al buio (de Michel); Lullaby (Rosetti); Long ago (Elliot). 6.0, Children's Club Concert. 6.30, Ardath Concert: How are you?; Sweet

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—10.0 a.m., Gramophone Records of Classical Music. 11.0, Concert by the Little Station Orchestra, conducted by M. Leemans. 12 Noon, Concert relayed from the Grand Hotel, Antwerp. 1.0 p.m., Le Journal Parlé. 1.10, Concert by Mickey's Club Jazz Attraction. 1.30 to 1.40, Monologues. 5.0, Concert by the Little Station Orchestra, conducted by M. Leemans. In the interval at 5.20, Football Results. 6.30, Violin Recital by M. Henri Wagemans. 6.30, The Adventures of Banzo—a Radio Sketch (Léon Leroy). 6.50, Popular French Songs. 7.5, Overture, Enryantel (Weber), on Gramophone Records. 7.15, Religious Address. 7.30, Wireless Notes and Music Review. 8.0, Concert by the Symphony Orchestra, conducted by M. Kumps. Soloist: Mlle. Stern (Pianoforte). Rapsodie viennoise (Florent Schmitt); Concerto in A for Pianoforte and Orchestra (Liszt); Suite in F (Roussel). 8.45, The Alibi—a Radio Sketch (Léon Dornay). 9.0, Concert (contd.). Soloist: Mlle. Yvonne Pascal (Songs). Prelude à l'après-midi d'un faune (Debussy); Poème de l'amour et de la mer—for Voice and Orchestra (Chausson); Faveuse pour une Infante défunte (Ravel); Rhapsody, España (Chabrier). 10.0, Le Journal Parlé. 10.10, Recital by Willie Lewis of the Penguin Club. 11.0, Jazz Music, with Commentary by André Asché. 11.30, Variety Music on Gramophone Records. 12 Midnight, Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW. Programme in Flemish.—10.0 a.m., Concert by the Small Station Orchestra, conducted by P. Leemans. 11.0, Gramophone Records: Scheherazade (Rimsky-Korsakov); Quartet in D, Op. 18, No. 3 (Beethoven). 12 Noon, Concert by Mickey's Club Jazz Attraction. 1.0 p.m., Le Journal Parlé. 1.10, Concert, relayed from the Grand Hotel, Antwerp. 3.0, Concert relayed from Charleroi. 5.0, Dance Music, relayed from the St. Sauveur Palais de Danse. 6.0, Organ Recital by Louis Joos, relayed from the Carmelite Church; Prelude and Fugue in E Minor (Bach); Pastorale (Bach); Pastorale (Widor); Toccata (Widor). 6.15, Sports Results. 6.30, Talk with Pianoforte Illustrations: Korngold's Die tote Stadt. 7.0, Concert by the Small Station Orchestra, conducted by P. Leemans: Sérénade burlesque (Brusselmann); Selection from Good News (Sylvia-Brown-Henderson). 7.15, Re-

JAN. 15th

SUNDAY

continued

Muchacha; Lazy Pete; I'll never be the same; Let's all sing like the Birdies sing; Jolly Sailor; You're telling me; Coal Black Mammy; How do you do, Mr. Brown? 7.0, Popular Concert. 8.0, Opera and Operetta Music. 9.0 till Close Down, Programme in English by the I.B.C. 9.0, Orchestral Concert with Songs; In the Mystic Land of Egypt (Ketylbe); Songs: Four Indian Love Lyrics (Woodford-Finden); (a) Temple Bells, (b) Less than the Dust, (c) Kashmiri Song, (d) Till I wake; The Sacred Hour (Ketylbe). 9.30, Concert: March, The Bravest of the Brave (Dunn); Potpourri, Melodious Melodies (arr. Finck); Entry of the Gladiators (Fueik); War March of the Priests from Athalia (Mendelssohn); Selection from Sun Toy (Jones); Pomp and Circumstance March, No. 4 (Elgar); The Thunderer March (Sousa). 10.0, Concert: Overture, Ruy Blas (Mendelssohn); Ein Souper bei Suppe (arr. Morena); A Scarf Dance (Chaminade); Hungarian March (Herzog); Morning, from the Peer Gynt Suite (Grieg); Overture, Stradella (Plotow); Selection from Die Fledermaus (Strauss). 10.30, Concert: Please; Love me To-night; Three's a Crowd; Same old Moon; Let's put out the Lights and go to Sleep; My Romance; Please, Mr. Hemmingway. 11.0, Light Orchestral Concert: Moonlight on the Alster (Fotrass); The Frog King's Parade (Kronberger); Autumn Leaves (Popper); Fleurette (Fletcher); Waltz, Frühlingsstimmen (Strauss); Intermezzo, Glowing Embers (Marsden); Melody, Devotion (Ketylbe). 11.30, Orchestral and Vocal Concert: Songs; (a) One Morning very early (Sanderson), (b) The Lass with the Delicate Air (Traditional), (c) When the House is Asleep (Haigh), (d) Little Brown Owl (Sanderson); Molly on the Shore (Grainger); Songs; (a) The Londonderry Air (Traditional), (b) Annie Laurie (arr. Danis), (c) Land of Hope and Glory (Elgar); Merry-makers' Dance from the Nell Gwynn Suite (German); Songs: (a) Heather Moon (Evans), (b) Maire, my Girl (Casey), (c) On a Dreaming Summer Night (Stanley); Down by the Old Mill Stream (Taylor); Songs: (a) If I were King (Coslow), (b) If I ever meet the Sergeant (Sterndale Bennett), (c) A Bachelor Gay (Tate); Air de Ballet (Herbert). 12.30 a.m. (Monday), Music by a Hawaiian Band: That's my Song of Love (Colville); When it's Moonlight on the Prairie (Jones); That little Lock of Hair (Verrill); My Heart is where the Mohawk flows (Robeson); He's my Secret Passion (Seeley); Ay, Ay, Ay (Freire); Lonely little Yagabond (Johnson). 1.0, Duets; Medley Overture (arr. Ancliffe); All Change for happiness (Johns); The Wedding of the three Blind Mice (Wark); I'm just a Dancing Sweetheart (de Rose); In the Mountains of the Pine (Tate); Parkin' in the Moonlight (Tobias); It's an Old Spanish Custom (Leslie). 1.30, Vaudeville Programme: All the Girls are lovely; I've had a Good Day; Heather Bloom; Riverside March; Unlucky Girl; Living at the Cloisters; Cinderella. 2.0, Dance Music: Love is the Sweetest Thing; Good Morning Mr. Sun; The Voice in the Old Village Choir; The Turning of the Tide; I'll do my best to make you happy; Smile and sing your Cares away; When the Blue of the Night; Day by Day; An Evening in Caroline; Now that you're gone; Now's the Time to fall in Love; Back again to Happy-go-lucky Days; By the Sycamore Tree; Blues in my Heart; I.B.C. me knows why; Hot Coffee. 2.57, 1.0, Goodnight Melody. 3.0 (approx.), Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

250 metres, 17 kW.; and CASSEL, 245.9 metres.—10.30 a.m., See Leipzig. 11.0, See Berlin (Königs Wusterhausen). 12 Noon, Concert from Vienna. 1.0 p.m., Talks arranged by the Wiesbaden Board of Agriculture. 1.10, Rural Programme—Two Talks. 2.0, Programme for Young People. 3.0, See Heilsberg. 3.35, See Langenberg. 5.0, Reading from the Book of Job. 5.25, Talk: Witches, Fairies and Vampires in South Slav Peasant Lore. 5.55, Talk. 6.20, Sports Notes. 6.30, Reading by Ellen Hamacher. 7.0, Concert by the Radio Orchestra, conducted by Hans Rosband, with Dance Music Interludes by Döhert Dance Band. 9.20, Time, News, Weather, and Sports Notes. 10.0, Programme from Langenberg. 11.0 (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

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 227.4 metres; Hanover, 566 metres; and Kiel, 222.2 metres.—10.30 a.m., See Leipzig. 11.0, Time and Weather. 11.5, Concert from Vienna. 1.0 p.m., The Triumph of the Spirit—Programme arranged by Ernst Johannsen with Music by Walter Girnius. 1.30, A Fairy Play (Ludwig Bechstein) with

Music. 2.30, Rognes and Vagabonds—Poems and Songs by Walter Güttele, set to Music by Otto Tenne. 3.30, A Brunswick Variety Programme, relayed from Hanover: The Albert Kempe Orchestra and Soloists. 4.50, See Berlin (Witzleben). 5.10, Hamburg Chamber Music of the Eighteenth Century: Walter Tietze (Violin), Richard Schröder (Flute), Max Brückner (Cello), and Erich Schenk (Pianoforte); Quartet in E Minor (Telemann); Trio, Sonata (Keiser). 5.45, Humorous Programme. 6.30, Radio Report: Training for Life Saving. 6.40, Sports Notes. 6.55, Weather. 7.0, German Operatic Evening, relayed from the Musikhalle; Concert by the Philharmonic Orchestra, conducted by Richard Richter: Overture, Der Freischütz (Weber); Two Airs from Orpheus (Glück); Selection from Hansel and Gretel (Humperdinck); Entry March from The Queen of Sheba (Goldmark); Overture, Czar and Carpenter (Lortzing); Gavotte from Idomeno (Mozart); Selection from Der Trompeter von Säckingen (Nessler); Waltz from Der Rosenkavalier (Richard Strauss). First General News in the interval. 9.0, Second News. 9.10, Norag Sound Service; Sports Report from the Konzerthaus, Hanover. 9.20, Dance Music relayed from Berlin (Witzleben).

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW.; and DANZIG, 453.2 metres.—11.0 a.m., See Berlin (Königs Wusterhausen). 12.10 p.m., Concert from Vienna. 1.0, Talk on Chess. 1.30, Talk for Young People. 1.55, Programme for Children. 2.25, Sports Notes. 2.35, Organ Recital of Bach Music from the Neurosänger Church. 3.0, Relay of a Political Demonstration from Tilsit, Pomerania. 3.35, Concert by the Little Orag Orchestra, conducted by Eugen Wilken. 4.50, See Berlin (Witzleben). 5.10, Reading (Therese Deutsch). 5.40 (from Danzig), Modern Pianoforte Music for Children. 6.10, See Breslau. 6.30, Bernd de Vries reads from his own Works. 6.55, Sports Notes. 7.5 (from Danzig), Variety Programme (arr. Otto Norman). 9.15, News, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

HILVERSUM

Announced HUIZEN, 296.1 metres; 20 kW. (7 kW up to 4.40 p.m.).—9.10 a.m. to 4.40 p.m., Programme of the Catholic Radio Society (K.R.O.). 9.10, Variety Music on Gramophone Records. 9.40, Mass relayed from St. Agnes Church, Amsterdam. 11.10, Light Music on Gramophone Records. 11.40, Talk. 11.55 a.m., Concert by the K.R.O. Boys. Soloist: M. J. Mossel (Songs). 12.40 p.m., Literary Talk. 1.0, Concert (cont'd.). 1.40, Religious Talk. 2.10, Tosca—Opera in Three Acts (Puccini), on Gramophone Records. 4.10, Programme for Invalids. 4.40 to 7.25, Programme of the Christian Radio Society (N.C.R.V.). 4.40, Divine Service Relay, relayed from Amsterdam, followed by Sacred Music. 5.30, Divine Service. 7.25 till Close Down, K.R.O. Programme. 7.25, Talk. 7.50, Football Results. 7.55, Concert by the K.R.O. Orchestra, conducted by J. Gerritsen; Overture, The Barber of Seville (Rossini); Suite from Der Rosenkavalier (R. Strauss); Two American Folk Songs (Busch); Two Slav Dances (Dvorak); Selection from Manon Lescaut (Puccini). 8.55, News. 9.10, Concert (cont'd.). Soloist: T. Kreiten (Pianoforte); Overture, To the Story of the Lovely Melusina (Mendelssohn); Pianoforte Concerto No. 4 (Rubinstein). 9.50, Popular Concert by the K.R.O. Orchestra, conducted by Johan Gerritsen: Dem Lenz entgegen (Blankenburg); Selection from The Czarevitch (Lehár); Waltz, Wiener Kinder (Job. Strauss); Hals und Beinbruch (Morena). 10.20, Epilogue. 10.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 1,875 metres; 8.5 kW.—8.10 to 11.40 a.m., Programme of the Workers' Radio Society (V.A.R.A.). 8.10, Horticultural Talk. 8.40, Talk. 8.55, Football Report. 8.58, Organ Recital. 9.20, Recitations. 9.40, Orchestral Concert with Violin and Organ Solos. 10.20, Talk on the Cinema. 10.40, Concert (cont'd.). 11.20, Address. 11.40 to 4.40 p.m., Programme of the Allgemeine Vereinigung Radio Omroep (A.V.R.O.). 11.40, Time Signal. 11.41, Concert by the Royal Military Band, conducted by Captain Walther Boer. In the interval, Gramophoned Records. 1.40, Weekly Book Talk. 2.10, Tchaikovsky Concert by the Wireless Orchestra, conducted by Nico Treep. Soloists: J. v. d. Woude (Violin) and G. Verhey (Pianoforte); Concerto in B flat Minor, Op. 23, for Pianoforte and Orchestra; Concerto in D, Op. 35, for Violin and Orchestra. Gramophone Records in the interval. 3.40, Talk. 4.10, Gramophone Records of Variety Music and Sports Notes. 4.40 to 5.40, Programme for Children by the V.A.R.A. 5.40 to 7.40, Programme of the Liberal Protestant Radio Society (V.P.R.O.). 5.40, Literary Talk. 6.45, Divine Service from Amersfoort. 7.40 till Close Down, A.V.R.O. Programme. 7.40, Time and News. 7.55, Concert by the Wireless Orchestra, con-

ducted by Nico Treep. Soloist: Hélène Cals (Soprano); Overture, Zampa (Hérold); Aria from Le Billet de loterie (Isouard); Overture, Der Erlenhügel (Kühnau); Aria from Norma (Bellini); Overture, Die Fledermaus (Joh. Strauss); Aria from Mignon (Thomas). 8.50, Reading. 9.10, Variety Music on Gramophone Records. 10.10, Popular Concert by Kovacs Lajos and his Dance Orchestra. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBERG.—See Copenhagen.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOŠICE.—See Prague.

LANGENBERG

473 metres; 60 kW.—10.30 a.m., See Leipzig. 11.0, Programme from Vienna. 12 Noon, Concert from Vienna. 1.5 p.m., German Shorthand Lesson. 1.30, Reading in Cologne Dialect. 2.10, Technical Talk. 2.35, Talk: Musicians who died young. 3.0, Programme from Heilsberg. 3.35, Orchestral Concert. 5.0, Talk: Towns in the Rhineland and Westphalia—Gladbach-Rheydt. 5.40, Reading (Bruno Nellesen-Haken). 6.0, An Entertainment. 6.45, Sports Notes. 7.0, Lachen im Hintergrund—(Laughter in the background) a Radio Revue (Paul Schaaf). Music by Hans Ebert. 9.5, News Bulletin and Sports Notes. 9.30, Light Music and Dance Music. 11.0 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres, 120 kW.; and DRESDEN, 319 metres.—10.30 a.m., Ach Gott, wie manches Herzleid—Cantata (Bach), by the Gewandhaus and Municipal Orchestra, the St. Thomas' Choir, and Soloists. 11.0, See Berlin (Königs Wusterhausen). 12 Noon, See Vienna. 1.0 p.m., Weather and Time. 1.5, Programme Announcements. 1.25, Agricultural Hints. 1.35, Esperanto Lesson. 2.0, Concert by the Gotha Zither Society: Moment musical (Schubert—Grünwald); Andante (Grünwald); Antonia Gavotte (Franz Mair); Minuet in E flat (Beethoven—Grünwald); German Peasant Dances (Grünwald); Festival March No. 3 (Hauström). 3.0, Wind Instrument Concert, relayed from London. 4.0, Nord-Ost Passat—Radio Play (Henrik Horse). 5.0, Talk on the Instruments in an Orchestra, with Illustrations by the Leipzig Symphony Orchestra. 6.30, Political Demonstration Relay from Heilsberg; Part Relay of the Football Match, Central-Germany versus Hungary, in Dresden; and Relay of the National Winter Sports Contest from Breslau. 7.30, Concert by the Dresden Philharmonic Orchestra, in an interval at 9.0 (approx.), Topical Talk. 9.30, News Bulletin, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

LINZ.—See Vienna.

MADRID

ARANJUEZ (EAQ), 30.43 metres; 20 kW.—11.30 p.m., Variety Music. 11.45, Humorous Talk. 12 Midnight, Popular Concert: Cancion de trilla (García Blanco); Castilian Dances (García Blanco); In the Gardens of Murcia (Turina); Miramar (Turina); Symphonic Poem, Les Prébudes (Liszt); Entracte from Carmen (Bizet). 12.35 a.m. (Monday), Talk. 12.40, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO; Call EAJ7; 424.3 metres; 2 kW.—8.0 to 9.0 a.m., Topical Review; 2.0 p.m., Chimes, Time Signal, Theatre Notes and Concert by the Arts Orchestra. 4.0 to 7.0, Interval. 7.0, Chimes and Dance Music, relayed from the Ritz Hotel. 7.30 (in an interval), Agricultural Talk. 8.30 to 9.30, Interval. 9.30, Chimes and Time Signal. 9.35 (approx.), Concert: Pianoforte Solos by Maria Merono. Interlude by Ramon Gomez de la Serna, Songs by Ricardo Blanco (Tenor) and Dance Music, relayed from Gong. 12 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—11.5 a.m., Military Band Concert, conducted by V. Karol. 12.30 p.m., See Prague. 3.0, See Bratislava. 4.30, See Prague. 6.0, Concert by the Station Orchestra, conducted by B. Tvrdý; Slovak Dance (Smatek); Norwegian Dances, Nos. 1 and 4, Op. 35 (Grieg); Polka and Swedish Dance (Provanzik); Spanish Dances (Granados); Austrian Country Dances, Op. 35 (Pachernegg); March (Anst.). 6.40, See Prague. 10.0 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—5.30 p.m., Concert from the Radio Theatre. 8.0, Talk in English: Public Parks and their Use in Winter. 8.55, Time. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 550 metres, and Nürnberg, 239 metres.—10.30 a.m., See Leipzig. 11.0, Concert by the Station Orchestra, conducted by Karl List, with Contralto and Violin Solos. 12.5 p.m., Time, Weather and Programme Announcements. 12.15, Agricultural Talk. 12.35, Gramophone Concert of Popular Music. 1.30, Chess Lesson. 2.15, Bin a Tiroler Fua—Recital of Tyrolean Music, Yodels, Songs and Stories by the Winkler Schrammel Trio and Soloists. 3.20, Talk on Simon Treu, on his Seventy-Fifth Birthday. 3.40, Travel Talk. 4.0, Concert by Georg Ebner's Orchestra. 5.15, Der Briefkasten blattz—Humorous Interlude for Pianoforte and Five Voices (Eichhorn). 5.50, Swabian and Bavarian Folk Songs to the Lute, by Erich Burger. 6.10, Topical Talk. 6.30, Weather and Sports Notes. 6.40, Reading: The Death of a Ship (Hilbert Belloc). 7.0, Popular Concert by the Munich Philharmonic Orchestra and the Munich Choral Society, relayed from the Touballe; Torell Dance (Meyerbeer); Overture, Meerestille und glückliche Fahrt (Mendelssohn); Selection from Der Trompeter von Säckingen (Nessler-Niksch); Slav Rhapsody (Friedemann). 8.0, Concert by the Palatine and Saar Symphony Orchestra, in Aid of the Winter Relief Fund. Conductor: Ernst Boettje. Address by Dr. Ecarius. 9.20, Time, Weather, News and Sports Notes. 9.55, Serenade—A Trip through the Kingdom of the Goddess of Music (on Gramophone Records). 11.0 (approx.), Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredrikstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres; and Hjukan, 447.1 metres.—9.50 a.m., Chimes. 10.0, Divine Service from the Military Church. 4.30, Popular Music on Gramophone Records. 5.15, Theatre Review. 5.45, Cello Recital by M. Arne Nelson; Andante (Schumann); Potpourri of Norwegian Melodies (Peck); Norwegian Dance (Salleski); Chant triste (Kallimikov); Scherzo (Goens). 6.15, Weather and News. 6.30, Political Talk. 7.0, Time Signal. 7.10, Hardanger Fiddle Competition, relayed from Trondheim (453.4 metres). 8.40, Weather and News. 9.0, Topical Talk. 9.15, Symphony No. 6—The Pathetic (Tchaikovsky), by the Station Orchestra, conducted by Hugo Kraumm. 10.0, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—9.25 a.m., Religious Programme. 9.40, Sacred Music. 10.5, Agricultural Notes. 11.45, Giornale Radio. 12 Noon to 1.0 p.m., Concert of Light Music, in an interval at 12.30, Time, Announcements, and Weather. 4.30 to 5.30, Concert, relayed from the Olympia Tea Rooms. 7.0, Announcements and Giornale Radio. 7.20, Sports Notes. 7.30, Time and Announcements. 8.0, An Opera, relayed from the Teatro Massimo Vittorio Emanuele. In the intervals, Talk: Eleonora Duse and Amusement Guide. After the Opera, News.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW.—Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 1-dot Signals). 1.0 to 2.0 p.m., Concert by the Rex Orchestra. 5.45, Le Journal Paris. 6.45, Programme for Children. 7.20, Weather. 7.30, Gramophone Concert: Part I—Acts I and II of Carmen—Opera (Bizet); Part II—Light Music; Mosaic (Zimmer); Le conteur (Botrel); Les trois matelots de Grox (Anjou); Piece (Blaauw); Grottesque March (Sintung); Frühling (Lehár); A Waltz of Long Ago (Lehár); Selection from The Desert Song (Romberg); Polospiel (Fotras); Dans l'express (Masamento). 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 326.2 metres; 60 kW.—9.45 a.m., Bible Reading and Sacred Music on Gramophone Records. 10.0, News. 10.5, Sponsored Concert. 11.5, Film Stars on Gramophone Records. 11.40, Sponsored Gramophone Concert. 12.15, Extracts from Sound Films. 12.45 p.m., Half an hour of Fantasy by Paul Weill. 1.15, Interval. 1.20, Sponsored Programme. 2.0 to 6.45, Interval. 6.45, Journal Paris. 7.0, Agricultural Talk. 7.15, Sports Notes. 7.30, Catholic Review. 8.0, Variety Music on Gramophone Records. 8.30, Interval. 8.45, Sponsored Concert with Gramophone Records. 10.15, Organ Solos by Maurice Durufé; Légende (Vierne); Third Choral (Franck). 10.30, Concert by Alexander Scriabin's Russian Orchestra, relayed from the Berry. 11.0, News Bulletin.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 5 kW.—7.45 a.m., Light Music on Gramophone Records. 8.0, Press Review and Weather. 8.30, Physical Culture. 10.0, Elementary Book-keeping Lesson. 10.20, Advanced Book-keeping Lesson. 10.40, Spanish Lesson. 11.0 to 12 Noon, Programme in English by the I.B.C.; Concert of Imperial and Broadcast Records; El Relicario, by the Commodore Grand Orchestra; Please, from The Bag

JAN. 15th

SUNDAY

continued

Broadcast, by Val Rosing; Yes, Mr. Brown, from Yes, Mr. Brown, by the Blue Mountaineers; Dreaming; Yodelling Mad, by George Van Dusen; After to-night we say Goodbye, by Bob and Alf Pearson; The Black Hand Gang, Part I, by Wegg George Wood and Company; Wanderer, by Jack Payne and his Band. **12 Noon**, Religious Address. **12.20 p.m.**, Sacred Music: Prelude, Fugue and Variations (Franck); Toccata (Gigout). **12.30**, Bilboquet as a Herbalist. **12.45**, Press Review, News, and Weather. **1.0**, Orchestral Concert. **1.30**, Variety Music on Gramophone Records. **2.0**, Light Music on Gramophone Records. **3.0 to 3.30**, Programme in English by the I.B.C. Concert: Ooh! that Kiss; Lawd, you made the Night too long; Etouille; Baggipes Solo by Miss Lulu Adams; (a) Wee Macgregor, (b) Scottish Potpourri; Let's put out the Light and go to sleep; Madonna; Marching along together. **3.30**, Orchestral Concert: Selection from Die Teresina (O. Strauss-Molton); Farandole (Pierini); Sérénade mélancolique (Lachaux); Russian Dance (Moszkovsky-Charmettes); Intermezzo (Goldard-Labis); La Chanson des Abeilles (Pilluet); Gerbe de fleurs (Missa). **4.0 to 5.0**, Programme in English by the I.B.C.: Tea-Time Variety Hour; Mr. S. H. C. Williams announcing. **5.0**, Orchestral Concert. **5.30 to 6.30**, Programme in English by the I.B.C. Philco Concert; Mr. Glynn Williams announcing. **6.30**, Popular Concert. **7.0 to 8.0**, Programme in English by the I.B.C.: Gaumont-British Film Fan's Hour; Mr. S. H. C. Williams announcing. **8.0**, Radio Paris Circus. **8.30**, News, Sports Notes, and Weather. **8.45**, Music Hall Programme. **9.15**, Press Review and News. **9.30**, Music Hall Programme (contd.).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW.—Relayed by **W8XK** on 48.86 metres and 25.27 metres.—**9.0 p.m.**, Cowboy Tom, from New York. **9.15**, Temple of Song, from New York. **9.30**, Vesper Services from Shady-side Presbyterian Church, Pittsburgh. **10.30**, Pages of Romance, from New York. **11.0**, Time Signal. **11.4**, Weather Report. **11.7**, Teaberry Sport Review. **11.7**, Press News Reeler. **11.12**, Strange Facts. **11.14**, Temperature Report. **11.15**, Westinghouse Concert. **11.45**, The Fiddlers. **11.59**, Time Signal. **12 Midnight**, The Chatterbox. **12.30 to 2.0 a.m. (Monday)**, New York Relay. **12.30 a.m.**, Great Moments in History. **1.0**, Russian Gaeties. **1.30**, Red Adams. **2.0**, Euna Jettick Melodies. **2.15**, Programme to be announced. **2.30 to 3.30**, New York Relay. **2.30**, Walter Winchell. **2.45**, Those Five Girls. **3.0**, Edna St. Vincent Millay. **3.15**, Jubilo, Singer of the Lonesome Road.

3.30, Jean Wald and her Orchestra. **4.0**, Time Signal. **4.4**, Teaberry Sport Review. **4.11**, Temperature Report. **4.12**, Weather Report. **4.15**, Press Last Minute News. **4.20**, Alexander Roy (Tenor). **4.30**, Jesse Crawford (Organist), from New York. **5.0**, Time Signal and Goodnight.

PORSGRUND—See Oslo.

PRAGUE

488.6 metres; 120 kW.—**10.0 a.m.**, Dvorák Concert by the Station Orchestra, conducted by Milan Zuma, of Warsaw; Overture, Nature, Op. 91; Symphony in D Minor, Op. 70. **11.0**, Chimes. **11.5**, See **Moravská-Ostrava**. **12.30 p.m.**, Agricultural Broadcast. **1.15 to 1.25**, Social Report. **3.0**, See **Bratislava**. **4.30**, Talk: Dwarf Races. **4.45**, Popular Music on Gramophone Records. **5.0**, German Transmission: Theodor Veidl Song Recital by Dr. H. Ehm; Quartet for Strings (Pisarowitz). **6.0**, See **Moravská-Ostrava**. **6.40**, Talk on the following Transmission. **6.45**, The Two Widows—Comic Opera in Two Acts (Smetana). In the interval at **8.0**, Time Signal. **9.0**, Time Signal. **9.1**, News. **9.20**, Dance Music on Two Pianofortes by Erwin Schulhoff and Dr. Leftus. **10.0 (approx.)**, Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE**, 680 metres; and **GENEVA**, 760 metres.—**8.55 a.m.** (from Geneva), Chimes. **9.0** (from Geneva), Protestant Service relayed from St. Peter's Cathedral. **10.0**, Orchestral Concert of Modern Music and Dance Music, relayed from the Konzerthaus, Vienna. **12.0 Noon**, News Bulletin and Weather Forecast. **12.10 p.m.** (from Lausanne), Light Music on Gramophone Records. **1.0 to 2.30**, Interval. **2.30**, Concert relayed from St. Imier. **5.30** (from Lausanne), Protestant Address. **6.0** (from Lausanne), Violin and Pianoforte Recital by Felix Katzner and Mlle. Renée Gascard. **6.40** (from Geneva), Sports Notes, News, and Announcements. **7.0** (from Geneva), Poetry Reading and Popular Music. **7.45**, Concert by the Station Orchestra. **9.0**, News Bulletin and Weather Forecast. **9.15 (approx.)**, Close Down.

RJUKAN—See Oslo.

ROME

Call **1R0**; 441 metres; 50 kW. Relayed by **Naples**, 379 metres; and **2R0**, 25.4 metres.—

9.10 a.m., Sports Notes and Amusement Guide. **9.30**, Agricultural Notes. **9.45**, Bible Reading. **10.0 (approx.) to 11.0**, Mass from the Church of the Annunciation, Florence. **11.30**, Orchestral Concert. In the interval at **12 Noon**, Time and Announcements. **12.30 to 1.30 p.m.**, Concert of Light Music. **2.45 (Naples)**, Programme for Children, followed by Weather and Sports Notes. **3.0**, Football Report. **4.0**, See **Turin**. Sports Notes in the interval. **6.30**, Sports Notes, Football Results, Announcements and News. **7.0**, Time and Announcements. **7.30**, Sports Notes. **7.45**, La donna perduta—Operetta in Three Acts (Pietro). In the intervals, Talks, Announcements and News.

SALZBURG. See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on 31.48 metres; and by **W2XAD** on 19.56 metres. **9.0 p.m.** till Close Down. **New York Relay**. **9.0**, Tudent Programme with Jane Froman. **9.15**, Wildroot Institute. **9.30**, International Radio Forum. **9.45**, Trio Charmante. **10.0**, Sun Oil Programme. **10.15**, Revellers. **10.30**, Big Ben's Dream Drama. **10.45**, Musical Programme. **11.0**, Catholic Hour. **11.30**, Our American Schools. **12 Midnight**, Harmonica Rascals. **12.15 a.m. (Monday)**, Wheatona Villo. **12.30**, Orchestral Gems. **12.45**, Smith Brothers Programme. **1.0**, Chase and Sanborn Hour. **2.0**, Our Government, by David Lawrence. **2.15**, American Album of Familiar Music. **2.45**, Ohman and Arden, Pianoforte Duo. **3.0**, Romances. **3.15**, L'Heure Exquise. **3.45**, Sunday at Seth Parker's.

SCHWEIZERISCHER

LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASLE**, 244.1 metres; and **BERNE**, 246 metres.—**9.0 a.m.** (from Zürich), Protestant Address. **9.45** (from Zürich), Chamber Music. **10.30** (from Zürich), Maria Waser reads from her Novel, Land unter Sternen. **11.0**, Concert by the Swiss Radio Orchestra. **11.28**, Time and Weather. **11.30**, News. **11.40**, Concert (contd.). **12.30 p.m.** (from Zürich), Concert by Stocker Sepp's Peasant Orchestra. **1.0** (from Zürich), Talk: Fuel and its Use in Modern Heating Apparatus.

1.30 to 2.30, Interval. **2.30** (from Zürich), Concert by the Anton Smetak Zither Quartet. **3.0**, Lortzing Opera Music on Gramophone Records. **4.0**, Weather. **4.5 to 5.30**, Interval. **5.30** (from Zürich), Professor G. Zeppi reads in Italian from his own Works. **6.0**, Time, Weather and Sports Notes. **6.15** (from Zürich), Talk: The Individual and the Masses. **6.45** (from Zürich), Propaganda Evening, arranged by the Swiss Radio Society for Invalids and Old People. **8.30**, Weather and News. **8.40**, Bizet Concert by the Radio Orchestra, conducted by Hermann Hofmann. **9.15**, Sports Notes. **9.25 (approx.)**, Close Down.

SOTTENS—See Radio-Suisse Romande.

STOCKHOLM

Call **SASA**, 436 metres; 55 kW. Relayed by **Boden**, 1,229.5 metres; **Göteborg**, 322 metres; **Hörby**, 257 metres; **Motala**, 1,348 metres; **Ostersund**, 770 metres; and **Sundsvall**, 542 metres.—**10.0 a.m.**, Divine Service Relay. **11.45**, Weather. **1.30 p.m.**, Symphony Concert, relayed from **Norrköping** (52.2 metres); Conductor: Tord Benner; Eine kleine Nachtmusik (Mozart); Pastorale d'été (Honegger); Divertissement (Ibert); Symphony No. 3 in A Minor (Mendelssohn). **3.0**, Talk in German, relayed from **Malmö** (231 metres). **3.30**, Choral Concert, relayed from **Karlstad** (217 metres). **4.5** (from Sundsvall), Programme for Children. **4.30**, Talk. **5.0**, Evensong, relayed from **Huddinge** (226 metres). **6.15**, Weather and News. **6.30**, The Mollusc—Comedy in Three Acts (H. Davies). **7.45**, Concert by the Station Orchestra. **8.45**, Weather and News. **9.0**, Concert of Light Music by the Station Orchestra. **10.0 (approx.)**, Close Down.

STRASBOURG

345 metres; 11.5 kW.—**9.30 a.m.**, Orchestral Concert, conducted by M. de Villers. **10.45**, Protestant Service in German. **11.30**, Catholic service in French. **12.0 Noon**, Classical Music on Gramophone Records. **12.45**, News. **1.0 p.m.**, Time Signal. **1.1**, Popular Music on Gramophone Records. **2.0**, Agricultural Talk. **2.15 to 2.30**, Interval. **2.30**, Concert, conducted by Henri Tomasi, relayed from the Journal Hall, Paris. **4.30**, Pasteloup Concert, relayed from the Théâtre des Champs Elysées, Paris. **6.45**, Medical Talk. **7.0**, Sports Talk. **7.15**, Light Music on Gramophone Records. **7.30**, Time, News, and Sports Results. **7.45**, Lottery Results and Announcements. **7.55**, Dramatic Programme: (a) Abord—Radio Sketch (Claude Orly), (b) Colin Muset—Play in One Act in Verse (Henri Farenart), (c) Le Diet de Jacquenars Piéce—Play in Two Acts in

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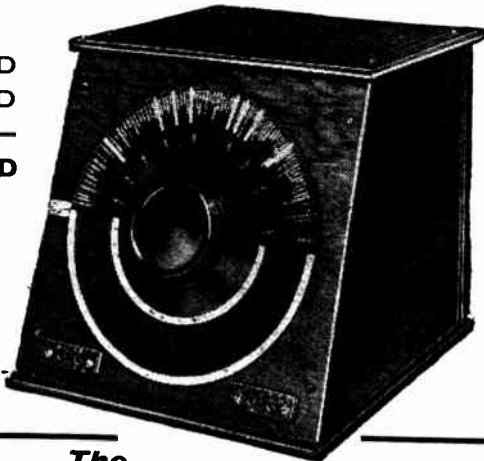
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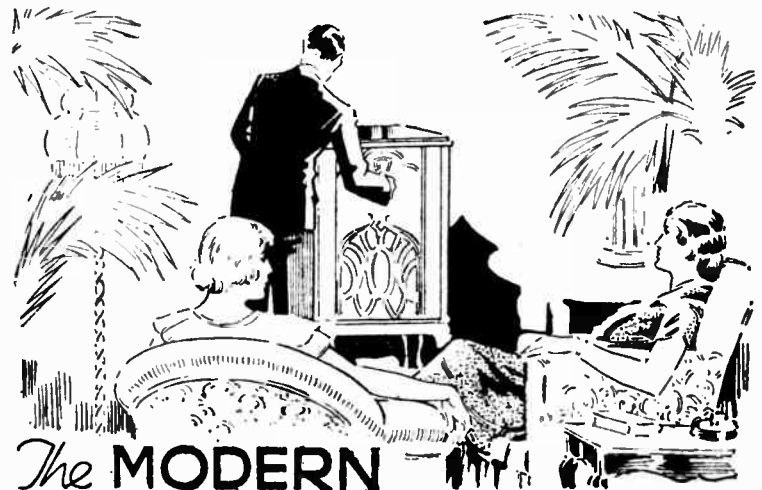
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IDEAL FOR USE IN FLATS..

JAN. 15th

SUNDAY

continued

Verse (Pierre Valdehievre). 9.0, Gala Concert, relayed from Haguenau; Conductor, M. Pèpin; Soloists: Jean Doven (Pianoforte) and Fernand Duffren (Flute); Overture, Heimkehr aus der Fremde (Mendelssohn); Pavane pour une Infante défunte (Ravel); In the Steppes of Central Asia (Borodin); Concerto in D for Flute and Orchestra (Mozart); March from the Suite algérienne (Saint-Saëns); First Suite from L'Arlesienne (Bizet); Nocturne for the Left Hand (Scriabin); Concerto No. 2 in F Minor for Pianoforte and Orchestra (Chopin); Waltz-Serenade (Metra). 11.0, Concert by the Jean Clerique Quintet, relayed from Radio Colonial (Paris) (25.63 metres); Selection from Mirella (Gounod); Marcia alla Turca (Mozart); Träume (Wagner); Suite from L'Arlesienne (Bizet); Paysages (Tomasi); Spinning Song (Mendelssohn); Adagio pathétique (Beethoven); Selection from Kadubee (Yvain). 12 Midnight, Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and FREIBURG, 570 metres.—10.30 a.m., See Leipzig. 11.0, See Vienna. 1.0 p.m., Song Recital by Margarete Wotter (Soprano) and Eberhard Schrempf (Baritone). 1.35, Talk. 2.0, See Frankfurt. 3.0, Wind Instrument Concert, conducted by B. Walton O'Donnell, relayed from London. 3.55, Orchestral Concert, conducted by Gustav Görllich. Overture, Flotte Bursche (Suppé); Waltz, In lauschiger Nacht (Zichner); Three Old Dances: (a) Polka, Beim Skat, (b) Rheinländer, Gefunden (Silwedel), (c) Polka-Mazurka, Antonie (Haase); International Waltz Potpourri (Rohrecht); Overture, Im Reiche des Indra (Lincke). 4.50, See Berlin (Witzleben). 5.10, Reading of Poems by Paul Bertololy. 5.30, Sports Notes. 5.45, Pianoforte Recital by Erich Finsch: Prelude, Choral and Fugue (Cesar Franck); Ondine (Ravel); La fille aux cheveux de lin (Debussy); Mignon (Schumann); Rhapsody in F Flat, Op. 119, No. 4 (Brahms); Etude in E Minor (Liszt). 6.30, The London Jazz Symphony Orchestra, on Gramophone Records. 7.0, See Langenberg. 9.5, Time, News, Weather, Programme Announcements and Sports Notes. 9.45, Programme from Berlin (Witzleben). 11.0 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—12.15 p.m., News Bulletin. 12.30,

Catholic Address and Music. 1.0, Amusement Guide. 1.5, Operetta Music. 1.15, Opera Music: Airs from (a) Le Jongleur de Notre-Dame (Massenet), (b) William Tell (Rossini), (c) Philémon et Baucis (Gounod), (d) The Magic Flute (Mozart). 1.30, Music by a Viennese Orchestra. 1.40, Agricultural Report. 1.45, Protestant Address and Music. 2.15, News Bulletin. 2.20, Orchestral Concert: Prelude and the Death of Isolde, from Tristan and Isolde (Wagner); Good Friday Music, from Parsifal (Wagner); Le Couronnement de la Muse du Peuple (Charpentier). 3.0, Chansonnettes. 3.15, News Bulletin. 3.20, Music by a Viennese Orchestra. 3.45, Sound Film Music. 4.0, Accordion Recital. 4.45, News Bulletin. 4.20, Popular Melodies. 4.30, Dance Music. 5.0, Pianoforte and Cello Recital; Pianoforte Solos: (a) Etude in A Flat (Chopin), (b) Andalusian Romance; Cello Solos: (a) Apres un rêve (Faure), (b) Melody (Grotlie). 5.15, News and Racing Results. 5.20, Opera Music: Air from Faust (Gounod); Selection from La Tosca (Puccini); Prelude to La Traviata (Verdi); Selection from La Bohème (Puccini); Selection from Aida (Verdi). 5.45, Operetta Music. 6.0, News. 6.15, Hawaiian Guitar Music. 6.30, Orchestral Music. 6.45, Opera Music: Airs from: (a) Cavalleria Rusticana (Mascagni), (b) Madame Butterfly (Puccini), (c) Mignon (Thomas), (d) Manon (Massenet). 7.0, Extracts from Les deux Pigeons—Ballet in Three Acts (Messager). 7.15, News, Racing Results, and Market Prices. 7.25, Local News. 7.30, Light Music. 7.45, Military Music. 8.0, Opera Music: Airs from (a) Samson and Delilah (Saint-Saëns), (b) Le Cid (Massenet), (c) Hérodiade (Massenet). 8.15, Operetta Music: Airs from (a) A Waltz Dream (O. Straus), (b) The Girl in the Taxi (Gilbert), (c) The Merry Widow (Lehar). 8.30, Songs from Sound Films. 8.45, Accordion Music. 9.0, Two Suites for Orchestra (Respighi): (a) Fini di Roma (b) Le Fontane di Roma. 9.45, Concert: Part I—Extracts from Opera; Part II—Light Music. 10.15, North African News. 10.30, Programme in English by the I.B.C.; Concert of Operetta Music: Selection from The Gipsy Princess (Kalman); Two Songs from Waltzes from Vienna (Strauss): (a) Artists' Life, (b) The Blue Danube; Selection from Countess Maritza (Kalman); Two Songs from Casanova (Oscar Straus): (a) Venice, (b) Mistress

fond and fair. 11.0, Concert for Listeners in Morocco. 11.30, Organ Recital. 11.45, Recitations. 12 Midnight, Weather and Announcements. 12.5 a.m. (Sunday), Popular Music. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—8.40 a.m., See Turin. 8.55, Mass from the Cathedral of San Giusto. 10.0 to 10.15, Agricultural Report. 11.0 till Close Down. See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayd by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—8.40 to 8.55 a.m., Giornale Radio. 9.40, Agricultural Report. 10.0, Mass from the Church of the Annunciation, Florence. 11.0 to 11.15, Religious Programme. 11.30, See Rome. 12 Noon (in the interval), Time and News. 12.30 p.m., Concert of Light Music. 1.30 to 2.30, Interval. 2.30, Gramophone Records of Light Music and Football Results. 3.0, Concert. 4.0, Concert. In the interval, Sports Notes. 5.10, Giornale Radio and Football Results. 6.0, Announcements. 6.5, Popular Music on Gramophone Records. In the interval at 6.30, Time and News. 7.0, Giornale Radio, Sports Notes, and Light Music on Gramophone Records. 8.0, Relay of an Opera. In the intervals, Talk, Theatre Notes, and Giornale Radio.

VIENNA

517 metres; 15 kW. Relayd by Graz, 352.1 metres; Innsbruck, 263 metres; Klagenfurt, 453.2 metres; Linz, 246 metres; and Salzburg, 218 metres.—9.10 a.m., Anecdotes about G. B. Shaw. 9.30, Soprano Song Recital. 10.0, Scientific Talk. 10.30, The Symphony in D, No. 101 (Haydn), on Gramophone Records. 11.0, Concert by the Vienna Symphony Orchestra, conducted by Max Schönherr. 1.0 p.m., Running Commentary on the Ski-jumping Contest, relayed from Coisern. 2.0, Time, Programme Announcements, and News. 2.5, Talk on Count Radetzky (on the 75th Anniversary of his death). 2.25, Radio Report: The Heldenberg in Lower Austria. 2.40, Review of New Biographical Books. 3.5, Franz

Drlla Chamber Concert, by Christa Richter (Violin), Beate Reichert (Cello), and Otto Schullhof (Pianoforte): Trio in G Minor; Cello Solos, (a) Iyresse, (b) Madrigal, (c) Springbrunnen; Violin Solos, (a) L'Autonne, (b) Serenade in A; Duo concertante for Violin, Cello, and Pianoforte. 4.5, Wind Instrument Concert by Eduard Pfleger's Orchestra. 5.30, Reading by Ernst Kratzmann from his own Works, with Introductory Talk by Otto Emmerich Groh. 6.0, Time Announcements, and Sports Notes, followed by Results of the Skiing Contest in Goisern. 6.20, Recital on Two Pianofortes: Prelude, Fughetta and Toccata (Scholz); Nuages (Debussy); Fêtes (Debussy); Contrapuntal Study on Two Chopin Etudes (Heinz Scholz); Waltz Paraphrase on Fesche Geister (Eduard Strauss). 7.0, The Girl in the Taxi—Operetta in Three Acts (Gilbert). In an interval at 8.50 (approx.), News and Announcements. 9.20, Dance Music from the Café Sacher.

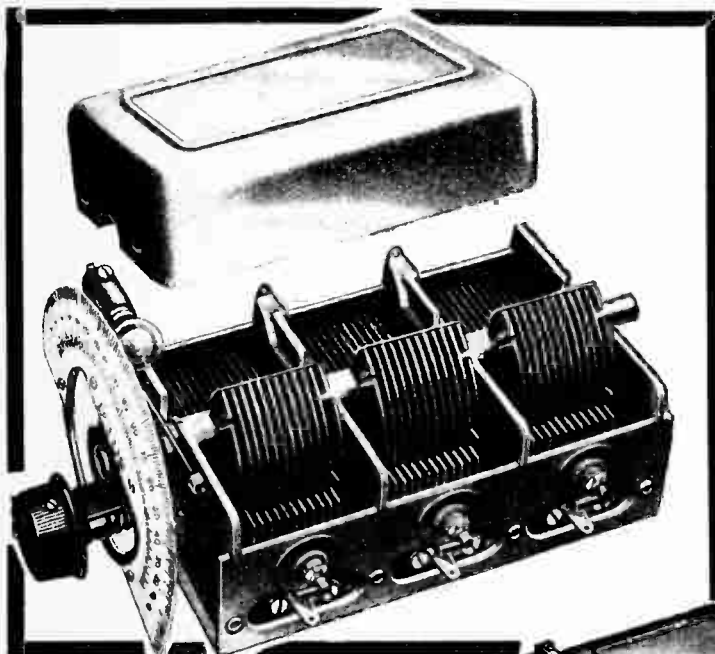
WARSAW

1,411 metres; 120 kW.—10.58 a.m., Time Signal and Fanfare from the Tower of St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Weather Forecast. 11.15, Concert by the Warsaw Philharmonic Orchestra. In the interval, Talk. 1.0 p.m., Veterinary Talk. 1.20, Concert, relayed from Wilno (563 metres). 1.40, Topical Talk. 2.0 to 4.55, Programme relayed from Wilno. 2.0, Concert (contd.). 3.0, Programme for Young People. 4.0, Concert of Light Music. 4.55, Programme Announcements. 5.0, Popular Music from the Café Ziemianska. In the interval, Topical Talk. 6.0, Miscellaneous Items. 6.25 to 7.50, Programme relayed from Wilno. 6.25, Dramatic Programme. 7.0, Report on the Broadcasting Stations at Zwerzywiec and Lipowiska—Five Years' Radio Progress. 7.15, Reading. 7.30, Two Sketches. 7.50, Sports Notes. 8.0, Recital of Popular Lithuanian and White Russian Songs by Sophie Wylezinska, followed by Extracts from Moniuszko's Quartets. 9.0, Light Music and Dance Music, relayed from Cracow (312.8 metres). 9.55, Weather Forecast and Police Report. 10.0, Dance Music from the Onza Dance Hall.

ZAGREB

307 metres; 0.75 kW.—6.40 p.m., Announcements. 7.0, Concert of Operetta Music. 8.0, Sports Notes. 8.10, Operetta Music (contd.). 9.0, News and Weather Forecast. 9.10, Dance Music, relayed from the Esplanade Hotel. 10.30 (approx.), Close Down. ZURICH.—See Schweizerischer Landessender.

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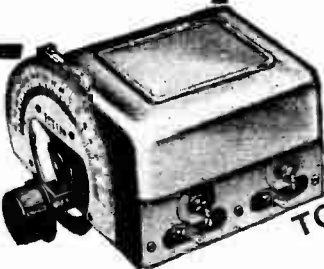
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MONDAY

JANUARY THE SIXTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL Sonata recital. Organ music. Mr. Basil de Selincourt: "New Books." Prof. J. Macmurray: "Makers of the Modern Spirit" (1). Will C. Pepper's White Coons. A Talk on Unemployment. "For the Theatre," incidental music from London productions of recent times. Recital of Hebridean songs. Popular overtures. Military Band concert. Dance music.

LONDON REGIONAL Midland Counties (5), Warwickshire: Inaugural Remarks by the Rt. Hon. Lord Leigh: "The Pageant of Warwickshire," by Oliver Bolton King.

MIDLAND REGIONAL Song recital. "Six Centuries of Village Life," by Mr. F. W. Brooks. Orchestral programme. Dance music.

NORTH REGIONAL Orchestral concert from National Museum of Wales, Welsh interlude.

WEST REGIONAL Recital of gramophone records. Recital of Hebridean songs with Clarsach accompaniment.

SCOTTISH REGIONAL Organ music. Programme of Spanish music.

BELFAST Concert arranged by the Musical Composers' Music Society.

ABROAD

EIFFEL TOWER The Station Orchestra, conducted by Nico Treep.

HUIZEN The Symphony Orchestra, relayed from the Albert-halle.

LEIPZIG Operetta: "The Grand Duchess of Gérolstein," by Offenbach.

RADIO PARIS English Celebrity Concert, by the I.B.C.

TOULOUSE 7.15, Talk by the Minister of Commerce on World Trade. 8.0, See Prague. 9.15 (approx.), Close Down.

BRATISLAVA

279 metres; 14 kW.—3.10 p.m., Schubert Concert by the Station Orchestra, conducted by F. Dyk: Three Overtures: (a) Alphonso and Estrella, (b) In the Italian Style, (c) Fierabras; Symphony No. 1 in D, 4.10, Talk. 4.20, Popular Music on Gramophone Records. 5.0, Concert by the Station String Quartet: String Quartet in D, Op. 33 (Novak); String Quartet in C, Op. 61 (Dvorak). 6.0, See Prague. 6.5, Talk for Women. 6.20, Light Music on Gramophone Records. 6.25 till Close Down, See Prague. 9.15 (approx.), Close Down.

BREMEN—See Hamburg.

BRESLAU

325 metres; 60 kW.; and GLEIWITZ, 253 metres.—12.10 p.m., Gramophone Concert: Overture, William Tell (Rossini); Selection from Tannhäuser (Wagner); Polonaise from Eugene Onegin (Tchaikovsky); Melody in F (Rubinstein); Overture, The Hermit's Bell (Maillart). 12.45, Time, Weather, News, and Exchange Quotations. 1.5, Gramophone Concert (contd.): Selection from The Rose of Stamboul (Fall); Potpourri (Lohar); Waltz, Tales from the Vienna Woods (Joh. Strauss); Selection from Die Försterehrst (Jernö); Oberländer, Klänge aus der Heimat (Gungl). 1.45, Sponsored Programme with Gramophone Records. 2.10, Agricultural Market Prices. 2.40, Review of Books. 3.0, Talk: The Significance of Werner Sombart. 3.20, Orchestral Concert, conducted by Bruno Janz: Entry of the Guests, from Tannhäuser (Wagner); Ballet Suite (Presto); Romance (Svendsen); Overture, Morning, Noon, and Night (Suppé); Song Potpourri, Das treue Deutsche Herz (Weninger); Waltz, Minnesänger (Fetras). 4.30, Agricultural Market Prices. 4.35, Programme for Children. 5.0, Report by Paul Rilla: The Intellectual World. 5.20, French Language Lesson. 5.45, Topical Talk. 6.0, Talk: The Discovery of Electric Waves. 6.30, Weather for Farmers. 6.35, Dance Music by the Station Orchestra, with Vocal Refrains by Franz Baumann (Tenor). 8.0, News Bulletin. 8.10, Victory—Radio Play (Heinrich Hauser), after the Novel by Joseph Conrad. 9.10, Time and Announcements. 9.30, Technical Letter Box. 9.40, Reading (Hellmuth Lucas). 10.0, A Rural Talk. 10.20 (approx.), Close Down.

BRNO

342 metres; 35 kW.—3.10 p.m., See Bratislava. 4.10, Light Music on Gramophone Records. 4.20, Review of New German Publications. 4.40, Chess Lesson. 5.0, Talk on Gymnastics. 5.15, See Prague. 5.25, German Transmission: News and Recitations. 6.0, See Prague. 6.5, Elementary English Lesson. 6.25, See Prague. 6.40, Reading. 7.0, Light Music on Gramophone Records.

(Candael); Selection from Gwendoline (Chabrier); Pianoforte Solo: Esquisses (Meulemans); Breton Song (Lalo); Breton Gavotte (Bourgault-Mucoudray); Slav Dance (Dvorak). 7.15, Talk: Banks and the Crisis. 7.30, Variety Item. 8.0, Concert by the Radio Orchestra, conducted by Franz André: Soloists: Mlle. Legrain and Mlle. Servranckx (Songs); Selection from Rosamund (Schubert); Three Dances from Nell Gwyn (German); Selection from Un bon garçon (Yvain); Tales from the Vienna Woods (Joh. Strauss). 8.45, Talk: Protection and the Crisis. 9.0, Concert (contd.): Overture, Sémiramis (Rossini); Suite of Spanish Dances (Albeniz); Six Songs; Marche des Communiens Brugesois (Dubois); La Gitano (Kreisler); Four Viennese Pieces (Kreisler). 10.0, Le Journal Parlé. 10.10, Gramophone Concert: Overture, Marinarella (Fueick); Spanish Melody; Maiden, my Maiden (Lehar); La Source (Hasselmanns); March (Comtade); Gipsy Songs; Waltz, Saxophone; Potpourri, Fortissimo (Kalman); Waltz, Moonlight on the Alster (Fetras); Ballet Music from Isoline (Messenger). 11.0 (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—4.0 p.m., Concert by the Radio Orchestra: March from Athalia (Mendelssohn); Waltz, The Arabian Nights (Joh. Strauss); Overture, The Mikado (Sullivan); Intermezzo, On the Bosphorus (Lincke); Selection from Faust (Gounod); Hymn to the Sun from The Golden Cockerel (Rimsky-Korsakov). 5.0, Time Signal. 5.10, Talk. 5.25, Concert by the Radio Orchestra. 6.0, Educational Talk: Native Romanian Vertebrata. 6.40, Variety Music on Gramophone Records. 7.0, String Quartet (Enacovic) by the Sarvas Quartet. 7.30, Talk. 7.45, Greek Song Recital by Demosthenes Sariyamis. 8.5, Variations on a Theme by Schumann for Two Pianofortes (Brahms) by Mrs. Rogalski and C. Silvestri. 8.25, Dance Music from the Grand Hotel. 9.0, News.

BUDAPEST

550 metres; 18.5 kW. Programme also relayed on 540 metres from 7.10 p.m. till Close Down.—4.30 p.m., Gramophone Records of Operatic Music. 5.30, German Lesson. 6.0, Concert of Gipsy Music. 7.10, Concert, relayed from the High School for Music. 9.10, Time, Weather, News. 9.30, Concert of Light Music from the Café Ostende.

CASSEL—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW.; and KALUNDBORG, 1,153 metres; 7.5 kW.—11.0 a.m., Time Signal and Chimes from the Town Hall. 11.2, Concert by the Max Skalka String Ensemble, relayed from the Hotel d'Angleterre. 1.0 to 2.20, Interval. 2.20, Programme for Housewives. 2.30, Orchestral Concert: Jubelmarsch (Böcker-Neilsen); Overture, Le Caid (Thomas); Caprice brilliant (Glinka); Fantasia on old Danish Sailors' Melodies (Grünhbl); Norwegian Wedding March (Christensen); Waltz (Stolz); Danish Rhapsody (O. Olsen); Overture, La Mascotte (Andran); Waltz, Hoffmings-Strahlen (Lanner); Czardas from The Swan Lake (Tchaikovsky); Swedish Folk Melody for Strings (arr. H. Sandby); Ballet Scene (Rydahl); Molly on the Shore (Grainger); March, Farfarenklang (Fueick). In an interval, Reading. 4.40, Exchange and Fish Market Prices. 4.50, Talk. 5.20, English Lesson. 5.50, Weather. 6.0, News. 6.15, Time. 6.30, Talk: Insects and Mankind. 7.0, Time Signal from the Town Hall. 7.1, Shall the Mahlarin Die?—Radio Play (Theo Fleischnan), with Music by Marcel Poot. 8.0, Saxophone and Pianoforte Recital by S. E. Töngqvist and V. Fischer. 8.20, A Visit with the Microphone to a Railway Station. 8.40, Concert by the Station Orchestra, conducted by Emil Rescen; En bateau from Petite Suite (Debussy); Two Melodies (Turina): (a) On the Road to the Alhambra, (b) In the Gardens of Murcia; Norwegian Bridal Procession (Grieg); Serenade, Granada from the Spanish Suite (Albeniz); Two Pieces from Scenes alsaciennes (Massenet). 9.15, News. 9.30, String Quartet in C for Two Violins, Viola and Cello (F. Heitzques). 10.0 (approx.), Close Down.

GORK—See Dublin.

CRACOW

312.8 metres; 1.5 kW.—5.50 p.m., Miscellaneous Items and Announcements. 6.15, Talk. 6.30, See Warsaw. 7.0, See Lwów. 10.30, See Warsaw.

DANZIG—See Heilsberg.

DRESDEN—See Leipzig.

DUBLIN

Call 2RN; 413 metres; 1.2 kW.; and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. 6.0, Popular Music on Gramophone Records. 6.15, Programme for Children. 7.0, Light Music on Gramophone Records. 7.20, News Bulletin. 7.30, Time Signal. 7.31, Gaelic Talk. 7.45, Talk on Dublin Statues. 8.0, The Station Sextet. 8.30, Gaelic Talk. 8.45, Violin Solos by Una Kenny. 9.5, P. J. Byrne and W. J. Hobbs in a Programme of Duets and Solos. 9.30, Radio Revue arranged by Fay Sargent. 10.15, The Station Sextet. 10.30, Time Signal, News, Weather Report and Close Down.

ALGIERS
363.3 metres; 13 kW.—7.40 p.m., Songs from Opera. 7.55, News. 8.0, Time Signal. 8.2, Vocal and Instrumental Concert. 8.30, Review of New Books. 8.45, News. 8.50, Ballet Suites by the Station Orchestra. 9.30, News. 9.35, Ballet égyptien (Luigini). 9.50, News.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—8.0 p.m., Trio Concert: Träume (Wagner); Selection from Déjanire (Saint-Saëns); Aubade (Pierne); Selection from Don César de Bazan (Massenet); Serenata a Toscanini (Murzilli); Selection from The Tales of Hoffmann (Offenbach), followed by a Health Talk. 7.0, Request Gramophone Concert. 7.30, Exchange and Talk in Catalan. 8.0, Popular Music on Gramophone Records, and News. 9.0, Chimes from the Cathedral, Weather, Exchange, and Market Prices. 9.5, Humorous Review of the Week in Verse. 9.15, Concert of Sardanas by the Cobla Barcelona. 10.0, Topical Review. 10.45, Concert by the Station Orchestra: Spanish Rhapsody (Ravel); Berceuse (d'Ambrósio); Russian Ballet (Luigini). 11.0 (in an interval), News Bulletin. 11.30, Dance Music, relayed from the Hollywood Bar. 12 Midnight (approx.), Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Report, Tourist Notes and Announcements. 7.20, Giornale Radio and Weather. 7.30, Time and News. 7.35 (approx.), Maton Lescant—Opera (Puccini) on Gramophone Records. In the intervals, Book Review and Reading. After the Programme, News.

BASLE—See Schweizerischer Landessender.

BELGRADE

430.4 metres; 2.8 kW.—4.0 p.m., Dialogue in German. 5.55, Time and Programme Announcements. 6.0, Popular Music on Gramophone Records. 6.50, Introductory Talk to the following Relay. 7.0, Opera, relayed from the National Theatre. In an interval at 8.30 (approx.), News. After the Opera, Light Music relayed from the Balkan Hotel.

BERLIN

Königs Wusterhausen. 1,635 metres, 60 kW.—11.0 a.m., Weather, followed by Romantic Music on Gramophone Records and Second Weather Report. 11.55, Nauen Time Signal. 12.35 p.m., News Bulletin. 1.0, Gramophone Concert of Popular Music, relayed from Berlin (Witzleben). 2.0, Talk for Women: The Toilet Table. 2.30, Weather and Exchange. 2.45, Review of Books. 3.0, Educational Talk. 3.30, Concert from Berlin (Witzleben). 4.10, Talk by Kurd Kischauer. 4.30, Cello Recital: Arioso (Bach); Rondo (Bocherini); Folk Melody (Schulz-Fürstenberg); Tarantella (Popper). 5.0, Talk: Young German Working People Abroad. 5.25, Making Music with Invisible Partners. 5.55, Weather and Announcements. 6.0, English Lesson. 6.30, A Poem. 6.35 (approx.), Concert from Frankfurt. 7.35, Dialogue on Parliamentary Affairs. 8.15, Extracts from Oedipus Rex—Oratorio—Opera (Stravinsky). 9.15, Weather, News and Sports Notes. 9.45, Weather for Shipping, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN; 419.5 metres; 1.5 kW.—3.30 p.m., Orchestral Concert. 4.30, Talk on Hygiene. 4.50, Programme for Young People. 5.10, Little Sonata, Op. 25, No. 2, for Viola d'amore and Pianoforte (P. Hindemith), by the Composer and Hans Erich Riebensahn. 5.30, Paul Ernst reads from his own works. 5.55, The Witzleben Station informs its listeners. . . . 6.0, Topical Talk. 6.10, Light Orchestral Concert. Soloists: Else Kochmann (Soprano), Ludwig Donath (Tenor) and Paul Schramm and Diny Soetmercer (Two Pianofortes). 7.25, Concert in B Flat for Cello and Orchestra (Bocherini). 7.45, Extracts from Frühlingsstürme (Spring Storms)—Operetta in Three Acts (Weinberger), relayed from the Theater im Admiralpalast. Conductor: Manfred Gurlitt. Soloists: Richard Tauber, Jarmila Novotna, Else Elster, Siegfried Arno and Oskar Homolka. 8.15, Up and Down the Street—Pictures of Daily Life in a Big City. 9.0, Weather, News and Sports Notes, followed by Dance Music by the Paul Godwin and Theo Bayer Bands, relayed from the Femina. 11.0 (also relayed by Zeesen on 31.38 metres, The Way to Freedom—Radio Play (Fred von Hoerschelmann).

BERNE—See Schweizerischer Landessender.

BEROMUNSTER. — See Schweizerischer Landessender.

BODEN—See Stockholm.

BODO—See Oslo.

BORDEAUX-LAFAYETTE

304 metres; 14 kW.—7.30 p.m., News, Exchange and Market Prices. 7.40, Variety Music on Gramophone Records. 7.55, Lottery Results. 8.0, Programme for Children. 8.15, Charades. 8.20, News. 8.30, Vocal and Instrumental Concert.

FECAMP

223 metres; 10 kW.—12 Noon, Variety Music on Gramophone Records. 12.30 p.m., News. 12.45, Concert of Opera and Operetta Music. 7.0, Local News. 7.15, Popular Music on Gramophone Records. 7.30, Radio Gazette. 8.0, Light Music on Gramophone Records. 8.15, News. 8.30, Concert, relayed from **Trouville**. 10.0 till Close Down. Programme in English by the I.B.C. 10.0, Dance Music: That's my Desire; You can't stop me from loving you; My Baby said Yes, Yes; You were my Salvation; Cuban Love Song; Just once for all Time; The Wedding Party of Mickey Mouse; Life is just a Bowl of Cherries; My Sunshine is you; Put your loving Arms around me; It's a Girl; Got a Date with an Angel; It's great to be in love; Lies; They all make love but me; What's going to happen to me? 11.0, Negro Spirituals, by the Studio Chorus; Go down Moses; Water Boy; Couldn't hear Nobody pray; I ain't going to study War no more; Deep River; Steal Away; Levee Song; Swing low, sweet Chariot. 11.30, Concert by an Accordion Band: Volante March (Baptiste); Sobre las olas (Rosas); Wee MacGregor Patrol (Amers); Javanette (Bozi); Senorita (Cuveller); La Tourterelle (Lamare); Au revoir (Cuveller); Bertina Waltz (Alexandre). 12 Midnight, Philco Concert: The Old Man of the Mountains; Good Morning, Mr. Sun; Auf Wiedersehen, my dear; How'm I doin? Let's put on the Lights and go to sleep; Smile and sing your Cares away; Good Evening; Say it isn't so. 12.30 a.m. (Tuesday), Orchestral Concert: Les trésors de Colombine (Drigo); Coppélia from: (a) Il Trovatore (Verdi), (b) Coppélia (Delibes); Night on the Bare Mountain (Mussorgsky); Nocturne, Liebesträume (Liszt). 1.0, Oetel Concert: Serenade (Schubert); Londonderry Air (Traditional); Melody (Glück); La fleuve (Raff); Ballet Music from Rosamund (Schubert); Moment musical (Schubert); The Lark (Tchaikovsky); Moeck Morris (Grainger); Cradle Song (Grieg). 1.30, Vocal and Orchestral Concert: You are my Heart's Delight, from The Land of Smiles (Lehár); Songs: (a) Just keepin' on (Phillips), (b) Since you went away (Johnson); Selection from Bow Bells (Sullivan); Songs: (a) Lonesome Moonlight (Strickland); (b) Mammy's gone (Henderson); Selection from Frederica (Lehár). 2.0, Dance Music: Same old Moon; Goodbye Blues; Silver Hair and Heart of Gold; Song of the Bells; Rock your Cares away; A Bedtime Story; Where is this Lady? Tell me To-night; The Younger Generation; Mad about the Boy; You, just you; Don't say Goodbye; In a Shanty in old Shanty Town; We just couldn't say Goodbye; Bravo Jim; When the Band goes marching by. 2.57, I.B.C. Goodnight Melody. 3.0, Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW., and CASSEL, 245.9 metres.—6.15 p.m., Time, Programme Announcements, Weather and Exchange Quotations. 6.25, Orchestral Concert, conducted by Reinhold Merten: Overture, Preciosa (Weber); March from Die Schatzkammer der Inka (Lortzing); Overture, Yelva (Lortzing); Suite from the Ballet Andersen (Nedbal); Toreli Dance from Der Landfriede (Brüll); Fasnachtsbilder, Op. 24 (Niedel). 8.10, The Case of Valerie C.—A Medical Instructional Play (Avicenna). 9.26, Time, News, Weather and Sports Notes. 9.45, See Munich. 11.0 (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

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 227.4 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—6.5 p.m., Review of Books. 6.25 (from Bremen), Weather. 6.30, Rudolf Alexander Schröder reads from his own Works. 7.0, Missa Solemnis (Beethoven) for Soloists, Choir, Orchestra, and Organ, relayed from the Conventgarten. 9.0, News Bulletin. 9.20, Topical Talk. 9.30, Fortnightly Report of the Norag Sound Service. 9.50 (in an interval), See Report.

HANOVER.—See Hamburg.

HEILSBURG

176.5 metres, 60 kW.; and DANZIG, 453.2 metres.—12.5-1.30 p.m., Gramophone Concert of Popular Music: In the interval at 12.20, Announcements. 2.0, Exchange and Market Prices. 2.25, Programme from Munich. 2.50, Programme for Children. 3.15, Concert by the Little Orag Orchestra, conducted by Eugen Wilken: Prelude to and Siciliana from Cavallera rusticana (Mascagni); Two Pieces (Kotlyb); (a) Dance of the Merry Mascots, (b) Galanterie; Selection from Gaudeamus (Humperdinck); Waltz, Flattergeister (Jos. Strauss); Suite, A Mediterranean Voyage (Jalowicz); Selection

JAN. 16th

MONDAY

continued

from Eva (Lehár); Overture, Consalvo (Azzoni); March, San Lorenzo (Silva). 4.45, Talk: Revolt in the Skilled Trades Workers. 5.15, Market Prices. 5.26 (from Danzig), Talk: Danzig and the League of Nations. 5.50, Talk: Anniversaries of the Week. 6.0, Trio in D Minor, Op. 49, No. 1, for Clarinet, Oboe and Horn (Karg-Elert). 6.30, Elementary English Lesson. 7.0, News and Weather. 7.10, Handel as Violin Music Composer—Recital by Prof. Diener (Violin) and Margarete Schuchmann (Harpisichord), with Introductory Talk and Commentary: Jugendsonate for Violin and Harpsichord; Dances from Operas: Sonata in E for Violin and Harpsichord. 8.0, Humorous Topical Review. 8.10, Radio Plays—Programme arranged by Dr. Karl Bloek. 9.10 (approx.), Weather, News and Sports Notes.

HILVERSUM

Announced **HUIZEN**, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—12.10 p.m., Organ Recital by Jan Zwart, relayed from Amsterdams: Prelude, Erica (van Krieken); Andante in E (Schrayesande); Fantasia in F Minor (Hoofft); Three Choral Preludes (Jan Zwart); Minuet (Guils); Allegretto on a Theme by Mendelssohn (Guils); March on a Theme by Händel (Guils); Allegretto grazioso (Tours); Prelude and Fugue in D (Kersbergen); Pastorale (Groothengel); Three Choral Preludes: Three Pieces (Widor); (a) Allegro cantabile, (b) Tocata, (c) Adagio; Fantasia on Familiar Melodies (Zwart). 1.40, Time Signal. 1.42, Programme for Schools. 2.15, Sacred Music on Gramophone Records. 2.25, Cookery Hints. 2.55, Dressmaking Lesson. 3.25, Programme Announcements. 3.40, Bible Reading and Sacred Music. 4.40, Orchestral Concert, conducted by J. Perey: Overture, Hansel and Gretel (Humperdinck); Waltz, Du und Du (Joh. Strauss); Suite from The Bartered Bride (Smetana); Gramophone Record: Melody from Aida (Verdi); Overture, Carmen (Bizet); Spanish Dances (Mozzkovsky); Pusztal-legenden (Lindsay-Thiemer); Gramophone Records: (a) The Mill in the Black Forest (Eilenberg), (b) Das erste Herzklopfen (Eilenberg); Selection from Lilac Time (Schubert-Berté); Florentine March (Fucik). 6.10, Answers to Correspondents. 7.10, Police Notes. 7.25, News Bulletin. 7.40, Choral Concert of Dutch Music. In the intervals, Classical Music on Gramophone Records, and at 8.40, Talk. 9.45, News. 9.55, Gramophone Concert: March and Suite No. 3 from The Tale of Czar Saltan (Rimsky-Korsakov); Selection from Prince Igor (Borodin); Italian Caprice, Op. 45 (Tchaikovsky); Kamarinskaja (Glinka); The Swan of Tuonela (Sibelius); Piece for Cornet and Organ: The Holy City (Adams); Abide with Me (Lyle-Monk); Whispering Hope (Hawthorne); Song with Organ Accompaniment: Thou hast created all Things. 11.10 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced **HILVERSUM**, 1875 metres; 8.5 kW. Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.).—11.40 a.m., Time Signal, and Popular Music by the Tuschinski Orchestra, conducted by Max Tak. 1.10 p.m., Piano Recital by Annie Savenijie. 1.55 to 2.10, Interval. 2.10, Light Music on Gramophone Records. 3.10, Dance Music by Kovacs Lajos and his Band. 4.10, Talk on Suppé with Gramophone Illustrations. 5.10, Dance Music (cont'd.). 6.10, Book Review. 6.40, Popular Music on Gramophone Records. 7.10, Talk. 7.40, Time Signal, Weather Forecast, and News Bulletin. 7.45, Concert by Dajos Bela and his Orchestra, relayed from the Carlton Hotel, Amsterdam. 8.40, Concert by the Utrecht Female Voice Choir, conducted by Karin Kwant. 8.55, Concert by the Station Orchestra, conducted by Nico Treep. Soloist: Wolfgang Schneiderhahn (Violin); Overture, Euryantle (Weber); Violin Solo, Piedmontese Dances (Stuigaglia). 9.25, The Utrecht Women's Choir (cont'd.). 9.40, Orchestral Concert (cont'd.): Turkish March from The Ruins of Athens (Beethoven); Overture, William Tell (Rossini); Violin Solos: (a) Melody, (b) Canzonetta (d'Ambrosio); Cello Solo: Le Cygne (Saint-Saëns); The Emperor Waltz (Johann Strauss); The Cachelua from The Gondoliers (Sullivan); Pizzicato Polka (Strauss); 's gielot nur a Kaiserstadt, 's geit nur a Wien (Strauss); Persian March (Strauss). 10.40, News. 10.45, Concert (cont'd.): Kleiner Wiener Marsch (Kreislter); Ideale (Tosti); Selection from The Maid of the Black Forest (Jessel); Marche lorraine (Ganne). 11.10, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.30 p.m., See Warsaw. In the interval at 9.10, Answers to Technical Correspondence. 10.40, Gramophone Dance Music.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1.796 metres; 40 kW., and **HELSINKI**, 358.1 metres.—6.10 p.m., Talk. 6.35, Song Recital. 7.0, A Play (Aarne Koponen). 7.30, Gramophone Records of Variety Music. 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert, conducted by Wolf: Overture: The Cunning Peasant (Dvorák); Two Pieces from the Suite Old China (Xenon); Selection from La Traviata (Verdi); Serenade, Sul Lago (Ranzato); Suite der Freude (Scheinpflug); Waltz, The Blue Danube (Strauss); Scherzo, Sonnenkind und Wolkenmann (Glenus); Selection from The Gipsy Princess (Kálmán). 1.0 p.m. (in an interval), News. 1.30, Great Market Prices. 2.30, Exchange and Time Signal. 2.50, Short Stories for Children. 3.20, Programme for Young People—Two Short Stories. 4.0, Concert conducted by Ey-sölk: Prelude to The Third Act of Kunilind (Kistler); Ismni to the Night (Swassold); Suite, Peter Tchaikovsky (Beccer); Hindu Song (Rimsky-Korsakov); Schön Rosmarin (Kreislter); Selection from La cena delle beffe (Giordano); Czardas, Der Geist des Weiwoden (Grossmann); A Norwegian Bridal Procession (Grieg). 5.0, Talk for Women: A German Woman Student in U.S.A. 5.20, Talk for Parents. 5.45, Weather, Time, Exchange and Sports Notes. 6.0, Talk on Economics. 6.20, Talk on Giovanni Segantini on his Seventy-Fifth Birthday. 6.30, Talk: Werner Sembart on his Seventieth Birthday. 6.55, First General News. 7.0, But is the Welt-Variety Programme. 7.45, Concert by the Station Orchestra, conducted by Buschhöfer: Old English Suite (Ettinger); Kleine Sinfonie (Wedig); Siegfried Idyll (Wagner); Haydn Variations (Brahms). 9.10, News and Sports Notes. 9.30, Serenade, conducted by Wolf. 10.15, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW., and **DRESDEN**, 319 metres.—11.0 a.m., Weather and Time. 11.5 (approx.), Concert by the Ende Orchestra. In an interval at 12 Noon (approx.), News, Weather, Snow Report, Time and Exchange. 1.0 p.m., Art and Film Review. 1.30, Advice for the Unemployed. 1.45, A Visit to the Sculptor, Rudolf Belling. 2.10, Dialogue: As a German Governess in Italy. 2.35, Exchange and Market Prices. 3.0, Gramophone Concert of Popular Music. 4.30, Weather and Time. 4.50, Exchange Quotations. 5.0, In a Girls' Technical School: Master and Girls at the Microphone. 5.30, Talk: A Thousand Years of German Literature—the Late Middle Ages. 5.50, Talk: The Leipzig Station's Policy with regard to Broadcasts for Schools. 6.5, Talk: The Future of the Building Trade. 6.25, Mandoline Music from Many Lands: Concert by the German Workers' Mandoline Society: French Overture, Petite Fiancée (Paul Hardy); German Romance, Sehnsucht (Theodor Ritter); Italian Waltz, Penso a te (Ancarani); Two Japanese Pieces (Sawaguchi): (a) Cavatina and Intermezzo from the Lyric Suite, (b) Cavalletta and Improvisation; Spanish Rhapsody (Salvetti). 7.0, Concert by the Leipzig Symphony Orchestra, relayed from the Alberthalle. Soloist: Dorothea Braus (Pianoforte); Symphonie fantastique (Berlioz); Concerto in B Flat, Op. 18, for Pianoforte and Orchestra (Götz); gestern Abend war Vetter Michel da—Musical Tale in Eleven Episodes (Georg Schumann). 9.5, News Bulletin. 9.15 (approx.), Bunte Stunde. Soloists: Charlotte Gleissberg (Soprano), Hans Joachim Neeselt (Violin), Heinrich Teubig (Trumpet), Anton Maria Topitz (Tenor), and Alfred Schlatmann and Friedbert Sammler (Pianoforte).

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—4.30 p.m., Quintet Concert. 5.30, Espiranto Lesson. 6.0, Serbo-Croatian Lesson. 6.30, Talk on Hygiene. 7.0, Opera, relayed from Belgrade (430.4 metres). 9.30, Time and News.

LWOW

381 metres; 16 kW.—6.5 p.m., Miscellaneous Items. 6.20, Gramophone Records of Light Music. 6.30, See Warsaw. 7.0, The Haunted Castle Opera (Moniuszko), relayed from the Opera House. In the First Interval, Talk; and in the Second Interval, Sports Notes and Radio Journal from Warsaw. 10.30, See Warsaw. 11.0 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South East. 8.30, Concert. 8.50, Instrumental Concert, conducted by Charles Strony, relayed from the Conservatoire. Soloist: Yves Tinayre (Tenor). After the Concert, News Bulletin.

MADRID

ARANJUEZ (EAO), 30.43 metres; 20 kW.—11.30 p.m., Variety Music. 11.45, Radio

Chronicle. 12 Midnight, Concert of Spanish Music. 12.35 a.m. (Tuesday), Sports Notes and Bull-Fighting Report. 12.55, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO; Call EAJ7; 424.3 metres 2 kW.—7.0 p.m., Chimes, Exchange and Request Gramophone Concert. 8.0, Sports Talk. 8.15, News Bulletin. 8.30 (approx.), Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.3 metres; 11 kW.—6.0 p.m., See Prague. 6.5, See Brno. 6.25, See Prague. 6.40, Concert by a Country Band. 7.15, See Brno. 8.0, Dance Music by the Station Orchestra, conducted by J. Plichta. 9.0, See Prague. 9.15 (approx.), Close Down.

MOSCOW

TRADES UNION, 1304 metres; 100 kW.—5.30 p.m., Concert from the Radio Theatre. 8.0, Talk in English: The Doctrines of Marx and Lenin. 8.55, Time. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 1.5 kW. Relayed by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—3.0 p.m., Vocal and Instrumental Concert. Franziska Teufel and Viktoria Fischer (Sopranos), Martha Nauert (Mezzo-Soprano), and Thilde Kraushaar (Pianoforte). Three Songs (Schubert): (a) Das Wirtshaus, (b) Die Krähe, (c) Das Heidenröslein; Three Mezzo-Soprano Solos: (a) Auf Flügeln des Gesanges (Mendelssohn), (b) Heidenröslein (Brahms), (c) Am Sonntagmorgen (Brahms); Capriccio for Pianoforte, Op. 39, Die Tänzerin (H. H. Schmid); Soprano Solos (Schmid): (a) Wiegenlied, (b) An der Krippe; Pianoforte Solos from the Kleine Klavierbuch, Op. 52 (Schmid). 3.40, Talk: Pictures from the Bavarian Forest. 4.0, See Langenberg. 5.15, Programme arranged by the State Railways. 5.35, Talk for Workers. 5.55, Time, Weather and Agricultural Notes. 6.5, Talk: The Land of the Blue Flower. 6.30 (from Nürnberg), Choral Concert. Male Voice Choir: (a) Mein Gedanken (Knöchel), (b) Folk Song, Es ritten drei Ritter zum Tor hinaus, Women's Choir: (a) Folk Song, Schwesterlein, wann gehst du nach Haus?, (b) Old Folk Song, Die Königskinder; Mixed Choir: (a) Folk Song, Ich hört' ein Sichelchen rauschen, (b) Mir ist ein feins brauns Maidelein, (c) Kein Feuer, keine Kohle. 7.0, Wind Instrument Concert. 8.10, Reading (Ludwig Thoma). 8.30 (from Nürnberg), Concert of Old Music for Viola and Harpsichord. 9.20, Time, Weather, News and Sports Notes. 9.45, Dance Music by Alexander Laszlo and his Soloists.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredrikstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 453.3 metres; and Rjukan, 447.1 metres.—6.0 p.m., Announcements, Weather and News. 6.30, Talk on Schubert, with Illustrations by Mme. Thera Bentzen. 7.0, Time Signal. 7.1, Pianoforte Recital by Daniel Lövdal: Nocturne and Etude (Chopin); The Shepherd (Grieg); Melody (Niemann). 7.20, Violin Recital by Mlle. Helga Lökke: Old Folks at Home (arr. Kreislter); Slav Dance in C Minor (Dvorák-Kreislter); Zigeunerweisen (Sarasate). 7.45, Branner's Romances, by Mme. Astri Leikvang. 8.10, Political Review. 8.40, Weather and News. 9.0, Topical Talk. 9.15, A Sketch. 9.45 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society, and Giornale Radio. 7.20, Popular Music on Gramophone Records. In an interval at 7.30, Time and Announcements. 7.45, Chamber Music Concert: Nini Misiti (Pianoforte), Silvia Delisi (Soprano), A. Ruggeri (Cello), and V. Manno (Violin); Pianoforte Solos: (a) All fonte (Savasta), (b) Twelfth Rhapsody (Liszt); Songs: (a) Chanson triste (Dupare), (b) Mandoline (Debussy); Sonata in G for Cello (Bocherini); Sonata in D for Violin (Vivaldi-Respighi); Song from Dances of Death (Mussorgsky); Cello Solos: (a) Aria (P. Ferro), (b) Spanish Dances (Popper); Violin Solos: (a) Air on the Fourth String (Bach), (b) Heidenröslein (Schubert-Manno), (c) Scherzo in D Minor (Ranzato); Pianoforte Solos (Chopin): (a) Berceuse, (b) Ballad. After the Concert, Symphony Music on Gramophone Records. 9.55, News.

PARIS

EIFFEL TOWER, Call FLE, 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).—6.45 p.m., Le Journal Parlé. 7.20, Weather Report. 7.30, Concert

JAN. 16th

MONDAY

continued

arranged by the Musical Composers' Music Society: The Trio d'Anches, the Chorale d'Enfants, M. Chédécail (Violin); Pierre Lefebvre (Clarinet); Ninon Guérard (Songs); Jacques Desestre (Viola), and Suzanne Bodet (Pianoforte): Trio Suite for Oboe, Clarinet and Bassoon (Gallon); Two Old French Songs (Odette Fagan), by the Chorale d'Enfants, conducted by the Composer: (a) Berceuse d'Auvergne, (b) Bourrée; Capriccio for Violin (Tomatis), the Composer at the Piano-forte; Solo de Concours for Clarinet (Rahaud); Songs: (Marguerite Marsa): (a) Promenade attristée, (b) Dernière promenade, (c) Depuis qu'elle est partie; Sonata in C Sharp Minor for Viola and Pianoforte (Durante-Farget). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN; 328.2 metres; 60 kW.—7 to 9 a.m., Commentary on the Test Match in Australia. 6.45 p.m., Le Journal Parlé. 7.0, Jazz Music on Gramophone Records. 7.30, Sponsored Concerts. 8.0, Talk. 8.20, Exchange. 8.30, Sponsored Concerts. 10.40, News.

PARIS

RADIO PARIS; Call CFR; 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (cont'd). 7.45, Commentary on the Test Match in Australia. 8.0, Press Review and Weather. 8.30, Commentary on the Test Match (cont'd). 12 Noon, Concert by the Kretzky Orchestra: Overture, Le Chalet (Adam); Selection from The Barber of Seville (Rossini); Selection from L'Ecossais de Chateau (Delibes); Overture and Passepied from La Basoche (Messager). 12.30 p.m., Popular Music on Gramophone Records. 1.0, Exchange, News and Weather. 1.5, Orchestral Concert (cont'd): Selection from La Glaneuse (Fourdrain); Overture, Le Roi d'Ys (Lalo); Madrilène (Infante); Gouzouka (Akimenko); Adagio (Rubinstein); Chanson (Rubinstein); Spanish Dances (Sarasate). In the intervals at 1.0, Exchange, News and Weather, and at 1.30 and 2.0, Exchange. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Elementary English Lesson. 6.50, Film Review. 7.0, Review of New Books. 7.20, Concert by the Kretzky Orchestra: Old Dances (Vidal); Chanson (Hahn); Lament for 'cello (Briclot); El Nomad (Bigot). 7.45, Commercial Prices and News. 7.50, Gardening Talk. 8.0, The Grand Duchess of Gérolstein—Operetta (Offenbach). In the intervals at 8.30, News, Sports Notes and Weather, at 8.40, Review by Pierre Seize, and at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by W3XK on 48.86 metres and 25.27 metres.—9.0 p.m., Work-a-Day Thoughts. 9.5, Business News. 9.15, Programme to be announced. 9.30, Weather Report. 9.32, Market Report. 9.45, Pianoforte Interlude. 9.50, David Lawrence Dispatch. 9.55, KDKA Artist Bulletin. 9.57, Programme Announcements. 10.0, Programme to be announced. 10.15, Dromedary Caravan, from New York. 10.30, The Singing Lady, from New York. 10.45, Little Orphan Annie. 11.0, Time Signal. 11.1, Temperature Report. 11.2, Teaberry Sport Review. 11.7, Press News Reeler. 11.12, Strange Facts. 11.14, Weather Report. 11.15, Johnny Hart in Hollywood, from New York. 11.30, Westinghouse Watchmen. 11.45 to 1.0 a.m. (Tuesday), New York Relay. 11.45, Today's News, by Lowell Thomas. 12 Midnight, Popsident Amos 'n' Andy. 12.15 a.m., Tastyest Jesters. 12.30, Five Star Theatre—Marx Brothers. 1.0 a.m., Programme to be announced. 1.30 to 3.15, New York Relay. 1.30, Time Signal and Soloist. 1.45, Phillips Lord in The Country Doctor. 2.0, Sinclair Minstrels. 2.30, Jack Frost Melody Moments. 3.0, Alice Joy. 3.15, Bridge School of the Air from E. Hall Downes. 3.30, Samuel Di Primio (Tenor). 3.45, Archer Gibson Organ Reveries. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last-minute News. 4.20, Jimmy Joy and his Orchestra. 5.0, Hotel Bismarck Orchestra, from New York. 5.30, Time Signal and Goodnight.

PORSGRUND.—See Oslo.

POZNAN

335 metres; 1.9 kW.—6.0 p.m., Miscellaneous Items and Announcements. 6.28, Time. 6.30, See Warsaw. 7.0, The Haunted Castle—Opera (Moniuszko), relayed from Lwów (381 metres). During the intervals, News, Theatre Guide, and Programme Announcements. 10.30, Time, Sports Notes, and Police Report. 10.45 (approx.), Close Down.

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., See Bratislava. 4.10, Talk: Amateur Dramatics. 4.20, Talk. 4.30, Programme for Children. 4.50, Variety Music on Gramophone Records. 5.5, Agricultural Report. 5.15, Talk for Workers. 5.25, German Transmission: News and Two Talks. 6.0, News. 6.5, See Brno. 6.25, Talk: Reminiscences of the Theatre. 6.40, Concert by the Prague Vocal Quartet. 7.0, Talk on the following Transmission. 7.5, Concert by the Czech Philharmonic Orchestra and the Prague Philharmonic

Choir. Soloists: Jan Herman (Pianoforte). Overture (Karel); Fantasia for Pianoforte, Mixed Choir and Orchestra, Op. 80 (Beethoven); Suite (Baranovic); Symphony No. 4 (Axman). In the interval at 9.0, Time Signal. 9.0, Time Signal. 9.1, News. 9.15 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE**, 680 metres; and **GENEVA**, 760 metres.—5.0 p.m. to 9.0 p.m., Programme relayed from Lausanne. 5.0, Programme for Children. 5.30 (from Lausanne), German Lesson. 6.0, Weather News and Announcements. 6.30, Talk: Woods of Various Kinds. 7.0, Celtic Song Recital by M. Suscino. 7.40, Orchestral Concert. 8.10, Humorous Programme. 9.0, News Bulletin and Weather Forecast. 9.15 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.5 p.m., Musical Programme. 8.30, Weather. 8.40, Music and Announcements. 9.0, Chimes and News. 9.30, Reading. 10.0, Concert of Popular Music by the Radio Quartet with Songs.

RIGA

525 metres; 15 kW.—6.5 p.m., Operetta Music. 7.0, News. 7.20, Glycer Song Recital. 7.40, Orchestral Concert. In interval at 8.0, Weather and News. 8.30, Dance Music. 9.0 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call IRO; 441 metres; 50 kW. Relayed by Naples, 319 metres; and 2RO, 25.4 metres.—7.15 to 7.30 a.m., Giornale Radio and Announcements. 11.30, Weather, and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Sextet (Concert): March, La vecchia guardia (Sinigaglia); Japanese Suite (Yoshitomo); Violin Solos: (a) Polichinelle (Kreisler), (b) La Capricieuse (Elgar), (c) Gipsy Dance (Rachmaninov); Selection from Carmen (Bizet); Tango, Giuliana (Villa); Foxtrot, Allegro Yankee (di Lazzaro). 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.30, Soprano and Harpsichord Recital by Ghita Lenart and Corradina Mola, relayed from the Royal Philharmonic Academy. 6.10 (Naples), Shipping and Sports Notes. 6.15, Agricultural Report and Giornale Radio. 7.0, Time, Announcements, and Light Music on Gramophone Records. 7.20, Review of Books. 7.30, Sports Notes and Tourist Report. 7.45, Concert of Light Music. 9.55, News Bulletin.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres, and by W2XAD on 19.56 metres.—7.30 to 11.0 p.m., New York Relay. 7.30, Revolving Stage. 10.15, Paul Wing, the Story Man. 10.30, The Flying Family. 10.45, Slow River. 11.0, New Kenmore Orchestra. 11.30, Studio Ensemble. 11.40, New York State Department Talk. 11.45, Chandi, the Magician. 12 Midnight to 3.30 a.m. (Tuesday), New York Relay. 12 Midnight, GE Circle. 12.15 a.m., Wheatena Ville. 12.30, Melody Keepsakes. 12.45, The Goldbergs. 1.0, Sonoland Sketch. 1.30, Voice of Firestone. 2.0, A. & P. Gipsies. 2.30, The Bulck Programme. 3.0, Carnation Programme. 3.30, WGY Players—One Man's Family.

SCHWEIZERISCHER

LANDESENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASLE**, 244.1 metres; and **BERNE**, 246 metres.—9.20 a.m. (from Basle), Broadcast for Schools—Radio Report from the Zoological Gardens. 9.50 to 11.28, Interval. 11.28, Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40, Sound Film and Operetta Music on Gramophone Records. 12.35 to 12.40, Weather and Exchange. 2.30, Concert by the Radio Orchestra. 3.0 (from Basle), Italian Concert by the Radio Quartet. 4.0, Gramophone Records of the Revellers and the Comedian Harmonists. 5.30 (from Zürich), Talk: The Social Significance of Soup Kitchens. 6.0, Time and Weather. 6.15 (from Zürich), Talk for Women: Ski-ing and the Necessary Equipment. 6.45 (from Zürich), Operetta Songs by 'Hl Bierbaum and Karl Melzer, with the Radio Orchestra. 7.30 (from Zürich), Old and New Dance Music by the Radio Orchestra. Soloist: Mela Feuerlein, of Munich (Songs). 8.30, Weather and News. 8.40, Late Concert by the Radio Orchestra, conducted by Hermann Hoffmann. 9.15 (approx.), Close Down.

SEVILLE

Call EAJS, 368.1 metres; 1.5 kW.—2.0 to 3.0 p.m., Concert by the Station Orchestra: De los gitanos (Matos); Minnet to Sylvia (Albéniz); Selection from Los Borrachos (Jimenez); Selection from The Dollar Princess (Fall); Dance Music. 9.0, Concert. Part I: Pianoforte Recital: Etude in E Flat

(Paganini-Liszt); Mazurka in B Flat (Chopin); Fantasia-Impromptu (Chopin); Dance from El amor brujo (Fallá); Minstrels (Debussy); Serenade for the Doll from The Children's Corner (Debussy); Miramar (Turina); In the Gardens of Murcia (Turina). Part II: Extracts from La Rosa del Azafraán—Musical Comedy (Guerrero). Part III: Dance Music. In the interval, News, Exchange, Market Prices and Weather. 11.0 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA; 436 metres 55 kW. Relayed by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—4.5 p.m. (from Göteborg), Song Recital by Elof Benktander and Eric Zetterman. 4.35, Health Talk. 4.45, Variety Music on Gramophone Records. 5.45, Talk. 6.30, Military Band Concert. Conductor, Per Grundström. Overture, The Beggar Student (Müllöcker); Waltz from Der Landstreicher (Ziehrer); Duet from The Gipsy Baron (Joh. Strauss); Selection from The Blue Mazurka (Lehár); Waltz, from Wienerblut (Joh. Strauss); Selection from Lilac Time (Schubert-Berte); March from Boccaccio (Suppé). 7.30, Talk. 8.0, String Quartet in E flat (Mozart). 8.25, Reading. 8.45, Weather and News. 9.0, Orchestral Concert: Overture, The Gipsy Baron (Joh. Strauss); Waltz from Casanova (Lincke); Russian Serenade from Das Weib im Purpur (Gilbert); Selection from No, no, Nanette (Youmans); Waltz from Frasquita (Lehár); Two Airs from Der Teufelsreiter (Kálmán); Selection from Viktoria and her Hussar (Abraham). 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Opera and Operetta Music on Gramophone Records. 12.45 p.m., News Bulletin. 1.0, Time and Exchange Quotations. 1.10, Quintet Concert, relayed from Bordeaux-Lafayette. 1.50 to 4.45, Interval. 4.45, French Lesson in German. 5.0, Concert of Dance Music. 6.0, Film Review. 6.15, Topical Talk in German. 6.30, Orchestral Concert, conducted by M. de Villers; Overture, The Magic Flute (Mozart); Symphony in G—The Surprise Symphony (Haydn); Canzonetta (Mendelssohn); Spring Song (Mendelssohn); Selection from The Mastersingers (Wagner); International Suite (Tchaikovsky). 7.30, Time and News. 7.45, Concert (cont'd): March, Return to France (Mezzacapo); Waltz, Myosotis (Waldteufel); Overture, The Crown Diamonds (Auber); Selection from Les Cloches de Corneville (Planquette); Berceuse for Violin and Orchestra (Gaubert); Sports March (Poppy). 8.25, Lottery Results and Announcements. 8.30, Concert, relayed from the Bourse de Commerce, Nancy; Josette Lagarde (Pianoforte), Cécile Bagard (Violin and Songs), Cécile Curé ('cello), and Mireille Bouehard ('cello): Trio in B, Op. 8 (Brahms); Elegy for 'cello (Fauré); Songs: (a) Canzonetta (Lotti), (b) Berceuse (Tremisot); Pianoforte Solos: (a) Cubana (Fallá), (b) Humoresque (Bachelet); Song from Les Voitures versées (Boieldieu); Allegro appassionato for 'cello (Saint-Saëns). In the interval, Talk.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG**, 570 metres.—12.30 p.m., Gramophone Records of Songs by Emmy Betendorff. Caro mio ben (Giordano); Halleluja (Hummel); Duet from Faust (Gounod); Salut d'amour (Elgar); Extase (Ganne). In the interval: Gramophone Record Selection from Rigoletto (Verdi). 1.0, Sponsored Programme with Gramophone Records. 1.30, Spanish Lesson. 2.0 to 2.30, Elementary English Lesson. 4.0, See Langenberg. 5.15, Time, Weather and Agricultural Notes. 5.25, Talk: Industrial Life of Germany—Stone and Earth. 5.50, Programme from Frankfurt. 6.15, Time and News. 6.30, Talk on Drama. 7.0 to 9.25, See Frankfurt. 9.25, Time, News, Weather and Programme Announcements. 9.40, Chess Lesson. 10.5, Dance Music (from Munich). 11.0 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI; 385 metres; 8 kW.—8.0 p.m., News Bulletin. 6.15, Extracts from Les deux Pigeons—Ballet in Three Acts (Messager). 6.30, Sound Film Music. 6.45, Operetta Music: Selection from La fille de Madame Angot (Lecocq); Waltz and Melody from Die Teresina (O. Strauss). 7.0, Tourist Report. 7.15, News Bulletin. 7.25, Local News. 7.30, Music by a Viennese Orchestra. 8.0, Opera Music: Chorus from Carmen (Bizet); Aria from Mignon (Thomas); Selection from Lakmé (Delibes). 8.15, Accordion Music. 8.30, Vocal and Orchestral Concert: The Little Goblins (Eilenberg); Valse poudrée (Poppy); La lettre de Manon (Gillet); Cimetière de campagne (Hahn); Tes Yeux (Bonincontro); Pluie de Roses (Avignon). 9.0, Music by an Argentine Orchestra. 9.15, Instrumental Solos: Clarinet Solo, Réverie (Picherau); Moment

musical (Schubert); Saxophone Solo, Pour vous les larmes (Chopin). 9.30, Concert of Polish Music. Talk in the interval. 10.15, North African News. 10.30, Concert for Listeners in Morocco: Overture, Martha (Flo-tow); Aria from Mirella (Gounod); Selection from Rose-Marie (Friml); Dans la Marine (Bousquet); Marche des petits Pierrots (Bose). 11.0, Request Concert: Jamais (Cazes); C'est la biguine (Moretti); Serenade (Braga); Solveig's Song (Grieg); Mendiant d'amour; C'est pour mon Papa; Good-night, Sweetheart. 11.30, Programme in English by the I.B.C. Celebrity Concert: Peter Dawson; The Gay Highway; Mabel Constanduros and Michael Hogan: The Bug-gines Prepare for a Party; Jeanette McDonald: Dear, When I met you; Peter Dawson: The Vagabond; Pianoforte Solo: Memo-ries of Maurice Chevalier; Billy Lancel: The Telegraph Boy; Dorothy Dixon: Love is like a Song; Roy Fox: Lullaby of the Leaves. 12 Midnight, Weather Forecast. 12.5 a.m. (Tuesday), Dance Music. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—6.0 to 6.30 p.m.—See Turin. 6.30, Orchestral Concert from the Café Dante. 7.0 till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayed by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—6.0 p.m., Popular Music on Gramophone Records. In the intervals at 6.25, Tourist Report; and at 6.30, Time and News. 7.0, Giornale Radio and Weather. 7.20, Book Review. 7.30, Concert of Chamber Music. 8.20, A Comedy in One Act. 9.0 (approx.), Orchestral Concert. 10.0, Giornale Radio.

VATICAN CITY

19.84 metres (Morning) and 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

217 metres; 15 kW. Relayed by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218 metres.—4.0 p.m., Concert by the Bernhard Wolfsthal Orchestra: Overture, The Nürnberg Doll (Adam); Waltz, Sphärenklänge (Jos. Strauss); Gounod Potpourri (Rhode); Tango: Pst, gib acht, das ist der Tango von gestern Nacht (Geiger); March, Wit und jung (Strinsky); Waltz, Kleine Yvonne (Sachs); Selection from Der Teufelsreiter (Kálmán); Waltz, Hofballer-tänze (Lammer); March, Trara (Morawetz). 5.20, Theatre Review. 5.40, Talk: Books of reference in connection with the Week's Talks. 5.45, Interview with Robert Kron-feld: The Air Mail Services and Sail Plan-ning relayed from the Hagenbund Exhibi-tion. 6.10, English Lesson. 6.35, Time, Weather, and Programme Announcements. 6.45, Concert of Modern Viennese Songs by Grete Holm (Soprano) and Franz Hoffmann (Tenor), accompanied by the Pepi Wichart Quartet. 7.35, Brahms (concert by the Hairecker Sextet, relayed from the Concert Hall: String Quartet in A Minor, Op. 51, No. 2; Sextet in G, Op. 36. In an interval at 8.10, News, Weather, and Announcements. 9.5, Concert of Popular Viennese Music by the Hamus Robert Korngold Jazz Band.

WARSAW

1,411 metres; 120 kW.—10.40 a.m., Polish Press Review. 10.50, Aviation Weather Fore-cast. 10.58, Time Signal and Fanfare from the Tower of St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Light Music on Gramophone Records. 12.25 to 2.10, Interval. 2.10, Announcements. 2.25, Traffic Report. 2.35, Answers to Correspondents. 2.50, Popular Music on Gramophone Records. 3.25, Elementary French Lesson. 3.40, Talk: How different Countries are fighting the Financial Crisis. 4.0, Concert of Chamber Music: Sophie Drexler-Paslawska (Soprano), K. Winaver (Violin), and W. Spielman (Pianoforte): Sonata in C Minor for Violin and Pianoforte (Dallit); Songs: (a) Aria from Bastien and Bastienne (Mozart), (b) Maha preso (Paradies); Sonata in D for Violin and Pianoforte (Handel); Songs: (a) Clair de Lune (Fauré), (b) The Call (Riekkoff), (c) Morning (Pankiewicz), (d) Spring (Soltys), (e) I know Something (Niewiadomsky); Sonata for Violin and Pianoforte (Lopatnikov). 4.55, Programme Announcements. 5.0, Light Music from the Café Italia. In the interval, News. 5.50, Miscellaneous Items. 6.20, Answers to Agricultural Correspondence. 6.30, Topical Talk. 6.45, Radio Journal. 7.0, The Haunted Castle—Opera (Moniuszko), relayed from Lwów (381 metres). In the intervals, Answers to Correspondents, Sports Notes, and Radio Journal. 9.0, Dance Music from Lwów. 10.0, Dance Music from the Adria Dance Hall. In the interval, Weather and Police Notes.

ZAGREB

307 metres; 0.75 kW.—6.5 p.m., Announce-ments. 6.25, Educational Talk. 6.50, Intro-ductory Talk to the following Transmission. 7.0, An Opera, relayed from the National Theatre, Belgrade. In the intervals: News, Weather, and Snow Report. 10.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender.

ALGIERS

363.3 metres; 13 kW.—7.20 p.m., Light Music on Gramophone Records. 7.55, News Bulletin. 8.0, Time Signal. 8.2, Chamber Music. Four Preludes (Debussy); Second Suite (d'Hervelois). 8.40, News. 8.45, Talk on Algiers. 9.0, Concert of Eastern Music. 9.30, News. 9.35, Eastern Concert (contd.). 9.50, News. 10.0 (approx.), Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—6.0 p.m., Trio Concert. 7.0, Request Gramophone Records. 7.30, Exchange Quotations and Talk on the History of Art. 8.0, Popular Music on Gramophone Records and News Bulletin. 8.15, Football Results and Gramophone Records (contd.). 9.0, Chimes, Weather, Messages for Seamen, Market Prices, and Exchange Quotations. 9.10, Part Relay of an Opera from the Gran Teatro del Liceo. 11.0 (in an interval), News Bulletin. 12 Midnight (approx.), Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Report, Tourist Notes and Announcements. 7.20, Giornale Radio and Weather. 7.30, Time and News. 7.35 (approx.), Concert by a Plucked String Quartet: March (Moscini); Overture. Poeta galante (Ancillotti); Selection from Príncipe rosa (Sartori); Danza esotica (Mascagni); Martini al Colosseo (Rilli); Prelude (Ranieri); Selection from Fra Diavolo (Auber); Gavotte, Inverno (Allier). 9.0, Quintet Concert: Overture. Diana (Caballa); Selection from Fedora (Giordano); Suite, Nuptialia (Travaglia). In the interval, Reading. 9.30, Concert, relayed from the Gran Calle del Levante. 9.55, News.

BASLE.—See Schweizerischer Landessender.

BELGRADE

430.4 metres; 2.8 kW.—4.0 p.m., Talk. 5.55, Time and Programme Announcements. 6.0, Song Recital. 6.30, Popular Music on Gramophone Records. 7.0, Pianoforte Recital, relayed from Zagreb (307 metres). 9.0, News, followed by Light Music from the Ratnicki Dom Restaurant.

BERLIN

KONIGS WUSTERHAUSEN; 1,035 metres; 60 kW.—11.0 a.m., Weather, followed by Male Voice Choral Music on Gramophone Records, and Second Weather Report. 11.55, Nauen Time Signal. 12.35 p.m., News Bulletin. 1.0, Gramophone Concert of Popular Music, relayed from Berlin (Witzleben). 2.0, Talk for Young People. 2.30, Weather and Exchange. 2.45, Women in the Life of Frederick the Great—Readings from Letters. 3.0, Talk for Women: The Work of the Protestant School for Mothers in Berlin. 3.30, See Leipzig. 4.10, Talk on Bismarck and Boettcher. 4.30, Divertissement for String Trio (Mozart). 5.0, Talk: Aspects of German Industry: Württemberg. 5.25, Introduction to Beethoven's First Symphony. 5.55, Weather and Announcements. 6.0, Talk: Mental Diseases. 6.30, A Poem. 6.35, Political Press Review. 7.0, See Breslau. 8.0, Concert from Hamburg. 9.0, Weather, News and Sports Notes. 9.45, Weather Report for Shipping, followed by Concert from Hamburg. 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—6.0 p.m., Topical Talk. 6.10, Concert of Light Music by the Eddy Walkis Orchestra, relayed from the Eden Pavilion. 7.0, Juana—One-Act Opera (Max Etlinger). 8.0, Wireless Hints. 8.10, Variety Programme. 9.15, Weather, News, and Sports Notes. 9.30, See Hamburg. 11.0 (approx.), Close Down.

BERNE.—See Schweizerischer Landessender.

BEROMUNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—7.30 p.m., News and Exchange. 7.40, Programme for Women. 7.55, Lottery Results. 8.0, Topical Talk. 8.15, News. 8.30, See Paris (Eiffel Tower).

BRATISLAVA

279 metres; 14 kW.—4.20 p.m., Chopin Pianoforte Recital by L. Svobodova: Prelude, Op. 28; Nocturne in C Minor, Op. 48; Fantasia in F Minor, Op. 49. 4.45, Popular Music on Gramophone Records. 5.45, Slovak Grammar Lesson. 6.0, See Prague. 6.5, See Brno. 6.20, Violin Recital by R. Bl: Czech Rhapsody (Ondricek); Scottish Fantasia (Bruch); Fantasia appassionata (Bl). 6.45 till Close Down, See Prague. 10.0 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres; 60 kW.—12.5 p.m., Weather for Farmers. 12.10, Gramophone Concert. 12.45, Time, Weather, News, and Exchange Quotations. 1.5, Gramophone Concert (contd.); Selection from Martha (Flotow); Hungarian Song, Du warst die Erste; Czardas; Ritka buza; Waltz in C sharp minor (Chopin); Violin Solo: La capricieuse (Elgar); Waltz,

TUESDAY

JANUARY THE SEVENTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

- NATIONAL** Organ music. Orchestral concert. Instrumental concert. Professor Cyril Burt: "Social Psychology." Dance music.
- LONDON REGIONAL** Orchestral concert. Organ recital. "A Continental Hour." Zigeuner Orchestral concert. "Tales of Hoffman," opera by Jacques Offenbach. Will C. Pepper's White Coons. Dance music.
- MIDLAND REGIONAL** A Bantock programme. "Motor Car Electrical Equipment," a talk by Mr. A. Paddon Smith, with incidental noises, from a works in West Birmingham.
- NORTH REGIONAL** Midland Regional programme. Gramophone records. Mr. W. L. Andrews: "Fortnightly Review of Northern News." Dance music.
- WEST REGIONAL** Hurdy-Gurdy No. 4, selection of songs from stage, screen, and drawing-room.
- SCOTTISH REGIONAL** Orchestral concert. "The Eighteenth Century" (1), a talk by Mr. Thomas Henderson, with musical illustrations. Recital of gramophone records.
- BELFAST** Light music. Dance music. Orchestral concert.
- ABROAD**
- BERO-MUNSTER** Folk Songs of Great Britain and Scandinavia.
- BRUSSELS (No. 1)** The Radio Orchestra, conducted by M. Meulemans.
- HILVERSUM** Wagner concert by the K.R.O. Orchestra, conducted by M. J. Gerritsen.
- STUTTGART** Russian music by the Philharmonic Orchestra.
- WARSAW** The Station Orchestra, conducted by Oziminski.

from Polembut (Nedbal); Rund um die Wolga (Horchert); Baccarolle (Offenbach-Scott-Wood). 1.45, Sponsored Programme with Gramophone Records. 2.10, Agricultural Market Prices. 2.30, Broadcast for Trade Schools—Currency. 3.0, From the Italian Song Book—Hugo Wolf Song Recital by Frieda Paegle-Bohn (Contracto). 3.30, Concert by the Station Orchestra, conducted by Bruno Janz: Potpourri (O. Lindemann); Selection from The Bird Fancier (Zeller); Ballet Suite, La Source (Delibes); Prelude (Jännefelt); Gavotte antique (E. J. Wolf); Waltz, Flattergeister (Jos. Strauss). 4.30, Agricultural Market Prices. 4.35, Review of Books. 4.50, Talk on Johann Friedrich Cotta in the Centenary of his Death. 5.20, Topical Talk. 6.0, All about the Blacks, by Dr. K. von Fragstein. 6.30, Weather for Farmers. 6.35, Gramophone Concert: Suite from Der Rosenkavalier (R. Strauss); Folk Song, Carmela, Second Polonaise (Liszt). 7.0, The Fortunes of the People of Upper Silesia—Programme arranged by Paul Kanitz. 8.0, News Bulletin. 8.10, Chamber Music by the Pozniak Trio: Trio in G, Op. 1, No. 2 (Beethoven); Trio in C minor, Op. 101 (Brahms). 9.0, Time, Weather, News, Sports Notes and Programme Announcements. 9.20, Political Press Review. 9.45, Theatre Talk. 9.55, See Hamburg. 11.0 (approx.), Close Down.

BRNO

342 metres; 35 kW.—4.50 p.m., Esperanto Lesson. 5.0, Music Review of the Week. 5.15, Talk for Workers. 5.25, German Transmission: News and Talk on Eugenics. 6.0, See Prague. 6.5, Talk by J. Skutil: My Journey to Caucasus in 1932. 6.20, A Visit to an Old Brno Monastery. 6.45 till Close Down. See Prague. 10.0 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R.; 509 metres; 15 kW.—12 Noon, Concert by the Little Radio Orchestra, conducted by M. Leemans: Marche Lorraine (Ganne); En Bretagne (Rhené Baton); Violin Solo, Andade provencale (Mario Delva); Did French Songs (Bronstet); Danse Basique (Chauvet); Impressions provencales (Brun); Suite Normande (Auvray). 1.0 p.m., Le Journal Parle. 1.10, Song Recital by Alle. Van Lil: Ungeduld (Schubert); Solveig's Song (Grieg); Der Nussbaum (Schumann); Cradle Song (Gretchenbaur). 1.30, Gramophone Records: Suite from Namouna (Lalo); Airs, with Variations, on a Swiss Theme (Molte). 5.0, Concert by the Radio Orchestra, conducted by M. Walpot: Overture, The Merry-Makers (Coates); Three Dances from Tom Jones (German); Light Pieces (Fletcher). 5.30, Programme for Children. 6.5, Literary Review. 6.15, Organ Recital on Gramophone Records: Pastorale (Frank); Allegro (Handel); March (Handel). 6.30, Concert. 7.15, Weekly Review of the Belgian Catholic Radio Society. 7.30, Talk for Women. 8.0, Concert of Operetta Music by

the Radio Orchestra, conducted by M. Walpot: Selection from The Merry Peasant (Fall); Selection from Paganini (Lehar). 8.30, Violin Recital: Etude en forme de valse (Saint-Saens); Tzigane (Ravel). 8.45, Talk: The Americanisation of the Catholic Party. 9.0, Concert by the Radio Orchestra, conducted by M. Meulemans. Soloist, M. Valenti (Violin). Symphony in B flat (Schubert); Scherzo and Finale from the Symphony No. 4 in D minor (Schumann), on Gramophone Records; The Fifth Concerto for Violin and Orchestra (Viouxtemps); Bourée fantasque (Chabrier). 10.0, Le Journal Parle. 10.10, Gramophone Records of Request Music: La Marche des Somnambules (Van Oost); Estudiantina (Waldteufel); Rustle of Spring (Sinding); Fugue for Guitar (Bach); Two Alsatian Dances (Merkling); Four Airs for Wind Instruments from Die Dreigroschenoper (Kurt Weill). 10.40, Le Tombeau de Couperin (Ravel). 10.55, Christus Vincit. 11.0 (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R.; 338.2 metres; 15 kW.—Programme in Finnish.—12 Noon, Gramophone Concert of Dream Music. 1.0 p.m., Le Journal Parle. 1.10, Concert by the Small Station Orchestra: Overture, The Merry-makers (Coates); Scènes Irlandoises (Sally); Spanish Dance for Cello: Vito (Popper); Selection from La Traviata (Verdi); Meditation for Violin (Mees); Waltz (Reisfeld-Marlot); Tango, Ich suche Liebe (Buder); Fox-trot, Wie sag' ich's meinem Mann? (Maackbo); 5.0, Concert by the Symphony Orchestra, conducted by A. Meulemans: Prelude (Rachmaninov); Mazurka (De Boeck); Paraphrase on La Paloma (Manfred); At Port Said (Armandola); So singt Holland (Slyter-Hoogenboom). 5.45, Programme for Children. 6.30, Concert by the Small Station Orchestra, conducted by P. Leemans. Soloist, F. Gilman (Flute). Marche des Communiers (Brugnots (Dubois); Suite Phrygienne (Brusselmans); Enlèvement (De Tave); Selection from Dalibor (Smetana); Scherzo for Flute, Fandango (Gilson); La rose que l'on cueille (Michaëlov); Fox-trot Fantasia, The Bird Fancier (Kochmann). 7.15, Talk. 7.30, Tourist Talk. 8.0, Concert by the Symphony Orchestra, conducted by A. Meulemans. Soloist, Frans Fontenel (Songs). Rubens Marche (Benoit); Prelude to Henry VIII (Gilson); Songs: (a) Die Lotusblume (Schumann), (b) Treppa (Mussorgsky), (c) Song from Der Trompeter von Säckingen (Nessler); Suite Dahomeenne (De Boeck); Paraphrase on Piet Hein (Van Anrooy), followed by a Radio Sketch. 9.15, Concert by the Radio Orchestra, conducted by Charles Walpot: Marche italienne (Roussier); Waltz, Dorischwalben aus Oesterreich (Jos. Strauss); Songs: (a) Se tu m'innassi (Denza), (b) Intermezzo from Cavalleria Rusticana (Mascagni), (c) Santa Lucia (Neapolitan Folk Song); Waltz, Schneeballen (Zihrer); Potpourri of Popular Songs (Schneider). 10.0,

Le Journal Parle. 10.10, Light Music on Gramophone Records. 11.0 (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—4.0 p.m., Concert of Light Music and Romanian Music by the Motol Orchestra. 5.0, Time Signal. 5.10, Talk. 5.25, Orchestral Concert (contd.). 6.0, Educational Talk: Romania's Native Flora. 6.40, Popular Music on Gramophone Records. 7.0, Song Recital by Sophie Munteanu. 7.20, Concert by the Radio Symphony Orchestra, conducted by Michel Jora: Overture, The Merry Wives of Windsor (Nicolai); Chamber Concerto (Zador); Aquarelle (Borogovan); Symphony in B Flat (Schubert). In the interval at 8.0, Talk. 8.45, News.

BUDAPEST

550 metres; 18.5 kW. Programme also relayed on 840 metres from 6.25 p.m. till Close Down.—5.0 p.m., Concert of Light Music by the Opera House Orchestra, conducted by Vilmos Komor. 6.0, Talk. 6.20, Relay from the Royal Hungarian Opera House. In the interval, News and Sports Notes. After the Relay, Cigány Music from the Café Baross. 10.15, Concert of Light Music from the Café Baross.

CASSEL.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW.—and KALUNDBORG 1,153 metres; 7.5 kW.—11.0 a.m., Time Signal and Chimes from the Town Hall. 11.1, Concert by the Harald Andersen String Ensemble, relayed from the Bellevue Strand hotel. 1.0 to 2.0, Interval. 2.0, Concert by the Station Orchestra, conducted by Emil Reesen. 4.0, Programme for Children. 4.40, Exchange and Fish Market Prices. 4.50, Gardening Talk. 5.20, German Lesson. 5.50, Weather. 6.0, News. 6.1, Time. 6.30, Talk on Danish Painting: Impressionism. 7.0, Time Signal from the Town Hall. 7.1, What Women like to hear on the Wireless. A Public Meeting: 12 Women relayed from Grundtvigs Hus. 8.1, Concert of Old French Dance Music by the Station Orchestra: Marche parisienne (Ganne); Two Pieces (Waldteufel); (a) Mazurka, La souveraine, (b) Waltz, Trois jours on jamaais; Three Pieces (Ganne); (c) Mazurka, L'Anvergnate, (d) Tournique, Polka, (e) Waltz, Eternelle ivresse; Schottische, La petite Tonkinoise (Scott); Waltz Quand l'amour meurt (Crémieux); Galles (Waldteufel). 9.0, Songs from Sound Film by the Comedian Humorists on Gramophone Records. 9.15, News. 9.30, Sonata in Minor, Op. 23, for Violin and Pianoforte (Beethoven). 10.0, Dance Music by the Jern Wærny Orchestra, relayed from the Nim Restaurant. In an interval at 11.0, Time Signal and Chimes from the Town Hall. 11.30 (approx.), Close Down.

CORK.—See Dublin.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN, 413 metres; 1.2 kW.; and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. 6.0, Popular Music on Gramophone Records. 6.15, Programme for Children. 7.0, Light Music on Gramophone Records. 7.15, News and British Market Report. 7.30, Time Signal. 7.3, Gaelic Talk. 7.45, Literary Talk. 8.0, Concert by the Augmented Station Orchestra, conducted by V. O'Brien. 8.30, Soprano Solos by Mamie Dingle. 8.45, Cello Solo by Joseph Schofield. 9.5, The Augmented Station Orchestra. 9.30, Pianoforte Recital by Ursula Murphy. 9.45, Uilleann Pip Music. 10.0, The Augmented Station Orchestra. 10.30, Time Signal, News, Weather Report, and Close Down.

FECAMP

223 metres; 10 kW.—12 Noon, Military Music. 12.30 p.m., News. 12.45, Chansonettes. 7.0, Local News. 7.15, Variety Music on Gramophone Records. 7.30, Radi Gazette. 8.0, News. 8.15, Talk. 8.30, Concert, relayed from Le Havre. 10.0 till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: Sweetheart; Marianne; That's when I learned to love you; Smile, darn ya, smile; Dream Lover; The Waltz with every sailor; Go to Bed; There's never be another Mary; Maudie; All of me; Just you, just me; Lonesome little Doll; That's what I like about you; 'Neath the Spell of Monte Carlo; Moonshine is better than Sunshine; Good-night and Pardon, Madame. 11.0, Concert of Light Music: White and Blue (Humphries); Songs: (a) John Peel (Traditional), (b) The Meyne Hunt (Cutton); Selection from Merrie England (German); Poupée valsante (Podini); Songs: (a) Les millions d'Harlequin (Drigo), (b) O sole mio (di Capua); Memories of Paris (Christine). 11.30, Orchestra Concert: Serenade (Heykens); Ideal (Tosti); The Wedding of the Winds (Hall); Wedgwood Blue (Kettelbey); The Dance of the Tea-Polls (Schmidt-Hagen); The Warbler's Serenade (Perry); Stephan Gavotte (Zibulka). 12 Midnight, Piano and Choral Concert: Selection from A Midsummer Night's Dream (Mendelssohn) Choir: (a) The Soldiers' Chorus from Faust

JAN. 17th **TUESDAY** continued

(Gounod), (b) The Anvil Chorus from *Il Trovatore* (Verdi), (c) The Pilgrims' Chorus from *Tannhäuser* (Wagner); Grand March from *Tannhäuser* (Wagner); Night on the Bare Mountain (Mussorgsky). 1.0, Song Recital: Glorious Devon (German); The Song of the Vagabonds (Friml); Molly Bawn (Lover); Orchestra: The Glasgow Highlanders (arr. Dyack); I travel the Road (Thayer); Captain Mac (Sanderson); When the Sergeant Major's on Parade (Longstaffe). 1.30, Concert by a Melody Troupe; Wearing out my Heart (Keys); The Waltz you saved for me (Kahn); Here comes Emily Brown (Conrad); Make yourself a Happiness Pie (Nelson); Accordion Solo: English Airs (arr. Cavellier); When your Lover has gone (Swan); Xylophone Solo: Handsome Gigolo (Keys); Pasadena Rose (Renard). 2.0, Dance Music: Put that Sun back in the Sky; Georgia on my Mind; Lullaby of the Leaves; Good-night Vienna; Gofus; You've got what gets me; If I didn't have you; Love you Funny Thing; The Echo of a Song; Don't tell a Soul; Gone for ever; Living in Clover; One little Quarrel; I got Rhythm; Oh Monah! It ain't no Fault of mine. 2.57, I.B.C. Good-night Melody. 3.0, Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 7 kW., and **CASSEL**, 245.9 metres.—4.0 p.m., Orchestral Concert, relayed from **Cassel**: Overture, Peter Schmal (Weber); Selection from I Pagliacci (Leoncavallo); Waltz, Sektgeister (Urbach); Selection from Der Obersteiger (Zeller); Treasure Waltz from The Gipsy Baron (Joh. Strauss); Offenbach Potpourri (Urbach); Florentine March (Fucik). 5.15, Economic Notes. 5.25, Talk: Women Workers in Germany and Abroad. 5.50, Talk: Wages under the Capitalist System. 6.15, Time. Programme Announcements. Weather and Economic Notes. 6.20, Talk on Heinrich von Kleist's Amphitryon. 6.30, Popular Music on Gramophone Records. 7.0, See **Breslau**. 8.0, See **Stuttgart**. 9.15, Time, News, Weather and Sports Notes. 9.30, See **Stuttgart**. 11.0 (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

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by **Bremen**, 270 metres; **Flensburg**, 227.4 metres; **Hanover**, 566 metres; and **Kiel**, 232.2 metres.—6.0 p.m. (from **Bremen**). Agricultural Talk. 6.25, Weather. 6.30, Talk: Instinct and Intellect in Dramatic Art. 7.0, German Folk Music Evening. The Sorag Chamber Orchestra, the Favorit Mandoline Club, the tiernert Zither Trio, Dr. Erich Burger (Songs to the Lute), and Gerhard Gregor (Accordion), Festival Overture on Thuringian Folk Song (Lassen); Zither Duets: (a) Paraphrase on the Song, Der Lindenbaum (Hanstein), (b) Loreley Fantasia (Pugh); Songs to the Lute: (a) Wir zogen in das Feld (16th Century), (b) Ach Elselin, liebes Elselin (Fifteenth Century Love Song), (c) Es wollt ein Schneider wandern (Eighteenth Century Song); Mandoline Music: (a) Idyll, The Mill in the Black Forest (Eilenberg), (b) March, Frei weg (Latann); Am Brunnen vor dem Tore; Zwischen Berg und tiefem Tal; Hans und Liesel (arr. Lilli Hartung); Accordion Solo: Jägerlieder-Walzer (Goldman); Songs to the Lute: (a) Am Sonntag, da ist der Meister Bohne (Journemay's Song), (b) Ein Vogel wollte Hochzeit machen (Eighteenth Century); Overture, Der Waffenschmied (Lortzing); Zither Trio: Potpourri of Folk Songs (Mickensreiber); Ach wie ist's möglich dann; In einem kühlen Grunde; Kommt ein Vogel geflogen (arr. Lilli Hartung); Mandoline Music: (a) Hearts and Flowers (Zibulka), (b) March, Manöverleben (Oscheit); Songs to the Lute: (a) Wenn die Soldaten (Nineteenth Century), (b) Rosestock, Hilderblüh (Eighteenth Century), (c) Nix Schön'es gibt's auf Erden (Nineteenth Century); Accordion Potpourri, Im Tempo der Zeit (Roland); Potpourri of Marching Songs, Jung-Deutschland (Weninger). 9.0, News Bulletin. 9.20, Topical Talk. 9.30 (from **Flensburg**). Teachers and Pupils—Concert by the Flensburg Municipal Orchestra, conducted by Kurt Barth: Overture, Lisola disabitata (Haydn); Second Movement from the Symphony in C (Beethoven); Second Polonaise in E (Liszt); Selection from Die toten Augen (d'Albert); Serenade No. 2 in C, Op. 11, for String Orchestra (Robert Fuchs); Rondo in A Minor for Orchestra (Camillo Schuster); Minuet (Joseph Rosenber); Piece from the Orchestral Suite, Op. 35 (Kurt Barth). 10.20 (in an interval), Ice Report.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW., and **DANZIG**, 453.2 metres.—12.5 to 1.30 p.m., Gramophone Concert. In the interval at 12.20, Announcements.

1.30, Sponsored Programme with Gramophone Records. 2.0, Exchange and Market Prices. 3.0, Musical Improvisations for Children. 3.30 (from **Dessau**). Concert by the Friedrichstheater Orchestra: Prelude to Hansel and Gretel (Humperdinck); Intermezzo goldoniani (Bossi); Ballet Music from The Goldsmith of Toledo (Offenbach); Waltz, Dynamiden (Jos. Strauss). 4.30, Talk on Konrad Kob. 5.0, Review of Books. 5.15, Market Prices. 5.30 (from **Danzig**). Talk for Workers: Hand Weaving. 6.0, Shorthand Dictation. 6.25, Dance Music by the Small Station Orchestra, conducted by Eugen Wilken. 7.0 (in an interval), News and Weather. 8.30 (from **Danzig**). The Stranger from College—Radio Play (Walter Franke-Ruta). 9.30, Weather, News and Sports Notes.

HILVERSUM

Announced **HUIZEN**, 296.1 metres; 20 kW. (7 kW up to 4.40 p.m.). Programme of the Catholic Radio Society (K.R.O.).—11.55 a.m., Concert by the K.R.O. Sextet: Students' March (Arsenius); Serenata di baci (de Micheli); Intermezzo, Erieta (Lincke); Tirili (Ganglberger); Potpourri of Russian Waltzes (Borchert); Serenade (Tarenghi); Gramophone Records: Potpourri, Eine Sängerbahrt nach Wien (Silving); The Flower of Hawaii (Abraham); Waltz, Potpourri (Morena); Gehl's dir gut, komm zu mir! (May); Völkerbundmarsch (Lincke). 1.25 p.m., Interval. 1.40, Popular Music on Gramophone Records. 2.10, Programme for Women. 2.40, Dress-making Lesson. 3.10, Millinery Lesson. 3.40, Programme of the H.I.R.O. 4.50, Concert by the Pasquier Trio: Trio in D (Beethoven); Serenade (Dohnanyi); Divertissement No. 4 (Mozart). 6.10, Esperanto Lesson. 6.20, Talk on Economics. 6.50, Talk. 7.25, Police Report. 7.40, Wagner Concert by the K.R.O. Orchestra, conducted by M. J. Gerritsen. Soloist: M. A. Dirks (Songs): Overture and Air from *Tannhäuser*; Selection from *Lohengrin*; Aria from *The Mastersingers*; Three Airs from *The Mastersingers*. 8.40, News. 8.50, Concert by the K.R.O. Orchestra: Turkish March (Mozart); Overture, Le fils du Mandarin (Cui); Selection from *Casanova* (Joh. Strauss); Two Slav Dances (Dvorak); Impression de Mai (Sicp); Recitations; Selection from *Polenblut* (Nedbal); Potpourri, Vom Rhein zur Donau (Rhode); Recitations: The Skaters' Waltz (Waldfenfel); Heiße-Männchens Wachtparade (Noack); March, Wien Berlin (Schrammel). 10.40, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced **HILVERSUM**, 1,875 metres; 8.5 kW. Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.).—11.40 a.m., Time Signal. 11.41, Concert by the Station Chamber Orchestra. Gipsy Waltz (Mony); March, Bin ein Grenadier (Jessel). 1.55 to 2.10, Interval. 2.10, Popular Music on Gramophone Records. 2.40, Programme for Women. 3.40, Violin Recital by Boris Lensky. 4.10, Concert by a Children's Choir. 4.40, Fairy Stories. 5.10, Talk. 5.40, Light Music on Gramophone Records. 6.40, Quartet in G Minor, Op. 10 (Debussy). 7.10, Elementary English Lesson. 7.40, Time Signal, Weather Forecast, and News Bulletin. 7.45, Concert by the Station Orchestra, conducted by Nico Treep: March, The Liberty Bell (Souza); Waltz, Flott durchs Leben (Translatenr); Feuerhellen (Jessel); The Frog's Wedding (Beil); Violin Solo: Romance (d'Ambrosio). 8.10, Ann and Harold—Play (Louis Goodrich). 8.25, Concert (contd.): March, Unter dem Doppeladler (Wagner); Un soir de fête à la Havane (Filippucci); Phantom Melody (Kettelby). 8.40, Ann and Harold (contd.). 8.55, Concert (contd.): Oase (Wismar); Somewhere a Voice is calling (Tate); A Perfect Day (Jacobs Bond); March, In the Gipsy Camp (Oscheit). 9.10, Ann and Harold (contd.). 9.25, Concert (contd.): Espana (Chabrier); Mondnacht am Bosphorus (Köpping); Melody (Lincke); Blauer Pavillon (Armandola); Parade of the Tin Soldiers (Jessel); A.V.R.O. March (Treep). 9.55, Popular Music on Gramophone Records. 10.10, Dance Music by Kovacs Lajos and his Orchestra. 10.40, News Bulletin. 10.45, Light Music on Gramophone Records. 10.55, Dance Music (contd.). 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.15 p.m., Announcements, Variety Music on Gramophone Records and Amusement Guide. 6.25, Sports Notes. 6.30, See **Warsaw**.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres; 40 kW., and **HELSINKI**, 368.1 metres.—6.5 p.m., Requiem (Verdi), for Choir, Soloists and Orchestra, relayed from the University. 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

473 metres; 60 kW.—12.0 Noon, Concert, conducted by Eysoldt. Soloist: Hermann Fleischmann (Baritone): Overture, The Italian Girl in Algiers (Rossini); Ballet Music from Robert le Diable (Meyerbeer); Three Songs (Brahms): (a) Liebe kam aus fernem Landen, (b) Wie froh und frisch, (c) Treue Liebe dauert lange; Canzonetta (d'Ambrosio); and Dance (Dvorak): First Little Suite (de Micheli); Volksliedchen und Märchen (Komzak); Lyric Intermezzo. In the Temple of Beauty (Hummer); Lyric Impression, Dolorosa (Lindemann); Fünf Ehr Tee bei Robert Stolz (Dostal). 1.0 p.m. (in an interval), News. 1.30, Sponsored Programme, with Gramophone Records. 2.30, Economic Notes and Time. 2.50, Programme for Children. 3.20, Notes on the Broadcasts for Schools. 3.30, Talk: Modern Methods of teaching Geography. 4.0, Concert by the Cologne Kunkel-Quartet, with Walter Rehberg (Pianoforte); Pianoforte-Quartet in G Minor (Mozart); Pianoforte-Solos; String Quartet in B Flat Minor (Lomacher). 5.15, Italian Lesson. 5.45, Weather, Time, Exchange and Sports Notes. 6.0, Agricultural Talk. 6.20, Wireless Notes. 6.30, Talk: Industrial Europe—Old Europe. 6.55, First General News. 7.0 to 9.5, Variety Programme. 7.0, Selection from *Wild Violets* (Stolz), by the Station Orchestra, conducted by Eysoldt. 7.20, Songs and Poems. 7.40, Waltz, Tales from the Vienna Woods (Joh. Straus), by the Station Orchestra, conducted by Eysoldt. 7.50, A Radio Play from an Old Japanese Legend (Walter Baner). 8.40, Sound Film Melodies, by the Station Orchestra, conducted by Eysoldt. 9.5, News, Sports Notes and Silent Night.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW., and **DRESDEN**, 319 metres.—11.0 a.m., Weather and Time. 11.5 (approx.), Gramophone Concert of Light Music. 12 Noon, News, Weather and Time. 12.15 p.m., Heinrich Schliemann Song Recital on Gramophone Records. Part I—Three Songs from the Schwaneberg Cycle (Schubert): (a) Der Atlas, (b) Der Doppelgänger, (c) Am Meer; Two Songs (Brahms): (a) Wie bist du, meine Königin, (b) Minnelied; Three Songs (Hugo Wolf): (a) An die Geliebte, (b) Der Tambour, (c) Der Biterolf. Part II: Monologue from André Chenier (Giordano); Torcador Song from Carmen (Bizet); Aria from Zaza (Leoncavallo); Aria from Undine (Lortzing); Exchange Quotations after the Recital. 1.0 p.m., Advice for the Unemployed. 1.15, Agricultural Notes. 2.0, Review of Juvenile Literature. 2.35, Exchange and Market Prices. 3.0, Educational Discussion. 3.30, Concert by the Orchestra of the Friedrichstheater, Dessau: Prelude to Hansel and Gretel (Humperdinck); Intermezzo Goldoniani (Bossi); Ballet Music from The Goldsmith of Toledo (Offenbach); Waltz, Dynamiden (Jos. Strauss). 4.30, Weather and Time. 4.50, Exchange Quotations. 5.5, Ina Seidel reads from her own Works. 5.25, French Lesson. 5.50, Talk: The Gewandhaus Concert on the 19th January. 6.0, Students in Distress—University Students and Others tell of their Experiences. 6.30, Concert of Dances, Old and New, by the Emde Orchestra. 8.0, Topical Talk. 8.10, Economic Questions of the Day. 8.20, A Romantic Picture Book—Radio Sequence of Prose and Verse, Letters and Diaries of the Romantic Period (Elly Rineke). 9.10, News Bulletin. 9.30 (approx.), Contemporary Music for Saxophones: Trio Op. 12, in One Movement for Three Saxophones (Reuter); Suite (Paul Hindemith); Drei Inventionen (Kurt Thomas); Foxtrot (Wladigerov); Saxophone Quartet (Zador). 10.30 (approx.), Close Down.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—4.30 p.m., Quintet Concert. 5.30, German Lesson. 6.0, Talk. 6.30, Geography Lesson. 7.0, Programme relayed from **Zagreb** (307 metres). 9.0, Time, News and Light Music.

LWOW

381 metres; 16 kW.—6.0 p.m., Answers to Technical Correspondence. 6.15, Miscellaneous Items. 6.30, See **Warsaw**. 10.0, Relay of Foreign Stations. 10.30 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South East. 8.30, Montmartre Concert, relayed from **Paris**. After the Concert, News Bulletin.

MADRID

ARANJUEZ (EAQ), 30.43 metres; 20 kW.—11.30 p.m., Variety Music. 11.45, Radio Chronicle. 12 Midnight, Concert of Spanish Music. 12.35 a.m. (Wednesday), Answers to Correspondents. 12.40, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO; Call **EAJ7**, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange and

Literary Talk: The Life and Work of Calderon. 7.30, Talk by Joaquin España Cantos, followed by a Medical Talk: The Campaign against Infant Mortality. 8.15, News Bulletin. 8.30 to 9.30, Interval. 9.30, Chimes and Time Signal. 9.55 (approx.), Concert by the Madrid Symphony Orchestra, conducted by M. Arbos: Overture, Oberon (Weber); Suite from Much Ado about Nothing (Korngold); Music of Machines (Mossolov); Pastoral Symphony (Beethoven); Overture for a Grotesque Opera (Bautista); Triana (Albéniz-Arbos). In an interval, News Bulletin. 1.0 a.m. (Wednesday), Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—3.10 p.m., Concert by the Station Orchestra, conducted by J. Plichta. 4.10, See **Prague**. 4.50, See **Brno**. 5.0, Talk. 5.15, See **Brno**. 6.0, See **Prague**. 6.5, See **Brno**. 6.45 till Close Down, See **Prague**. 10.0 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—5.30 p.m., Concert by a Wind Instrument Orchestra. 8.0, Talk in French! Agricultural and Industrial Prospects for 1933. 8.55, Time. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by **Augsburg Kaiserslautern**, 560 metres; and **Nürnberg**, 239 metres.—3.45 p.m., Orchestral Concert, conducted by Erich Kloss: Overture, Raymond (Thomas); Two Tone Pictures (Dvorak); Selection from *Ariadne auf Naxos* (Richard Strauss); Kinderlieder-Walzer (Leuschner); Czardas, Magyar Dalok (Lehar); Dream Pictures (Lumbye); Bauernsuite (Ailbott); Ompeda-Marsch (Fischer-Frank). 4.55, Talk: Observations on one of Holbein's Portraits. 5.15, Talk: From the Opera to the Musical Drama. 5.35, Talk: The Industrialisation of the World—Europe and Asia. 5.55, Time, Weather and Agricultural Notes. 6.5, Talk: Count Radetzky (on the 75th Anniversary of his death). 6.30, Variety Concert: March, Die Welt ist so schön (Jünger); Overture, Maritana (Wallace); First Waltz Potpourri (Robrecht); Jazz Music on Two Pianofortes; Songs from the Sound Films of 1932 by Lily Preisig (Soprano) and Hans Schindler (Tenor); Musical Saw Solos; Spanish Dance (Falla); Second Hungarian Rhapsody (Liszt); Radetzky March (Joh. Strauss); A Lady chooses a String of Pearls—Sketch (Wilhelm Lichtenberg); New Dance Melodies by Ludwig Würtlmüller's Jazz Band and The Singing Three. 8.40, Old Streets—Four Famous German Roads and their History: (a) The Sengergasse, Passau, (b) The Getroidegasse, Salzburg, (c) The Maria Theresia Strasse, Innsbruck, and (d) Maximilian Strasse, Augsburg. 9.20, Time, Weather, News and Sports Notes.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by **Fredriksstad**, 367.6 metres; **Hamar**, 560 metres; **Notodden**, 447.1 metres; **Porsgrund**, 453.2 metres; and **Rjukan**, 447.1 metres.—6.0 p.m., Announcements, Weather and News. 6.30, English Lesson. 7.0, Time Signal. 7.1, Relay of European Stations. 8.15, Topical Talk. 8.30, See **Paris** (Eiffel Tower). 8.45 (in an interval), Weather and News.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tourist Talk, Agricultural Notes, and Giordano Radio. 7.20, Gramophone Concert of Light Music. In an interval at 7.30, Time and Announcements. 8.0, An Opera, relayed from the Teatro Massimo Vittorio Emanuele. In the intervals, Talk: The Laws of the Past, Notes on Art, and News.

PARIS

EIFFEL TOWER, Call **FLE**, 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. 7.20, Weather Report. 7.30, Le Journal Parlé (contd.). 7.45, Concert by the Rose Cornaz Mandoline and Guitar Orchestra: Little Suite (Purcell); Selection from Roland (Lully); Siliiano (Francoeur-Kreisler); Gavotte after Lully (Pillois); Three Pieces (Cornaz); (a) Carillon, (b) Air à danser, (c) Eritania, Le Roi d'Avignon (Grovlez); Dans mon p'tit amour (Grovlez); Old Spanish Song (Aubert); Joe an' me; Old Plantation Song; Zin! Zin! Zin! (Dezza). 8.30, Gala Variety Concert by the Montmartre Singers, Jacques Berner and Jean Marville. Max Regnier in his Repertoire. René Dorin sings Four of his own Songs: (a) Le Carnet noir, (b) Ah! les braves gens, (c) Le Panacée, (d) Aucune importance; Pierre Marchal (Pianoforte Virtuoso); Yvonne Guillet in her Repertoire: (a) Fascination (Marchetti-de Féraud), (b) Mon seul désir (d'Alberg-Varene), (c) Les Rêves sont des bulles de savon (Hermitte-Lemarchand); Jean Rieux, the Poet, sings

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three of his own Songs: (a) Colloque sentimental, (b) Gentleman, Gentleman, (c) Lettre à Sacha; Aspirations—Sketch (Rieux); A la Manière de... (Bernier); René Bersin in his Song Repertoire; Paul Colline in a Programme of his own Compositions: (a) Je suis très content, (b) C'est formidable quand même, (c) Bien m'entends; Sens interdit—Sketch (Colline).

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—7 to 9 a.m., Commentary on the Test Match in Australia. 6.45 p.m., Le Journal Parle. 7.0, Sponsored Concert with Gramophone Records. 8.0, Film Review. 8.20, Exchange Quotations. 8.30, Romantic Composers: Concert by the Station Orchestra. Music by Schubert, Schumann, Weber, Berlioz, Chopin, and Mendelssohn. 10.30, News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (cont'd). 7.45, Commentary on the Test Match, relayed from Australia. 8.0, Press Review and Weather. 8.30, Commentary on the Test Match (cont'd). 12 Noon, Concert by the Radio Paris Orchestra: Marche militaire (Schubert); Selection from The Italian Girl in Algiers (Rossini); Song from L'Africaine (Meyerbeer); Cavatine du page, and Pif-Paf-Pouf, from Les Huguenots (Meyerbeer); Selection from Sigurd (Reyer); Aria from Salambo (Reyer); Selection from La Lépreuse (Lazzari); Selection from Louise (Charpentier); Gramophone Records (Bach and Laverne): (a) Deux bons copains, (b) A la Poste, (c) Toto au jardin des plantes; Waltz Suite from A Waltz Dream (O. Straus); Song (Heymann); Selection from Coups de Roulis (Messager). In the intervals at 1.0, Exchange, News, and Weather, and at 1.30 and 2.0, Exchange. 3.45, Exchange and Market Prices. 4.30, Elementary English Lesson. 6.10, Agricultural Talk. 6.30, Advanced English Lesson. 6.50, Theatre Review. 7.5, Talk on Art. 7.20, Concert by the Radio Paris Orchestra: Marche héroïque (Dubois); La Gardie passe (Grétry); Second Suite from Peer Gynt (Grieg). 7.45, Commercial Prices, News, and Anglo-Saxon Press Review. 8.0, Le Filibustier—Play (Richeim). In the intervals at 8.30, News and Weather, at 8.40, Review by Miguel Zamacois, and at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by W2XK on 48.86 metres and 25.27 metres.—9.0 p.m., Work-a-day Thoughts. 9.5, Business News. 9.15, Programme to be announced. 9.30, Weather Report. 9.31, Johnny Muskrat. 9.32, Market Reports. 9.45, Pianoforte Interlude. 9.50, David Lawrence Di-patch. 9.55, KDKA Artist Bulletin. 9.58, Programme Announcements. 10.0, Programme to be announced. 10.30, The Singing Lady, from New York. 10.45, Little Orphan Annie. 11.0, Time Signal. 11.1, Temperature Report. 11.2, Teaberry Sport Review. 11.7, Press News Reeler. 11.12, Strange Facts. 11.14, Weather Report. 11.15, Johnny Hart in Hollywood, from New York. 11.30, KDKA Dinner Concert. 11.45 to 12.30 a.m. (Wednesday), New York Relay. 11.45, Today's News, by Lowell Thomas. 12 Midnight, Popsodent Amos 'n' Andy. 12.15 a.m., Balkan Melodies. 12.30, KDKA Players. 1.0 to 3.15, New York Relay. 1.0, Eno Crime Club. 1.30, Time Signal, and Adventures in Health. 1.45, Phillips Lord in The Country Doctor. 2.0, Household Finance Programme. 2.30, Willard Robinson's Deep River Orchestra. 3.0, Morin Sisters. 3.15, Westinghouse Pioneers. 3.30, Al and Pete, from New York. 3.45, Homay Bailey, from New York. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News Flashes. 4.20, Jimmy Joy and his Orchestra. 5.0, Cotton Club Orchestra, from New York. 5.30, Time Signal and Goodnight.

PORSGRUND.—See Oslo.

PRAGUE

488.6 metres; 130 kW.—3.10 p.m., See Moravská-Ostrava. 4.10, Talk on Economics. 4.20, Czech Lesson for Germans and German Lesson for Czechs. 4.50, Variety Music on Gramophone Records. 5.5, Market Prices. 5.15, Topical Talk for Workers. 5.25, German Transmission. News followed by Recital by O. Kaperl (Violin), F. Pollak (Pianoforte), and Thea Siltén (Songs): Theme with Variations for Violin and Pianoforte (Lucatelli); Four Songs (Pollak), the Composer at the Pianoforte; Suite from Much Ado about Nothing, Op. 11 (Korogold). 6.0, News. 6.5, See Brno. 6.20, Song Recital by Olga Manceva. 6.45, A Night's Adventure (Jurist). 8.0, Time Signal. 8.1, Concert by the Station Orchestra, conducted by Jeremias. Soloists, Joseph Schwarz (Bassoon), and Senta Westland Schwarz (Soprano): Symphonic Overture, Op. 10 (Mozes); Duet from The Flying Dutchman (Wagner); Duet from Lohengrin (Wagner); Suite for Grand Orchestra (Aumann). 9.0, Time Signal. 9.1, News. 9.15, Recital of Contemporary Music by Hilda Raave (Songs) and Dr. V. Holzknecht (Pianoforte). 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.: LAUSANNE, 680 metres; and GENEVA, 700 metres.—5.0 p.m. (from Lausanne), Medical Talk. 5.30 (from Geneva), English Lesson. 6.0 (from Geneva), Weather, News, and Announcements. 6.20 (from Geneva), Answers to Correspondents. 6.30 (from Geneva), Concert of New Gramophone Records. 7.0 (from Lausanne), Violin Recital by Mlle. Madeleine Gonser. 7.30 (from Lausanne), Popular Concert. 8.20, News Bulletin and Weather Forecast. 8.30, See Paris (Eiffel Tower). 10.30 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.5 p.m., Reading. 8.30, Weather. 8.40, Music and Announcements. 9.0, Chimes and News. 9.30, Reading. 10.0, Pianoforte Recital. 10.15, Recitations. 10.35, Eine kleine Nachtmusik (Mozart) on Gramophone Records.

RIGA

525 metres; 15 kW.—7.0 p.m., News. 7.20, Baritone Song Recital. 7.40, Popular Concert. In the interval at 8.0, Weather and News. 8.30, Dance Music. 9.0 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call IRO, 441 metres; 50 kW. Relayed by Naples, 319 metres, and 2RO, 25.4 metres.—7.15 to 7.30 a.m., Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12.0 Noon, Time and Announcements. 12.2 to 1.15 p.m., Orchestral Concert. In the interval at 12.30, Giornale Radio and Exchange. 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.30 to 5.15, Orchestral Concert: Niobe (Petralla); Waltz, Morena (Cerrai); Selection from Lereley (Catalani); Melody (Brodzky); Prelude (Rachmaninov); Selection from Tip Toes (Gershwin); Florencia (Papanti); Madrid (Mex). 6.10 (Naples), Shipping and Sports Notes. 6.15, Atmospheric Signals, Agricultural Report, Announcements and Giornale Radio. 7.0, Time and Announcements. 7.2, Astronomical Talk: The Future of the Earth. 7.15, Light Music on Gramophone Records. 7.30, Sports Notes and Tourist Report. 7.45, Police Band Concert, conducted by Andrea Marchesini: Inno del decennale (Giordano); Intermozzo from Il vito (Giordano); Legenda di Natale (Marinuzzi); The Magi (Burgemein); La festa della Befana (Respighi); Andante for Organ from the Second Symphony (Widor); Toccata from the Fifth Symphony (Widor). 8.30, Moonlight Comedy in One Act (Messandro de Stefani). 9.0, Band Concert (cont'd): Overture, Semiramide (Rossini); Selection from Manon Lescaut (Puccini); Bolero for Clarinets (Blémandin); Variations on A Carnival in Venice (Benedict); Overture, Tannhäuser (Wagner). 9.55, News Bulletin.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres, and by W2XAD on 19.56 metres.—7.45 p.m., Robert Rissling (Baritone). 10.15, Kinnucyville Club. 10.30, Singing Ed McConnell. 10.45, Sekatary Hawkins, from New York. 11.0, Joe and Eddie. 11.15, Musical Interlude. 11.30, With Gray McClintock in the Canadian North-West. 11.45, Chandu, the Magician. 12 Midnight, Stock Reports. 12.15 a.m. (Wednesday) till Close Down, New York Relay. 12.15 a.m., Wheatena Ville. 12.30, Barbosol Programme. 12.45, The Goldbergs. 1.0, Blackstone Plantation. 1.30, Wayne King's Orchestra. 2.0, Ben Bernie's Blue Ribbon Orchestra. 2.30, Ed Wynn and the Fire Chief Band. 3.0, Lucky Strike Hour. 4.0 (approx.), Close Down.

SCHWEIZERISCHER

LANDESENDER

BEROMUNSTER, 459 metres; 60 kW.: BÄBLE, 244.1 metres; and BERNE, 245.9 metres.—11.28 a.m., Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40, Concert by the Radio Orchestra. 12.35 to 12.40 p.m., Weather and Exchange. 2.30, Concert by the Little Radio Orchestra. 3.0, Popular Music on Gramophone Records. 4.0, Chamber Music Concert on Gramophone Records. 4.30, Weather. 4.35 to 5.30, Interval. 5.30 (from Berne), Talk: The Painter, Ernst Kreidolf. 6.0, Time and Weather. 6.1, (from Berne), Notes on the Broadcasts for Schools. 6.15 (from Berne), Talk: Punishment now and in the Olden Days. 6.45 (from Berne), Violin Duets by Reger, Hindemith and Honegger, played by Emmy Born and Walter Kägi. 7.15 (from Berne), Folk Songs of Great Britain and the Scandinavian Countries, by Engel Lund, of Copenhagen, and the Radio Orchestra. 8.15, Weather and News. 8.30, Montmartre Concert, relayed from Paris. 9.40 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande,

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—4.5 p.m. (from Sundsvall), Variety Programme. 4.45, Popular Music on Gramophone Records. 5.45, Elementary French Lesson, relayed from Malmö (231 metres). 6.15, Weather and News. 6.30, Talk. 7.0, Concert by the Göteborg Chamber Orchestra; Conductor, Tor Mann; Divertimento in D for Strings (Haydn); Concerto for Oboe and Orchestra (Händel); A little Serenade (B. Lilla); Two Elegiac Melodies for Strings (H. Lundvik); En lit län Leksund (Lindbrom); Melody for Oboe and Strings (N. Broman); Capricio Suite for Strings (Warlock). 8.0, Talk. 8.30, Montmartre Evening, relayed from Paris. In the interval at 8.45, Weather and News. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Gramophone Records: (a) Symphony No. 5 (Beethoven), (b) Concerto in E Flat (Liszt). 12.45 p.m., News Bulletin. 1.0, Time and Exchange Quotations. 1.10, Light Music on Gramophone Records. 2.0 to 4.45, Interval. 4.45, Talk on French Towns: Le Havre. 5.0, Orchestral Concert, conducted by Roskain; March (Krier); Waltz, Morgenblätter (Joh. Strauss); Selection from White Horse Inn (Stoltz-Bonatzky); Po-hade (Mambour); Suite Orientale (Popy); Selection from Rose-Marie (Früh); Italian Serenade (Manfred); Marche de France (Goublier). 6.0, Medical Talk in German. 6.15, Legal Talk. 6.30, Lido Concert by the Station Orchestra, conducted by M. de Villers; Scherzo; Selection from Le Roi d'Ys; Divertissement; Suite from Nanouma. 7.30, Time and News. 7.45, Light Music on Gramophone Records. 8.25, Lottery Results and Announcements. 8.30, Gala Concert, relayed from Paris, Eiffel Tower. 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.: and FREIBURG, 570 metres.—12.30 p.m., Concert from Langenberg. 1.0, Sponsored Programme with Gramophone Records. 1.30 to 2.0, Advanced English Lesson. 3.0, Talk on Flowers. 3.30, Talk for Women: Girls between the School-leaving Age and the beginning of a Career. 4.0, See Frankfurt. 5.15, Time, Weather, and Agricultural Hints. 5.25 (from Freiburg), Religious Address. 5.50, Legal Talk. 6.15, Time and News. 6.20, Programme by Erwin Eckersberg, with Gramophone Records. 7.0, See Breslau. 8.0, Concert of Russian Music by the Stuttgart Philharmonic Orchestra, conducted by Emil Kahn. Soloist: Alexander Brovsky (Pianoforte); Easter Overture (Rimsky-Korsakov); Concerto in B Flat Minor for Pianoforte and Orchestra (Tchaikovsky); Dance of the Russian Sailors (Glière); Pianoforte Solo from Pictures from an Exhibition (Mussorgsky); Two Preludes for Pianoforte (Rachmaninov). 9.15, Time, News, Weather, Snow Report, and Programme Announcements. 9.30, Concerto for Violin and Orchestra (Josef Scheib) by the Stuttgart Philharmonic Orchestra, conducted by Emil Kahn. Soloist: Josefa Kaster (Violin). 9.50, Concert by the Dance Ensemble of the Stuttgart Philharmonic Orchestra, conducted by Harry Risch. Song Refrains by Walter Maurer. 11.0 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0 p.m., News Bulletin. 6.30, Overture Music: Air from The Merry Widow (Lehar); Melody from Countess Maritza (Kálmán); Nightingale's Song from Les Noces de Jeanne (Mascé); 6.45, Suite, Mascade (Lacôme). 7.0, Tango Music. 7.15, News, Racing Results, and Market Prices. 7.25, Local News Bulletin. 7.30, Opera Music: Serenade from I Pagliacci (Leoncavallo); Aria from Romeo and Juliet (Gounod); Aria from Benvenuto Cellini (Diaz). 7.45, Concert by a Viennese Orchestra. 8.15, Three Pièces (Cayla). 8.30, Military Music. 8.45, Instrumental Music: Moonlight on the Alster (Fétras); Minuet (Bocherini); Chant d'été. 9.0, Extracts from Higoletto—Opera (Verdi). 9.30, Concert: Part I, Cello Solos; Allegro appassionato (Saint-Saëns); Berceuse de Jocelyne (Godard); Zigeunerweisen (Sarasate). Part II: Extracts from Sound Films. 10.0, Overture Music: Selection from Choulette (Halm); Waltz from The Count of Luxembourg (Lehar); Overture, Les Dragons de Villars (Maillart). 10.15, North African News. 10.30, Concert for Listeners in Morocco: Overture, Mignon (Thomas); Rossini's Aria from The Barber of Seville (Rossini); Amongst the printemps (Vaidtewfel); El Relicario (Padilla); Flute Solo, Fantasia and Variations on a Neapolitan Air (Gemin). 11.5, Orchestral Concert: Petite Suite (Debussy); Selection from Mossidor (Bruneau); Selection from Das Nachtlager in Granada (Kreutzer); Love's Desire (Michiels). 11.30, Programme in English by the I.B.C.; Songs

and Dances: Miss Elizabeth Brown; River, stay 'way from my Door; Tenor Solo: I'll always be true; With my Guitar and you; Dance of the Raudrops; Tenor Solo: Life's desire; Old-fashioned Girl; You are the Melody. 12 Midnight, Weather and Announcements. 12.5 a.m. (Wednesday), Chansonnettes. 12.15, Instrumental Solos: Spanish Dance (Moszkovsky); The National Emblem (Bagley); O Sole mio (Di Capua); Maria, Mari (di Capua). 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—4.0 to 5.0 p.m., Chamber Music: Magda Guberti (Violin), Enrico Martucci (Pianoforte), and Dalia Fortini (Mezzo-Soprano); Concerto in A Minor for Violin and Pianoforte (Vivaldi); Mezzo-Soprano Solos: (a) Die Lotusblume (Schumann), (b) Der Nussbaum (Schumann), (c) Erbkönig (Schubert); Suite for Violin and Pianoforte, Baal Sehan (Blöch); Mezzo-Soprano Solos: (a) Feldensankt (Brahms), (b) Chanson hindon (Benberg), (c) Song from Orpheus (Glick); Violin Solos: (a) Canto popolare dell'Albania (Prinepe), (b) Tambourin chinois (Kreisler). 5.35 till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayed by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—5.35 p.m., Giornale Radio, Agricultural Report, and Announcements. 6.0, Orchestral Concert. 6.25, Report of the Royal Geographical Society. 6.30, Time and News. 6.35, Popular Music on Gramophone Records. 7.0, Giornale Radio, Weather, and Light Music on Gramophone Records. 7.30, Relay of an Operetta in Three Acts. In the intervals, Scientific Talk and Art Notes. After the Programme, Giornale Radio.

VATICAN CITY

19.84 metres (Morning) and 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

517 metres; 15 kW. Relayed by Graz, 352.7 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218 metres.—4.0 p.m., Concert by the C.M. Winteritz Orchestra: Overture, Die Felsenmühle (Reissiger); Waltz, Marienlänge (Joh. Straus); Selection from Cavalier Rusticana (Masegni); Foxtrot, Wir sag' ich's meinem Mann (Mackeben); Selection from the Countess Maritza (Kálmán); Popular Song Potpourri (Schneider); March, Macht Platz der Jugend (Leopoldi). 5.10, Agricultural Talk. 5.35, Talk: All Kinds of Speech Abuses. 6.0, French Lesson. 6.20, Time, Weather, and Programme Announcements. 6.30, I Pagliacci—Opera in Two Acts (Leoncavallo), on Gramophone Records. 7.45, Concert by a Vocal Quartet, relayed from the Romacher. 8.15, News, Weather and Announcements. 8.30, See Paris (Eiffel Tower). 9.30, Dance Music by the Clement Serenaders, relayed from the Grabencafé.

WARSAW

1,411 metres; 120 kW.—10.40 a.m., Polish Press Review. 10.50, Aviation Weather Forecast. 10.58, Time Signal and Bugle Call from the Tower of St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Light Music on Gramophone Records. 12.30 p.m., Weather Forecast. 12.25 to 2.10 p.m., Interval. 2.10, Announcements. 2.25, Aviation Notes and Anti-Gas Drill. 2.30, Sports Notes. 2.35, Book Review. 2.50, Light Music on Gramophone Records. 3.25, Educational Talk. 3.40, Talk, relayed from Cracow (312.7 metres). 4.0, Extracts from Tatry—Ballet, Opera (Nowowiecki), relayed from Poznań (335 metres). 4.55, Programme Announcements. 5.0, Light Music, relayed from the Café Gastronomica. In the interval, News. 6.0, Miscellaneous Items. 6.20, Agriculture Talk. 6.30, Talk on Music. 6.45, Radi Journal. 7.0, Concert by the Station Orchestra, conducted by Oziminski. In the interval, Sports Notes and Radi Journal. 8.30, Song Recital by Mme Korwin-Szymanowski: Three Songs (Moniuszko); (a) Reviendra-t-il? (b) L'arme, (c) L'oiseau migrateur; L'oiseau de Paradis (Lozycki); Two Songs (Rachmaninov); (a) Ne me chantes pas, (b) Le Cerisier à grappes; Aria from Il piccolo Marat (Mascagni); Two Old French Songs: (a) Jardin d'amour (Vuillermoz), (b) L'amour de moi (Tiersot); Pastorale (Bizet). 9.0, Reading (B. Hertz). 9.15, Dance Music. 9.55, Weather Report and Police Notes. 10.0, Dance Music (cont'd).

ZAGREB

307 metres; 0.75 kW.—6.35 p.m., Talk: Hay Animals a Sense of Colour? 7.0, Mihovil Logar (Pianoforte) Plays his Own Compositions; Two Japanese Fairy Tales: Tango-Tango-Berence; Serenade; Pastorale and Burlesque; Suite, Music for My Baby Album for the Young. 7.30, Opera Song Recital by Ancica Mitrović. 8.0, Sacred Concert by the Russian Artists' Choir. 9.0, News, Weather, and Snow Report. 9.10, Dance Music from the Drift Room. 10.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender.

WEDNESDAY

JANUARY THE EIGHTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL Orchestral concert, from the Pavilion, Bournemouth. Professor H. J. Laski: "The State and the Individual." "Strange Music" (2). "The Tales of Hoffmann," an opera by Jacques Offenbach.

LONDON REGIONAL Ballad concert. Organ recital. Orchestral concert. Vaudeville programme. Military Band programme. A Shakespearean orchestral and vocal programme. "Rayon Making," a talk by Mr. J. E. Pedder. A school concert from Hasleley Hall School for Rheumatic Children, Warwick.

MIDLAND REGIONAL "In Marsden Bay," a radio play by Edwin Lewis. "The Business Man Abroad," by Mr. G. Nicholson.

WEST REGIONAL Mr. Gareth Jones: "Wales from Without" (1), a distant view: from Moscow. Annual Inter-University Debate at the Powis Hall of the University College of North Wales, Bangor.

SCOTTISH REGIONAL Orchestral concert. Excerpts from King's Theatre Fantomime, Edinburgh.

BELFAST Orchestral concert from Stranmillis. "The Fortune of Kings," by Kathleen M. Murphy.

ABROAD

COPENHAGEN LANGENBERG Gramophone records of Caruso. Gala concert by the Station Orchestra, conducted by Buschkötter.

STRASBOURG The Conservatoire Concert Society, from the Municipal Theatre, Metz.

WARSAW Pianoforte recital by Joseph Turczynski.

ALGIERS
363.3 metres; 13 kW.—7.20 p.m., Popular Songs; 7.30, Film Review; 7.45, Aria from The Mastersingers (Wagner); 7.55, News; 8.0, Time Signal; 8.2, Talk: The Algiers Season; 8.15, Dance Music; 8.45, News; 8.50, Bonsoir Voisin—One Act Operetta (Poise); 9.30, News; 9.35, Instrumental Music; 9.50, News; 10.0 (approx.), Close Down.

BARCELONA
RADIO-BARCELONA; Call EAJ1; 348.8 metres; 8 kW.—6.0 p.m., Trio Concert; 7.0, Request Gramophone Records; 7.30 p.m., Exchange Quotations, followed by Relay from the Guildhall; 8.0, Popular Music on Gramophone Records, and News Bulletin; 9.0, Chimes, Weather, Exchange Quotations, and Market Prices; 9.5, Concert by the Station Orchestra: March (Sousa); Selection from Madame (Christine); Minuet (Bocherini); Vision (Drlla); Gopak (Mussorgsky); Waltz (Ravel); 10.0, Recitations, followed by an Opera, on Gramophone Records; 11.0 (in an interval), News Bulletin; 12 Midnight (approx.), Close Down.

BARI
270 metres; 20 kW.—7.0 p.m., Agricultural Report, Tourist Notes, and Announcements; 7.20, Giornale Radio and Weather; 7.30, Time and News; 7.35 (approx.), Chamber Music; Soloists: Nina Locuoco (Pianoforte), Maria De Santis Bruno (Soprano), and Nilde Pignatelli (Violin); Overture, Medea (Cherubini); Pianoforte Solos (Martucci): (a) Caprice, (b) Scherzo; Soprano Solos: (a) Ninnanna (Pesci), (b) Van gli effluvi delle rose (Casavola); Violin Solos: (a) Aria on the Fourth String (Bach-Wilhelmi), (b) La fille aux cheveux de lin (Debussy-Hartmann); Pianoforte Solos: (a) The Great Gate of Kiev (Mussorgsky), (b) Prelude in G Minor (Rachmaninov); Soprano Solo, Bolla di sapone (Franco); Violin Solo, Tambourin chinois (Kreisler); Jubel-Quvertüre (Weber); Pianoforte Solos (Sgambati): (a) Gavotte and Musette, (b) Concert Etude; Soprano Solo, La sera (Casavola); Concerto in D Minor for Violin (Wieniawsky); Soprano Solos: (a) Chi vuol comprar la bella caladriana (Jommelli), (b) Vergeheiches Ständchen (Brahms); St. Francois de Paul (Liszt). In the interval, Literary Notes; 9.30, Variety Music on Gramophone Records; 9.55, News.

BASEL—See Schweizerischer Landessender.

BELGRADE
433.4 metres; 2.8 kW.—4.0 p.m., Medical Talk; 5.55, Time and Programme Announcements; 6.0, Popular Music on Gramophone Records; 6.50, Opera, relayed from Zagreb; 8.07 metres. In an interval at 8.30 (approx.), News.

BERLIN
KÖNIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.0 a.m., Weather, followed by Scenes from Siegfried (Wagner) on Gramophone Records, and Second Weather Report; 11.55, Nauen Time Signal; 12.35 p.m., News Bulletin; 1.0, Gramophone Concert of Chamber Music, relayed from Berlin (Witzleben); 1.45, A Radio Play for Young People; 2.30, Weather and Exchange; 2.45, Reading (Walter Flex); 3.0, Talk: Dwellings and their Evolution during Six Hundred Years; 3.30, See Hamburg; 4.10, Talk: The Important Function of Gymnastics in Germany; 4.30, Talk: The Origins of the German Race; 4.55, Songs by Beethoven; 5.30, Shorthand Dictation; 5.55, Weather and Announcements; 6.0, French Lesson; 6.30, A Poem; 6.35, Concert from Berlin (Witzleben); 7.0, Gala Programme in Commemoration of the Foundation of the Reich; The State Academy Male Voice Choir: Die Himmeln rühmen des Ewigen Ehre (Beethoven); Concerto grosso, Op. 3, No. 2 (Handel); Hymne an das Reich (Josef Magnus-Werner); Concerto grosso, Op. 3, No. 2 (Handel); Address by a Representative of the Government; Choir: Deutschlandlied; 8.0, See Langenberg; 9.0, Weather, News, and Sports Notes; 9.45, Weather for Shipping; 9.50 (approx.), Orchestral Concert, conducted by Hermann Heinrich, relayed from the Stadthalle, Magdeburg; Overture, Der Freischütz (Weber); Selection from Samson and Delilah (Saint-Saëns); Autumn (Tchaikovsky); Lagunenwalzer (Strauss); Selection from Gipsy Love (Lehar); Overture, Light Cavalry (Suppé); 11.0 (approx.), Close Down.

BERLIN
WITZLEBEN; 419.5 metres; 1.5 kW.—6.0 p.m., Topical Talk; 6.10, Concert of Light Music by the Wilfried Krüger Orchestra, relayed from the Traube Restaurant; 7.0, See Berlin (Königs Wusterhausen); 8.0, Foundation of the Reich Anniversary Celebrations, Concert by the Station Orchestra and Choir, with Addresses and Recitations, followed by Symphony No. 3 in F (Op. 90) (Brahms); 9.30, Weather, News, and Sports Notes; 9.45, Light Orchestral Concert, relayed from the Town Hall, Magdeburg; Conductor, Hermann Heinrich; Overture, Der Freischütz (Weber); Selection from Der Waffenschmied (Lortzing); In Autumn (Tchaikovsky); Lagunenwalzer (Strauss); Selection from Gipsy Love (Lehar); Overture, Light Cavalry (Suppé); Waltz, Mondnacht auf der Alster (Fétras); Kaiser Fried-

rich-Marsch (Friedemann); 11.0 (approx.), Close Down.

BERNE—See Schweizerischer Landessender.

BEROMÜNSTER—See Schweizerischer Landessender.

BODEN—See Stockholm.

BODO—See Oslo.

BORDEAUX-LAFAYETTE
304 metres; 13 kW.—7.30 p.m., News Bulletin and Market Prices; 7.35, Lottery Results; 7.40, Light Music on Gramophone Records; 7.55, Lottery Results (contd.); 8.0, Agricultural Talk; 8.15, News Bulletin; 8.30, Chabrier Anniversary Concert, by a Symphony Orchestra and M. Larony (Bari-tone).

BRATISLAVA
279 metres; 14 kW.—5.0 p.m., Hungarian Programme: Talk, Reading and Song Recital; 6.0, See Prague; 7.0, See Zagreb; 10.0 (approx.), Close Down.

BREMEN—See Hamburg.

BRESLAU
325 metres; 40 kW.; and **GLEIWITZ**, 253 metres.—12.5 p.m., Weather for Farmers; 12.10, Gramophone Concert; Overture, Ein Feldlager in Schlesien (Meyerbeer); Contralto Solos; Habanera and Letter Aria from Carmen (Bizet); Potpourri (Verdi); Two Tenor Arias from Cavalleria rusticana (Mascagni); The Ride of the Valkyries, from The Valkyries (Wagner); 12.45, Time, Weather, News, and Exchange Quotations; 1.5, Gramophone Concert (contd.); Waltz from The Merry Widow (Lehar); Mazurka (Góudard); Potpourri of Old Operetta Music; Loïn du bal (Gillet); Annen-Polka (Joh. Strauss-Grosz); Potpourri, Servus Wien (Dostal); Tyroler Folk Melodies: (a) Erzherzog Johann-Jodler, Zillertal, du bist mei' Freund; 1.45, Sponsored Programme, with Gramophone Records; 2.10, Agricultural Market Prices and Exchange Quotations; 2.50, Talk: A New School System; 3.5, Talk: The Teaching of the Protestants and Religion; 3.30, Celtic Music by Old Composers—Recital by Walter Gola; Sonata in A (Boccherini); Nina (Pergolesi); Gavotte (Martini); Rondo (Boccherini); 4.0, Review of the January Number of Der Oberschlesier; 4.20, Agricultural Market Prices, followed by Talk on Ski-ing; 4.40, Talk: Toll-Roads; 5.0, Programme to be announced; 5.20 (from Gleiwitz), Orchestral Concert, conducted by Hans Franz Zok; March, In die weite Welt (Gnauck); Overture, Rosamund (Selbert); Waltz, The Skaters (Waldteufel); Helenensmarsch (Lübbers); Hungarian Rhapsody (Reinold); Selection from Carmen (Bizet); Die lustigen Schmiedegesellen (Grimow); Selection from Gasparone (Müllöcker); March, Schlängel und Eisen (Zok); 6.25, Weather for Farmers; 6.30, Reading from Das Reich (Werner Benni-burg); 7.0, See Berlin (Königs Wusterhausen); 8.0, News

BUCHAREST
394 metres; 12 kW.—4.0 p.m., Concert by the Radio Orchestra: Overture, Il Guarany (Gomez); Sacred March, La Procession (Dupuis); Selection from Der Rosenkavalier (R. Strauss); Clanson intime (Chapelier); Selection from Frederica (Lehar); Waltz (Fall); 5.0, Time Signal; 5.10, Talk; 5.25, Concert by the Radio Orchestra: Romanian Potpourri (Dinicu); Intermezzo (Elliot Smith); The Passing of Salome (Joyce); Scherzo, En Radinant (D'Ambrosio); 6.0, Educational Talk: Romania's Natural Parks; 6.40, Light Music on Gramophone Records; 7.0, Saxophone Solos; 7.20, Variations and Fugue on a Theme by Telemann for Pianoforte (Roger); 7.50, Talk; 8.5, Song Recital by M. Szekely; Aria from Luisa Miller (Verdi); Mainacht (Schumann); Aus meinen Tränen spriessen (Schumann); Two Popular Songs; Aria from Mignon (Thomas); 8.25, Violin and Pianoforte Duets by Mrs. A. Sarvas and T. Rogalski; Sonata (Golestan); Spanish Dance (Fall).

BUDAPEST
550 metres; 18.5 kW.—Programme also relayed on 840 metres from 6.15 p.m. till Close Down; 4.0 p.m., Balahika Concert of Russian Melodies and Songs; 4.45, Reading; 5.15, Song Recital; 5.45, Italian Lesson; 6.15, Military Band Concert; 7.30, Concert of Gipsy Music and Hungarian Folk Songs, relayed from the Café Buda; 8.30, Time and News; 8.45, Trio Concert: Pianoforte Trio in C (Beethoven); Pianoforte Trio in A minor (Tchaikovsky); 9.10, Weather Report; 9.25, Concert of Light Music by the Opera House Orchestra, conducted by Polgar.

CASSEL—See Frankfurt.

COPENHAGEN
281 metres; 0.75 kW.; and **KALUNDBORG**, 1,153 metres; 7.5 kW.—11.45 a.m. to 1.0 p.m., Concert from the Wivex Restaurant; 2.0, Orchestral Concert: March, Einzug der Jautschelaren (Paul Giel); Waltz, Prière musicale (Menichetti); Selection from The Land of Smiles (Lehar); Jeg gik mig i Skoven (Johannes Andersen); O, Ya, Ya (de Markov); Serenata napolitana (Bece); Foxtrof, Spruitteufel (Kappusch); Minuet (Lud. Nielsen); Bacchanale (Nikiseli); Russian Fantasia, Hallo Moscow (Grotte and Kirschstein); Freundsliche Vision (Richard Strauss); Symphonie Paraphrase on Eugen Hildaeh's Song Lenz (Dransmann); Du klare Spejl (August Ema); Pasodoble, El Conquistador (Orlando). In the interval at 2.45 (approx.), Talk for Women; 4.0 to 4.30, Gramophone Concert: Wolfgram's Reitative and Song: Star of Eve, from Tannhäuser (Wagner); Albert's Aria from Werther (Massenet); Habanera (Sarasate); Wohnt—Song from the Cycle Die schöne Müllerin (Schubert); Stenka Rasin—by the Don Cossacks Choir; Snap your Fingers, clap your Hands (Sabony); Duet, Underneath the Arches (Flanagan); Singing a Vagabond Song (Riehm); 4.40, Exchange and Market Prices; 4.50, Talk (to be announced); 5.20, Elementary French Lesson; 5.50, Weather Report; 6.0, News Bulletin; 6.15, Time Signal; 6.16, Agricultural Talk; 6.45, The Hansen Family—A Humorous Episode (Jens Locher); 7.0, Town Hall Chimes; 7.2, Concert of Modern Operetta Music by the Radio Orchestra, conducted by Emil Reesen. Soloist, Kiss Grogers (Songs); March from Die ideale Gattin (Lehar); Selection from Show Boat (Kern); Viennese Music from The Duchess of Chicago (Kálmán); Songs: (a) Odette's Opening Song from Die Bajadere (Kálmán), (b) Vilja's Song from The Merry Widow (Lehar), (c) Song from The Gipsy Princess (Kálmán); Air from The Yellow Jacket (Lehar); Selection from The Three Musketeers; March from Das Puppenmädel (Fall); 8.0, Talk on Topical Questions; 8.30, Gramophone Records of Enrico Caruso; Radames' Aria: O Divine Aida, from Aida (Verdi); On with the Motley, from I Pagliacci (Leoncavallo); Siciliana, from Cavalleria rusticana (Mascagni); Questa o quella, from Rigoletto (Verdi); Two Songs (Tosti): (a) Addio, (b) La mia canzone; 8.50, Burlesque, Op. 58 (Max Reger) for Pianoforte Duet; 9.10, News Bulletin; 9.30, Concert of Russian Opera Music, by the Radio Orchestra, conducted by Emil Reesen: Overture and Mazurka from A Life for the Czar (Glinka); Selection from Boris Godomov (Mussorgsky); Prelude and Polonaise from Eugene Onegin (Tchaikovsky); 10.0, Dance Music from the Ritz Restaurant; 11.0 (in an interval), Town Hall Chimes; 11.30 (approx.), Close Down.

BRNO
342 metres; 35 kW.; 6.5 p.m., Pianoforte Recital by Anna Skadicka; Sonata in A (Mozart); Capriccio on Ballet Music, from Gluck's Alceste (Saint-Saëns); 6.30, A Sketch (Zdenek Capek and F. Koceny); 7.0, See Zagreb; 10.0 (approx.), Close Down.

BRUSSELS (No. 1)
I.N.R., 509 metres; 15 kW.—12 Noon, Gramophone Concert; 1.0 p.m., Le Journal Parlé; 1.10, Concert relayed from the Memline Hall, Antwerp; 5.0, Gramophone Records; The Scottish Symphony (Mendelssohn); Enigma Variations (Elgar); 6.0, Talk: Can we predict the Future? 6.15, Brahms Concert, The Brussels Quartet, Mlle. Tambayser (Pianoforte), and Mme. Tengels (Songs); Quintet; 6.45, La peur des coups—Comedy in One Act (Georges Courteline); 7.0, Brahms Concert (contd.); Songs; 7.15, Talk: Finance in the Belgian Congo; 7.30, Talk on Hygiene; 8.0, Gramophone Records of Light Music; 8.15, Songs, Dances, and Popular Festivals in Columbia; Gramophone Records, with Commentary; 9.0, La Fille de Madame Angot—Operetta in Three Acts (Lecocq)—Concert Version. In the first interval, Reading: La Nuit de Mai (de Musset). In the Second Interval, Le Journal Parlé; 11.0 (approx.), Close Down.

BRUSSELS (No. 2)
N.I.R., 338.2 metres; 15 kW.—Programme in Flemish.—12 Noon, Concert by the Paul Moreaux Orchestra, relayed from the Memline Hall, Antwerp; 1.0 p.m., Le Journal Parlé; 1.10, Extracts from I Pagliacci (Leoncavallo) on Gramophone Records; 5.0, Dance Music relayed from the St. Saviour Palais de Danse; 6.0, The Clock Symphony (Haydn), on Gramophone Records; 6.30, Recital by Willie Lewis of the Penguin Club; 7.15, Talk; 7.30, Review of International Events; 8.0, Concert by the Station Orchestra and the Weyandt Vocal Quartet. Conductor: M. Désiré Delfaux. Overture and Ballet Music from Rosamund (Selbert); The Unfinished Symphony (Schubert); 8.45, Recitations; 9.0, Concert (contd.); Variations for Strings (Haydn); Seven Songs for Vocal Quartet; Overture, Prince Igor (Borodin); Seven Songs for Vocal Quartet; Polovtsian Dances (Borodin); 10.0 Le Journal Parlé; 10.10, Gramophone Concert: Fandanguillo, from Ramuntcho (Pierre); Nocturne in C Minor (Chopin); Tone Poem, Finlandia (Sibelius); 10.30, Concert by the Paul Moreaux Orchestra, relayed from the Memline Hall, Antwerp; 11.0 (approx.), Close Down.

CORK—See Dublin.

DANZIG—See Heilsberg.

DRESDEN—See Leipzig.

DUBLIN
Call 2RN, 413 metres; 1.2 kW.; and **CORK**, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records; 6.0, Gramophone Records of Popular Music; 6.15, Programme for Children; 7.0, Light Music on Gramophone Records; 7.20, News Bulletin; 7.30, Time Signal; 7.31, Gaelic Talk; 7.45, German Lesson; 8.0, Military Band Concert, conducted by Fritz Brase; 9.0, Illustrated Talk on Songs from Shakespeare's Plays; 9.30, Pianoforte Recital by Geraldine Neeson; 9.50, Concert by the Caledonian Male Voice Choir; 10.30, Time Signal, News, Weather Report, and Close Down.

FECAMP

223 metres; 10 kW.—12 noon, Variety Music on Gramophone Records. 12.30 p.m., News. 12.45, Concert of Light Music. 7.0, Local News. 7.15, Variety Music on Gramophone Records. 7.30, Radio Gazette. 8.0, Popular Music on Gramophone Records. 8.15, News. 8.30, Concert of Light Music. 9.0, Dramatic Programme, relayed from Le Tréport. 10.0 till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: Under a Texas Moon; Blue is the Night; Love in a Mist; Hello Baby; Blue Pacific Moonlight; Crying for the Carolines; Mother's Smile; Swanee Shuffle; If I can't have you; Marinette; The Sunshine of Marseilles; When the Red, Red Roses get the Blues for you; The Love Waltz; Dreamy Honolulu; An old Italian Love Song; A Night of Happiness. 11.0, Organ Recital: Overture, Poet and Peasant (Suppé); Le cygne (Saint-Saëns); Prière à Notre-Dame (Boilelli); Toccata (Boilelli); Come ye Children (Traditional); The Storm (Shaw); To a Wild Rose (MacDowell); O du Fröhliche (Traditional). 11.30, Music by the Casino Tango Band: Cara Mucha; España Cani; Flora Castiliana; Adios Muchachos; Mia Cara; Corlobos; Media Luz. 12 midnight, Philco Concert: Moon; There's another Empty Saddle; Sweet Sixteen and never been kissed; Moonlight; The Danube and you; Let's put out the lights and go to sleep; Can't we talk it over?; We just couldn't say Good-bye; You're my Everything. 12.30 a.m. (Thursday), Songs from Sound Films: Hollywood Nights (Conrad); I feel you near me (Hanley); Reach out for a Rainbow (Conrad); Orchestra: Selection from Splinters (Gibbons); Love me (Alvas); A Pair of Blue Eyes (Kennell); Just you, just me (Greer). 1.0, Songs at the Piano: At the Top of the Morning; I love life; My Mother bids me bind my Hair; I did not know; Until; By the Bend of the River; Hus-a-bye Birdie; Two Eyes of Grey; Because. 1.30, Concert of Chamber Music: Minuet in G (Beethoven); Two Pieces (Mendelssohn); (a) Rondo capriccioso; (b) On Wings of Song; Melody in F (Rubenstein); Minuet from Berenice (Handel); Arabesque (Debussy); Two Pieces (Rimsky-Korsakov); (a) Hymn to the Sun; (b) Hindu Song. 2.0, Dance Music: Was that the Human Thing to do?; Good-night Vienna; Snap your Fingers, clap your Hands; Somebody loves you; She didn't say "Yes"; Five Minutes to Twelve; Snuggled on your Shoulder; Malah-General Thing-a-me-Boh; Auf Wiedersehen, my dear; When the Band goes marching by; Masquerade; I love a Parade; Good-evening; To-day's the Day; Ooh! that Kiss; Just another Dream of you. 2.57, I.B.C. Good-night Melody. 3.0, Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW., and CASSEL, 245.9 metres.—4.0 p.m., Orchestral Concert. Soloist: Grete Nies (Contralto); Overture in D (Haydn); Twelve Scottish Songs, with Pianoforte, Violin and Cello Accompaniment (Haydn); Symphony in G (Haydn); Old Dance Music. 5.15, Economic Notes. 5.25, Programme arranged by the Frankfurter Zeitung. 5.50, Topical Talk. 6.15, Time, Programme Announcements, Weather and Economic Notes. 6.30, Discussion on Adolf Stoltze. 7.0, See Berlin (Königs Wusterhausen). 8.0, See Langenberg. 9.20, Time, News, Weather and Sports Notes. 9.45, See Stuttgart. 10.30 (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

Call ha (in Morse), 372 metres; 1.5 kW. Relayd by Bremen, 270 metres; Flensburg, 227.4 metres; Hanover, 566 metres, and Kiel, 232.2 metres.—3.30 p.m., Concert by the Norak Orchestra, conducted by José Eilenschütz. Soloist: Dore Giesensregen (Harp). Overture, Così fan tutte (Mozart); Choral and Variations for Harp and Orchestra (Widor); Selection from Salomé (R. Strauss); Danse macabre (Saint-Saëns); Spielmusik, Op. 14, for Violins (S. Franck); Waltz, Gold and Silver (Lehar). 4.30, Talk: The Library at Wolfenbüttel. 4.55, Variety Programme. 5.50, Exchange and Market Prices. 6.0, Talk: The History of the University at Göttingen. 6.25, Weather. 6.30 (from Hanover), Talk: North German Miniatures—Adolf Baron von Knigge. 7.0, See Berlin (Königs Wusterhausen). 8.0, De solten See—Radio Sequence (Heinrich Andresen). 9.0, Time, Weather, Political Announcements, Sports Notes and Police Report. 9.30, Dance Music by the Francesco Scarpa Orchestra, relayed from the Haus Siegler. In an interval at 10.20, Ice Report. HANOVER.—See Hamburg.

HEILSBURG

275.5 metres; 60 kW.; and DANZIG, 453.2 metres.—12.5 p.m., Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Lestocq (Auber); Selec-

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WEDNESDAY

continued

tion from La Gioconda (Ponchielli); Two Melodies (Ernest d'Agrièves); Tanzszene-Suite (Richter); Overture, Fatinitza (Suppé); Waltz, Etudiantina (Waldteufel); Selection from Der Obersteiger (Zeller); Flieger-Marsch (Urbach). In the interval at 12.20 p.m., News. 1.30, Sponsored Programme with Gramophone Records. 2.0, Agricultural Report and Exchange. 2.20, Agricultural Report and Exchange. 2.30, Programme for Children. 3.0 (from Oanzig), Talk for Parents: The Nervous Child. 3.30, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: March, Entry of the Gladiators (Faucik); Waltz, Accelerationen (Joh. Strauss); Overture, A Waltz Dream (O. Straus); Love's Serenade (Lähr); Arabisches Gold (Rust); See Stolz Potpourri (Dostal); Waltz, Gold and Silver (Lehar); March, Kameradentone (Teike). 4.55, Book Review. 5.15, Agricultural Prices. 5.30, Legal Talk. 6.0, Bridge Lesson. 6.25, Concert by a Boy's Choir: Durch diese Nacht ein Brausen zieht (Mendelssohn); Was ist des Deutschen Vaterland (Reichardt); Folk Melody, Dankgebet; Wie mir deine Freuden winken (Klein); Folk Melody (O. Strassburg); Folk Song, An die deutsche Nation; Deutschland (von Bausnern). 6.50, News and Weather. 7.0, See Berlin (Königs Wusterhausen). 8.0, Joseph-Opera (Mold). 9.5 (approx.), Weather, News, and Sports Notes, followed by Concert from Berlin (Witzleben). 11.0 (approx.), Close Down.

HILVERSUM

Announced HILVERSUM, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.). Programme of the Christian Radio Society (N.C.R.V.).—10.40 a.m., Song Recital. 11.40, Police Notes. 11.55, Quintet Concert, conducted by Piet van d. Hurk: Der Deutsche Choral; March from Saul (Handel); Waarheen Pelgrime waarheen gaat gij Op bergen en in dalen; Three English Sacred Songs (on Gramophone Records); Overture, Alessandro Stradella (Flotow); Morgenblätter (Joh. Strauss); A Honey-moon Trip through Scandinavia (Jual-Frederiksen); Cuzonetta for Violin (Meyerkovsky); Selection from L'Africaine (Meyerbeer); Klar zum Gefecht (Blanckenburg). 1.40 p.m., Concerto No. 4 in G, Op. 58 (Beethoven) by Wilhelm Backhaus (Pianoforte) and the London Symphony Orchestra, conducted by Sir Landon Ronald (on Gramophone Records). 2.10, Instrumental Concert: Concerto in D Minor for two Violins and Organ (Bach); Adagio and Gigue for Two Violins and Organ (Corelli); Organ Solo: Le Concert (Daquin); Sonata in A for two Violins and Organ (Haydn); Overture, Egmont (Beethoven), on Gramophone Records; Six Duetts for Two Violins and Pianoforte (Godard); (a) Souvenir de Campagne; (b) Tristesse; (c) Abandon; (d) Berenice; (e) Minnet; (f) Serenade; Violin Solos: (a) Tambourin chinois (Kreisler); (b) The Rosary (Nevin-Kreisler); (c) Vocalise (Rachmaninov); Pieces by Edith Lorand and her Orchestra (on Gramophone Records); (a) Meditation from Thais (Massenet); (b) Serenade No. 1 (Drda); Serenade, Op. 92, for two Violins and Pianoforte (Sinding). 4.10, Programme to be announced. 4.40, Programme for Children. 5.40, Talk for Frisian Children. 6.10, Elementary English Lesson. 6.40, Programme arranged by the Department of Buildings and Roads. 7.10, Police Notes. 7.25, News Bulletin. 7.40, Concert by the Onder-Oms Mandoline Ensemble: Mandolinata-Marsch (Siegsmund); Comedy Overture (Kéler-Béla); Selection from The Bird Fancier (Zeller); The Mill in the Black Forest (Eitelberg, arr. Kollmaneck); Anamitische Zauberer (Siede, arr. Rosenthal); March, Heil Europa (Blon). 8.40, Talk by D. F. Petersen. 9.0, Light Music on Gramophone Records. 9.30, Concert by the Amsterdam March Orchestra, conducted by D. Kiekens: March, Der Tausendkünstler (Blankenburg); Overture, Orpheus in the Underworld (Offenbach); Lotosblumen (Ohlssen); Selection from The Merry Widow (Lehar); Melody (Rubinstein); A Japanese Carnival (de Basque); Suite, Casanova (Beccce); Rustle of Spring (Sinding); Künstlerleben (Joh. Strauss); Selection from The Drum Major's Daughter (Offenbach). 9.50 (in an interval), News. 10.40, Dutch Music on Gramophone Records. 11.10 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 1,875 metres; 8.5 kW.—11.40 till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). 11.40 a.m., Concert by the Little V.A.R.A. Orchestra, conducted by P. Duchant. Soloist: L. Fuld (Songs); Overture, Le Premier Jour de Bonheur (Anber); Im Prater blüh'n wieder die Bäume (Stolz); Das ist Wien und es bleibt immer so (Schrannmetz); Warum liehst du, Mona Lisa (Stolz); Wir kurbeln an (Dostal); Gramophone Records: Besuch bei Lehar (Hrubý); Einfach fabelhaft (Dostal); Country Scene (Reel); Si vous l'aviez compris (Denza); Selection from Wild Violets (Stolz). 1.40, Programme for Women. 2.40, Programme for Children. 5.10, Concert by De Pliereffuiters, conducted by Hugo de Groot. 5.40, Talk. 5.45, Concert (cont.). 6.10, R.V.U. Programme. 6.40, Topical Talk. 7.20, Vocal and Instrumental Concert. Mille L. V. Wijngraarden (Violin), S. Tromp

(Viola), J. Aerts (Cello), and Mme. Rapp-Janowska (Songs); Eastern Serenade (Moritz); Four Jewish Songs; Four Russian Songs. 7.35, S.O.S. Messages. 7.40, Topical Talk. 8.0, Concert by the V.A.R.A. Orchestra, conducted by Hugo de Groot. Soloist: Mme. Rapp-Janowska (Songs); Selection from The Secret Marriage (Cimarosa); Aria from The Barber of Seville (Rossini); Tarantella (Rossini-Respighi); Waltz, Parla (Arditi); Nocelette (d'Ambrosio); Ballet Music from La Gioconda (Ponchielli). 8.40, Extracts from Julius Caesar—Play (Shakespeare). 10.40, News. 10.50, Variety Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBROG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.30 p.m., See Warsaw. 10.0, The Letter Box in French.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres; 40 kW., and HELSINKI, 368.1 metres.—6.5 p.m., Accordion Recital. 6.20, A Dialogue. 6.40, Concert of Light Music: Two Guitars (Horlick); Wenn die Pusztaschweig (Kálmán); Vindolona (Siczynsky); Waltz from The Merry Widow (Lehar); Selection from Countess Maritza (Kálmán); Solomon's Vision (Joyce); Souvenir de Capri (Beccce); Old Comrades (Teike). 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert, conducted by Wolf; Soloist, Martha Heinemann (Mezzo-Soprano); Overture, The Italian Girl in Algiers (Rossini); Ballet Suite from La Source (Delibes); Songs (Jürgens); (a) Das treue Paar; (b) Morgenmüt; (c) Wilde Rosen; Three Songs (Klaus); (a) Erwartung; (b) Verspruch; (c) Die Entführung; Causerie (Gillet); Norwegian Bridal Procession (Grieg); Selection from Scènes pittoresques (Massenet); Waltz, Lotosblumen (Ohlssen); Selection from Das Dorf ohne Glocke (Künneke). 1.0 p.m. (in an interval), News. 1.30, Sponsored Programme with Gramophone Records. 2.30, Exchange and Time Signal. 2.50, Programme for Children. 3.20, Review of Books: Dutch and Flemish Literature. 3.40, Talk: Attempts to discover a Biological Foundation for Education. 4.0, Concert from Frankfurt. 5.20, Talk: Care of Children's Health in Time of Financial Crisis. 5.40, Weather, Time, Exchange, and Sports Notes. 5.55, Talk: Art and the Citizen. 6.20, Talk: Health before Everything—Ten Rules for Keeping Young. 6.35, Talk on the Cocoa Tree. 6.55, First General News. 7.0, See Berlin (Königs Wusterhausen). 8.0, Gala Concert by the Station Orchestra, conducted by Buschföcker: The Brandenburg Concerto No. 3 (Bach); First Symphony in C (Beethoven); Festliches Jubiläum (Fiedler). 9.5, News and Sports Notes. 9.45, Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW.; and DRESDEN, 319 metres.—3.0 p.m., Favourite Children's Programmes during 1932. 4.50, Exchange Quotations. 5.10, Review of Books. 5.35, Italian Lesson. 5.55, Programme to be announced. 6.5, Talk: The Way to an Industrial Unity in Germany. 7.0, Programme relayed from Berlin (Königs Wusterhausen). 8.0, Ludwig Neubeck Concert by the Leipzig Symphony Orchestra and the Leipzig Male Voice Choir, conducted by the Composer; Soloists, Hans Fleischer and Ernst Neubert (Tenor), Philipp Göpel and Karl Kamann (Baritone), Carl Nagel (Bass), and Max Fest (Organ); Der Sieger—Symphonic Song for Orchestra, Op. 8; Deutschland—Poem by Prince von Schönau-Carolath—for Male Voice Choir, Baritone, Eight Solo Voices, Orchestra, and Organ, Op. 24. 9.5, News Bulletin. 9.15 (approx.), Gustav Falke Programme on the Eightieth Anniversary of his Birth: Programme of Literature and Music arranged by Theodor Zenker; Margarete Peiseler-Schmutzler (Soprano), and Hans Lissmann (Tenor). 10.30 (approx.), Close Down.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—4.30 p.m., Readings. 5.0, Quintet Concert. 6.0, Russian Lesson. 6.30, Literary Talk. 7.0, Talk: The History of Slav Music. 7.30, Song Recital. 8.30, Concert, relayed from the Zvezda Café. 9.15, Time and News.

LYONS

LA OOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South East. 8.30, Extracts from Thais—Opera (Massenet), by an Orchestra conducted by Gaston Billet and Soloists. After the Programme, News Bulletin.

MADRID

ARANJUEZ (EAO), 30.43 metres; 20 kW.—7.20 p.m., Tourist Talk; Toledo. 11.30, Variety Music. 11.45, Radio Chronicle. 12 Midnight, Popular Spanish Music. 12.30 a.m. (Thursday), Talk. 12.40, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 9 kW.—7.0 p.m., Chimes, Exchange Quotations, and Request Gramophone Records. 7.30 (in an interval), Agricultural Talk. 8.25, News Bulletin. 8.30 to 9.30, Interval. 9.30 Chimes, Time Signal, and a Play, submitted in connection with the Radio Play Competition. 11.45, News Bulletin. 12 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—5.25 p.m., Violin Sonata in G Minor (Bach), with an Introductory Talk by Jaroslav Celeda. 6.0, See Prague. 7.0, See Zagreb. 10.0 (approx.), Close Down.

MOSCOW

TRAOS UNION, 1,304 metres; 100 kW.—5.30 p.m., Concert from the Radio Theatre. 8.0, Talk in English: Agricultural and Industrial Prospects for 1933. 8.55, Time. 9.5 Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 1.5 kW. Relayd by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—11.45 a.m. (from Nürnberg), Concert by the Franconian Chamber Orchestra, conducted by Markus Rimmleln Overture, Czar and Carpenter (Lortzing); Allegro from the Symphony in B Flat (Mozart); Minnet in E Flat (Bocherlin); Dance Suite from The Bartered Bride (Smetana); Slav Rhapsody in G Minor (Dvorak); Ballet Suite, The Sleeping Beauty (Tchaikovsky); Polonaise in A (Chopin). 1.0 p.m. Time, Weather, Announcements, Exchange and News. 1.20, Sponsored Programme with Gramophone Records. 2.10, Reading for Young People: Vor der Brandung (Hermann Löns); 2.30, Talk: Allotment Gardening. 2.50, Weather and Agricultural Notes. 3.0, Programme for Children. 4.0, See Frankfurt. 5.15, Italian Lesson. 5.35, Talk: The Industrialisation of the World. 5.55, Time, Weather, and Agricultural Notes. 6.5 (from Nürnberg), Talk: Competitive State Examinations for Office Employees. 6.25, Gramophone Concert of Light Music. 7.0, See Berlin (Königs Wusterhausen). 8.0, Das Liebesverbot—Opera (Wagner), Concert Version by the Station Orchestra and Choir. 9.20, Time, Weather, News and Sports Notes. 9.45, See Stuttgart. 11.0 (approx.), Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayd by Fredrikstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres; and Rjukan, 447.1 metres.—5.0 p.m., Announcements, Weather and News. 6.30, Educational Talk: Hindu Culture in Pre-Historic Days. 7.0, Time Signal. 7.1, Concert of Music by Famous Northern Composers, The Station Orchestra, conducted by Johan Ludwig Mowinckel; Ostan Overture (Gade); Second Movement from a Septet for Violin, Viola, Cello, Double Bass, Clarinet, Horn and Bassoon (Berwald); Overture, The Maid of Orleans (Söderman); To Spring (Grieg); Ifio gjett e gjelting (Svendsen); Dance (Nielsen); Finlandia (Sibelius). 8.10, Readings. 8.30, Weather News, and Agricultural Notes. 9.0, Topical Talk. 9.15, Concert of Norwegian Music by the Fossegrenen Choir. 9.45, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tourist Talk, Agricultural Notes, and Giornale Radio. 7.20, Variety Music on Gramophone Records. In the interval at 7.30, Time and Announcements. 7.45, Concert. Soloists: A. Carducci (Tenor) and A. Gazzata (Soprano). Overture, Joan of Arc (Verdi); Tenor Solos: (a) Una volta sola (de Curtis); (b) Mattinata (Leoncavallo); Elegy (Micheli); Soprano Solos: (a) Vorrei morire (Tosti); (b) Talismano (Billi); Talk: Napoli (Charpentier); Soprano Solo from L'elisir d'amore (Donizetti); La penna arroniosa (Piek-Mangialilli); Overture, Piccola (Weber). 9.0, Variety Concert. 9.5, News.

PARIS

EIFFEL TOWER, Call FLE, 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 Paré. 7.20, Weather. 7.30, Poetry Reading. 7.5,

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WEDNESDAY

continued

Programme for Children. 8.15, News. 8.20, Concert by the Symphony Orchestra, conducted by Edouard Flament; Soloist, M. Cantrelle (Violin); The Surprise Symphony (Haydn); Violin Solo, Pastels chantants (Flament) 9.0 (approx.). Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW. 7.0 to 9.0 a.m., Commentary on the Test Match in Australia. 6.45 p.m., Le Journal Parlé. 7.0, Gramophone Concert of Light Music. 8.0, Tourist Talk. 8.20, Exchange. 8.30, Sponsored Concert. 9.0, Interval. 9.10, Chamber Music Concert. 10.10, Concert by the Lido Orchestra, 11.0, News.

PARIS

RADIO PARIS, Call GFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Commentary on the Test Match, relayed from Australia. 8.0, Press Review and Weather. 8.30, Commentary on the Test Match (cont.). 12 Noon, Educational Talk: Physical Influences in Education. 12.15 p.m., Concert by the Radio Paris Orchestra: Selection from Les Mousquetaires au Convent (Varenne-Casadesus). 12.30, Organ Recital from the Gantmont Palace: Overture, La Mascotte (Andran); Riviera Moon (Poll); Selection from The Barber of Seville (Rossini); La Cinquante (Gabriel Marie); Melody. 1.0, Exchange, News and Weather. 1.5, Orchestral Concert (contd.): By Jingo (Finck); Fretillon (Terrasse); Selection from Clo Clo (Lehar); Funiculi-Funicula (de Cecco); Selection from Pepita Jimenez (Albeniz-Letorey). 6.10, Agricultural Talk. 6.30, Market Prices, Weather, and Agricultural Talk. 6.40, German Lesson. 7.0, Medical Talk. 7.20, Concert by the Radio Paris Orchestra: Ballet Music (Bouincontro); Symphonie Legendaire (Godard-Labis); Prelude to Le Clos (Silver). 7.45, Commercial Prices and News. 8.30, News and Weather. 8.40, Fashion Review by Mlle. José. 8.45, Gramophone Concert: Rondino (Beethoven); Malaguna (Nin); Pianoforte Solo, Navarra (Albeniz). 9.0, Concert by the Lamoureux Concert Society, conducted by Yvan Bounnikov, relayed from the Salle Gaveau. Soloist: Julian Karolyi (Pianoforte); Symphony No. 4 (Glazunov); Pianoforte Concerto in E Minor (Chopin); French Suite (Ducasse); Pictures from an Exhibition (Mussorgsky-Ravel). In the interval at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by W2XK on 48.86 metres and 25.27 metres.—9.0 p.m., Work-a-day Thoughts. 9.5, Business News. 9.15, Programme to be announced. 9.30, Weather Report. 9.32, Market Reports. 9.45, Pianoforte Interlude. 9.50, David Lawrence Dispatch. 9.55, KDKA Artist Bulletin. 9.58, Programme Announcements. 10.0, Westinghouse Chefs. 10.15, Dromedary Caravan, from New York. 10.30, The Singing Lady. 10.45, Little Orphan Annie, from New York. 11.0, Time Signal. 11.1, Temperature Report. 11.2, Teaherry Sport Review. 11.7, Press News Reeler. 11.12, Strange Facts. 11.14, Weather Report. 11.15, Johnny Hart in Hollywood, from New York. 11.30, Sheer Romance. 11.45 to 2.30 a.m. (Thursday), New York Relay. 11.45, Today's News, by Lowell Thomas. 12 Midnight, Amos 'n' Andy. 12.15 a.m., Royal Vagabonds. 12.30, Five Star Theatre—Dramatization of Short Stories. 1.0, Eno Crime Club. 1.30, Time Signal and Harriett Lee and her Leaders. 1.45, Country Doctor. 2.0, Adventures of Sherlock Holmes. 2.30, Programme to be announced. 3.0, Alice Joy, from New York. 3.15, Bridge School of the Air, by E. Hall Downes. 3.30, Around the Cracker Barrel. 3.45, Adam McNaughton (Bass). 4.0, Time Signal. 4.1, Teaherry Sport Review. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News Flashes. 4.20, Songs in French Manner by Mlle. Diane Laval. 4.30, Jimmy Joy and his Orchestra. 5.0, College Inn Orchestra. 5.30, Time Signal and Good-night.

PORSGRUND.—See Oslo.

POZNAN

335 metres; 1.9 kW.—6.0 p.m., Miscellaneous Items and Announcements. 6.28, Time. 6.30 to 7.50, See Warsaw. 7.50, Theatre Notes and Programme Announcements. 7.55 to 8.20, See Warsaw. 8.20, Time, Sports Notes and Police Report. 10.30, Dance Music on Gramophone Records. 11.0 (approx.). Close Down.

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., Concert by the Station Orchestra, conducted by Otakar Jeremias: Comedy Overture (Vojacek); Oriental Suite (Grinsky); Symphonic Poem, The Forest Dove, Op. 110 (Dvorak). 4.0, Medical Talk. 4.10, A Marionette Play. 5.5, Agricultural Report. 5.15, Talk for Workers. 5.25, German Transmission: News, Reading for Children, and Talk for Workers. 6.0, News. 6.5, Concert by the Komensky Society Brass Band, conducted by E. Suvva. 7.0, See Zagreb. In the intervals at 8.0 and 9.0, Time Signal. 10.0 (approx.). Close Down.

RADIO-SUISSE ROMANDE

80TTENS, 403 metres; 25 kW.; LAUSANNE, 680 metres, and GENEVA, 760 metres.—

5.0 p.m. (from Geneva). Programme for Children. 6.0 (from Lausanne), Weather, News and Announcements. 6.30 (from Lausanne), Talk on Vine Culture. 7.0 (from Lausanne), Song Recital with Reading of Poems in the interval. 7.45, Concert by the Station Orchestra. 9.0, News Bulletin and Weather Forecast. 9.10 (from Lausanne), Dance Music, relayed from the Bel Air Metropole. 10.0 (approx.). Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.5 p.m., Concert. 8.30, Weather. 8.40, Music and Announcements. 9.0, Chimes and News. 9.30, Reading. 10.0, Acts One and Two of Carmen—Opera (Bizet).

RIGA

525 metres; 15 kW.—6.10 p.m., Symphony Concert: Third Symphony, Op. 51 (Bruch); Concerto in D for Violin (Faganini); Prelude to Der Musikant (Bittner); Symphonic Poem, Viviane (Chausson); Overture, The Mastersingers (Wagner). In an interval at 7.0, News, and at 8.0, Weather Report. 8.30, Dance Music. 9.0 (approx.). Close Down.

RJUKAN.—See Oslo.

ROME

Call 1RO, 441 metres; 50 kW. Relayed by Naples, 319 metres; and 2RO, 25.4 metres.—7.15 to 7.30 a.m., Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.30 p.m., Orchestral Concert. In the interval at 12.30, Giornale Radio and Exchange. 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.30 to 5.15, Concert: Selection from Wienerbrut (Joh. Strauss); Serenade (Bullerian); Selection from Lodoletta (Mascagni); Potpourri, Daubiana (Rotter); I pastori (Pizzetti); Selection from Nina Rosa (Romberg); Carillon (Ljadov); Sally (di Gramo). 6.10, (Naples), Shipping and Sports Notes. 6.15, Agricultural Report, Announcements and Giornale Radio. 7.0, Time, Announcements and Light Music on Gramophone Records. 7.15, Medical Talk. 7.30, Sports Notes and Tourist Report. 7.45, Relay from a Theatre. In the intervals: Reading and Announcements. News after the Programme.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres, and by W2XAD on 19.56 metres.—7.30 to 11.0 p.m., New York Relay. 7.30, Westminster Choir. 10.15, Paul Wing, the Story Man. 10.30, The Flying Family 10.45, Adventures of the Safety Soldiers. 11.0, Ma Frasier's Boarding House. 11.15, Health Talk. 11.20, Studio Ensemble. 11.30, New York State Educational Series. 11.45, Chaudi, the Magician. 12 Midnight, Stock Reports. 12.15 to 2.0 a.m. (Thursday), New York Relay. 12.15 a.m., Wheatena Ville. 12.30, Ralph Kirby (Baritone). 12.45, The Goldbergs. 1.0, Standard Brands Programme. 1.30, The Shadow. 2.0, Annette Mc'Dullough (Crooner) and Steve Boisclair (Organist). 2.15, Three Shades of Blue. 2.30, First Prize Supper Club. 3.0, Miniature Theatre, from New York.

SCHWEIZERISCHER LANDESENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASLE**, 244.1 metres; and **BERNE**, 245.9 metres.—11.28 a.m., Time Signal from Nenehlet Observatory. 11.30, Weather and News. 11.40, Concert of Light Music on Gramophone Records. 12.35 to 12.40 p.m., Weather and Exchange. 2.30, Concert by the Little Radio Orchestra. 3.30 (from Zurich), Programme for Children. 4.0, Variety Music on Gramophone Records. 4.30 to 4.35, Weather. 5.30 (from Zurich), Talk: The School's Task in Society. 6.0, Time, Weather and Market Prices. 6.15 (from Zurich), Conrad Beck Concert by the Radio Orchestra, conducted by Hermann Hoffmann. Soloists: Walter Frey (Pianoforte), Walter Kägi (Violin), and Marcel Salliet (Oboe). 8.30, Weather and News. 8.40, Concert of Light Music by the Radio Orchestra. 9.15 (approx.). Close Down.

SEVILLE

Call EAJS, 368.1 metres; 1.5 kW.—Transmits at intervals from 8.30 a.m. 2.0 to 3.0 p.m., Concert by the Station Orchestra: Pasodoble; Alfredo Corrochano (Gosalbes-Jimenez); Rondalla aragonesa (Granados); Selection from Los Flamencos (Vives); Suite, Jeux d'enfants (Bizet); Dance Music. 9.0, Concert. Part I: Songs. Part II: Orchestral Music. Part III: Dance Music. In the interval, News, Exchange, Market Prices and Weather. 11.0 (approx.). Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—4.5 p.m., Programme for Children. 4.25, Folk Music. 4.45, The Practical Corner. 5.0, Variety Music on Gramophone Records. 5.45 (from Östersund), Talk. 6.15, Weather and News. 6.30, A Gramophone Cabaret. 7.15, An American Tragedy (T. Dreiser), dramatised by Patrick Kearney. 8.45, Weather and News. 9.0, Dance Music by the Enders Orchestra, relayed from the Bern Hall. 10.0 (approx.). Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Gramophone Concert: Preludes from the First and Third Act of Carmen (Bizet); Les locufs (Dupont); La chanson des bleds d'or (Souhise); Overture, Poet and Peasant (Suppe); Songs (Grieg); (a) Solveig's Song, (b) Au den Frühling; Selection from Madame Butterfly (Puccini); Melody from Les Saltimbanques (Ganne); Air from Veronique (Messager); Airs (Delibes): (a) Melody from Coppelia, (b) Melody from Sylvia; Air from Les Dragons de Villars (Mailart); Le cygne (Saint-Saens); Clair de Lune from Werther (Massenet); Selection from Miss Decima (Andran). 12.45 p.m., News. 1.0, Time and Exchange. 1.10, Quintet Concert, relayed from Bordeaux-Lafayette. 1.50 to 4.45, Interval. 4.45, Talk in French on Electricity. 5.0, Concert of Jazz Music. Conductor: M. Roskam. 6.0, Trio Concert, relayed from Lille (265.4 metres). 7.0, Talk in German: French Civilisation. 7.15, Legal Talk in French: The Napoleonic Laws. 7.30, Time and News. 7.45, See Paris (Eiffel Tower). 8.15, Lottery Results, Announcements and Variety Music on Gramophone Records. 8.30, Second Concert by the Conservatoire Concert Society, relayed from the Municipal Theatre, Metz. Conductor: René Delannay. Soloist: Mme. Marcelli-Herson (Cello). Overture, Carnival Roman (Berlioz); Concerto for Cello (Karjensky); Selection from The Magic Flute (Mozart); Orchestral Suite, Soirs d'Afrique (F. Coels); Scene from Parsifal (Wagner); Music for Hamlet (F. Coels); Cello Solos: (a) Kol Nidrei (Bruch), (b) Baccarolle (Bachelet), (c) Petite histoire (Bachelet), (d) La source (Davidov); Overture, Gwendoline (Chabrier). 11.0, Concert, conducted by Henri Tomasi, relayed from Radio Coloniale (Paris) (25.63 metres): Siegfried Idyll (Wagner); Overture to an Imaginary Opera (Rivier); Petite Suite (Debussy); Scenes municipales (Tomasi).

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG**, 570 metres.—11.0 a.m., Tchaikovsky, Concert on Gramophone Records. 12.15 p.m., Time, News, Weather and Programme Announcements. 12.30, Concert from Langenberg. 1.0, Sponsored Programme with Gramophone Records. 3.0, Programme for Children: With the Microphone in Ebingen. 4.0, See Frankfurt. 5.15, Time, Weather and Agricultural Notes. 5.25, Travel Talk: Naples. 5.50, Time and News. 6.0, Songs by Carruso on Gramophone Records. 6.35 (from Mannheim), Concert by the Rheingold Mandoline Quartet. Poesia alpestre (Simon Salvetti); Descriptive Piece, Aschenbrödel's Brautzing (Dieker); March, Amazonenritt (Theodor Ritter). 7.0, See Berlin (Königs Wusterhausen). 8.0, Johannes Brahms Concert—Chamber Music and Songs, by Bruno Müller (Baritone), Hermann Busch (Cello), Franz Konwitschny (Pianoforte), and Otto Seyfert (Pianoforte). Heimweh—Trilogie (from the Text by Klaus Groth): (a) Wie traulich war das Fleckchen, (b) O wüsst ich doch den Weg zurück, (c) Ich sah als Knabe Blumenblüht; Sonata in E Minor for Cello and Pianoforte, Op. 36; From the Magelone-liedern (Text by Ludwig Tieck): (a) Traum! Bogen und Pfeil sind gut für den Feind, (b) Ruhe süß, Liebchen. 8.40, Max Halbe reads from his own Works. 9.0, Time, Weather, News, and Programme Announcements. 9.45, Concert by the Dance Ensemble of the Stuttgart Philharmonic Orchestra. 11.0 (approx.). Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0 p.m., News Bulletin. 6.15, Opera and Opéra-Comique Music: Two Airs from Les Brigands (Offenbach); Recitative and Cavatina from Figaro (Mozart); Aria from Manon (Massenet). 6.30, Symphonic Poem, Psyche (César Franck). 6.45, Concert: Clarinet Solo: Caprice Polka (Manau); Pianoforte Solo: Impromptu No. 1 (Chopin); Cello Solo: La Cinquante (Marie); Violin Solo: Spanish Dance (Granados); Minuet from the Quartet in D Minor (Mozart); Chanson triste (Tchaikovsky). In an interval, Talk. 7.15, News, Racing Results and Market Prices. 7.25, Local News Bulletin. 7.30, Dance Music. 7.45, Extracts from Sound Films: Song from Madame Pom-

padour (Fall); Melody from The Love Parade (Schertzing); Waltz from Two Hearts and a Waltz Refrain (Stolz); Nous sommes seuls, from Le Million (Parès and Van Parys). 8.0, Music by a Viennese Orchestra: The Debutante (Doinque); Nachtligall in Fliederbusch (Klose); Dream of Love after the Ball (Czibulka). 8.15, Operetta Music: Air from Robert the Pirate (Romberg); Melody from Gillette de Narbonne (Audran); Melody from Enjevez-moi (Gabaroche). 8.30, Accordion Music. 8.45, Popular Melodies. 9.0, Gala Concert by the Society La Palladienne, conducted by M. Canteys. In the intervals, Light Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco. 11.0, Request Concert. 11.30, Programme in English by the I.B.C.: Choral Concert: Grand Opera Favourites; Selection from The Maid of the Mountains; Duet: Marigold; Song of the Dawn; Ol' Man River; Selection from Bitter Sweet. 12 Midnight, Weather Forecast and Announcements. 12.5 a.m. (Thursday), Fourth Concerto in G (Beethoven). 12.30 (approx.). Close Down.

TRIESTE

247.7 metres; 10 kW.—6.0 p.m. till Close Down. See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayed by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—6.0 p.m., Concert of Popular Music on Gramophone Records. In the intervals at 6.25, Tourist Report, and at 6.30, Time and News. 7.0, Giornale Radio and Weather, followed by Variety Music on Gramophone Records. 7.30, A Comedy in Three Acts. After the Comedy, Dance Music. 10.0, Giornale Radio.

VATICAN CITY

19.84 metres (Morning), and 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

517 metres; 15 kW. Relayed by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218 metres.—4.0 p.m., Concert by the Edi Seidl Orchestra: Overture, Stradella (Flotow); Fantasia on Negro Spirituals (Foulds); Third Small Suite (de Michelis); Loin du bal (Gillet); Dance of the Hours from La Gioconda (Ponchielli); Slav Rhapsody No. 2 (Friedemann); Waltz from The Count of Luxemburg (Lehar); March (Ketybey). 5.10, Health Talk. 5.35, Talk for Workers. 6.0, Talk on Physics. 6.25, Time, Weather, and Programme Announcements. 6.35, Christus—Oratorio (Liszt), by the Anton Bruckner Orchestra, Two Choirs, and Soloists. 8.35, News, Weather, and Announcements. 8.50, Concert by the Julius Hermann Orchestra: March, Wien bleibst Wien (Schrammel); Selection from Iolanthe (Tchaikovsky); Waltz, Banter Madln (Kornzak); Les Millions d'Arlequin (Drige); Wedgewood Blue (Ketybey); Potpourri, Das Beste vom Besten (Dostal); Two Melodies (Kalmay); (a) Willst du nicht was Liebes mir sagen?, (b) Mulatsäg; Selection from Polenbut (Nedbal); Waltz, Junge Mädchen tanzen gern (Eysler); Polka, Leichtes Blut (Joh. Strauss).

WARSAW

1,411 metres; 120 kW.—10.40 a.m., Press Review. 10.50, Weather Report for Aviation. 10.58, Time Signal and Bugle Call from St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Light Music on Gramophone Records. 12.20 p.m., Weather Forecast. 12.25 to 2.10, Interval. 2.10, Announcements. 2.30, Boy Scouts' Report. 2.35, Programme for Children. 3.0, Popular Music on Gramophone Records. 3.40, Talk: Books to read and how to read them. 4.0, Talk for Music Teachers. 4.15, Announcements. 4.20, Light Music on Gramophone Records. 4.40, Talk: The Study and its Importance to the Intellectual Worker. 5.0, Light Music, relayed from the Adria Dance Hall. In the interval, Topical Talk. 6.0, Miscellaneous Items. 6.20, Agricultural Report. 6.30, Talk: Literature and Journalism. 6.45, Radio Journal. 7.0, Orchestral Concert of Polish Folk Music and Dance Music. 7.50, Sports Notes. 7.55, Radio Journal. 8.0, Pianoforte Recital by Joseph Turczynski: Four Sonatas (Scarlatti): (a) in D, (b) in G Minor, (c) in G, (d) in D; Sonata in E Flat, Op. 31 (Beethoven); Nocturne, Op. 36, No. 4 (Fauré); Baccarolle, No. 2 (Fauré); Scherzo Valse (Chabrier); Four Pieces (Debussy): (a) Jardins sous la pluie, (b) Bruyères, (c) La Sérénade interrompue, (d) L'Isle Joyeuse. 9.0, Topical Talk. 9.15, Dance Music, relayed from the Café Italia. 9.40, Talk in French: Wilno. 9.55, Weather Forecast and Police Notes. 10.0, Dance Music from the Bodega.

ZAGREB

307 metres; 0.75 kW.—6.50 p.m., Introductory Talk on the following Transmission. 7.0, Strizeno-Koseno — (Sheared-Shorn) — opera in Three Acts (Baranovic). In the intervals, News, Weather, and Snow Report.

ZURICH.—See Schweizerischer Landessender.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—6.0 p.m., Trio Concert: Nocturne, El caballero sin nombre (Granados); Scherzo andaluz (Breton); Serenata (Busquets); Selection from La verbena de la paloma (Breton); Cantares (Esteve); Selection from El Barberillo Lavapiés (Barbieri). 7.0, Request Gramophone Concert. 7.30, Exchange Quotations and Programme for Women. 8.0, Popular Music on Gramophone Records and News Bulletin. 9.0, Chimes from the Cathedral, Weather Forecast, Exchange Quotations and Market Prices. 9.5, Part Relay of an Opera from the Gran Teatro del Liceo. 11.0 (in an interval), News Bulletin. 12 Midnight (approx.), Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Notes, Tourist Talk and Announcements. 7.20, Giornale Radio and Weather Forecast. 7.30, Time Signal and Announcements. 7.35 (approx.), Military Band Concert, conducted by Salvatore Rubino: March, Op. 76, No. 4 (Schumann-Vessella); Overture, The Thieving Magpie (Rossini-Vessella); Selection from The Pearl Fishers (Bizet); Air from Il Piccolo Marat (Mascagni-Rubino); Overture, Le Carnaval romain (Berlioz-Rubino). In the Interval, Film Notes. 9.30, Concert, relayed from the Gran Caffè del Levante. 9.55, News Bulletin.

BASLE.—See Schweizerischer Landessender.

BELGRADE

430.4 metres, 2.8 kW.—4.0 p.m., Popular Music on Gramophone Records. 5.55, Time and Programme Announcements. 6.30, Popular Music on Gramophone Records. 7.0, Opera Music, relayed from Ljubljana (574 metres). 9.0, Dance Music, relayed from the Gradjevinska Kasina Restaurant.

BERLIN

KÖNIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.0 a.m., Weather for Farmers. 11.5, New Music on Gramophone Records, followed by Second Weather for Farmers. 11.55, Time Signal. 12.35 p.m., News. 1.0, Gramophone Concert of Sound Film Music, relayed from Berlin (Witzleben). 2.0, Musical Programme for Children. 2.30, Weather and Exchange. 2.45, Reading from Das Schatzkästlein (Jos. Peter). 3.0, Talk for Women. 3.30, Concert, relayed from Berlin (Witzleben). 4.10, Talk: The Sixtieth Birthday of Werner Sombart. 4.30, Recital of Old Music by Anita Lemmert: Pavane, Chanson Louis XIII (Couperin); Aubade provençale (Couperin); Allegretto (Boccherini); Scherzo (Dittersdorf); Minuet (Martini); Minuet (Haydn); Reigen (Schubert); Old Dance (Dussek). 5.0, Reading of a Poem Alfred (Mombert). 5.25, Old Lute Music. 5.55, Weather for Farmers and Announcements. 6.0, German for Germans. 6.20, Introductory Talk to the 7.0 p.m. Transmission. 6.30, A Poem. 6.35, Agricultural Talk. 7.0, See Hamburg. 8.15, Song Recital by Max Hartmann: Songs (Schubert); (a) Lied eines Schiffers an die Dioskuren, (b) Schäfers Klage, (c) Dass sie hier gewesen, (d) Geheimes, (e) Der Musenlocher; Songs (H. Wolf); (a) Wohl deck ich oft, (b) Wer nie sein Brot, (c) Anakreons Grab, (d) Begegnung, (e) Füsse; Songs (Schumann); (a) Frühlingsfahrt, (b) Die beiden Grenadiere, (c) Freisinn. 9.10, Weather, News and Sports Notes. 9.45, Weather Report for Shipping, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN; 419.5 metres; 1.5 kW.—3.30 p.m., Concert by the Berlin Wireless Orchestra, conducted by Paul Scheinpflug: Overture to a Comedy by Shakespeare, Op. 15 (Paul Scheinpflug); Introduction and Gavotte from the Romantic Ballet Suite, Op. 46a (August Reuss); Festmisch for Full Orchestra (Tcherepnin); Soprano Solos: (a) Marietta's Song from Die tote Stadt (Korngold), (b) Rusalka's Song to the Moon from Rusalka (Dvorak); Theme with Variations from the Third Suite (Tchaikovsky). 4.30, A Sculptor Talks about his Art. 4.50, Topical Talk. 5.10, Viennese Folk Music by the Dietrich Schrammel Quartet. 5.30, Talk: Five Different Styles of Singing—the Operatic, Oratorio, Concert, Cabaret and Lied (with Gramophone Illustration). 5.55, The Witzleben Station informs its Listeners. . . 6.0, Topical Talk. 6.10, Five People travel round the World—III. In the Desert. 6.40, Concert of Light Music by Bernhard Dersken and his Band: Overture, The Grand Duchess of Gerolstein (Offenbach); Humoresque, Harlequinade (Evans); Soprano Solos: (a) Song from Where the Lark Sings, (b) Song from The Blue Mazurka (Lehar); Valse des brunes (Ganne); Selection from Gasparone (Millöcker); Soprano Solos: Songs from Frasquita (Lehar), (b) Song from Frederica (Lehar); Boston, Erste Liebe (Lehar); Selection from an Operetta (Millöcker). 7.45, Gallische Hörner—Radio Play (Count d'Haussonville and Ludwig von Wohl). 9.0, Weather, News and Sports Notes, followed by Dance Music from the Charity Ball of the International Association of Variety and Circus Directors in the Krollfestspiel. 11.0 (also relayed by Zeesen on 31.38 metres), Foundation of the Reich Anniversary Celebrations by the Berlin Wireless Orchestra, conducted by Eugen Jochum,

THURSDAY

JANUARY THE NINETEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL

Organ music. Orchestral concert. Mr. Desmond MacCarthy: "The Art of Reading." Vaudeville programme. "Leaders in Other Lands," a talk. String orchestral concert. Dance music.

LONDON REGIONAL

National programme. Orchestral concert. Chamber music concert. Orchestral programme. Hallé concert, from the Free Trade Hall, Manchester.

MIDLAND REGIONAL

Warwickshire vaudeville stars. "Mass Car Production," a talk by Sir Herbert Austin, with an explanation of building processes by C. R. F. Englebach. Organ recital, from the Town Hall, Birmingham, on the occasion of the formal re-opening of the organ, with introductory remarks by the Lord Mayor of Birmingham. Song Recital of works by Hubert Brown. Vignettes of Variety, No. 5, Birmingham Music Hall Memories.

NORTH REGIONAL

Hallé concert, from the Free Trade Hall, Manchester. London Regional programme. Dance music.

WEST REGIONAL

National programme. Chamber music. "Putting Scotland's House in Order" (2). The Rev. David Macqueen: The Church, National programme.

SCOTTISH REGIONAL

BELFAST

ABROAD

COPENHAGEN HUIZEN

Polish music by the Radio Symphony Orchestra. The Concertgebouw Orchestra relayed from Amsterdam.

PALERMO ROME

Concert of operetta music. Symphony concert, conducted by R. Santarelli,

and the Berlin Wireless Choir, conducted by Maximilian Albrecht.

BERNE.—See Schweizerischer Landessender.

BEROMUNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BORDEAUX-LAFAYETTE

304 metres, 13 kW.—7.30 p.m., News and Exchange Quotations. 7.40, Talk arranged by the International Labour Bureau. 7.55, Lottery and Charade Results. 8.0, Talk on Wines. 8.15, News Bulletin. 8.30, The Polish Jew—Play in Three Acts (Chatrian). Musical Interludes by a String Quintet.

BRATISLAVA

279 metres; 14 kW.—6.5 p.m., Music Review. 6.20, Light Music on Gramophone Records. 6.25, See Prague. 6.40, Sketch (Hruska). 7.0, See Moravska-Ostava. 8.0, See Prague. 10.0 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres; 60 kW; and GLEIWITZ, 253 metres.—10.50 a.m., Concert by the Little Silesian Philharmonic Orchestra, conducted by Hermann Behr: Ballet Music from Faust (Gounod); Two Melodies (Grieg); Waltz, Abendsterne (Lanner); Overture, Der Opernball (Heuberger); Selection from The Geisha (Jones); Puppenwalzer from Die Puppenfee (Bayer); Polka, Tiek-Tack (Joh. Strauss). 12.10 p.m., Weather for Farmers. 12.15 (approx.), Concert by the Little Silesian Philharmonic Orchestra, conducted by Hermann Behr: Erzherzog Albrecht Marsch (Kornzak); Overture, Gasparone (Millöcker); Waltz, Am himmelblauen See (Millöcker); Spanish Dances (Moszkowsky). 12.45, Time, Weather, News and Exchange. 1.5, Gramophone Concert of Violin Solos by Edith Lorand: Classical Dances in Modern Style: Ein Walzer-Redoute (Hildebrandt); Gavotte (Rameau); Meditation from Thaïs (Massenet); Schön Rosmarin (Kreisler); Perpetuum mobile (Joh. Strauss); Rondo from the Hafner Serenade (Mozart); Waltz Fantasia from Der Rosenkavalier (R. Strauss). 1.45, Sponsored Programme with Gramophone Records. 2.10, Agricultural Prices and Exchange. 2.40, Talk: Week-ends in the Winter. 2.50, Book Review: French Novels. 3.10, Concert by the Radio Orchestra, conducted by Bruno Janz: Overture, Nordische Sennfahrt (Gade); Selection from Mareike von Nymwegen (d'Albert); Rattelf's Dream, from William Rattelf (Mascagni); Slav Rhapsody (Friedmann); Suite, An Evening in St. Petersburg (Meyer-Helmund); Selection from Bocaccio (Suppé-Weyinger); Barcarolle from Sylvia (Delibes); March, Unter dem Grillenbanner (Lindemann). 4.35, Agriculture Market

Tempo Tempo (Dostal); Carnaval de Venise (Gemin); By the Swanee River (Myddleton); Potpourri, Fortissimo (Kalmah). 8.4, Political Talk. 9.0, Concert by the Radio Orchestra, conducted by M. Franz André: March, Stars and Stripes (Souza); The Mill in the Black Forest (Eilenberg); Selection from Paganini (Lehar); Songs for Baritone; Potpourri, Ripe Fruit (Morena); Ballet Music from The Fair Maid of Perth (Bizet); Esquisses Flamandes (Brussemans). 10.0, Le Journal Parlé. 10.10, Gramophone Concert: Jazz Paraphrase on the Overture to Orpheus in the Underworld (Offenbach); Mazurka (Neruda); Spring Song (Mendelssohn, arr. Salabert); La Rose Noire (Aubry); Cello Solo: Le Nil (Leroux); The Ballet is playing (Blauw); Overture and Ballet Music from Les Aventures du Roi Pausole (Honegger); Song of the Hours (Xavier Privas); Serenade, Blonde amie (Carcel); Sous la Feuillée (Thomé); Overture, Poet and Peasant (Suppé); Radetzky March (Joh. Strauss). 11.0 (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish. 12 Noon, Gramophone Concert: March of the Thirtieth Regiment of the Line (Goebel); Foxtrot, Southern Lullaby (Fontaine); Addio a Napoli (Cottrau); Polka, Cristalline (Biemant); Selection from La belle Hélène (Offenbach); Overture for Guitar, Norma (Bellini); Waltz, Hawaiian Rose (Berlin); Polka, Kreuz; Waltz, Plattreger (Jos. Strauss); Capriccio (Vinas); Melody (Faulwetter); Suite, Scènes Alsaciennes (Massenet). 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Berliner Luft (Lincke); Fête florentine (Mignan); Berceuse (d'Ambrosio); Selection from La fille de Madame Angot (Lecocq); Waltz, Liebe kommt einmal von irgendwo her (Künneke); Russian Fantasia (Doullez). 5.0, Gramophone Records, with commentary by S. De Jonghe: Les Préludes (Liszt); Ein Heldenleben (R. Strauss). 6.0, Gramophone Concert: Sonata for Violin and Piano (Debussy); Minstrels (Debussy); Nursery Suite (Elgar). 6.30, Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, A Summer Night in Madrid (Glinka); Suite, Woodland Pictures (Fletchen); Appassionato (Kalkman); Three Airs from Marouf (Rabaud); Russian Dance No. 2 (Bullérian); Berceuse (Ippolitov-Ivanov); Czardas, My Sweetheart (Gabriel-Marie). 7.15, Talk. 7.30, Le Journal Parlé. 8.0, The Little Dutch Girl—Operetta (Kalmah), relayed from the Folies Bergères Theatre. In the intervals, Recitations and Le Journal Parlé.

BUCHAREST

394 metres; 12 kW.—4.0 p.m., Concert of Light Music and Romanian Music by the Dinico Orchestra. 5.0, Time Signal. 5.10, Talk. 5.25, Orchestral Concert (cont'd). 6.0, Educational Talk: Romania's Rural Origins. 6.40, An Opera. News in the interval.

BUDAPEST

550 metres; 18.5 kW. Programme also relayed on 840 metres from 6.15 p.m. till close Down. 4.30 p.m., Concert of Sacred Music. 5.45, English Lesson. 6.15, A Comedy in Three Acts (John van Druten). 7.45, Talk: The Influence of Hungarian Folk Music on the Music of other Nations, with Illustrations. 8.30, Concert by the Imre Magyar Cigány Band from the Hotel Hungaria. 9.0, News, Weather and Racing Results. 9.10, Talk arranged by the Hungarian Boy Scouts' Organisation. 10.0, Dance Music on Gramophone Records.

CASSEL.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW; and KALUNDBORG, 1,153 metres; 7.5 kW.—11.0 a.m. to 1.0 p.m., Concert from the Hotel d'Angleterre. 2.0, Reading. 2.20, Orchestral Concert, conducted by Teddy Petersen, relayed from the Wivex Restaurant. 3.40, Programme for Boys. 4.40, Exchange and Market Prices. 4.50 (from the Randers Studio), Talk. 5.0, English Lesson. 5.50, Weather Report. 6.0, News Bulletin. 6.15, Time Signal. 6.6, Talk: Questions of Population. 6.45, Danish Lesson. 7.10, Concert of Polish Music, relayed from the State Broadcasting Buildings. The Radio Symphony Orchestra, conducted by Gregor Fitelberg, of Warsaw. Soloists: Viktor Schioler and K. Szymanovsky (Pianoforte); Symphonic Poem, Three Eternal Songs (Karłowicz); Sinfonietta (Perkowski); Pianoforte Concerto No. 2 in A Minor, Op. 21 (Chopin); The Fourth Symphony (Szymanovsky); with the Composer at the Pianoforte. 9.15, News Bulletin. 9.30, Reading. 9.50, Dance Music from the National Scala. 11.0 (in an interval), Town Hall Chimes. 11.30 (approx.), Close Down.

CORK.—See Dublin.

CRACOW

312.8 metres; 1.5 kW.—6.0 p.m., Miscellaneous Items and Announcements. 6.15, Talk on Curiosities. 6.30, See Warsaw. 7.0, Jewish Song Recital by M. Leon Schächter. 8.0, Concert relayed from the Pavilion Restaurant. 11.0, Bugle Call relayed from St. Mary's Church.

DANZIG.—See Hellsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN, 413 metres; 1.2 kW., and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. 5.0, Popular Music on Gramophone Records. 6.15, Programme for Children. 7.0, Light Music on Gramophone Records. 7.10, Dublin Cattle Market Report. 7.20, News Bulletin. 7.30, Time Signal. 7.31, French Lesson. 7.45, Literary and Dramatic Talk. 8.0, Chamber Music. 8.30, The Council of Three Sketch by Elizabeth Young and Company. 9.0, The Station Sextet. 9.20, Baritone Solos by J. McCafferty. 9.40, The Station Sextet. 10.0, Dance Music on Gramophone Records. 10.30, Time Signal, News, Weather Report and Close Down.

FECAMP

223 metres; 10 kW.—12.0 Noon, Light Music on Gramophone Records. 12.30 p.m., News Bulletin. 12.45, Programme for Children. 7.0, Local News. 7.15, Popular Music on Gramophone Records. 7.30, Radio Gazette. 8.0, News Bulletin. 8.15, Talk. 8.30, Concert relayed from the Town Hall, Rouen. 10.0 till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: I'm following you; The Web of Love; I'm still at your Beck and Call; Live in the Sunlight, lovin' in the Moonlight; Paris; What good am I without you? One little drink; Falling in love again; Parisienne Doll; With you; The Woman in the Shoe; Steppin' along; I may be wrong; Just at the Hour of Adoration; Do something; I'll be reminded of you. 11.0, Light Orchestral Music: Russian Waltz Medley; Around the Volga (Borchert); Selection from The King of Jazz (arr. Somers); Hits of all Countries (arr. Connelly); Selection from Wonder Bar (Fardas). 11.30, Songs from Sound Films: Until Love came along (Levant); Rebels are out (Timbridge); Great Day (Youmans); Orchestra: Selection from Splinters (Gibbons); The Song of the Flame (Hammerstein); Dancing with the Devil (Towers); The March of the Musketeers (Friml). 12.0 Midnight, Philco Concert: The Sun has got his hat on; Same Old Moon; I've gone and lost my little Yo-Yo; The Old Kitchen Kettle; Singing in the Moonlight; Through that Open Window; The Gag Song; At Eventide. 12.30 a.m. (Sunday), Popular Songs: Every Little Girl he sees (Aks); Great Day (Youmans); Little Sunshine (Mitchell); Orchestra: Happy Interludes (arr. Pether); To-morrow is another Day (Green); Sunshine won't you shine for me? (Slapiro); When you were my Sweetheart (Gilbert); Orchestra: The Rhapsickers' Party (arr. Griffiths). 1.0, Chamber Music by the Chatsworth Octet; Serenade (Schubert); Violin Solos: (a) Cavatina (Raff); (b) Softly awakes my Heart (Saint-Saëns); (c) Tambourin Chinois (Kreisler); Intermezzo from Cavalleria Rusticana (Massagni); Violin Solos: (a) Meditation (Massenet); (b) Larghetto (Weber); Barcarolle from The Tales of Hoffmann (Offenbach). 1.30, Light Orchestral and Vocal Concert: Baci al buio (de Micheli); Songs: (a) You didn't have to tell me; (b) If the World belonged to me; Lullaby (Rosetti); Star of Love (Ponce); Songs: (a) Got the Bench, got the Park; (b) Could I be happy? Long Ago (Elliott). 2.0, Dance Music: Lovable; Put that Sun Back in the Sky; Sailing on the Robert E. Lee; There's another Empty Saddle; Love, you Funny Thing; Too many Tears; Listen to the German Band; Is I in love? I is; When we're alone; Where's Bill Bailey? Gettin' sentimental; Can't we talk it over? I got Rhythm; We all wanna know why; A Great Big Bunch of you; Wherever you are. 2.57, I.B.C. Goodnight Melody. 3.0 (approx.). Close down.

FLensburg.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW.; and CASSEL, 245.9 metres.—4.0 p.m., See Stuttgart. 5.15, Economic Notes. 5.25, Topical Talk. 5.50, Educational Talk. 6.15, Time, Programme Announcements, Weather, and Economic Notes. 6.20, Talk: News from all Parts. 6.30, Concert by the Station Orchestra, conducted by Walter Caspar: Selection from (a) Die Fahrt ins Glück (Gilbert); (b) Bruder Straubinger (Eysler); (c) Der liebe Augustin (Fall); (d) Die Zigeunerprimas (Kalmán); Berlin tanz (Kollo). 7.35, Concert in B flat for Cello and Orchestra (Bocherini). 8.0, See Hellsberg. 9.0, Time, News, Weather, and Sports Notes. 9.15, Bahms Song and Pianoforte Recital by Frau Nohold (Paritone): Songs: (a) Wehe, so willst du mich wieder, Op. 32, No. 5; (b) Es liebt sich so lieblich im Lenze, Op. 71, No. 1; (c) Heimkehr, Op. 7, No. 6; (d) Bei dir sind meine Gedanken, Op. 95, No. 2; (e) Ich sah alle Knabe Blumen blühen, Op. 63, No. 4; Pianoforte Solos: (a) Ballad, Op. 10, No. 9; (b) Capriccio, Op. 76, No. 5; (c) Intermezzo, Op. 116, No. 6; (d) Scherzo, Op. 4; Songs: (a) Unbewegte laue Luft, Op. 57, No. 8; (b) Komm bald, Op. 95, No. 5; (c) Von waldbekränzter Höhe, Op. 57, No. 1; (d) Tambourliedchen, Op. 69, No. 5. 10.0 (approx.), Close Down.

JAN. 19th

THURSDAY

continued

FREDRIKSSTAD.—See Oslo.

Freiburg.—See Stuttgart.

GENEVA.—See Radio-Suisse Romande.

GENOA.—See Turin.

GLEIWITZ.—See Breslau.

GÖTEBORG.—See Stockholm.

GRAZ.—See Vienna.

HAMAR.—See Oslo.

HAMBURG

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 227.4 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—3.30 p.m., See Hellsberg. 4.30, Sociological Review. 4.45 (from Bremen), Talk: Popular Art in Oldenburg. 5.0, Variety Programme. 5.55, Exchange. 6.0, Talk: The Institute of Tropical Diseases and its Aims. 6.25, Weather. 6.30, Johannes Vilhelm Jensen, the Danish Novelist. An Appreciation and Reading from his Works for his Sixtieth Birthday. 7.0, Der blaue Boll—Drama (Ernst Barlach), with Heinrich George in the chief rôle. 8.15, Concert of Music by Karl Marx by the Norag Orchestra. Conductor: Horst Platen. Soloist: Johannes Strauss (Pianoforte); Passaglia, Op. 19, for Orchestra; Pianoforte Concerto, Op. 9. 9.0, Time, Weather, Political Announcements, Sports Notes, and Police Report. 9.20, Topical Talk. 9.30, Dance Music. In an interval at 10.20, See Report.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW., and DANZIG, 453.2 metres.—12.5 p.m., Gramophone Concert: Selection from Countess Maritza (Kálmán); Selection from Wiener Blut (Joh. Strauss); Mozart Potpourri; Two Songs from La Fohème (Puccini); Souvenir (Drda); Berceuse (Godard); Eine Walzer-Redoute (Hildebrandt); Hüftern in der Nacht (Suessel); A Spanish Song (Klein); Selection from Die Fledermaus (Joh. Strauss); Hümmter (Kuntermann); Landsknechtstänchen (Hermann); Waltz from Congress Dances (Heymann); Waltz from La belle Hélène (Offenbach); Du bist das Abenteuer (Brodky); Kemer weiss, wie ich bin (Holländer); Die zwei von der Tankstelle (Kreuder). In the interval at 12.20 p.m., News. 1.30 to 2.0, Interval. 2.0, Agricultural Report and Exchange. 3.0, Talk for Young People: The Primeval Forests of Brazil. 3.30, Concert by the Small Station Orchestra, conducted by Eugen Wilken: Overture, Lurline (Wallace); An den Frühling (Grieg); Erotica (Grieg); Waltz, Golden Rain (Waldteufel); Meyerbeer Potpourri (Frahay); Mark-Wolke-Buschner; Overture, Hokuspokus (Lohse); Selection from Frasquita (Lohse). 4.55, Book Review. 5.15, Agricultural Prices. 5.30, Agricultural Talk. 6.0, Pianoforte Trio in F, Op. 80 (Schumann). 6.30, English Lesson for Beginners. 6.55, News and Weather. 7.5, Le Violoncelle—Opera in One Act (Offenbach). 8.0, East German Towns: Pillau—The Cradle of the German Fleet—a Radio Sequence. 9.0, Weather, News and Sports Notes.

HILVERSUM

Announced HUIZEN, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—11.55 a.m. to 1.40 p.m., Programme of the Catholic Radio Society (K.R.O.). 11.55, Concert by the Station Orchestra, conducted by M. van 't Woort: Horstein March (Fucik); Overture, Si j'étais Roi (d'Adam); España (Chabrier); Humoresque (Dvorak); Aubade printanière (Lacombe); Selection from La boutique fantasque (Rossini-Rispihigi); Light Music on Gramophone Records: Overture, Mignon (Thomas); Suite from Lakmé (Delibes); Way Down South (Myddleton); March, San Lorenzo (de Silva). 1.40 till Close Down, Programme of the Christian Radio Society (N.C.R.V.). 1.40, Lesson in Handicrafts, Spare-time Hobbies. 2.40, Programme for Women. 3.10 to 3.40, Interval. 3.40, Programme for Sailors: Address and Music. 4.40, Organ Recital. 5.25, Handwork for Young People. 5.55, Talk. 6.25, Dressmaking Lesson. 6.40, Press Review. 7.10, Police Notes. 7.25, Religious News. 7.40, Das Lied von der Glocke (Max Bruch), by the Con Amore Choir, Mme. Wickevoort-Crommelin (Soprano), Mme. Offers (Contralto), M. Plooyer (Tenor), M. Koning (Bass), and the Haarlem Orchestra, conducted by M. Smink. In the interval at 8.50, Talk. 10.20, News Bulletin. 10.30, Light Music on Gramophone Records. 11.10 (approx.). Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 1,875 metres; 8.5 kW. Programme of the Algemeene Vereniging Radio Omroep (A.V.R.O.).—11.41, Concert by the A.V.R.O. Chamber Orchestra, conducted by Louis Schmidt: Overture, The Maid of Artois (Balfé); Romance, Waiting (Anelhe); Waltz (Fresco); Bellini Potpourri (Urbahe); Gramophone Records: Waltz, Perle der Liebe (Jos. Strauss); Two Pieces (Caludi); (a) Sérénade à Lisette, (b) Pièce humoristique; Czardas, Magyp Balok (Léhar); Bells of Hawaii (Heagney);

Schmetterlings-Spiele (Heykens); Gramophone Records: Volga March (Dostal); Johann Strauss Potpourri (Weber); Selection from Der lustige Krieg (Joh. Strauss); March Medley (Soethout). 1.40 p.m., Talk for Women. 2.10, Interval. 2.25, Variety Music on Gramophone Records. 2.40, Talk for Women. 3.25, Variety Music on Gramophone Records. 3.40, Programme for Hospitals. 4.10, Concert by the Wireless Orchestra, conducted by Niro Treep: Overture, Il re pastore (Mozart); La voluptuose (Couperin); Minuet (Bocherini); Ballet Music from Anacron (Cherubini); Selection from La Sonnambula (Bellini). 4.40, Programme for Children. 5.10, Concert by the Station Orchestra: March, Hoch meine Musika (Blankenburg); Waldfestleien (Kling); Clown Dance, Pirouette (Fink); Gounod Potpourri (Tavau); Canto amoroso (Samartini); Tockey-Bockey (Fresco); Waltz, Telegramme (Joh. Strauss); Two Russian Dances (Bullerian); American Cake-Walk (Linck). 6.10, Sports Notes. 6.40, Orchestral Concert (cont'd.): Idylle au moulin (Poppy); Hofballtänze (Lammer); Réve (d'Ambrosio); March, Aurora (Jessel); Serenade (Widor). 7.10, Advanced English Lesson. 7.40, Time, Weather, News, and Popular Music on Gramophone Records. 7.55, Concert by the Concertgebouw Orchestra, relayed from the Concertgebouw, Amsterdam. Conductor: Eduard van Beinum. Interludes by Alexander Schmittler and his Orchestra: Suite from Marsyas (Diepenbrock); Concerto for Violin and Orchestra (Dittersdorf); Gramophone Records: Concerto for Violin and Orchestra (Milhaud); Selection from The Three Corners Hat (Falja). 10.10, Dance Music by the Kovacs Lajos Orchestra. 10.40, Weather, News, and Popular Music on Gramophone Records. 10.55, Dance Music (cont'd.). 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert, conducted by Eysoldt. Soloist: Grape (Pianoforte); Overture on a Kreuzer Ende (May); Selection from Lakmé (Delibes); Bolero (Nicole); Pianoforte Solos (Sommerhorn): (a) Scherzo ironico; (b) Allegretto; Suite, Canasian Sketches (Ippolitov-Ivanov); Waltz, The Skaters (Waldteufel); Scandinavian Caprice (Danish); Descriptive Piece, Die kleinen Rekruten (Jessel). 1.0 p.m. (in an interval), News. 1.30, Sponsored Programme with Gramophone Records. 2.30, Exchange and Time Signal. 2.50, Programme for Children. 3.10, Notes on the Broadcasts for Schools. 3.20, Educational Talk. 4.0, Concert by the Station Chamber Orchestra, conducted by Spitz. Soloists: Josef Matern (Tenor) and Karl Schwamberger (Cello); Concerto in A Minor (Vivaldi); La Folia (Corelli); Pietà Signore—Aria of 1667 (Alessandro Stradella); Concerto for Viola da Gamba (Tartini); Aria from the Ode for St. Cecilia's Day (Händel); Concerto grosso in D (Händel). 5.20, French Lesson. 5.45, Weather, Time, Exchange and Sports Notes. 6.0, Legends and Stories of the Rhineland and Westphalia. 6.30, Talk: The History of the German Language. 6.55, First General News. 7.0, The World on Gramophone Records—Love Songs of the Maoris. 7.30, Ariadne auf Naxos—Opera in One Act and a Prelude (Richard Strauss). 9.10, News and Sports Notes. 9.30, Dance Music, relayed from London. 11.0 (approx.). Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW.; and DRESDEN, 319 metres.—12.15 p.m., Songs of the Highroad—on Gramophone Records, followed by Exchange Quotations. 1.0, Film Notes. 1.30 (approx.). Talk for the Unemployed. 2.0, Talk for Young People. 2.35, Market Prices. 3.0, Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber: Overture, Karnevalstreiche (Kichter); Selection from Die Färschingfee (Kálmán); Waltz, Goldschmieds Töchterlein (Petras); Hungarian Rhapsody (Reinold); Serenade, Op. 15, No. 1 (Moszkowsky); Klänge aus Arkadien (Morcia); Waltz from Brüderlein fein (Fall); Selection from Rigoletto (Verdi); March, Feuert los! (Holzmann). 4.30, Weather and Time. 4.35 to 4.50, Interval. 4.50, Economic Notes. 5.0, Talk on Hygiene. 5.15, Taxation Notes. 5.30, Spanish Lesson. 5.50, The Leipzig Station Informs its Listeners. . . . 6.0, Suburban Settlements—A Discussion between a Mayor and an Unemployed Person. 6.30, Folk Music: from Klingenthal—Concert conducted by W. Koch, Music for Wind Instruments: (a) Unter der Frühlingssonne (Blankenburg); (b) Die beiden kleinen Finken (Kling); (c) March, Unter deutschen Schutz (Blankenburg); (d) Waltz: Wine, Woman and Song (Joh. Strauss); Music for Plucked Strings: (a) Fest-Reveille (Ritter); (b) Heuzo; walzer (Ritter); (c) Bing, bing, bing

(Mückenberger), (d) Der Zipfelsörg (Mückenberger); Music for Accordion Orchestra: (a) Im Wald und auf der Heide, (b) In einem kühlen Grunde, (c) Jetzt gang' ich ans Brünnele, (d) Mit dem Pfeil, dem Bogen, (e) Wenn ich den Wandrer frage, (f) Wo die Wälder heimlich rauschen, (g) Beim Holderstrauch, (h) Vogtländlicher Walzer, (i) Gruss an Oehrscheima, (j) Kinderfest-Marsch, (k) Polka. 7.30, See Berlin (Witzleben). 8.30, Kreisleriana, Fantasia, Op. 16, for Pianoforte (Schumann). 9.5, News. 9.30, Relay of the Third Act of The Tales of Hoffmann—Opera (Offenbach) from the Municipal Theatre, Halle.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—4.30 p.m., Quintet Concert. 5.30, Italian Lesson. 6.0, Talk on Economics. 6.30, The Letter Box. 7.0, Opera Duets and Arias. 7.45, Poetry Reading. 8.15, Concert by a Vocal Quintet. 9.0, Time, News, and Light Music.

LOWOW

381 metres; 16 kW.—6.0 p.m., Miscellaneous Items. 6.20, See Warsaw. 9.15, Song Recital. 9.30, Concert, Weather, and Police Notes, from Warsaw. 10.0, Relay of Foreign Stations. 10.30 (approx.), Close Down.

MADRID

ARANJUEZ, EAQ, 30.43 metres; 20 kW.—11.30 p.m., Spanish Music. 11.45, Radio Chronicle. 12 Midnight, Concert of Popular Music. 12.35 a.m. (Friday), Talk. 12.40, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO, Call EAJZ, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotations, Programme for Children and Request Gramophone Records. 8.15, News Bulletin. 8.30 to 9.30, Interval. 9.30, Chimes, Time Signal and Band Concert, relayed from the Hotel Nacional. 11.45, News Bulletin. 12 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—6.5 p.m., See Brno. 6.25, See Prague. 7.0, Concert by the Station Orchestra, conducted by J. Pichta: Polonaise (Dvorak); Waltz (Smetana); Polka (Smetana); Two Pieces (Sestak); Waltz (Fucik); Ballad and Gipsy Dance (Coleridge Taylor); Serenade (Friml); Japanese Carnival (Nasque); Moravian Dance (Balling). 8.0, See Prague. 10.0 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—5.30 p.m., Concert of Opera Music, relayed from the Radio Theatre. 8.0, Review of the Week and Answers to Correspondence, in French. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—4.0 p.m., See Stuttgart. 5.15, From German Towns—a Review of Municipal Affairs. 5.35 (from Nürnberg), Agricultural Talk. 5.55, Time, Weather, and Agricultural Notes. 6.5, Talk: Franco's Opinion of Germany. 6.25, Mandoline Concert by the Fortuna 1899 Club. Conductor, M. Schrieker; Spanish March, España (Crevetti); Fantasia Melodies from the Mountains (Sartori); Waltz, Nur wer die Sehnsucht kennt (Translatour); Interlude, Post-horn Duets by Appel and Müller; Intermezzo (Crevetti); Spanish Rhapsody (Salveti). 7.0, The Journalists—Comedy in Four Acts (H. Freytag). 8.30, Extracts from Les Indes galantes—Opera (Rameau), relayed from the Odeon. 9.20, Time, Weather, and Sports Notes.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredriksstad, 367.6 metres; Hamar, 660 metres; Notodden, 447.1 metres; Porsgrunn, 453.2 metres; and Rjukan, 447.1 metres.—6.0 p.m., Announcements, Weather and News. 6.30, Talk on Angola Rabbits. 7.0, Time Signal. 7.1, Relay of Banquet of the Norwegian Automobile Club. 8.0, Concert of Chamber Music. 8.40, Weather and News. 8.0, Topical Talk. 9.15, Song Recital, followed by Weekly Review. 9.45 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Agricultural Notes and Giornale Radio. 7.20, Popular Music on Gramophone Records. In the interval at 7.30, Time and Announcements. 7.45, Concert of Operetta Music: Selection from Il re di Chez Maxim (Costa); Film Review; Selection from La duchessa del bal tabarin (Lombardo). 8.30, One-Act Comedy. 9.0, Concert of Operetta Music (cont'd.): Selection from: (a) La fornarina (Lombardo), (b) La casa innamorata (Ranzato). 9.55, News.

PARIS

EIFFEL TOWER: Call FLE, 1,445.7 metres; 13 kW.—Time Signals (on 2,850 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot signals).—5.45 p.m., Le Journal Parle. 7.20, Weather Report. 7.30, Gramophone Concert. Part I, Acts III and IV of Carmen—Opera (Bizet). Part II, Light Music: Ballet Suite (Popy); Humorous Dialogue (Léhar); The Wedding of the Winds (Hull); Waltz, Très jolie (Waldteufel); Le vieux clocher (Colas); Sur la place de l'église (Colas); Melody (Guez); Petersburger Schützenfahrt (Eilenberg); Indian March (Sellenick); March from The Three Musketeers (Benatzky). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—(Commentary on Test Match in Australia).—6.45 p.m., Le Journal Parle. 7.0, Sponsored Talk. 7.10, Popular Music on Gramophone Records. 7.30, Sponsored Concert. 8.0, Variety Music on Gramophone Records. 8.20, Exchange. 8.30, Le second bail—One-Act Play (L. Ugeil). 9.0, Interval. 9.10, Concert. 10.0, Concert by Alexander Scriabin's Russian Orchestra, relayed from the Berry. 10.30, News.

PARIS

RADIO PARIS; Call GFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Suite Carnavalesque (Thomé), on Gramophone Records. 8.0, Press Review and Weather. 12.0 Noon, Protestant Address. 12.30 p.m., Orchestral Concert: Musiques foraines (Schmitt); Arthur (Christiné); Selection from Kadube (Yvain); Intermezzo from Arsène Lupin Banquier (Lattes); Selection from The Love Parade (Schertzinger); Melody from Captain Craddock (Heymann). In the intervals at 1.0, Exchange, News and Weather, and at 1.30 and 2.0, Exchange. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Gramophone Records: Waltz, Rose-mousse (Bose); Valse troublante (Bose); New York (Padilla); March, La Cloche de St. Just (Colombio Arona). In the interval at 6.40, Market Prices. 6.45, Legal Talk. 7.0, Talk: Anatole France. 7.30, Orchestral Concert: Menuet pompoux (Ganne); Six Impressions (Gabriel Marie); Pagan Dance (Pesse). 7.45, Commercial Prices and News. 8.0, Pecheur d'Islande—Play (after Pierre Loti). In an interval at 8.40, Review by Christophe. 9.15, Press Review and News. 9.30, Gramophone Concert: Le méchant petit garçon (Dafroze); Le ronde des petits nains (Dafroze); Les Ailes (Ganne); Nocturne, Les Baïnes (Ganne); Melody (Jekill); The Sand Man (Bos); You (Manfred); Avec toi seule (Maligine-Diver and Doyen); La Barabande des nuits (Mario); Idylle Passionnelle (Razigade); Sérénade from Les Millions d'Arlequin (Brigo); Melody (Manfred); Good-bye, from White Horse Inn (Stolz-Benatzky); Violettes impériales (Collet-Romero).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW.—Relayed by W8XK on 48.86 metres and 25.27 metres.—9.0 p.m., Work-a-day Thoughts. 9.5, Business News. 9.15, Programme to be announced. 9.30, Weather Report. 9.32, Market Reports. 9.45, Piano-forte Interlude. 9.50, David Lawrence Dispatch. 9.55, KDKA Artist Bulletin. 9.58, Programme Announcements. 10.0, Programme to be announced. 10.30, The Singing Lady, from New York. 10.45, Little Orphan Annie, from New York. 11.0, Time Signal. 11.1, Temperature Report. 11.2, Teaherry Sport Review. 11.7, Press News Reeler. 11.12, Strange Facts. 11.14, Weather Report. 11.15, Johnny Hart in Hollywood, from New York. 12 Midnight, Pepsi-ent Amos 'n' Andy, from New York. 12.15 a.m. (Friday), Programme to be announced. 12.30, Westinghouse Parade. 1.0 to 3.15 a.m., New York Relay. 1.0, Regimentalists. 1.15, The Tune Detective. 1.30, Time Signal and Rin Tin Tin Thrillers. 1.45, Thurston, the Magician. 2.0, Death Valley Days. 2.30, Dancing Strings. 3.0, Song Fellows. 3.15, McCormick's Orchestra. 3.30, Al and Pete, from New York. 3.45, Ho Mae Bailey, from New York. 4.0, Time Signal. 4.1, Teaherry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News Flashes. 4.20, Heart Songs by Louise Frayne. 4.30, Jimmy Joy and his Orchestra. 5.0, Salt and Peanuts. 5.15, Hotel McAlpin Orchestra, from New York. 5.30, Time Signal and Goodnight.

PORSGRUND.—See Oslo.

PRAGUE

488.6 metres; 120 kW.—4.20 p.m., Programme for Children. 4.50, Variety Music on Gramophone Records. 5.5, Agricultural Talk. 5.15, Talk for Workers. 5.25, German Transmission: News and Agricultural Talk. 6.0, News. 6.25, Talk. 6.40, Marching Songs. 7.0, See Moravská-Ostrava. 8.0, Time Signal. 8.1, Concert by the Czech Philharmonic Orchestra and the Prague Hlahol Choir, conducted by Alexander Zemlinsky. Soloists: Julie Nussy (Soprano),

JAN. 19th

THURSDAY

continued

Marta Krasova (Contralto), Josip Riaveo (Tenor) and Josef Schwarz (Baritone). Symphony No. 9 in D Minor (Beethoven). 9.0, Time Signal. 9.10, News. 9.25, Dance Music from the Alcron Hotel. 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; LAUSANNE, 680 metres; and GENEVA, 760 metres.—5.0 p.m. (from Lausanne), Sports Talk. 5.20 (from Geneva), Esperanto Lesson. 5.35 (from Lausanne), Italian Lesson. 6.0 (from Geneva), Weather, News and Announcements. 6.20 (from Lausanne), Answers to Correspondents. 6.30 (from Geneva), Theatre News. 7.0 (from Geneva), Dramatic Programme. 7.20 (from Geneva), Piano-forte Recital by Mme. Jacqueline Blancard. 7.45, Concert by the Station Orchestra. 9.0, News Bulletin and Weather Forecast. 9.15 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call IRO, 441 metres; 50 kW.—Relayed by Naples, 319 metres, and 2RO, 25.4 metres.—7.15 to 7.30 a.m., Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Orchestral Concert. In an interval at 12.30, Giornale Radio and Exchange. 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.30 to 5.15, Orchestral Concert: Viaggio nel sogno (Luajdi); White Moon (Nissini); Selection from Madame sans Gêne (Giordano); Tango for Soprano, Quibrant (Valdez); Fitter Patter (Lohr); Pas doble for Soprano, Gitana-Gitanella (Valdez); Canzonetta (Friml); Non so cos'è (Ranzato). 6.10 (Naples), Shipping and Sports Notes. 6.15, Agricultural Notes, Announcements and Giornale Radio. 7.0, Time and Announcements. 7.15, Light Music on Gramophone Records. 7.20, Talk for the Housewife. 7.30, Sports Notes and Tourist Report. 7.45, Symphony Concert, conducted by Riccardo Santarelli. Soloists: Ornella Pultti-Santoliquido (Piano-forte) and Margherita Cossa (Soprano). Adagio for String Orchestra and Organ (Nandini-Zucchi); Concerto in G Minor for Piano-forte and Orchestra (Sgambati); Cinema Notes; Symphonic Poem, Finlandia (Sibelius); Bacchanale from Philomena and Banchis (Gounod); Soprano Solo: Sei stornelli (Andrea Veretti); Sinfonia italiana (Andrea Veretti); Four Airs from the Opera Il favorito del re (Andrea Veretti). 9.55, News Bulletin.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW.—Relayed at intervals by W2XAF on 31.48 metres and by W2XAD on 19.55 metres.—7.45 p.m., Powder River Kid. 10.15, Paul Whiteman's Rhythm Boys, from New York. 10.30, Father John's Program. 10.45, Sekatary Hawkins, from New York. 11.0, Joe and Eddie. 11.15, Studio Ensemble. 11.45, Chandi, the Magician. 12 Midnight, Stock Reports. 12.15 a.m. (Friday) till Close Down, New York Relay. 12.30, Barbasol Programme. 12.45, The Goldbergs. 1.0, Fleischmann Hour. 2.0, Captain Henry's Show Boat. 3.0, Lucky Strike Hour. 4.0 (approx.), Close Down.

SCHWEIZERISCHER

LANDESENDER

BEROMUNSTER, 459 metres; 60 kW.; BASLE, 244.1 metres; and BERNE, 245.9 metres.—9.20 a.m. (from Berne), Broadcast for Schools: From the Minnet to the Rumba. 9.50 to 11.28, Interval. 11.28, Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40, Which Piece was that?—A Musical Guessing Competition on Gramophone Records. 12.35 p.m., Weather and Exchange. 12.40 to 2.30, Interval. 2.30 (from Zürich), Talk for Women: The Significance of Family Life. 3.0, Concert of Light Music by the Radio Orchestra. 4.0, Variety Music on Gramophone Records. 4.30 to 4.35, Weather. 5.30 (from Basle), Talk: Women's Share in the Building up of Palestine. 6.0, Time, Weather and Traffic Notes. 6.10 (from Basle), Two Talks: (a) The Decline of the Birthrate in Civilised Countries, (b) The Sun—a Small Spot in the Universe. 6.30 (from Zürich), Tannhäuser—Opera in Three Acts (Wagner), relayed from the Municipal Theatre. In the interval, at 9.0, Weather and News. 10.0 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW.—Relayed by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—4.5 p.m., Studio Service, relayed from Uppsala (453.2 metres). 4.30, Variety Music on Gramophone Records. 5.15, Elementary English Lesson. 5.45, Weather

and News. 6.0, Act I of The Valkyries—Opera in Three Acts (Wagner), relayed from the Opera House. 7.10, Reading from A Journey in Switzerland (F. Böök). 7.30, Piano-forte Recital by Simon Barer; Symphonic Rêves, Op. 13 (Schumann); Ballad No. 4, in F Minor (Chopin). 8.0, Talk: The Most Favoured Nation. 8.30, Finnish Song Recital by Brita Westerberg. 8.45, Weather and News. 9.0, Relay of Foreign Stations. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Popular Concert on Gramophone Records. 12.45 p.m., News Bulletin. 1.0, Time Signal and Exchange. 1.10, Light Music on Gramophone Records. 2.0, Programme for Children. 3.0 to 4.15, Interval. 4.15, French Eloution Lesson. 4.30, Programme from Bordeaux Lafayette. 6.0, Talk in German: Alsace. 6.15, Talk in French: Children are never Lazy. 6.30, Orchestral Concert, conducted by M. Roskam: March, Dixmude (Schreiner); Waltz, Chantilly (Waldteufel); Violin Solo, Gavotte Viennoise (Laisné); Overture, Czar and Carpenter (Lortzing); Elegy (Spurek); Esquisses Flamandes (Brüsselmann); Minstrel's Song (Glazunov); Olenbach Fantasia (arr. Conrad); Flirtation (Steck); Marche Gaillarde (Fiévet). 7.30, Time Signal and News. 7.45, Sound Film Music on Gramophone Records. 8.25, Lottery Results and Announcements. 8.30, Orchestral Concert, conducted by Maurice de Villers: Trio (Bocherini); Concerto for Four Violins and Orchestra (Vivaldi); Concerto in Sextour (Rameau); Dance Suite (Godard); Suite, La Rôtisserie de la Reine Pédauque (Lévy); Le Chibrelli (Casadesu); Ballet Music from Les deux Pigeons (Messager). 10.30 (approx.), Close Down.

STUTT GART

MULLACKER, 360.5 metres; 60 kW.; and FREIBURG, 570 metres.—11.0 a.m., Orchestral Concert, conducted by Gustav Gförlisch. Soloist: Ernestine Färber-Strasser (Contralto). Overture, Le Dieu et la Bayadère (Auber); Aria from The Prophet (Meyerbeer); Dance of the Sylphs from The Damnation of Faust (Berlioz); Song, La Captive (Berlioz); Ballet Music from Rienzi (Wagner); Two Songs (Wagner): (a) Wiegenlied, (b) Die Erwartung; Overture, Gasparone (Müllbacher); Waltz, Wiener Extrablatz (Translatour); March Potpourri, Jung Deutschland (Weninger). 12.15 p.m., Time, Weather, News, and Programme Announcements. 12.30, Concert from Langenberg. 1.0, Sponsored Programme with Gramophone Records. 1.30, Spanish Lesson. 2.0, Elementary English Lesson. 2.30 to 3.30, Programme for Children. 4.0, Orchestral Concert, conducted by Erich Heck: Soloist: Edmund Samato (Tenor). March, Unter dem Siegesbanner (Hönl); Overture, La Belle Hélène (Offenbach); Tenor Solos: (a) Aria from Martha (Flores), (b) Aria from Rigoletto (Verdi); Selection from La Favorita (Donizetti); Waltz, The Skaters (Waldteufel); Tenor Solos: (a) Volga Song from The Czarevitch (Léhar), (b) Song from Der lachende Ehemann (Eysler); Caprice, Diavoletta (Lindemann); March, Soldatenleben (Schmelzing). 5.15, Time, Weather and Agricultural Notes. 5.25, Talk by Prof. Dr. Friedrich Tobler. 5.30, Talk: Destiny. 6.15, Time and News. 6.30, Swabian Evening. Part I.—From Hour to Hour—for the Sixtieth Birthday of Hans Erich Blach (Dr. Owiglass); Part II.—Dr. Prestlingsgeckel—Swabian sketch in Three Acts (Rudolf Bader). 7.30, Songs to the Lute and Guitar by Hans Hofele and Leo Hantz; Songs to the Lute (Walter Gättke); (a) Die Landsknechtstrommel, (b) Verhelied, (c) Magdeburg, (d) Söhnerlied, (e) Wiegenlied; Songs to the Guitar (Theod. Meyer-Steiner): (a) Minnet, (b) Bettelied, (c) Sängers Hochzeitlied, (d) Es muss geschieden sein, (e) Ständchen, (f) Püppchen klein. 8.0, See Heilsberg. 9.0, Time, News, Weather and Programme Announcements. 9.20, Piano-forte Recital by Hubert Giessen, Fantasia in D Minor (Mozart); Sonata in C Sharp Minor (Beethoven); Rhapsody in G Minor (Brahms). 10.0 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Tene Poem for Orchestra, Till Eulenspiegel's Merry Pranks (L. Strauss). 6.30, Programme for Children. 7.0, Opera Music: Airs from (a) Don Quichotte (Massenet), (b) Louise (Charpentier), (c) Cavalleria rusticana (Mascagni), and (d) Mignon (Thomas). 7.15, News, Horse Racing Results, and Market Prices. 7.25, Local News. 7.30, Military Music. 7.45, Operetta Music: Airs from (a) Veronique (Messager), (b) The Divine Lady (Shikret), (c) The Desert Song (Romberg). 8.0, Accordion Solos. 8.15, Sound Film Music. 8.30, Light Music. 9.0, Extracts from Manon—Opera (Massenet). 9.30, Concert by a Viennese Orchestra: Le Rêve (Fralis); Leila

(Padilla); Dormez bel ange (Sponz); Selection from Eva (Lehar); Selection from Casanova (Joh. Strauss); Jüthwüchens Stelldichein (Siede). 10.0, Humorous Sketches. 10.15, North African News. 10.30, Concert for Listeners in Morocco: Melody from Cydalise et le Chèvre-pied (Pierné); Melody from The Merry Widow (Lehar); Strauss Potpourri; Melody from Il Trovatore (Verdi); Cavatina (Raff). 11.0, Orchestral Music: Selection from Alessandro Stradella (Plotow); Andante from the Italian Symphony (Mendelssohn). 11.15, Balalaika Music and Russian Songs. 11.30, Programme in English by the I.B.C.: Military Band Concert; Selection from San Toy: A Voyage in a Troopship; Piccolo Solo: La Grive; Ballad Memories; The Empire March. 12 Midnight, Weather and Announcements. 12.5 a.m. (Friday), Chansonettes. 12.15, Tangos; Plegaria (Bianco); Reuerde (Pugliesi); Capriccio (Lecounta); Argentine (Ramondi). 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—6.0 p.m. till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW.—Relayed by Milan 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—6.0 p.m., Orchestral Concert. 6.25, Tourist Report. 6.30, Time and News. 6.35, Popular Music on Gramophone Records. 7.0, Giornale radio and Weather. 7.20, Talk for the Housewife. 8.0, Relay of an Opera. In the intervals, Film Notes, Talk, and Giornale radio.

VATICAN CITY

19.84 metres (Morning) and 50.96 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

517 metres; 15 kW.—Relayed by Graz, 352.2 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218 metres.—3.55 p.m., Ravel Concert on Gramophone Records: La Valse (from Madagascar); Bolero. 4.40, Latest Gramophone Records. 4.55, Talk for Women. 5.15, Talk for Workers. 6.5, Talk: Modern Town Planning Problems. 6.5, Talk: Thirty Years' Progress in Aviation. 6.30, Time, Weather and Programme Announcements. 6.40, Dance Music by the Chely Gaudriot Jazz Band. Soloist: Marie Medina (Songs). 7.5, Time, Duel between David and Goliath—Melodrama (Johann Kuban) arranged as a Monologue and recited by P. K. Hoferer. 8.40, News, Weather and Announcements. 8.50, Snow Report. 9.0, Concert of Light Music by the Gustav Macho Orchestra, relayed from the Lehar Room of the Krantz-Ambassador Hotel.

WARSAW

1,411 metres; 120 kW.—10.40 a.m., Press Review. 10.50, Weather Forecast for Aviation. 10.58, Time Signal and Bugle Call from St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Concert for School, relayed from the Philharmonic. The Philharmonic Orchestra, conducted by J. Ozimski. Soloists: J. Dworakowski (Violin) and E. Maj (Baritone). Introductory Talk. Prelude to Lohengrin (Wagner); The Spinning Chorus from The Flying Dutchman (Wagner); Baritone Solo: O Star of Eve, from Tannhäuser (Wagner); Violin Solos: (a) Melody from The Mastersingers (Wagner), (b) Waltz (Brahms), (c) Hungarian Dance No. 2 (Brahms); Baritone Solos: (a) Wiegenlied (Brahms), (b) Song (Richard Strauss); Waltz from Der Rosenkavalier (Richard Strauss); March from Tannhäuser (Wagner). 12.20 p.m., Weather Forecast. 12.25 to 2.10, Interval. 2.10, Announcement. 2.25, Light Music on Gramophone Record. 2.35, Talk: Careful Purchasing. 2.50, Popular Music on Gramophone Records. 3.2, Intermediate French Lesson. 3.40, Talk. 4.0, Sonata in A, Op. 69, for Cello and Piano-forte (Beethoven) on Gramophone Record. In the interval, Announcements. 4.40, Topical Talk. 4.55, Programme Announcement. 5.0, Concert of Light Music relayed from the Cristal Restaurant. 6.0, Miscellaneous Items. 6.20, Agricultural Notes. 6.30, Reading in Dialect. 6.45, Radio Journal. 7.0, Concert by the Station Orchestra, conducted by S. Nawrot. Soloist: A. Stanislawski (Donna) Overture, Die Felsenmühle (Reissiger); Melody (Kockert); Donna Solos: (a) Drinking Song (Minkus), (b) Serenade (Ancarani), (c) Liebesleid (Kreisler); Waltz, Estudiantina (Waldteufel); Romance (Rubinstein); Sword Dance (Poldini); Indian Ballet from Lakmé (Delibes); Donna Solos: (a) Serenade (Pergament), (b) Potpourri of Ukrainian Melodies; Waltz from Faust (Gounod); Slav Dances, Nos. 1 and 10 (Dvorak); Mazurka (Mlynarski). In the interval, Sports Notes and Radio Journal. 8.30, A Sketch. 9.15, Gipsy Music relayed from the Fukiér Restaurant. 9.55, Weather Forecast and Polls Notes. 10.0, Dance Music from the Café Adria.

ZURICH.—See Schweizerischer Landessender.

ALGIERS

363.3 metres; 13 kW.—7.15 p.m., Agricultural Report. 7.30, Market Prices and Weather. 7.55, Gramophone Records, with Commentary. 7.55, News. 8.0, Time Signal. 8.2, Extracts from Beau Brummel—Operetta (Hahn). 8.30, Concert by the Conservatoire Orchestra, relayed from the Opéra House. In the intervals at 9.30, News. 11.30 (approx.), Close Down.

BARCELONA

RADIO BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—6.0 p.m., Trio Concert. 7.0, Request Gramophone Records. 7.20, Exchange Quotations and Talk in Catalan. 8.0, Popular Music on Gramophone Records and News Bulletin. 9.0, Chimes, Weather, Messages for Seamen, Exchange Quotations, and Market Prices. 9.10, Concert by the Station Orchestra Overture. II Guarany (Gomez); Serenade (Moszkowsky); Persian Sketches (Rust); Evening Song (Rabey). 9.30, A Musical Comedy, relayed from Madrid (EAJ7). 11.0 (in an interval), News Bulletin.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Report, Tourist Notes, and Announcements. 7.20, Giornale Radio and Weather. 7.30, Time and Announcements. 7.32, Concert of Opera Music. Soloists: Milena Barberio (Soprano). Overture, Le Maschere (Mascagni); Selection from L'Uomo che ride (Pedrollo); Soprano Solo from Manon (Massenet); Selection from the First Act of La cena delle beffe (Giordano); Soprano Solos: (a) Aria from L'Amico Fritz (Mascagni), (b) Prayer from Fedora (Giordano); Selection from Adrienne Lecouvreur (Cilea); Overture, II Guarany (Gomez); Barcarolle from Silvano (Mascagni); Soprano Solo: They call me Mimi, from La Bohème (Puccini); A sera (Catalani); Two Soprano Solos from Otello (Verdi); Selection from La Gioconda (Ponchielli); Talk on Sport in the Interval. 9.30, Light Music on Gramophone Records. 9.55, News Bulletin.

BASLE.—See Schweizerischer Landessender.

BELGRADE

430.4 metres; 2.8 kW.—4.0 p.m., Popular Music on Gramophone Records. 5.55, Time and Programme Announcements. 6.0, Variety Music on Gramophone Records. 6.30, Talk for Sokols. 7.0, Orchestral and Vocal Concert. 8.0, Concert by the Station Orchestra. 9.0, News, followed by Cigány Music from the Rudnicin Restaurant.

BELUCIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.0 a.m., Weather for Farmers. 11.5, Brahms Music on Gramophone Records, followed by Second Weather for Farmers. 11.55, Time Signal. 12.35 p.m., News. 1.0, Gramophone Concert of Classical Music, relayed from Berlin (Witzleben). 2.0, Talk for Girls: What to Read. 2.30, Weather and Exchange. 2.45, Reading (Knut Hamsun). 3.0, Talk: German Nationality and Education. 3.30, See Leipzig. 4.10, Technical Wireless Talk. 4.30, Talk: Great German Stylists. 4.55, Coloratura-Soprano Song. Recital by Grete Henar: Waltz, Frühlingsstimmen (Joh. Strauss); Gavotte from Manon (Massenet); Polonaise from Mignon (Thomas); Villanelle (Dell'Aqua); Aria from The Merry Wives of Windsor (Nicola). 5.30, Health Talk. 5.55, Weather for Farmers and Announcements. 6.0, Questions of the Day. 6.30, A Poem. 6.35, Orchestral Concert from the Café Berlin. 7.0, Talk by Kurt H. Sell: What People are Talking about in America, relayed from America. 7.15, Concert (cont'd.). 7.35, Viennese Humour—Programme by Dr. Erich Fortner, Julius Brandt, Stella Hay and Fritz Greiner. 8.15, See Berlin (Witzleben). 9.0, Weather, News and Sports Notes, followed by Dance Music from the Europa Pavilion. 9.45, Weather for Shipping, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—6.0 p.m., Topical Talk. 6.10, Talk: In Memory of Unforgotten Stage Celebrities—with Gramophone Illustrations. 7.0, Topical Talk. 7.15, See Frankfurt. 8.15, Beethoven Recital by Arthur Schnabel (Pianoforte), relayed from the Philharmonie; Sonata in F, Op. 54; Sonata in C Minor, Op. 13—the Pathetic Sonata; Sonata in C, Op. 2 No. 3. 9.20, Weather, News, and Sports Notes, followed by Dance Music from the Europa Pavilion. 11.0 (approx.), Close Down.

BERNE.—See Schweizerischer Landessender.

BEROMUNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BORDEAUX-LAFAYETTE

104 metres; 13 kW.—7.30 p.m., News Bulletin. 7.40, Educational Talk. 7.55, Lottery Results. 8.0, Spanish Lesson. 8.15, News Bulletin. 8.30, Anniversary Programme relayed from Paris (Ecole Supérieure) (447.1 metres).

BRATISLAVA

279 metres; 14 kW.—5.25 p.m., Light Music on Gramophone Records. 5.45, Slovak

FRIDAY

JANUARY THE TWENTIETH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL Organ recital. Orchestral concert. "The Cinema," by "Argus." "Our Neighbours: To-day and Yesterday" (4), Russia. Orchestral concert. A Talk on Housing. "Ghosts at Solberga," a winter tale, adapted from Herr Arne's Hoard, by Selma Lagerlöf. Dance music.

LONDON REGIONAL Orchestral concert. Organ music. Brass Band concert. Contemporary Russian music. Dance music.

MIDLAND REGIONAL North Regional programme. Light music. "Folk Lore and Legends of Warwickshire," by Ernest Jones. "The Electrical Industry," a talk by Mr. F. H. Clough, with incidental noises in a works at Rugby.

NORTH REGIONAL National programme. Orchestral concert. Brass Band concert. Recital of Cheshire Folk Songs. Dance music.

WEST REGIONAL Police Band concert.

SCOTTISH REGIONAL Ballad concert. Scottish National Academy of Music concert. "A Raid by Glasgow Students on the Eve of Charities' Day." Dance music.

BELFAST The music of Weher, vocal and instrumental concert. National programme.

ABROAD

BARI BERO-MUNSTER Concert of opera music. Old style light music by J. S. and J. N. Bach.

STOCKHOLM The Station Orchestra in selections from opera by Wagner, Mozart, etc.

WARSAW Philharmonic Orchestra, conducted by N. Malko.

Grammar Lesson. 6.0, See Prague. 6.20, Concert by the Station Orchestra, conducted by F. Dyk: Slav Overture (Tittl); Smetana Potpourri (Urban); Poème (Bíbeň); Waltz No. 8 (Dvořák); Polka (Růžky); Waltz, Wienerblut (Johann Strauss); Chanson d'amour (Bece); Andalusian Romance (Sarasate); March (Ohrna). 7.15 till Close Down. See Prague. 9.15 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres; 60 kW.; and **GLEIWITZ**, 253 metres.—12.5 p.m., Weather for Farmers. 12.10 (approx.), Gramophone Concert: Overture, Der Freischütz (Weber); Triumphant March from Aida (Verdi); Two Preludes (Rachmaninov); Two Tenor Solos from The Tales of Hoffmann (Offenbach); Waltz, Roses from the South (Joh. Strauss-Atzer); Selection from La Vie Parisienne (Offenbach). 12.45, Time, Weather, News, and Exchange. 1.5, Gramophone Records of Marek Weber and his Orchestra: Suite, Kinderlieder (Blech); Salut d'amour (Berg); Waltz, Transaktionen (Joh. Strauss); Selection from Prinz Methusalem (Joh. Strauss); Waltz, Samt und Seide (Zielner); Selection from Der Tenor der Herzogin (Künneke); March, Lustiger Brüder (Vollstedt). 1.45, Sponsored Programme with Gramophone Records. 2.10, Agricultural Prices and Exchange. 2.30, Talk for Young People: The Methods of Different Composers. 3.0, Concert by the Radio Orchestra, conducted by Bruno Janz: Exotischer Marsch (Heinecke); Waltz, Geschichten aus dem Emstal (Pacherweg); Potpourri, Funkgeister (Noack); Lark Serenade (Diecker); Auber Potpourri (L'bach); Romantique Overture (Kéler-Béla); Schwäbischer Bauernwaller (Krome); March, Über Land und Meer (Kochmann). 4.20, Talk: Röntgen Rays. 4.50, Programme for Children. 5.20 (from Gleiwitz), Anti-aircraft Drill. 5.50, Talk: Removing Radio Interferences. 6.0, Talk: Does the Earth move in the Ether or not? 6.30, Weather for Farmers. 6.35, Balalaika Concert on Gramophone Records: The Clouds; Troika; Gipsy Romance; Stjescha; Song: Melody; Brightly shines the Moon; The Red Sarafan. 7.15, A Journey into the Blue 8.15, News Bulletin. 8.25, Programme for Breslau and Leipzig: The Six Towns—a Radio Picture of the Oberlausitz. 9.26, Time, Weather, News, Sports Notes, and Programme Announcements. 9.45, Talk: Ebbing in the Past and in the Present. 10.0, Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BRNO

342 metres; 35 kW.—3.10 p.m., Concert by the Station Orchestra, conducted by Jan Janota: Overture, Mignon (Thomas); Ballet

Music from Le Roi S'amuse (Delibes); Melody (Nesvera); Waltz (Kovarovic); 1850 Polka (Hilmar); Furiante (Malat). 3.55, Theatre Notes. 4.5, See Prague. 5.5, Talk on Art. 5.15, Talk for Workers. 5.25, German Transmission: News and Sports Talk. 6.0, See Prague. 6.5, Talk. 6.20, Concert by the Old Brno Brass Band, conducted by Jan Krenovsky. 7.15, See Prague. 9.15 (approx.), Close Down.

BRUSSELS (No. 1)

1.N.R., 509 metres; 15 kW.—12 Noon, Extracts from Falstaff—Opera (Verdi) on Gramophone Records. 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by P. Leemans; Soloist, M. Wigy (Violin); Overture, Une fête à Aranjuez (Demersseman); Carretto Romano (Leleu); Ballet russe (Luigini); Violin Solo, La Source (Musorgsky-Dushkin); Spanish Dance, Zambra (Granados); Selection from The Dance of the Dragonflies (Lehar). 2.0, Educational Programme. 5.0, Concert by the Radio Orchestra, conducted by Franz André: Suppé Illusionen (Michaëlowl); Salut d'amour (Elgar); At Port Said (Armandola); Popular Italian Song; Burlesque (Poot); Girl (Poot); Marche burlesque (Goyens); Back and Call (Young); Singing in the Moonlight (Pola). 6.0, Talk on Cars. 6.15, Gramophone Records: Symphony No. 4 (Beethoven); Sarabande et Tambourin (Leclair-Sarasate); La Nuit ensorcelée (Chopin-Aubert). 7.15, Talk: Auto-suggestion and the Treatment of Illness. 7.30, Literary Review. 8.0, Concert by the Symphony Orchestra, conducted by Jean Kumps: Overture, The Barber of Seville (Rossini); Entr'acte from Mignon (Thomas); Tenor Solos by M. De Brackeleer, (a) Bonsoir (Guillénain), (b) Aubade from Le Roi d'Ys (Lalo), (c) Elle ne croyait pas from Mignon (Thomas); Elégie for Violin and Orchestra (Beernaert); Marche solennelle (Beernaert); Scherzo (Mawet); Suite (Kalkman). 8.45, Talk on Insurance. 9.0, Choral Concert. 10.0, Le Journal Parlé. 10.10, Gramophone Concert of Light Music. 11.0 (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW. Programme in Flemish.—12 Noon, Concert by the Small Station Orchestra, conducted by P. Leemans; Soloist, M. Wigy (Violin): Spanish Dances (Albeniz); Spanish Dances (Moszkowsky); Japanese variations (Vidal); Two Italian Songs (Volpatti); Violin Solo, Zigennerweisen (Sarasate); Nigger Patrol (Lottor); Waltz, Estudiantina (Waldteufel). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Concert: Old Swiss Marches for Pipes and Drums; Potpourri, Ufatobomben (Borchert); Carillon Breton (Dray); Valse des baisers (Ganne); Potpourri, Das Beste vom Besten (Dostal); Variations (Proch); Potpourri, Hört und staunt (Dostal). 2.0,

Educational Programme. 5.0, Concert of Music by August De Boeck by the Station Symphony Orchestra, conducted by Jean Kumps: Fantasia on Two Flemish Songs; Ballet La tentation du pöete; Two Airs from A Winter Night's Dream; Marche Commemorative. 5.45, Programme for Children. 6.30, Concert by the Small Station Orchestra, conducted by P. Leemans: Soloist, H. Verbruggen (Tenor): Festival Overture (Leutner); Les trésors de Colombine (Brigo); Songs (Schubert), (a) Der Wanderer, (b) Die Einsamkeit, (c) Das Fischermädchen; Berceuse (Gretchaninov); Sérénade (Parenghi); Ballet Music from Coppélia (Delibes). 7.15, Book and Film Review. 7.30, Wireless Review. 8.0, Concert by the Radio Orchestra, conducted by M. André: Overture, The Gipsy Baron (Joh. Strauss); Entr'acte from Les pays du lin (Van der Meulen); Ballet des sylphes (Berlioz); Selection from Madame Pompadour (Fall); Fantasia on Canadian Airs (Gilson). 8.45, Talk: Damien Damien, the Lepers' Friend. 9.0, Damien Cantata (Wambach), relayed from Antwerp. 9.55, Evening Prayer. 10.0, Le Journal Parlé. 10.10, Gramophone Concert: A Century of Dance Music: Gavotte, Stephanie (Calulca); Ritournelle and Passepied (Montclair-Casadesus); Louis XIV Minuet, Schottisch des Pierrots (Lamotte); Annen-Polka (Strauss); Quadrille (Audran); Mazurka, Frauentanz (Jos. Strauss); Waltz from The Merry Widow (Lehar); Pasodoble, Lady of Spain (Evans); Tango, Siempre (Bianco); Charleston, I'm sailing off to China (Packay-Bec); Foxtrot, Good night Sweetheart (Valle); One-step, Rio de Janeiro (de Gredos); Kumba, The Peanut Vendor (Gillet); Blues, Ah, mais non! (Uranga). 11.0 (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—4.0 p.m., Concert by the Radio Orchestra: Overture, The Caliph of Bagdad (Bouidien); Pizzicato Waltz (Meyer Helmund); Suite, At the Circus (Armandola); Carillon (Novack); Suite, Aus Holbergs Zeit (Grieg). 5.0, Time Signal. 5.10, Talk. 5.25, Concert by the Radio Orchestra: Arabesques Nos. 1 and 2 (Debussy); Orientale (Cui); Réve angélique (Rubinstein); Trot de Cavallerie (Rubinstein). 6.0, Educational Talk: The Romanian Race. 6.40, Variety Music on Gramophone Records. 7.0, Concert by the Philharmonic Orchestra, conducted by Georges Georgesco. 8.0, Talk. 8.15, Concert (cont'd.). 8.45, News.

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on 840 metres from 6.15 till Close Down. 4.0 p.m., Jazz Music from the Hotel Ritz. 4.45, Talk on Business Integrity. 5.15, Concert of Cigány Music. 6.0, Shorthand Lesson. 6.30, Relay from the Royal Hungarian Opera House. News and Weather in the interval. After the Relay, Concert of Dance and Cigány Music from the Café Elnke.

CASSEL.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG**, 1,153 metres; 7.5 kW.—11.0 a.m., Time and Chimes from the Town Hall. 11.15, Broadcast for Schools: German Dialects. 11.45, String Ensemble Concert, relayed from the Bellevue Strandhotel. 1.0 to 2.0 p.m., Interval. 2.0, Orchestral Concert, conducted by Lamy Gründahl; Soloist: Yelva Öhrtr (Pianoforte): March, The Phantom Brigade (Mydleton); Waltz, La plus belle (Waldteufel); Overture, Light Cavalry (Suppé); Selection from The Prophet (Meyerbeer); Gavotte (Rimmer); Melody from Mascottchen (Bromme); Italian March (Nansen); Pianoforte Solos: (a) Noctette in E, Op. 21, No. 7 (Schumann), (b) Waltz, Op. 18, in E Flat, and (c) Waltz, Op. 42, in A Flat (Chopin). (d) Concert Paraphrase on Johann Strauss' Waltzes (Grünfeld); March, The Sengambian Patrol (Rosey); Overture, Das Modell (Suppé); The Lost Chord (Sulliván); Libellen-Mazurka (Jos. Strauss); Fantasia on Swedish Melodies (arr. Nielsen); Polka, Mester Erik (Lumbye); Gallop, Nordisk Union (Lumbye). 4.0, Programme for Children. 4.40, Exchange and Fish Market Prices. 4.50, Educational Talk. 5.20, German Lesson. 5.50, Weather Forecast. 6.0, News. 6.15, Time Signal. 6.30, Talk. 7.0, Chimes from the Town Hall. 7.5, Programme by Per Knutzen. 7.10, Choral Concert, with Organ Solo, relayed from the Cathedral, Aarhus. 7.55, Programme to be announced. 8.25, Violin Recital by Kai Polycarp Andersen: Adagio in D (Mozart); Rondo in C (Mozart); Saudades do Brazil (Milhaud); Perpetuum mobile (Ravel). 8.45, Johannes V. Jensen Programme, Readings and Songs. 9.30, News. 9.45, Concert by the Alberta Bracony Mandolin Trio: Old Provençal Dance (Wachs); Pompadour Minuet (Wachs); Barcarolle (Galace); Spanish Folk Song, Zorongo. Sérénade madrilène (Graziani-Walter); Spanish Folk Dance, Fandango. Czardas (Monti); Italian Waltz, Brezza marina (Pepper). 10.10 (approx.), Close Down.

CORK.—See Dublin.

CRACOW

312.8 metres; 1.5 kW.—6.0 p.m., Miscellaneous Items and Announcements. 6.15, Talk. 6.30,

See Warsaw. 10.6, Relay of Foreign Stations. 11.0, Bugle Call from St. Mary's Church.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN, 413 metres; 1.2 kW., and **CORK**, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. 6.0, Popular Music on Gramophone Records. 6.15, Programme for Children. 7.0, Light Music on Gramophone Records. 7.20, News Bulletin. 7.30, Time Signal. 7.31, Talk on Gardening. 7.45, Talk. 8.0, Concert, relayed from the Town Hall, Galway. 9.0, Tenor Solos by Joseph O'Neill. 9.20, The Station Sextet. 9.50, Soprano Solos by Eileen Hayden. 10.5, The Station Sextet. 10.30, Time Signal, News, Weather Report and Close Down.

FECAMP

223 metres; 10 kW.—12 Noon, Light Music on Gramophone Records. 12.30 p.m., News Bulletin. 12.45, Programme for Children. 7.0, Local News. 7.15, Popular Music on Gramophone Records. 7.30, Radio Gazette. 8.0, News Bulletin. 8.15, Agricultural Talk. 8.30, Concert, relayed from Le Havre. 10.0 till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: That's my Desire; You can't stop me from loving you; My Baby said "Yes, Yes"; You were my Salvation; Cuban Love Song; Just once for all time; The Wedding Party of Mickey Mouse. Life is just a Bowl of Cherries; My Sunshine is you; Put your Loving Arms around me; It's a Girl; Got a Date with an Angel; It's great to be in love; Lies; They all make love but me; What's going to happen to me? 11.0, Music by a Symphony Orchestra: Overture, The Daughter of the Regiment (Donizetti); Prelude to Carmen (Bizet); Song without Words (Tchaikovsky); Overture, Semiramide (Rossini); Waltz from The Sleeping Beauty (Tchaikovsky); Serenade (Moszkovsky). 11.30, Orchestral and Vocal Concert: Poem (Fibich); Songs: (a) The Pipes of Pan (Monckton), (b) The Last Rose of Summer (Moore); Solvejg's Song from the Peer Gynt Suite (Grieg); Anita's Dance from the Peer Gynt Suite (Grieg); Songs: (a) Down in the Forest (Landon Romald), (b) Ave Maria (Schubert); Spring Song (Mendelssohn). 12 Midnight, Philco Concert: A Bedtime Story: Yes, Mr. Brown; Bravo, Jim; They all start whistling Mary; Good-bye Blues; Take a Spot of Happiness; When the Band goes marching by; Happy-go-lucky you. 12.30 a.m. (Saturday), Light Orchestral Concert: Der Rosenkranz (Jessel); The Rose Beetle goes a-zooing (Armandola); First Waltz Potpourri (Robrecht); Sieliiana (Schmalstieg); The Whistler and his Dog (Pryor); The Grasshoppers' Dance (Bucalossi); Demande et Réponse (Coleridge Taylor). 1.0, Concert of Scottish Music: Bonnie Scotland (arr. Pether); Violin Solos: (a) My Love is like a Red, Red Rose (Traditional), (b) Doon the Burn (Traditional); The Thistle (arr. Myddleton); Violin Solos: (a) My Nannie O (Traditional), (b) O' a' the Airts (Traditional); The Land o' Cakes (arr. Foster). 1.30, Light Music: My Sunshine is You (Stolz); Songs: (a) I feel you near me (McCormack), (b) O Maiden, my Maiden (Lehar); Musical Comedy Switch (Hall); Songs: (a) A Pair of Blue Eyes (McCormack), (b) Wayside Rose (Lehar); Good-night Sweetheart (Noble). 2.0, Dance Music: Looking on the Bright Side; Marta; Just hummin' along; What makes you so adorable?; By the Fireside; When the Rest of the Crowd goes Home; Hoch Caroling; Hummin' to myself; Please don't mention it; Shadows on the Window; The King was in the Counting House; Don't tell a Soul; Good-night, little Girl, good-night; Long Ago; Sing Brothers; Night shall be filled with Music. 2.57, I.B.C. Good-night Melody. 3.0 (approx.), Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW.; and **CASSEL**, 245.9 metres.—5.25 p.m., Dialogue on the Charm of Old Books. 5.50, See Stuttgart. 6.15, Time, Weather, Announcements and Exchange. 6.30, Literary Competition—Who is it? 6.45, Violin and Piano-forte Recital by Liewo Amar and Erich Istor Kahn. 7.0, Talk by Kurt Sell: What People are talking about in America, relayed from America. 7.15, A Journey through the Harz Mountains—Radio Picture (Geffried). 8.15, See Stuttgart. 9.10, Time, News, Weather and Sports Notes. 9.45, See Stuttgart. 11.0 (approx.), Close Down.

FREDRIKSTAD.—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

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 227.4 metres; Manover, 566 metres; and Kiel, 232.2 metres.—6.5 p.m., Talk: The

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FRIDAY

continued

tection of the Worker. 6.26, Weather Report. 6.30 (from Manover), Ludwig Bäte reads from his own Works. 7.0, Der Teufelsreiter—Operetta in Three Acts (Kalmán), relayed from the Municipal Theatre, Bremen. 9.0, Time and News. 9.20, Nonag Sound Service: Talk: What People are Talking about in America, relayed from Berlin. 9.35, Concert, relayed from the Alster Pavilion. 10.20, Ice Report. 10.25, Dance Music, relayed from the Continental, Hanover.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW., and **DANZIG**, 453.2 metres.—12.5 p.m., Gramophone Concert: Kaisermarsch (Wagner); The Pilgrim's Chorus from Tannhäuser (Wagner); Chorus from Lohengrin (Wagner); Overture, Ruy Blas (Mendelssohn); Polonaise (Chopin); Andante cantabile (Tchaikovsky); Melody (Saint-Saëns); Il bacio (Arditi); Invitation to the Dance (Weber); Selection from Madame Butterfly (Puccini); Die histigen Pfeifer (Gemmi); Nachtigallenschlag (Gemmi); Destiny (Baynes); Noraxion (Bianco); Deutschmeistermarsch (Jurek). In the interval at 12.20 p.m., News. 1.30, Sponsored Programme with Gramophone Records. 2.0, Agricultural Report and Exchange. 2.15, Talk for Women. 2.40 (from Danzig), Schlumm flies to America: Radio Sequence in Six Scenes (Kettel). 3.30, See Leipzig. 4.30, Talk on Ventriolism and Animal Imitations, with Illustrations. 4.45, Educational Debate: The Rural Continuation School. 5.15, Agricultural Prices. 5.30, Song Recital by Max Mansfeld. Songs (Mendelssohn): (a) Abendlied, (b) Auf Flügeln des Gesanges, (c) Venetianisches Gondellied; Songs (Jensen): (a) Marmelades Lüftchen, (b) Am Ufer des Flusses des Manzanares; Songs (R. Strauss): (a) Morgen, (b) Zueignung, (c) Die Nacht; Songs (Mähler): (a) Wo die schönen Trompeten blasen, (b) Ich ging mit Lust durch einen grünen Wald. 6.0 (from Danzig), Wilhelm Schäfer Programme on the Writer's Sixty-Fifth Birthday. 6.30, Light Music on Gramophone Records. 7.5, News and Weather. 7.15, See Frankfurt. 8.15, Dialogue: How to enjoy Orchestral Music, illustrated by the Prelude to The Mastersingers (Wagner), by the Königsberg Opera House Orchestra. 8.45, Don Juan—Symphonic Poem (R. Strauss), by the Königsberg Opera House Orchestra, conducted by Erich Seidler. 9.15, Weather, News and Sports Notes.

HILVERSUM

Announced **HUIZEN**, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.)—Programme of the Christian Radio Society (N.C.R.V.). 10.40 a.m., Cello Recital. 11.40, Police Notes. 11.55, Trio Concert. 1.40 p.m., Programme to be announced. 2.10, Reading. 2.40, Talk for the Housewife. 3.10, Concert. 4.40, Talk on Botany for Young People. 5.10, Talk for the Amateur Photographer. 5.40, Talk by Heer van Berkel. 6.10, Gardening Talk. 6.40, Literary Talk. 7.10, Police Notes. 7.25, Choral Concert. 7.55, Concert by a Women's Choir. 8.10, Religions Address. 8.40, Concert by a Women's Choir (cont'd.). 8.55, Religions Address (cont'd.). 9.25, Concert by the Little Radio Orchestra, conducted by Piet v.d. Hurk: Quintet (Mozart); Variations on a Theme by Haydn for String Orchestra; Concertino for Clarinet and Orchestra (Weber); Deutsche Stücke (Schubert); Tonbilder (Reinecke). 10.5 (in an interval), News Bulletin. 10.55, Gramophone Records of Sacred Music. 11.10 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced **HILVERSUM**, 1,875 metres; 8.5 kW.—11.40 a.m. to 3.40 p.m., Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 11.40, Concert by the Wireless Orchestra, conducted by Nico Treep. 1.40, Variety Music on Gramophone Records. 2.10, Concert by the A.V.R.O. Chamber Orchestra, conducted by Louis Schmidt. 3.40 to 7.40, Programme of the Workers' Radio Society (V.A.R.A.). 3.40, Orchestral Concert, conducted by M. Duclant. 4.30, Programme for Children. 5.10, Concert by the Sotekrakers: Bohemian Polka (Balling); Polish Dance (Schrawenka); First Hungarian Dance (Brahms); Selection from Mariska (Lehar); Russian Dance (Hortkiewicz); Tango (Albeniz); Styrian Dances (Lanner); Spanish Dances (Moszkovsky); Bavarian Dances (Daxenberger); March, The Comrades (Rosny). 5.55, Organ Recital. 6.40, Talk. 7.0, Concert by the Flere-shutters, conducted by Hugo de Groot. 7.40 to 10.40, Programme of the Liberal Protestant Radio Society (V.P.R.O.). 7.40, Service from the Lutheran Church, Amsterdam. 9.55, Talk by Prof. Jordan. 10.40, Variety Concert on Gramophone Records, by the V.A.R.A. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.30 p.m., See Warsaw. 10.0, The Letter Box in French.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert, conducted by Eysoldt. Overture, The Black Domino (Auber); Suite, The Fables of La Fontaine (Mouton); Rose Marie (Krome); Wer hat die Liebe uns ins Herz gesenkt (Lehar); Selection from I Pagliacci (Leoncavallo); Romance (Tchaikovsky); Waltz, Natursinger (Ziehrer); In the Tea House with a Hundred Steps (Yoshitomo); Potpourri, Offenbachiana (Conradi). In the interval at 1.0 p.m., News. 1.30, Sponsored Programme with Gramophone Records. 2.30, Economic Notes and Time. 2.50, Handwork for Children. 3.20, Talk for Young People: The Youth of Famous Musicians. 4.0, Orchestral Concert, conducted by Kühn. Soloist: Rhein (Violin); Overture, Anacreon (Cherubini); Concerto gregoriano for Violin and Orchestra (Respighi); Suite from Turandot (Busoni); Prelude to Le Preziose Ridi-cole (Lattuada). 5.0, Review of New German Books. 5.20, English Conversation. 5.45, Weather, Time, Economic Notes, and Sports Results. 6.0, Talk: Aviation in the Winter Season, 1932-1933. 6.15, A Discussion on Contemporary Problems concerning Manual Workers. 6.55, News. 7.0, Talk: What People are Talking about in America, relayed from America. 7.15, See Frankfurt. 8.15, Humour of the Nations—England, Sketches, Verse, and Prose by Swift, Dickens, Wilde, Jerome K. Jerome, Russell, Kipling, Sidgwick, Wedehouse, and others, with Music by English Composers. Introductory Talk, with Commentary, by Hans Meyen. 9.20, News and Sports Notes. 9.35, Modern Poems set to Music—Choral Concert, with Commentary. 10.0, Light Music and Dance Music, conducted by Eysoldt. 11.0 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW.; and **DRESDEN**, 319 metres.—11.5 a.m., Orchestral Concert: March, Hoch Heidecksburg (Herzer); Overture, The Grand Duchess of Gerolstein (Offenbach); Selection from Hallo, die grosse Revue! (Lincke); Indian Ballet from Lakmé (Delibes); Three Sketches (Petre); (a) Die Schwalben, (b) Scherzo, (c) Im Frühling; Ballet Suite, The Arabian Nights (Richard Ralf); Waltz, Bad'ner Mad'l (Kozzak); Am Rhein, ein deutschen Rhein (Ries); Köschel Potpourri; Elegy (Sok); Rondino (Sibelius); Waltz from The Count of Luxembourg (Lehar); Old Styrian Concert and Dance Music (Pachernezz). In the interval at 12 Noon, Weather, Snow Report, News and Time. 1.0 p.m., Exchange. 1.5, Art Report. 1.30, Rudolf Gillingger reads Lyrics and Prose. 1.50 to 2.15, Interval. 2.15, Talk for the Country Woman. 2.35, Market Prices. 3.0 to 3.15, Talk: The History of Money. 3.30, Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer: Overture, Das tapfere Schneiderlein (Hanel); Selection from Das Fürstentum (Lehar); Heiteres Spiel (Blumer); Waltz from Madame Pompadour (Fall); Melody (Sinigaglia); Etude-Caprice (Sinigaglia); Heroischer Marsch, Op. 40, No. 2 (Schubert). 4.30, Book Review. 4.50, Economic Notes, followed by Weather and Time. 5.0, Heinrich Lilienten reads his Short Story, Wieland, for the 120th Anniversary of Wieland's Death. 5.25, English Lesson. 5.50, The Leipzig Station informs its Listeners. 6.0, Talk: Baroque Art in Dresden. 6.30, Liszt Concert: The Weimar State Orchestra and the Weimar Male Voice Choir, conducted by Dr. Ernst Praetorius. Soloists: Bruno Hintze-Reinhold (Piano-forte) and Georg Wilhelm Rotar (Tenor). Concerto No. 1 in E Flat for Piano-forte and Orchestra; Eine Faust Symphonie. 8.15, Economic Notes. 8.25, Programme for Leipzig and Breslau: The Six Towns—a Radio Picture of the Oberlausitz. 9.25, News. 9.30 (approx.), Gramophone Concert: Waltz Potpourri (Robrecht); Song from Der Opernbald (Heuberger); Rhapsody (Ascher); Waltz, Zum Küssen schön (Dicker); Boston, Ecstasy (Baynes); Gallop, Im D-Zug (von Blon); Waltz, O Frühling wie bist du so schön (Lincke); Extracts from My Country (Smetana); Die Lindenwirtin (Abt); March, Aus Stahl und Eisen (Rathke); Potpourri of Rhenish Songs (Kermbach); Salzburger-Bavarian Ländler; Delirien-Walzer (Jos. Strauss); Potpourri, Metropolitana (Brinkmann); König Karl Marsch (Urath); ABC Potpourri (Kozzak). 10.30 (approx.), Close Down.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—4.30 p.m., Quintet Concert. 5.30, Talk. 6.0, French Lesson. 6.30, Talk for Women. 7.0, Chamber Music. 8.0, Concert, relayed from the Café Zvezda. 9.15, Time and News.

LWOW

381 metres; 16 kW.—6.0 p.m., Talk. 6.15, Miscellaneous Items. 6.30 till Close Down, See Warsaw. 10.30 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South-East. 8.30, Programme relayed from Paris (Ecos Supérieurs) (447.1 metres). After the Relay, News Bulletin.

MADRID

ARANJUEZ (EAQ), 30.43 metres; 20 kW.—Programme in Commemoration of the Patron Saint of the Dominican Republic (Santh Domingo). 11.30, Spanish Music. 11.4, Radio Chronicle. 12.35 a.m. (Saturday), Spanish Music. 12.35 a.m. (Saturday), Answers to Correspondents. 12.40, Spanish-American Talk. 12.45, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotation, and Programme of Musical Novelties. 7.30, Medical Talk, followed by an Interlude by Ramon Gomez de la Serna. 8.25, News Bulletin. 8.30 to 9.30, Interval. 9.30, Chimes, Time Signal, and Fedora—Opera (Giordano) Concert Version on Gramophone Records. 11.45, News Bulletin and Programme Announcements for Listeners abroad. 12 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—6.20 p.m., Concert by the Station Orchestra, conducted by E. Trdy: Sleigh Suite (Matinuzzi); Wedding Scenes (Smetana); Capriccio (Dvorak). 7.15 till Close Down, See Prague. 9.15 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 190 kW.—4.10 p.m., Vocal and Instrumental Concert. 5.30, Chamber Concert from the Radio Theatre. 8.0, Review of the Week and Answers to Correspondence, in English. 8.50, Time Signal. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg, and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—4.0 p.m., See Langenberg. 5.15, Talk by Siegfried Kallenberg. 5.30, Scientific Review. 5.55, Time, Weather, and Agricultural Notes. 6.25, Concert conducted by Erich Kluge: Soloist, Hedda Aman (Songs); Suite from Prometheus (Beethoven); Melody (Huck); Mimed in a (Mozart); Ballet Music from Rosamund (Schubert); Old German Folk Songs: Two Waltzes, Op. 33 (Brahms); Alumbliat (Wagner); Vogel als Prophet (Schumann); Scherzo (Mendelssohn); Hungarian Rhapsody No. 14 (Liszt). 7.0, Talk by Kurt G. Sell: What People are talking about in America, relayed from America. 7.20, Symphony concert by the Station Orchestra, Conductor, Max Fiedler; Soloist, Josef Köhler (Cello); Overture, Egmont (Beethoven); Concerto in A Minor for Cello and Orchestra (Schumann); Symphony No. 1 in C Minor (Brahms). 8.40, Talk by Friedrich Kayssler. 9.20, Time, Weather, News, Sports Notes, Snow Report, and Traffic Report.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredrikstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres; and Rjukan, 447.1 metres.—6.0 p.m., Announcements, Weather and News. 6.30, English Lesson. 7.0, Time Signal. 7.30, Concert, relayed from St. Saviour's Church. The Philharmonic Orchestra, conducted by Odd Grønner Hegge: Soloists: Ernest Glaser and Oscar Holst (Violins); Overture, Iphigenia in Aulis (Gluck); Valse des Songes (Halvorsen); Berceuse (Järnefelt); Concerto for Two Violins and String Orchestra (Bach). 8.30, Agricultural Notes, Weather and News. 9.0, Topical Talk. 9.15, Reading. 9.45 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tourist Report, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. 7.20, Variety Music on Gramophone Records. In the interval at 7.30, Time and Announcements. 7.45, Vocal and Orchestral Concert. In the interval, Talk After the Concert, Song Recital. 9.55, News

PARIS

EIFFEL TOWER, Call FLE, 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 Parle. 7.20, Weather Report. 7.30, Concert of Preludes, conducted by Edouard Flament. Soloists: M. Gromer (Edouard Horn), and M. Bas (Violin); Prelude to the Third Act of Tristan and Isolde (Wagner); Prelude and Allegro for Violin (Pugnani-Kreiser); Prelude to Le Déluge (Saint-Saëns); Prelude à l'après midi d'un faune (Debussy); Prelude and Interlude from Pelléas et Mélisande

sande (Debussy); Prelude (Albeniz), 8.20, Literary and Musical Programme for Young People, 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—6.45 p.m., Le Journal Parle, 7.0, Variety Music on Gramophone Records, 7.30, Topical Talk, 8.0, Talk on Music, 8.15, Interval, 8.30, Extracts from La chanson de Fortunio Operetta (Offenbach) and Une education manquée—Operetta (Chabrier), 10.30, News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—6.25 a.m., Physical Culture, 7.30, Weather and Physical Culture (contd.), 7.45, Light Music on Gramophone Records, 8.0, Press Review and Weather, 12 Noon, Jewish Talk, 12.30 p.m., Concert by the Kretzky Orchestra, Part I—Old-Time Music, Part II—Overture, Così fan tutte (Mozart); Adagio and Polonaise from the Trio Serenade (Beethoven); Overture, A Midsummer Night's Dream (Mendelssohn); Germania (Brahms); Nocturne from Shylock (Fauré); Impressions de campagne au printemps (Godard). In the intervals at 1.0, Exchange, News and Weather, and 1.30 and 2.0, Exchange, 3.45, Exchange and Market Prices, 4.30, English Lesson, 6.10, Agricultural Talk, 6.30, Concert by the Kretzky Orchestra: Chers aveux (Leduc); Down Stream (Guttenger); Conte d'amour (Teres); Valse des blondes (Ganne); Marche des petits pierrots (Bosc), 6.50, Two Talks, 7.20, Concert by the Kretzky Orchestra (contd.): Water Lily (Monfred); Cloches dans la brume (Stalin); Gavotte (Danbé); La Fille aux cheveux de lin (Debussy); Suite breve (Busser), 7.45, Commercial Prices and News, 8.0, Manon—Opéra (Massenet), on Gramophone Records, In the intervals at 8.30, News and Weather, at 8.40, Gastronomic Review, and at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KOKA), 306 metres; 25 kW.—Relayed by W8XK on 48.86 metres and 25.27 metres.—9.0 p.m., Work-a-day Thoughts, 9.5, Business News, 9.15, Programme to be announced, 9.30, Weather Report, 9.32, Market Reports, 9.45, Piano-forte Interlude, 9.50, David Lawrence Dispatch, 9.55, KDKA Artist Bulletin, 9.58, Programme Announcements, 10.0, Programme to be announced, 10.15 to 11.0, New York Relay, 10.15, Dromedary Caravan, 10.30, The Singing Lady, 10.45, Little Orphan Annie, 11.0, Time Signal, 11.1, Temperature Report, 11.2, Teaberry Sport Review, 11.7, Press News Reeler, 11.12, Strange Facts, 11.14, Weather Report, 11.15, Johnny Hart in Hollywood, from New York, 11.30, KDKA Dinner Concert, 11.45 to 1.15 a.m. (Saturday), New York Relay, 11.45, Today's News, by Lowell Thomas, 12 Midnight, Pepsodent Amos 'n' Andy, 12.15 a.m., Royal Vagabonds, 12.30, Five Star Theatre—Charlie Chan, 1.0, Nestlé's Programme, 1.30, Time Signal, and Adventures in Health, 1.45, Howard Thurston, the Magician, 2.0, The First Nighter, 2.30, The Armour Programme, 3.0, Alice Joy, 3.15, Westinghouse Pioneers, 3.30, Bridge School of the Air, by E. Hall Downes, 3.45, Mildred Bailey, Blues Singer, from New York, 4.0, Time Signal, 4.1, Teaberry Sport Review, 4.11, Temperature Report, 4.12, Weather Report, 4.13, KDKA Artist Bulletin, 4.15, Press Last Minute News Flashes, 4.20, Cora Williams Hines (Contralto), 4.30, Jimmy Joy and his Orchestra, 4.50, Cotton Club Orchestra, from New York, 5.30, Time Signal and Good-night.

PORSGRUND.—See Oslo.

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., See Brno, 3.55, Fashion Talk, 4.5, Schumann Piano-forte Recital by Hlona Stepanova-Kurzova and Dr. Václav Stepan, Bilder aus Ostera, Op. 66; Am Brummen, Op. 85; Waltz Op. 109; Piece, Op. 85; Andante with Variations for Two Piano-fortes, Op. 46; Carnival Suite, Op. 9 for Piano-forte Solo, 5.5, Market Prices, 5.15, Talk for Workers, 5.25, German Transmission: News and Reading of Austrian Lyrics, 6.0, News, 6.5, Talk on Music, 6.20, See Bratislava, 7.15, Antigoné—Drama (Sophocles), with incidental music by Mendelssohn, in the interval at 8.0, Time Signal, 9.0, Time Signal, 9.1, News, 9.15 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE**, 580 metres; and **GENEVA**, 760 metres.—5.0 p.m. (from Geneva), Stories for Children, 5.15 (from Geneva), Interview with Young People, 5.30 (from Geneva), Talk on the Industrial Crisis, 6.0 (from Lausanne), Weather, News, and Announcements, 6.30 (from Lausanne), Elementary Lesson in Accountancy, 7.0 (from Geneva), Concert of Chamber Music, 8.0 (from Geneva), Variety Programme by the Broadcasting Serenaders, 8.0, News Bulletin and Weather Forecast, 9.15 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—5.5 p.m., Agricultural Report, 8.30, Weather, 8.40, Music and

JAN. 20th

FRIDAY

continued

Announcements, 9.0, Chimes and News, 9.30, By the Fireside.

RJUKAN.—See Oslo.

RIGA

525 metres; 15 kW.—5.30 p.m., Der Freischütz (The Marksman)—Opera in Three Acts (Weber), relayed from the National Opera House; News in the interval, 8.0, Weather, followed by Dance Music, 9.30 (approx.), Close Down.

ROME

Call 190, 441 metres; 50 kW. Relayed by **Naples**, 319 metres, and **290**, 25.4 metres.—7.15 to 7.30 a.m., Giornale Radio and Announcements, 11.30, Weather, and Light Music on Gramophone Records, 12 Noon, Time and Announcements, 12.2 to 1.15 p.m., Sextet Concert: March, Faute d'Italia (Sassano); Tango, Tornano le rose (Marinuzzi); Selection from The Bird Fancier (Zeller); Pieces for Mandoline Quartet; Two Spanish Dances (Moszkowsky); Selection from Si (Mascagni); Onestep, la finta di Bobè (Donati), 3.0, Violin Recital by Maria Fiori, relayed from the Royal Academy of Saint Cecilia, 6.10 (Naples), Shipping and Sports Notes, 6.15, Agricultural Report, Announcements, Giornale Radio, and Variety Music on Gramophone Records, 7.0, Time and Announcements, 7.5, Report of the International Institute of Agriculture (in Italian, French, English, German, and Spanish), 7.30, Talk on Sports, Sports Notes, and Tourist Report, 7.45, Concert: Soloists: Theodate Johnson (Soprano), Massimo Amilietto (Cello), Riccardo Castagnone (Piano-forte), and Gino Avanzini (Bass); Quartet in F for two Violins, Viola, and Cello (Dvorak); Three Old English Songs for Soprano: (a) Phillis (Anthony Young), (b) Sweet Kate (Robert Jones), (c) Seventeenth Century Song (Dr. Arne); Soprano Solos: (a) Blues (Kern), (b) How am I to know? (Jack King), 8.30, Bettine—Comedy in One Act (de Musset), 9.0, Concert (contd.): Pieces for Cello and Piano-forte: (a) Adagio (Leonardo Leo), (b) Fantasia on a Russian Theme (Rimsky-Korsakov), (c) Pastorale and Dance (Cyril Scott); Bass Solo: Wotan's Farewell and Fire Magic (Wagner); Arias and Duets from Samson and Delilah (Saint-Saëns), 9.55, News Bulletin.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on 31.48 metres; and by **W2XAD** on 19.56 metres.—7.45 to 11.0 p.m., New York Relay, 7.45, Muted Strings, 10.15, Paul Wing, The Story Man, 10.30, The Flying Family, 10.45, Adventures of the Slightly Soldiers, 11.0, Ma Frasier's Boarding House, 11.15, Studio Ensemble, 11.30, With Gray McIntock in the Canadian North-West, 11.45, Chandu, the Magician, 12 Midnight, Stock Reports, 12.15 a.m. (Saturday), General Electric Programme: Explorations in Science, 12.30 to 1.30, New York Relay, 12.30, Soloist, 12.45, The Goldbergs, 1.0, Cities Service Programme, 1.30, WGY Faru Forum, 2.0 till Close Down, New York Relay, 2.0, Cigaret Club, 2.30, Pond's Programme, 3.0, Chevrolet Programme, 3.30, Musical Programme, 3.45, Lanny Ross (Tenor).

SCHWEIZERISCHER

LANDESENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASLE**, 244.1 metres; and **BERNE**, 245.9 metres.—11.28 a.m., Time Signal from Neuchâtel Observatory, 11.30, Weather and News, 11.40, Concert by the Little Radio Orchestra, 12.35 p.m., Weather and Exchange, 12.40 to 2.30, Interval, 2.30, Chamber Music on Gramophone Records, 3.0, Waltzes on Gramophone Records, 3.30 (from Berne) Programme for Children, 4.0, Concert of Negro Music on Gramophone Records, 4.30 to 4.35, Weather, 5.30 (from Berne), Talk: As a Doctor in the Bush, 6.0, Time, Weather, Market Prices, Tourist Report and Sports Notes, 6.20 (from Berne), Reading from Christoph's Flucht (Bolt), 6.45, Concert of Light Music by the Radio Orchestra 7.5 (from Berne), Concert of Folk Music by the Berne Yodelling Club and La Peasant Orchestra, 7.40 (from Berne), Der Herr Ochsebel—Dialect Comedy in One Act (Neumann), 8.30, Weather and News, 8.40 (from Berne), Concert of Light Music in Old Style by J. S. Bach and J. N. Bach, with an Introduction by the Radio Orchestra: Part I, Ein fröhliches Quodlibet—a Fragment for Four Voices and Thorough Bass (J. S. Bach), Part II, Der Jenaische Wein und Bierrufer—Operetta (J. N. Bach), 9.20 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden**, 1,229.5 metres; **Göteborg**, 322 metres; **Morby**, 257 metres; **Motala**, 1,348 metres; **Ostersund**, 770 metres; and **Sundsvall**, 542 metres.—4.5 p.m., Accordion Music, 4.30, Reading, 4.55, Variety Music on Gramophone Records, 5.55, Talk on Foreign Poli-

tics, 6.15, Weather and News, 6.30, Choral Concert, conducted by Sven Lizell, in the interval, Reading, 7.15, Talk, relayed from **Malmö**, 231 metres, 7.45, Concert by the Station Orchestra: Soloist: Sven Nilsson (Songs); Two Airs (Wagner); (a) Entry of the Gods into Valhalla from The Ringgold, (b) Aria from The Mastersingers; Aria from The Magic Flute (Mozart); Serenade for Strings (R. Trunk); Song; Overture to an Opera, Bulla (Grosz), 8.45, Weather and News, 9.0, Orchestral Concert of Light Music, 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Opera Music on Gramophone Records, 12.45 p.m., News Bulletin, 1.0, Time Signal and Exchange, 1.10, Light Music on Gramophone Records, 2.0 to 4.45, Interval, 4.45, Literary Talk in French: The Theatre World in Former Times, 5.0, Concert of Jazz Music, 6.0, Talk in German, 6.15, History Talk in French, 6.30, Orchestral Concert, conducted by Maurice de Villers: Overture, Light Cavalry (Suppé); Suite, Gitaneries (Bazigade); Selection from The Gipsy Baron (Johann Strauss); Mattinata (Leoncavallo); Second Caucasian Suite (Ippolitov-Ginov); Bohemian March (Filippucci), 7.30, Time Signal, 7.31, News, 7.45, Mandoline Concert, relayed from the Salle du Beffroi, Thionville: March, Amazoneritt (Ritter); Selection from Preciosa (Weber); Overture, Myrthalia (Macchiocchi); Overture, The Nuremberg Doll (Adam); Overture, Die schöne Galathée (Suppé); March, Sommervögel (Stengel), 8.25, Lottery Results and Announcements, 8.30, Concert, conducted by Aimé Kunc, relayed from **Toulouse-Pyrénées (PTT)** (255 metres). Soloists: Marguerite Pittean (Songs) and Yves Nat (Piano-forte), 11.0, Dance Music relayed from Thionville, 11.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG**, 570 metres.—12.30 p.m., Concert from **Langenberg**, 1.0, Sponsored Programme with Gramophone Records, 1.30 to 2.0, Advanced English Lesson, 4.0, See **Langenberg**, 5.15, Time, Weather, and Agricultural Notes, 5.25, Talk: Confessions, 5.50, Medical Talk: Snake Bites and their Treatment, 6.15, Talk on Week End Rambling, 6.25, Time and News, 6.30, Accordion Music played by Hermann Schittenhelm: Two Original Tangos for Accordion, (a) Tango (Karl Schäfer), (b) Accordion Tango (Schlothen); Music for Accordion (Hugo Herrmann); Pieces for Accordion, (a) Matrosentanz (Kurt Köhler), (b) Schneider-Polka (Herrmann Schittenhelm), (c) Akkordeon-ong (Hugo Herrmann), (d) Hoher überall (Kurt Junghaus), 7.15, See **Frankfurt**, 8.15, (from **Pforzheim**), Concert by the Pforzheim Symphony Orchestra, conducted by Julius Schröder: Triumphal March from Aida (Verdi); Overture, Oberon (Weber); Suite No. 1 from Carmen (Bizet); Selection from Tiedland (d'Albert); Waltz, Tales from the Vienna Woods (Joh. Strauss), 9.10, Time, News, Weather, Snow Report, Programme Announcements, and Sports Notes, 9.30, Franz Trefzger Ballads sung by Eva Regina Fein, with the Composer at the Piano-forte, 9.45, Serenade by the Dance Ensemble of the Stuttgart Philharmonic Orchestra, with Song Refrains by Kable Mann (Soprano), 11.0 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0 p.m., News, 6.15, Dance Music, and Chansonettes, 6.30, Spanish Rhapsody for Orchestra (Ravel), 6.45, Cello Recital: Le Cygne (Saint-Saëns); Aubade d'amour (Monti); Nocturne in E Flat (Chopin); Mountain Song (Voachim), 7.0, Talk for Tourists, 7.15, News, Horse Racing Results and Market Prices, 7.25, Local News, 7.30, Light Music, 7.45, Military Music, 8.0, Opera Music: Airs from (a) Grisélidis (Massenet), (b) The Damnation of Faust (Berlioz), (c) Lohengrin (Wagner), 8.15, Accordion Solos, 8.30, Sound Film Music, 8.45, Music by an Argentine Orchestra, 9.0, Rossini Concert: Overture, The Italian Girl in Algiers; Figaro's Song from The Barber of Seville; Overture and Prayer from William Tell; Overture, Semiramis, 9.45, Operetta Music: Rondo de la Cocarde, from La Cocarde de Mimi Pinson (Gombier); Vous savez trouver from Quand l'amour vient (Chantrier); Je suis le secrétaire from Coups de Roulis (Messager), 10.0, Hawaiian Guitar Music, 10.15, North African News, 10.30, Concert for Listeners in Morocco: Iberian Dance (Nin); Melody from Parsifal (Wagner); Japanese Lantern Dance (Yoshitomo); Griserie (Bosc); Sur l'arrière de l'Opera (Raiter); March, Citroen (Van Hec), 11.0, Music by a Viennese Orchestra: Selection from A Waltz Dream (O. Straus); Selection from The Gipsy Baron (Joh. Strauss), 11.30, Programme arranged by the I.B.C. Concert: Choo-Choo; Leonard Henry lets himself Go; Accordion Band; Medley of Popular Hits; Soprano Solo: Cuban Love Song; Trees; The Wayside Shrine; An Old

Violin, 12 Midnight, Weather and Announcements, 12.5 a.m. (Saturday), Orchestral Music: Symphony No. 1 (Beethoven); Overture, Rienzi (Wagner), 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—6.0 to 6.30 p.m., See **Turin**, 6.30, Orchestral Concert from the Café Dante, 7.0 till Close Down, See **Turin**.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayed by **Milan**, 331.5 metres; **Genoa**, 312.8 metres; and **Florence**, 500.8 metres.—6.0 p.m., Orchestral Concert, 6.25, Report of the Royal Geographical Society, 6.30, News, 6.35, Popular Music on Gramophone Records, In the interval at 7.0, Giornale Radio and Weather, 7.30, Sports Talk and Variety Music on Gramophone Records, 8.0, Orchestral Concert, conducted by Werner Janssen. Soloists: Benedetto Mazzacurati (Cello) and Werner Janssen (Piano-forte), Overture (Handel-Hamilton Harty); Concerto for Cello and Orchestra (Schumann); Blueland (David Robinson); March from the Two American Sketches (Griselle); Melody (Bloom); Piano-forte Solo: Ragging the Scale (Claypoole); The Meadows (Sewerby); New Year's Day in New York (Janssen). In the interval, Talk, 10.0, Giornale Radio.

VATICAN CITY

19.84 metres (Morning), and 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

517 metres; 15 kW. Relayed by **Graz**, 352.1 metres; **Innsbruck**, 283 metres; **Klagenfurt**, 453.2 metres; **Linz**, 245.9 metres; and **Salzburg**, 218 metres.—3.25 p.m., Talk: Winter Sports in the Alps, 3.50, Vocal and Instrumental Concert, Sophie Angermayer-Capek (Songs), Martha Wiesenthal (Violin), Walter Kurz (Cello) and Ida Rosen (Piano-forte); Piano-forte Solo: Toccata and Fugue in D Minor (Bach-Taussig); Sonata in F for Violin and Piano-forte (Mozart); Piano-forte Solo: Sonata in A Flat, Op. 110 (Beethoven); Songs (Schubert); (a) Ave Maria, (b) Ertelied, (c) Aude Musik; Songs (Schumann); (a) Stille, (b) Frühlingnacht; Sonata for Cello and Piano-forte in E Flat Minor (Fuchs), 5.15, Roads Report, 5.45, Talk: The Training of a Skiing Champion, 5.55, Programme to be announced, 6.10, Talk: The Flora and Fauna of Jan Mayen Island, 6.35, Time, Weather and Programme Announcements, 6.45, Recitation of a Short Story (Franz Adams), 7.15, Concert by the Vienna Symphony Orchestra, conducted by Oswald Kabasta. Soloist: Arthur Rubinstein (Piano-forte); Leonora Overture No. 2 (Beethoven); Concerto in E Flat, Op. 73, for Piano-forte and Orchestra (Beethoven); Petite Suite (Debussy); Nights in the Gardens of Spain (Falck); Matagena from Bondibi (Moszkowsky), 8.55, News, Weather and Announcements, 9.10, Dance Music relayed from the Café de Paris.

WARSAW

1,411 metres; 120 kW.—10.40 a.m., Press Review, 10.50, Weather Forecast and Report for Aviation, 10.58, Time Signal and Bugle Call from St. Mary's Church, Cracow, 11.5, Programme Announcements, 11.10, Light Music on Gramophone Records, 12.20 p.m., Weather Forecast, 12.25 to 2.10, Interval, 2.10, Announcements, 2.25, Aviation Notes and Anti-Gas Report, 2.30, Talk on Maritime and Colonial Report, 2.35, Linguaphone English Lesson, 2.50, Popular Music on Gramophone Records, 3.25, Review of Periodicals, 3.40, Talk: Contemporary Philosophers—George Berkeley, relayed from **Lwów**, 381 metres, 4.0, Concert by a Wind Instrument Orchestra, conducted by André Bromke: Polonaise (Obrjan); Extracts from Kosamund (Schubert); Fantasia on Themes from Polenbut (Nedbal); Waltz, O Frühling wie bist du so schön (Lincke); Gavotte from Der Gascogner (Suppé); Oriental Suite (Poppy); Hohezeitzug in Lillput (Translateur). In the interval, Announcements, 4.55, Programme Announcements, 5.0, Light Music from the Café Adria. In the interval, Topical News, 5.50, Announcements from **Cracow**, 312.8 metres, 6.0, Miscellaneous Items, 6.20, Agricultural Review, relayed from **Wilno**, 563 metres, 6.30, Reading, 6.45, Radio Journal, 7.0, Talk on Music, 7.15, Concert by the Warsaw Philharmonic Orchestra, relayed from the Philharmonic, Conductor: Nicolas Malko. Soloist: E. Kon (Piano-forte). Variations from the Third Suite (Tchaikovsky); Piano-forte Concerto in C Minor (Rachmaninov); Symphony No. 5 (Mikowsky). In the interval, Literary Talk, 9.40, Sports Notes, 9.45, Radio Journal, 9.55, Weather Forecast and Police Notes, 10.0, Dance Music from the Café Adria.

ZAGREB

307 metres; 0.75 kW.—6.35 p.m., Talk, 7.0, Concert from **Belgrade**, 9.0, News, Weather and Snow Report, 9.10, Dance Music from the Grill Room, 10.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender.

SATURDAY

JANUARY THE TWENTY-FIRST

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL

Organ music. Orchestral concert. Popular recital. A running commentary on the International Rugby Football match—England v. Wales, by Captain H. B. T. Wakelam, relayed from Twickenham. Organ music. Mr. Gerald Heard: "Science in Industry." Choral concert. Gilbert and Sullivan relay (Last Night of Season), from the Savoy Theatre. Dance music.

LONDON REGIONAL

"The Week-End," by Mr. S. P. B. Mais. Orchestral concert. National programme. "Ghosts of Solberga," a winter tale, adapted from Herr Anne's Hoard by Selma Lagerlöf. Orchestral concert. Dance music.

MIDLAND REGIONAL

"Cocoa and Chocolates," a talk by Messrs. John and David Cadbury respectively, with incidental noises from the plant during a tour of a works. Up from Warwickshire, instrumental concert.

NORTH REGIONAL

Choral and orchestral concert, from the Free Trade Hall, Manchester. The Yorkshire Mimmers. Dance music.

WEST REGIONAL

"Western Week-end" (3), by Mr. George Childs: A Visit to the Rhondda. Orchestral concert from National Museum of Wales. Welsh interlude.

SCOTTISH REGIONAL

"Frac a' the Airts," Mr. George Blake: "The Week in Scotland." London Regional programme.

BELFAST

Alexander Riddell: "Ulster Regiments" (1) Orchestral concert from the Wellington Hall.

ABROAD

BRUSSELS (No. 2)

The Conservatoire Concert Society's Orchestra.

STUTTGART

The Philharmonic Orchestra, conducted by E. Kabn. Chopin pianoforte recital by Sophie Rabczewicz.

WARSAW

Berlin. 10.0, Festival Performance in Aid of the Winter Relief Fund, relayed from the State Opera House, Unter den Linden. 12 midnight (approx.), Close Down.

BERNE.—See Schweizerischer Landessender. **BEROMUNSTER.** — See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BORDEAUX-LAFAYETTE

204 metres; 13 kW.—7.30 p.m., News, Exchange Quotations, Market Prices, and Lottery Results. 7.30, Sports Notes. 7.35, English Lesson. 7.50, News Bulletin. 8.0, Popular Music on Gramophone Records. 8.30, Fleur de Thé—Opérette (Lecocq), relayed from Paris (Ecole Supérieure) (447.1 metres).

BRATISLAVA

273 metres; 11 kW.—3.10 p.m., Concert by the Station Orchestra, conducted by J. Odhazal: 4.10, Marionette Theatre. 5.0, Concert, with an Introductory Talk and Recitations, relayed from Trenchin. 7.0, The Government Inspector—Opérette in Three Acts (Karel Weis). 9.0, See Prague. 9.15, Concert by a Cigány Band, relayed from Trenchin. 10.0, Concert, relayed from Moravska Ostrava. 10.30 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres; 60 kW.; and GLEIWITZ, 253 metres.—12.5 p.m., Weather for Farmers, followed by Variety Music on Gramophone Records. In the interval at 12.45, Time, Weather, News and Exchange. 1.45, Sponsored Programme with Gramophone Records. 2.10, Market Prices and Exchange. 2.40, Film Review. 3.0, Talk: East German Personalities. 3.30, Concert by the Radio Orchestra, conducted by Bruno Janz: Fantasia on Themes by Bach, Beethoven and Brahms (Wynon); Nocturne for Cello (Klengel); Selection from Das Christelldlein (Pfitzner); Verdi Potpourri (Weninger); Minnet (Schäfer); Waltz, Liebeslieder (Johann Strauss); Serenade, Lockende Dämmerung (Leuschner); Romance for Vibraphone (Löh); Rubis Traum (Kark). 5.0, Review of New Books. 5.15, A Review of the Week's Talks and Literary Intelligence. 5.45, Concert by the Radio Orchestra, conducted by Brian Janz: Selection from Love's Awakening (Küttke); Waltz, Die Schwalben (Joh. Strauss Sen.); Selection from Frederica (Lehár). 6.30, Weather and Topical Talk. 7.0, See Berlin (Witzleben). 8.10, News. 8.20, Variety Programme from Langenberg. 10.0, Dance Music from the Café Berlin. 10.30, Dance Music by Ambrose and his Band from the May Fair Hotel. London. 12 Midnight, Close Down.

ALGIERS

363.3 metres; 13 kW.—7.20 p.m., Request Gramophone Concert. 7.55, News. 8.0, Time Signal. 8.2, Italian Songs. 8.15, Report of the Automobile Club. 8.30, News. 8.35, Songs from Opérettas. 8.45, Talk on Algiers. 9.0, Concert by the Station Orchestra. In the interval at 9.30, News. 9.50, News.

BARCELONA

RADIO-BARCELONA; Call EA11; 323.8 metres; 8 kW.—6.0 p.m., Programme for Children. 7.0, Request Gramophone Records. 7.30, Exchange Quotations and Catalan Grammar Lesson. 8.0, Popular Music on Gramophone Records, and News Bulletin. 9.0, Chimes, Weather, Exchange Quotations and Market Prices. 9.5, Concert by the Station Orchestra: March, Anamatischer-Zauberer (Siede); Selection from Los burricos (Jimenez); Waltz, Frühlingstimmen (Johann Strauss); Intermezzo, Temptation (Delmus); Castilla (Albeniz); Overture, Heimkehr aus der Fremde (Mendelssohn). 10.0, Macbeth—Tragedy (Shakespeare), arranged for Radio by A. M. Becerra. 11.0 (in an interval), News Bulletin. 12 Midnight (approx.), Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Notes, Tourist Report and Announcements. 7.20, (Giornale Radio, Sports Notes, and Weather. 7.30, Concert of Opérette Music and Songs: Overture, On the Rhine (Mascagni); Say it in Russian (Weiss Schwarz); Tenor Solos: (a) Lorosita (Di Lazzaro), (b) Signora Felicità (Moleti); Mirka (Ranzato); Soprano Solos: (a) Non ti scordar di me (De Curtis), (b) Il paese del maddalino (Moleti); Tenor Solo: Bianda svedese (Cortopassi); Selection from The Student Prince (Romberg); Overture, Gri-Gri (Lincke); Melody (Caslar); Tenor Solo: Soltanto una rosa (Moleti); Soprano Solo: Sona, chitarra (De Curtis); Selection from Rosa di maggio (Bettinelli); Soprano Solo: Suona, fanfara (Moleti); Moresca (Pronini); Tenor Solos: (a) Valzer del sole (Mariotti-Mendes), (b) Lillina (Mendes-Schloz); Selection from Die Puppenfee (Bayer). In the interval, Talk: From Near and Far. 9.30, Light Music on Gramophone Records. 9.55, News Bulletin.

BASLE.—See Schweizerischer Landessender.

BELGRADE

430.4 metres; 2.8 kW.—3.30 p.m., Variety Music on Gramophone Records. 5.55, Time and Programme Announcements. 6.0, Popular Music on Gramophone Records. 6.30, Talk on Wireless. 7.0, Concert of Light Music by the Station Orchestra. 8.0, Radio Play. 8.30, News, followed by Light Music on Gramophone Records. 9.30, Cigány Music from the Potrosacka Zadruha Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11 a.m., Weather for Farmers. 11.5, Popular Music on Gramophone Records, followed by Second Weather for Farmers. 11.55, Time Signal. 12.35 p.m., News. 1.0, Gramophone Concert of Popular Music, relayed from Berlin (Witzleben). 2.0, Handwork for Children. 2.30, Weather and Exchange. 2.45, Reading: The Grandmother (Hermann Stehr). 3.0, Talk on Hermann Barthe, the Dramatist. 3.30, See Hamburg. 4.10, Weekly Review. 4.55, Pianoforte Recital of Children's Pieces (Eduard Moritz). 5.30, Talk by Prof. Poll. 5.55, Weather for Farmers and Announcements. 6.0, The Silent Hour. 6.30, A Poem. 6.35, Sonata Op. 57 in F Minor (the Appassionata) for Pianoforte (Beethoven), by Conrad Hansen. 7.0, Choral Concert, conducted by Hermann Behr, relayed from the Singakademie; Psalm No. 23, Gott meine Zuversicht (Schubert); Liebe (Schubert); Der Gondelfahrer (Schubert); Songs (Schumann). (a) Ritornello, (b) Die Lotosblüme, (c) Der Träumende See, (d) Die Minnesänger; Unterwegs-Strassenlied (Gatter); Wahn (Faepler). In the interval, Talk on the Silesian People. 8.15, Variety Programme, relayed from the Hessisch Landes-theater, Darmstadt. 9.20, Weather, News and Sports Notes. 9.45, Weather for Shipping. 10.0, See Berlin (Witzleben). 11.30 (approx.), Close Down.

BERLIN

(Witzleben) 419.5 metres, 15 kW.—3.15 p.m., Wind Instrument Concert, conducted by Joseph Snaga. 4.0, Topical Talk. 4.10, Concert (contd.). Potpourri, Deutschland im Lied (Snaga); American Patrol (Myddleton); Luna-Walzer (Lincke); Fantasia on Strauss Melodies (Bohne); Hungarian Comedy Overture (Kéler-Béla); Petersburger Marsch. 5.0, Josef Martin Bauer reads from his own works. 5.25, Labour Market Report. 5.30, Sonata in A for Violin and Pianoforte (César Franck). 5.55, The Witzleben Station informs its listeners. . . . 6.0, Topical Talk. 6.10, Animals and their Doubles in Mankind—Humorous Parallels, by Franz Evers, with Gramophone Records. 6.30, Sea Stories (Fritz Karstädt), read by the Author. 6.45, One of Eighty Millions. 7.0, Die schöne Risetete (The Fair Risetete)—Opérette in a Prelude and Three Acts (Fall). 8.15 (in an interval), News and Sports Notes. After the Opérette, Second News and Dance Music from the Café

conducted by P. Leemans. Soloist: M. Derksen (Cello). Hungarian March (Berlioz-Waltz, O Frühling, wie bist du so schön (Lincke); Dance of the Merry Muscovites (Kretschy); Selection from The Little Dutch Girl (Kalmann). Cello Solo: Le cygne (Saint-Saëns); Tarantella, Martina (Cantelone); Foxtrot, I owe you (Hartman-Gooch); Ein Tango macht verliebt (Komjati-Pasoldo, Old Spain (Demont). 5.0, Concert by the Radio Orchestra, conducted by Charles Walpot. Soloist: M. Ferrari (Violin); One-step, Pontevara (Heymann); Overture, Light Cavalry (Suppé); Violin Solo: Journée à Seville (Waldteufel); Violin Solo: (a) Nocturne in E Flat (Chopin-Sarasate), (b) The Bee (Schubert); Two Norwegian Dances (Grieg); Second Suite from L'Arlesien (Bizet); Waltz from The Count of Luxembourg (Lehar). 6.0, Björnstjerne Björnson Programme. Mme. J. Van Santvoort (Recitations) and M. A. Corbet (Songs). 6.30, Concert by Mickey's Club Jazz Attraction. 7.1, Recitation. 7.30, Film Review. 8.0, Running Commentary on Six Days' Racing in Palais des Sports. In the intervals, Gramophone Records. 8.30, Concert by the Conservatoire Concert Society, conducted by François Rasse. Soloist: Robert Casadesu (Pianoforte). Fourth Symphony in E Minor (Brahms); Concerto No. 5 in E Flat for Pianoforte (Beethoven); Pour une Tragédie (F. Rasse); Pianoforte Concerto in A (Liszt). 10.30, Le Journal Parlé. 10.40, Running Commentary on the Six Days' Racing in the Palais des Sports. 11.0, Dance Music from the St. Saviour Palais de danses. 12 Midnight (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—4.0 p.m., Concert in Light Music and Romanian Music by the Sibicam Orchestra. 5.0, Time Signal. 5.7, Talk. 5.25, Orchestral Concert (contd.). 6.2, Talk: Romania and her Frontiers. 6.35, Popular Music on Gramophone Records. 7.2, Orchestral Concert. 7.40, Talk. 7.55, Concert by a Balabaka Orchestra and the Gushar Russian Choir: Romantic Overture (Kéler-Béla); Sun Rise, for Choir; Death of Asse (Grieg); Tango, Blue Eyes, for Choir; Russian Potpourri (Cuzmenco); The Star for Choir; Foma et Erioma, for Choir. 8.2, Concert of Light Music and Romanian Music by Dinico and his Orchestra, relayed from the Eneaco Restaurant.

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on 840 metres from 7.0 p.m. till Close Down. 4.0 p.m., Concert by the Budapest Concert Orchestra, conducted by Otto Berni. Overture, Fra Diavolo (Auber); Gnomid Fantasia Ballet Suite (Gyldmark); Estar (Ganne); Waltz from The Merry Widow (Lehar); Die Zauberflöte (Perreggi Turry). 5.15, Talk. 5.45, Melodies by a Cigány Band. 6.30, Talk: Everyday Marvels. 7.0, Concert by the Opera House Choir, conducted by Wilhelm Roubal. 7.45, Time and Weather. 8.0, Gramophone Concert of Light Music. 9.0, Review of Foreign Affairs, followed by Weather, and Cigány Concert from the Café Patria. 10.15, Dance Music.

CASSEL.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW.; and KALUNDBORGH, 1,153 metres; 7.5 kW.—11.0 a.m., Time and Chimes from the Town Hall. 11.5, String Ensemble Concert, relayed from the Wives Restaurant. 1.0 to 1.30, Interval. 1.30, Gramophone Concert; Francesco Merli: Aria from William Tell (Rossini); Celestino Saboro; Prologue to I Pagliacci (Leo-cavallo); Lembehil du Roy and M. Burnie; Duet from Veronique (Messager); Fritz Kreisler: Chanson Louis XIII. (Coupère-Kreisler); Herbert Ernst Grol: Sérénade d'amour (Waldau); Layton and Johnston: Love me tonight (Crosby-Yong); Arthur Lilly: A Fly's Day Out (Kennedy); The Boswell Sisters: We just couldn't say Good-bye (H. Woods). 2.0, Programme for Children. 2.30, Concert by the Radio Orchestra, conducted by Emil Reese. Soloist: Alfred Petersen (Songs); Overture, Maximilian Robespierre (Litolff); Selection from La Dame blanche (Boieldieu); Two Swedish Sketches for Strings (Petre); (1) Scherzo, and (2) Spring Polka, Furiant and Dance from The Bartered Bride (Smetana); Songs (Heise and Lange-Müller); Overture, Der Waldmeister (Joh. Strauss); Valse Charmante (Bossi); Selection from The Force of Destiny (Verdi); Rheinleiedchen (Mahler); Two Airs from Lakmé (Delibes); Czardas from Ritter Pasman (Joh. Strauss). 4.40, Exchange and Fish Market Prices. 4.50, Talk in German: Hugo von Hoffmannsthal. 5.20, French Lesson for Beginners. 5.30, Weather Forecast. 6.0, News. 6.15, Time Signal. 6.30, Talk. 7.0, Chimes from the Town Hall. 7.5, Concert of German Music. The Radio Orchestra, conducted by Lantzy Gründahl. Suite (Scheidt); Aria for Soprano, Strings and Harpsichord (Krieger); Variations on Aulf die Mayern for Harpsichord (Froberger); Air for Soprano, Strings and Harpsichord. Ein kleines Kindchen (Funder); Suite for Strings and Harpsichord from Studenten-Musik (Rossmüller). 7.40, Reading. 7.55, A Topical Radio Revue. 9.0, News. 9.15, Modern Music, by Louis Prell's Instrumental Ensemble: March, Katharina (Steffan); Viennese Waltz Suite (Gilsen); Russian Rhapsody (Nussbaum);

BRNO

342 metres; 35 kW.—5.25 p.m., German Transmission: News and Song Recital by Arnold Schustacek and Klara Waldmann. 6.0, See Prague. 6.20, Concert of Popular Music. 7.0, See Bratislava. 9.0, See Prague. 9.15, See Moravska Ostrava. 10.30 (approx.), Close Down.

BRUSSELS (No. 1)

1,181 metres; 15 kW.—12 Noon, Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, La Chasse du Jeune Henri (Méhul); Miniature Suite (E. Coates); Sevilla (Albeniz); Violin Solo: Liebeshied (Kreisler); Selection from Veronique (Messager); Idylle (Tosti); Two Arabesques for Pianoforte (Debussy); Selection from Daphnis et Chloé (Offenbach). 1.0 p.m., Le Journal Parlé. 1.10, Concert of Sound Film Music relayed from the Grand Hotel, Antwerp. 5.0, Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Oberon (Weber); Russian Dance (Moszkowski); Ballet Music from Henry VIII (Saint-Saëns); Romance sans paroles for Cello (Rabaud); Flute Solo: Fantaisie caractéristique (Andersen); The Whistler and his Dog (Pryor); Waltz, For You (Burke); Selection from Le Jour et la Nuit (Lecocq). 6.0, Talk on Photography. 6.15, Chamber Music by M. Broos (Viola) and Paul Donier (Pianoforte); Sonata for Viola and Pianoforte (Donizet); Concert Piece (Enesco); Elégie (Fauré). 6.45, Wallon, Music on Gramophone Records. 7.0, Hot Jazz on Gramophone Records, with Commentary. 7.15, Talk: Accidents at Work and Occupational Diseases. 7.30, Review of International Events. 8.0, Concert by the Radio Orchestra, conducted by Charles Walpot: March, The Picador (Souza); Overture, L'Oncle Mathurin (Weyts); Waltz, The Skaters (Waldteufel). 8.15, La Défense du Bonheur—Play in One Act in Verse (Garnier). 8.45, Concert (contd.): Scènes pittoresques (Massenet); Violin Solo: Sérénade à Lisette (Caludi); Potpourri, Ein Melodien- Traum (Urbach); Waltz, Loin du pays (Berger); Selection from The Tales of Hoffmann (Offenbach); Selection from The Road to Paradise (Heymann); Foxtrot, Sing you Sinners (Heymann). 10.0, Le Journal Parlé. 10.10, Gramophone Concert of Light Music. 11.0, Orchestral Concert relayed from the Ancienne Belgique. 12 Midnight, Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish.—12 Noon, Concert relayed from the Grand Hotel, Antwerp. Conductor: André Fellenan. Orpheus in the Underworld (Offenbach); Potpourri, Auf Wiederhören (Weninger); Violin Solo: Tambourin chinois (Kreisler); Waltz Suite No. 3 (Robrecht); Spanish Serenade (Glazunov); Wagner Potpourri (Urbach). 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Small Station Orchestra,

JAN. 21st

SATURDAY

continued

HAMBURG

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by **Bremen**, 270 metres; **Flensburg**, 227.4 metres; **Hanover**, 566 metres; and **Kiel**, 232.2 metres.—3.30 p.m., Concert by the Hamburg Philharmonic Orchestra, conducted by Adolf Secker: Prelude to Die Abreise (d'Albert); Selection from Tosca (Puccini); Polovtsian Dances from Prince Igor (Borodin); Humoresque in E (Humperdinck); Selection from Der Rosenkavalier (R. Strauss). 4.30, Talk: German Housing Plans. 4.55, The Illusion is soon over—Radio Play (Hamer) with Music by the Small Station Orchestra, conducted by Fritz Gartz. 5.55, Talk: The Life of the Middle Classes in Sydney and Melbourne. 6.20, Report on the Weather from November to February. 6.25, Weather Report. 6.30, Cabaret Concert. 7.0 (from **Hanover**), Concert in Aid of the Hanover Winter Relief Fund, relayed from the Kuppelsaal. Overture, Bizet (Wagner); Air from Tannhäuser (Wagner); First Suite from Carmen (Bizet); Song from Tosca (Puccini); Minuet (Bolzoni); Rosemarie (Erdlen); Goldene Sonne (Erdlen); Hungarian Rhapsody No. 2 (Liszt); Overture, Light Cavalry (Suppé); Grüss dich Gott du liebes Nesterl from Wiener Butt (Joh. Strauss); Prelude to Act Three of The Lady of the Rose (Gilbert); Air from The Rose of Stamboul (Fall); Item by Willy Hagen; Duet from Ein rheinisches Mädel (Hiller); Potpourri of Strauss Operettas (Schlögel); Song from Der Bettelstudent (Millöcker); Prelude to Act Three of The Bird Fancier (Zeller); Das ist herrlich from Morgen geht's uns gut (Benatzky); Der Norag-Marsch (Platen). 9.0, Time and News. 9.20, Topical Talk. 9.30, Dance Music, relayed from the Hans Sieglar. In the interval at 10.20, Ice Report. 10.30, Dance Music relayed from London. 12 Midnight, Close Down.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW.; and **Danzig**, 453.2 metres.—12.5 p.m., Gramophone Concert. In the interval, at 12.20 p.m., News. 1.30, Sponsored Programme with Gramophone Records. 2.0, Agricultural Prices and Exchange Rates. 2.30 (from **Danzig**), Handwork for Children. 3.0, Concert by the Small Station Orchestra, conducted by Eugen Wleken: Homage March from Sigurd Jorsalfar (Grieg); Overture, Erlenhölzchen (Kullak); Three Russian Dances (Bortkiewicz); Waltz, Märchen aus dem Orient (Joh. Strauss); Selection from Il Trovatore (Verdi); Overture, Der Gasconier (Suppé); Oechli di Zingara (Filippini); Guitares (Lalo); Waltz, Winter-stürme (Fueki); Potpourri, Viribus unitis (Richter); March, Uncle Teddy (Fueki). In the interval, at 4.0 (approx.), Humorous Topical Review. 5.0, Programme Announcements in Esperanto. 5.15, Agricultural Prices. 5.30, World Market Report. 5.45, Talk: The Industrialisation of East Prussia. 6.15, Radio Report on the Prevention of Gambling. 6.50, News and Weather. 7.0, Variety Programme, relayed from the Hessische Land-theater, Darmstadt. 9.20, Weather, News and Sports Notes, followed by Dance Music from **Berlin (Witzleben)**. 10.30 (approx.), Dance Music, by Ambrose and his band, relayed from **London**. 11.30 (approx.), Close Down.

HILVERSUM

Announced **HUIZEN**; 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.). Programme of the Catholic Radio Society (K.R.O.).—11.55 a.m., Sextet Concert: Du bist so schön, Marie (Kueck); Waltz (Abraham); Romantische Suite (Neal); An der Weser (Pressele); Bubuschka (Schirrmann); Destiny (Baynes); Gramophone Records: Selection from The Pearl Fishers (Bizet); Lisa (Cittman); Waltz from Nakiris Hahzeit (Limeck); Wenn du gehst (Benatzky). 1.25 to 1.40 p.m., Interval. 1.40, Programme for Young People. 2.10, Programme for Children. 3.40, Light Music on Gramophone Records. 4.55, Talk. 5.10, Concert by the K.R.O. Orchestra, conducted by M. Van 't Woud: March, El Capitán (Souss); Overture, La Dame blanche (Boieldieu); Suite, In a Fairy Realm (Kettelbey); Potpourri of Marches (Ziemer); Torch Dance of the Brides of Kasimir from Feramors (Rubinstein); Potpourri, Achtung, New York! (Borchert). 6.0, Press Review. 6.20, Concert (cont'd.): Overture, The Caliph of Bagdad (Boieldieu); Scene from the African Bush (Prexy); Potpourri, Bubuschka (Schirrmann); Florentine March (Fueki). 6.50, Literary Talk. 7.10, Police Notes. 7.25, Sports Talk. 7.40, Concert by the K.R.O. Boys. 8.25, The Dinner—Radio Sketch in One Act. 8.50, News. 9.0 (approx.), Concert (cont'd.). 9.25, Recitations. 9.40, A Tip for Carpet Knights—Radio Play. 10.0, Concert (cont'd.). 10.40, Light Music on Gramophone Records. 11.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced **HILVERSUM**; 1,875 metres; 8.5 kW.—11.40 a.m. till Close Down, Programme

Vor einer alten Spieluhr (Mueller-Melhorn); Tango, Addio a Napoli (Murzilli); O Ya, Ya (de Markov); Popular Song Potpourri (Golwyn); Karo Hibe (Ste-le); Saxophone Solo: Rubenola (Wiedloeff); Viennese Song (Richard Fall); Hochzeit der Teddybären (Meisel); Pasodoble, Ein deutsches Mädel (Reisfeld). 10.15, Dance Music, relayed from the Lodger Restaurant. In the interval at 11.0, Time and Chimes from the Town Hall. 11.15 (approx.), Close Down.

CORK.—See Dublin.

CRACOW

312.8 metres; 1.5 kW. 6.0 p.m., Miscellaneous Items and Announcements. 6.15, Review of Foreign Politics. 6.30, See **Warsaw**. 10.0, Light Music relayed from the Pavilion Restaurant. In an interval at 10.30 (approx.), Local News. 11.0 Bugle Call from St. Mary's Church.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN; 413 metres; 1.2 kW.; and **CORK**, 224.4 metres.—1.30 to 2.0 p.m., Time Signal. Weather Report, Stock Report, and Light Music on Gramophone Records. 7.20, News Bulletin. 7.30, Time Signal. 7.31, Talk: A Cornish Artist in Ireland. 7.45, Gaelic Talk. 8.0, Concert by the Augmented Station Orchestra, conducted by V. O'Brien. 8.30, Violin Duets by Mrs. Larchet and Mrs. Lange. 9.0, The Augmented Station Orchestra. 9.20, Original Sketches and Songs by John MacDonagh. 10.10, The Augmented Station Orchestra. 10.30, Time Signal, News, Weather Report, and Close Down.

FECAMP

223 metres; 10 kW.—12.0 Noon, Light Music on Gramophone Records. 12.30 p.m., News Bulletin. 12.45, Variety Concert. 7.0, Local News. 7.15, Popular Music on Gramophone Records. 7.30, Radio Gazette. 8.0, Variety Music on Gramophone Records. 8.15, News Bulletin. 8.30, Light Music on Gramophone Records. 9.0, Violin and Pianoforte Recital by M. André Hesne and M. Palier. 10.0, Café Concert. 11.0 till Close Down, Programme in English by the I.B.C. 11.0, International Broadcasting Club Concert: Overture, Masaniello (Anber); March Bosnia (Murray); Intermezzo, En Promenade (Gillet); March, Step lightly (Anderson); Overture, La Dame Blanche (Boieldieu); March, The Bandmaster (Jouss); Fantasia, A Highland Scene (Moore); March, Wiesbaden (Anderson). 12.0 Midnight, Philo Slumber Hour, Part I: Let's all sing like the Birdies Sing; Snap your Fingers, Clap your Hands; Try a little Tenderness; Love me To-night; Wanderer; Snuggled on your Shoulder; When the Morning rolls around; While we danced at the Mardi Gras. Part II: Items to be announced. 1.0, Orchestral Concert with Pianoforte Solos: Serenade (Pierck); Pianoforte Solos: (a) The Bee's Wedding (Mendelssohn). (b) Hunting Song (Mendelssohn). (c) Sonata in A Minor (Searlatti); Wine, Women and Song (Strauss); Waltz, The Blue Danube (Strauss); Pianoforte Solos: (a) Polonaise in A (Chopin). (b) Rondo capriccioso (Mendelssohn); Minuet (Mozart). 1.30, Programme of Country Dances: One-step, Gems of Robbie Burns (arr. Stephen); Hornpipe (arr. Byng); Russian Ballet (Brown); Irish Jigs and Reels (arr. Byng); Paul Jones (Traditional); Two-step, The Gay Gordons (arr. Beaton); Irish Set Dance, The Blackbird (Traditional); Eightsome Reel (Traditional). 2.0, Dance Music: The Sun has got his hat on; When the Band goes marching by; Paradise; Let me be your Carmen for To-night; Pagan Moon; Same old Moon; I've gone and lost my little Yo-Yo; I do like to see a Game of Football; Singing in the Moonlight; It's that Extra little Something; Strangers; Let that be a Lesson to you; Leave the Rest to Old Man Moon; Through that Open Window; The Gag Song; Sing a New Song. 2.57, I.B.C. Goodnight Melody. 3.0 (approx.), Close Down.

FLensburg.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW., and **Cassel**, 245.9 metres.—6.15 p.m., Time, Programme Announcements, Weather and Economic Notes. 6.30, Topical Talk. 7.0, Concert, relayed from **Darmstadt**: Part I, Opera Music. Soloists: Emmy Hainmüller (Soprano), Maria Paudler (Recitations), Marcell Witttrisch (Tenor), Johannes Draht (Baritone), and Ivar Andreou (Bass). Part II, Light Music by the Station Orchestra. Soloists: Emmy Hainmüller (Soprano), Marcell Witttrisch (Tenor) and Eugen Rex (Recitations). 9.20, Time, News, Weather and Sports Notes. 9.45, Concert of Light Music on Gramophone Records. 10.30, Dance Music, relayed from **London**. 12.0 Midnight (approx.), Close Down.

FREDRIKSSTAD.—See Oslo.

FREIBURG.—See Stuttgart.

GENEVA.—See Radio-Suisse Romande.

GENOA.—See Turin.

GLEIWITZ.—See Breslau.

GÖTEBORG.—See Stockholm.

GRAZ.—See Vienna.

HAMAR.—See Oslo.

MADRID

ARANJUEZ (EAQ), 30.43 metres; 20 kW.—6.0 to 8.0 p.m., Programme for Listeners in the Canary Islands, Guinea, and America. 6.0, Concert of Popular Music. 7.15, Talk. 7.30, Light Music. 8.0 to 11.30, Interval. 11.30 till Close Down, Programme in Commemoration of the Anniversary of the Foundation of Panama, organised by the Ibero-American Radio Club. 11.30, Spanish Music. 11.45, Radio Chronicle. 12 Midnight, Extracts from The Barber of Seville—Opera (Rossini). 12.35 a.m. (Sunday), Talk. 12.40, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotations, Report on Leading Events, and Request Gramophone Records. 8.15, News Bulletin. 8.30 to 9.30, Interval. 9.30, Chimes, Time Signal, and a Musical Comedy, conducted by Maestro Alvarez Cantos. 11.45, News Bulletin. 12.0 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—5.0 p.m., Popular Music on Gramophone Records. 5.15, See **Prague**. 5.25, Brass Band Concert, conducted by Vaclav Cerny. 6.0, See **Prague**. 6.20, See **Brno**. 7.0, See **Bratislava**. 8.0, See **Prague**. 9.15, Concert by the Station Orchestra, conducted by J. Plichta: Selection from Paganini (Lehár); Foxtrot (Kubín); Tango (Plichta); Waltz, Wienerblat (Johann Strauss); March (Tichy); Selection from Wonder Bar (Katscher); Polka (Jankover); Tango (Simicek); Slow Foxtrot (May); Polka (Stepanek-Plichta); Foxtrot (Brodsky). 10.30 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—5.30 p.m., Concert: The October Symphony (Schostakovitch); The Ninth Symphony (Beethoven). 8.0, Talk in French: Reminiscences of Lenin. 8.55, Time Signal. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres, 60 kW. Relayed by **Augsburg** and **Kaiserslautern**, 560 metres; and **Nürnberg**, 239 metres.—4.0 p.m., Concert conducted by Erich Kless. 5.15, Two Talks: (a) Experiences among the Children of the Balkans. (b) Youth in Java. 5.45, Variations for Oboe and Pianoforte on Schubert's Heidenröslein, Op. 19 (Siniagaglia); Fritz Rutschmann (Oboe) and Richard Stück (Pianoforte). 6.0, Wireless Hints. 6.30, Brute Stunde, Part I, Concert by the Rapp Orchestra, the Welker Quartet (Humorous Song); The Winkler Trio (Tyrolese Harp); Marie Seibold (Yodeling); Sepp Bauer (Folk Songs) and other Soloists. Part II, In der Spinnstube—Upper Bavarian Sketch with Music (Weiss Ferdi). 8.0, Gala Concert for the Centenary of the Lindau Choral Society, relayed from **Lindau**; Conductor, Hadler; Soloist, Heinrich Reikemper (Baritone); Male Voice Choir: (a) Ritornell (Schumann). (b) Die gezeichneten Gamen (Kämpf); Songs (H. Wolf): (a) Anakreons Grab, (b) Prometheus Landerkennung, for Baritone, Male Voice Choir and Orchestra (Grieg); Hans Sachs' Epilogue and Finale from The Mastersingers (Wagner). 8.45, Subtleties—An Entertainment by Mini Thoma, Mariele Schmidt, Adolf Bruno Winkler, René Maquet and Otto Eduard Hesse. 9.20, Time, Weather, News and Sports Notes. 9.45, Concert, relayed from **London**. 11.0 (approx.), Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by **Fredriksstad**, 367.6 metres; **Hamar**, 560 metres; **Notodden**, 447.1 metres; **Porsgrund**, 453.2 metres; and **Rjukan**, 447.1 metres.—6.30 p.m., Weather, News and Announcements. 6.45, A Visit to a Salt-petre Works at Notodden. 7.0, Time Signal. 8.0, Programme in Honour of the Norwegian Composer, Olav Ankrus—on his Fiftieth Birthday. 8.40, Weather and News. 9.0, Topical Talk. 9.25, Concert by the Station Orchestra, conducted by Hugo Kramm. Overture, Phedre (Massenet); Selection from The Pearl Fishers (Bizet); Suite (Alf Inrum); Elegy from the Suite King Christian II (Sibelius); Albumblatt (Wagner); Potpourri of Russian Melodies, Wolgajeister (Leuschner); Peasant Idyll (Hansen); Melody (Lange-Müller); Potpourri of Popular Swedish Melodies (arr. Sandby); By the Blue Hawaiian Waters (Kettelbey); Lägerner-Walzer (Strauss); After the Concert, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tourist Talk, Agricultural Notes, and Giornale Radio. 7.20, Variety Music on Gramophone Records. In the intervals at 7.25,

of the Workers' Radio Society (V.A.R.A.). 11.40 a.m., Concert by the Notenkrakers, conducted by D. Wins. 1.25 p.m., Talk for Pacifists. 2.40, Concert by the V.A.R.A. Balalaika Orchestra, conducted by I. Powarjer. 3.10, Variety Music on Gramophone Records. 3.25, Concert by the Flereffluters. Soloist: Mlle. E. Philippe (Songs); Farces (Abraham); Bird Songs at Eventide (Coates); Legendwo auf der Welt (Heymann); Potpourri (Golwyn); Addio a Napoli (Muzilli); My Mother (Donaldson); Nach es mir nicht so schwer (Strausky); I don't want to go to Bed (Lupino-Gay); Song (Sarony); Happy-go-lucky Days (Wallace). 4.10, Talk. 4.25, Concert of Violin, Banjo and Guitar Solos and Songs. 5.20, Literary Talk. 5.40, Concert by the De Wiclowaer Choir, conducted by P. Tiggers. 6.10, Recitations in Dialect. 6.40, Talk. 7.10, Dramatic Programme. 7.40, S.O.S. Messages. 7.45, Variety Programme by the V.A.R.A. Orchestra, conducted by Hugo de Groot. A. de Booy (Songs), the Wladimir Pique Trio, the V.A.R.A. Dramatic Society, J. Jong (Organ), A. de Vries (Conversation) and The Village Barber. In the interval, News. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KIEL.—See Hamburg.

KLagenfurt.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert, conducted by Wolf: March, Im Flaggenschmuck (Wahnemühl); Waltz, Dynamiden (Joh. Strauss); Spanish Comedy Overture (Kéler-Béla); My Heart (Pata); Fantasia, Lortzings Liedlingskinder (Urbach); In a Persian Market (Kettelbey); Czardas (Monti); Erinnerung an Pot-dam (Noack); Waltz Potpourri (Robrecht). In the interval at 1.0 p.m., News. 1.55, Gramophone Concert of Popular Music. 2.30, Economic Notes and Time. 2.50, Programme for Children. 3.10, Talk on Silesia. 3.30, Reading in English. 4.0, Concert by a Male Voice Choir and the Essen Chamber Trio: (a) Auf dem Meere (Heimemann). (b) Romantze (Hensler). (c) Spinn, Märlsken (Nellius); Trio in D Minor (Holz); (d) Abendfeier (Hansen). (e) Rheinwein (Kempner). (f) Zu Roma auf der Gassen (Baldamus); Allegretto in G (Mickenscheiber); (g) Old Dutch Song (Kremsler). (h) Vespergesang (Kämpf). (c) Die Abreise (Schauss). 5.20, Talk: German Girl Students in America. 5.45, Weather, Time, Economic Notes, and Sports Announcements. 6.0, Talk: The Care of the War Disabled. 6.20, Topical Talk. 6.30, Notes on Rent Questions. 6.55, News. 7.0, Variety Programme in Aid of the West German Winter Relief Fund, relayed from the Westfalenhalle, Dortmund. 9.30, News and Sports Notes. 9.45, Dance Music, relayed from **London**. 11.0, Dance Music. 12 Midnight, Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW., and **Dresden**, 319 metres.—12.15 p.m., Gramophone Concert: 1.0 p.m., Wireless Hints. 1.10, Announcements. 1.30, Programme for Children. 2.15, Review of Animals and Almanacs. 2.45, Economic Notes. 3.30, Concert by the Leipzig Symphony Orchestra, conducted by Willy Stöfen: Overture, The Siege of Corinth (Rossini); Selection from Carmen (Bizet); Waltz, Red Roses (Lehár); Souvenir (Drda); Prelude and Serenade from The Snow Man (Korngold); Selection from Die lustigen Nibelungen (O. Straus); Rhapsody, Op. 25 (Hartung); Weaner Mad'n (Ziehrer); Andalusian Serenade (Jessel); Landesschützenmarsch (Kummer); Ballet Overture (Kremsler). 5.0, Reading: Experiences in an English School (Hans Hauffsky). 5.30, German for Germans. 5.50, A Modern Dictionary. 6.0, Talk: Results of Physical and Technical Research during the Year 1932. 6.30, Good Jokes are rare—Humorous Programme by Hans Freyberg and Curt Baumgarten. 7.0, See **Frankfurt**. 9.5, News. 9.15, (approx.), Dance Music. 11.0 (approx.), Close Down.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—4.30 p.m., Quintet Concert. 5.30, English Lesson. 6.0, Talk on Sociology. 6.30, Philosophical Talk. 7.0, Programme relayed from the Union Hall. 9.0, Time, News and Light Music on Gramophone Records.

LYONS

LA DOUA; 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South East. 8.30, Fleur de Thlé—Operetta (Leocq), relayed from **Paris (Ecole Supérieure)** (447.1 metres). After the Relay News Bulletin.

Sports Notes, and at 7.30, Time and Announcements. 7.45, Rossiini-Operetta in Three Acts. In the intervals, Book Review and Talk. 9.55, News.

PARIS

EIFFEL TOWER, Call FLE, 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. 7.20, Weather Report. 7.30, Blanchette—Play in Three Acts (Brioux). 9.0 (approx.). Close Down.

PARIS

POSTE PARISIEN; 328.2 metres; 60 kW.—6.45 p.m., Le Journal Parlé. 7.0, Popular Music on Gramophone Records. 8.0, Talk: The Event of the Week. 8.5, Theatre Review. 8.15, Interval. 8.30, Chamber Music Concert. 9.0, Interval. 9.10, Dance Music by the Sonora Orchestra, conducted by Fred Hoffmann. 11.0, Dance Music on Gramophone Records. 12 Midnight (approx.). Close Down.

PARIS

RADIO PARIS; Call CFR; 1,725 metres; 75 kW.—8.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (cont.). 7.45, Light Music on Gramophone Records. 8.0, Press Review and Weather. 9.0, Concert, relayed from the Conservatoire. 12 Noon, Concert by the Radio Paris Orchestra: Introduction pastorale, Villanelle and Gigue (Borcher); Hungarian Dances, Nos. 5 and 7 (Brahms); Plantation Songs (Chittam); Norwegian Dances, Nos. 1 and 2 (Grieg); Japanese Suite (Holst); Kamarinskaja (Glück); Midnight on Maundy Thursday in Seville (Turina-Chapelier); Soir d'été and Ronde d'enfants (Chapelier); Suite savoyarde (Chamaud). In the intervals at 1.30 and 2.0. Exchange. 3.0, Programme for Children. 3.45, Exchange and Market Prices. 3.50, Dance Music by the Radio Paris Orchestra. 6.30, Market Prices, Weather, Agricultural Report, and Exchange. 7.0, An Interview with Charcot, the French Arctic Explorer. 7.20, Agricultural Talk. 7.45, Commercial Prices, News, and Latin Press Review. 8.0, Music Hall Programme, arranged by René Dorin. 8.30, News and Weather. 8.40, Review by René Dorin. 8.45, Le Misanthrope et l'Avoué—Play (Labielle). In the interval at 9.15, Press Review and News. 10.0, Operetta Concert on Gramophone Records: Selection from Dédé (Christine); C'est une gamine charmante, from Phi-Phi (Christine); Moutpans, from Jean V (Yvain); Song from Ketty Boxeur (Gaborché); Song from Lulu (Pares-Van Parys); Song from Mozart (Hahn); La Caravane, from Le Conte Obligado (Moretti).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KOKA), 365 metres; 25 kW. Relay by WXXK on 48.86 metres and 25.27 metres.—9.0 p.m., Dance Masters, from New York. 9.30, Programme to be announced. 10.0, KDKA Orchestra. 10.30, Weather Report. 10.32, Behind the Law—Fables of the Pennsylvania Police. 10.45, Little Orphan Annie, from New York. 11.0, Little German Band. 11.30, Time Signal. 11.31, Temperature Report. 11.32, Teaberry Sport Review. 11.37, Press News Reeler. 11.42, Strange Facts. 11.44, Weather Report. 11.45, A Record by Bill and Alex of the Downtown Y.M.C.A. 11.59, Time Signal. 12 Midnight, Fields and Hall, from New York. 12.15 a.m. (Sunday), Atkinson String Ensemble. 12.30, KDKA Players. 1.0 to 4.0, New York Relay. 1.0, American Taxpayers' League. 1.15, St. Rogis Orchestra. 1.30, The Road to Bucanera. 2.0, K.R.O. 3.0, Whoopee. 3.30, Buccaneers. 3.45, Twenty Fingers of Harpmony. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News. 4.20, Messages to Presbyterian Missionaries. 5.20, Messages to Dwellers Far North.

PORSGRUND.—See Oslo.

POZNAN

335 metres; 1.9 kW.—6.0 p.m., Miscellaneous Items and Announcements. 6.28, Time. 6.30, to 10.0, See Warsaw. 10.0, Announcements. 10.10, Dance Music from the Polonia Café.

PRAGUE

485.6 metres; 120 kW.—3.10 p.m., See Bratislava. 4.10, Talk on Economics. 4.20, Czech Lesson for Germans and German Lesson for Czechs. 4.50, Popular Music on Gramophone Records. 5.5, Agricultural Report. 5.15, Talk for Workers. 5.25, German Transmission: News and Talk on the History of Music. 6.0, News. 6.5, Talk: Racing and its Moral Aspects. 6.20, See Brno. 7.0, See Bratislava. In the interval at 8.0, Time Signal. 9.0, Time Signal. 9.1, News. 9.15, See Moravska-Ostrava. 10.30 (approx.). Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; LAUSANNE, 680 metres; and GENEVA, 760 metres.—5.0 to 7.0 p.m., Programme relayed from Geneva. 5.0, Scientific Talk. 5.30, Book Review. 6.0, Weather, News, and Announcements. 6.30, Film Notes. 7.0 (from Lausanne), Recital of Music by Swiss Composers. 7.20, Pro-

JAN. 21st SATURDAY continued

gramme relayed from Geneva. 7.20, Introductory Talk to the following Transmission. 7.30, Symphony Concert by the Station Orchestra, conducted by Ernest Ansermet; Symphony No. 1 in E Flat (Borodin); Concerto No. 3 in G (Mozart); Overture, Donna Serpente (Casella); First Movement of the Concerto in D (Paganini); Four Sketches (Prokofiev). In the interval: Weather and News. 9.20 (from Geneva), Dance Music by the Broadcasting Serenaders. 10.20 (approx.). Close Down.

RIGA

525 metres; 15 kW.—5.0 p.m., Weather. 6.3, Choral Concert. 6.50, Recitations. 7.0, News. 7.20, Dramatic Programme. 8.30, Dance Music. 10.0 (approx.). Close Down.

RJUKAN.—See Oslo.

ROME

Call IRO, 441 metres; 50 kW. Relay by Naples, 319 metres; and 2RO, 25.4 metres.—7.15 to 7.30 a.m., Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Orchestral Concert. In the interval at 12.30, Giornale Radio and Exchange. 3.45, Children's Radio Review, and Talk for Young People. 4.0, Exchange, Announcements. Report of the Royal Geographical Society, and Giornale Radio. 4.15, Reading. 4.30 to 5.15, Orchestral Concert: Melody (Abraham); Il biglietto dei signi (Mercuri); Selection from Le Villi (Puccini); Violin Solo, Schön Rosmarin (Kreider); Spanish Caprice (Pennati-Malvezzi); Rosa de fuego (Petralia); Madonna fiorentina (Billi); Non va (Bixio). 6.10 (Naples), Shipping and Sports Notes. 6.15, Atmospheric Signals, Agricultural Notes, and Giornale Radio. 7.0, Time, Announcements, and Light Music on Gramophone Records. 7.50, Sports Notes, Tourist Report, and Announcements. 8.0, Relay from a Theatre. In the intervals, Talk and Scientific Review. News after the Programme.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 373.5 metres; 50 kW. Relay at intervals by W2XAF on 31.48 metres and by W2XAD on 10.56 metres.—8.30 p.m., Matinee Gens, from New York. 9.30, Studio Ensemble. 10.0, Times Union Extra. 10.15 to 11.0, New York Relay. 10.15, Mitchell Schuster and his Orchestra. 10.30, Beau Balladeur. 10.45, Secretary Hawkins. 11.0, Joe and Eddie. 11.15, Billy Rose (Tenor). 11.30, Studio Ensemble. 11.45, Horse Sense Philosophy. 12 Midnight, Stock Reports. 12.15 a.m. (Sunday), Municipal Series. 12.30, Hotel New Yorker Orchestra, from New York. 12.45, The World Today, by James G. MacDonald, from New York. 1.0, Lady Fingers (Pianist). 1.15, Bernard Silberg (Cellist). 1.30 till Close Down, New York Relay. 1.30, National Advisory Council. 2.0, Frank Black's Orchestra. 2.30, Oldsmobile Programme. 3.0, Lucky Strike Hour. 4.0 (approx.). Close Down.

SCHWEIZERISCHER LANDESENDER

BEROMUNSTER, 459 metres, 60 kW.; BASEL, 244.1 metres; and BERNE, 245.9 metres.—11.28 a.m., Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40, Winter Sports Report. 11.45, Concert of Light Music on Gramophone Records. 12.35 p.m., Weather and Exchange. 12.45 (from Berne), Answers to Correspondence. 1.0 (from Berne), Review of New Books. 1.30 (from Berne), Famous Etudes and Sonatina, reproduced by Willy Girsberger. 2.0 (from Berne), Talk: Chemistry and the Human Body. 2.30 (from Berne), Chess Lesson. 3.0 (from Berne), Concert by the Bünpliz Accordion Double Quartet. 3.30 (from Berne), Medical Talk. 3.45 (from Berne), Talk on Legal Questions. 4.0 to 4.5, Weather. 5.30 (from Basle), Programme for Young People. 6.0 (from Zürich), Chinese, Time, Weather, and Market Prices. 6.15 (from Basle), Talk: Modern Stage Decoration. 6.45 (from Basle), Concert by the Grümmer Quartet. 7.50 (from Basle), In a Skating Paradise—Four Humorous Sketches (Rheinberger). 8.30, Weather and News. 8.40 (from Basle), Songs by the Melody Stars. 9.0, Gramophone Dance Music. 10.0 (approx.). Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 435 metres; 55 kW. Relay by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—3.0 p.m. (from Göteborg), Concert by the A-Sis Orchestra: Entry March of the Boyards (Halvorsen); Waltz, Roses from the South (John. Strauss); Overture, Semiramis (Rossini); Anabade à Rimini (Scarlatti); Selection from I Pagliacci (Leoncavallo); Tango, Eva (Meisel). 4.5 (from Göteborg), Programme for Children. 4.30, Mandoline Concert of Light Music, relayed from Malmö

(231 metres). 5.0, Variety Programme. Old Dance Music, Songs, and a Sketch. 6.0, An Address by Prince Gustavus Adolphus. 6.15, Weather and News. 6.30, Talk. 7.0, Concert of Operetta Music by the Station Orchestra. 8.45, Weather and News. 9.0, Dance Music by the Sonora Orchestra. 10.0 (approx.). Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.50, Orchestral Concert, conducted by Maurice de Villers. 12.45 p.m., News. 1.0, Time Signal and Exchange. 1.10, Quintet Concert, relayed from Bordeaux-Lafayette. 1.50, Light Music on Gramophone Records. 2.0, Technical Talk on Gold—Alluvial Deposits. 2.15, Popular Music on Gramophone Records. 3.15 to 3.45, Interval. 3.45, Talk on Music in French. 4.0, Programme of New Dance Records. 4.45, Legal Talk in German. 5.0, Pasdeloup Symphony Concert, relayed from the Théâtre des Champs Elysées, Paris. 7.0, Agricultural Talk in German. 7.15, Light Music on Gramophone Records. 7.30, Time Signal and News. 7.45, Gramophone Records, Lottery Results and Announcements. 8.0, Recital on Two Pianos, by M. Pogoda and M. Halter; Sonata (Friedeman-Bach); Allemande (Couperin); Sonata in C (Mozart); Romance and Variations (Grieg); Andante and Scherzetto (Chaminade); Les Jeux de plein air (Lailleferre). 9.0, Concert of Chamber Music: Quintet for Strings (Beethoven); Sonata for Cello and Violin (Reparz); Quintet (Schumann). 10.20, Dance Music from the Savoy. 12 Midnight (approx.). Close Down.

STUTTGART

MUEHLACKER, 360.5 metres; 60 kW.; and FREIBURG, 570 metres.—11.20 a.m. (from Karlsruhe), Concert by the Karlsruhe Concert Orchestra. 12.15 p.m., Time, News, Weather, and Programme Announcements. 12.30 (from Mannheim), Concert by the Mannheim Philharmonic Orchestra, conducted by Max Singheiser: Prelude to Die Prinzessin auf der Insel (Teal); Variations on '5 kommt ein Vogel geflogen (Siegfried Ochs); Jeu d'enfants (Bizet); Last Movement from the Farewell Symphony (Haydn); The Nutcracker Suite (Tchaikovsky). 1.30, Plüdemann Ballads, sung by Karl Jentsch (Baritone); Aw Maria, Graf Eberhard Weisdom, Das Grab in Busento, Jung-Dietrich. 1.50, Quartet in F, Op. 59, No. 1 (Beethoven) by the Budapest String Quartet (on Gramophone Records). 2.30, Programme for Young People. 3.30, The Damsel on Gramophone Records. 4.0, Choral Concert. Part I (from Mannheim): Wallsprach der Buchdrucker (Kurz); Johannesnacht (Uthmann); Abendruhe (Mozart); O Schützzeit alles Schönen (Mozart); Die Nacht (Schubert); Der Entferten (Schubert); Ford Foleson (Uthmann). Part II (from Billingen), Soloist: Lioba Harter (Soprano); Welche des Gesangs (Mozart); Wanderers Nachgebet (A. Weber); Madrigal of 1540, Der höchste Freund (arr. Weinreis); In der Marienkirche (Löwe); Wohin mit der Freud, Soprano Solo, Sandmännchen (K. Hirsch); Unser Lied (Uthmann); Märzstz (Angerer); Du Bihes, du herziges Schwarzwaldkind (Steiner). 5.15, Time and Sports Notes. 5.25, Talk: Can we tell character from the voice? 5.50, Talk: Careers for Girls. 6.15, Time, Weather, Snow Report, and News. 6.30, Zither Recital. 7.5 (from Heilbronn), Concert by the Stuttgart Philharmonic Orchestra, conducted by Emil Kalin. Soloists: Anny Kometzki (Soprano), Wilhelma Rhode (Baritone), Georg Beerwald (Violin), and Louis Selwyer (Cello); Overture, Euryanthe (Weber); Aria for Soprano: Roll on thou mighty ocean, roll, from Oberon (Weber); Aria for Baritone from The Flying Dutchman (Wagner); Ballad and Polonaise for Violin (Wieuxtemp); Tarantella from Scènes napolitaines (Massenet); Duet for Soprano and Baritone from Aida (Verdi); Marionettes (Glazunov); Cello Solo: Serenade (Glazunov); Slav March (Tchaikovsky); The Czar's Monologue, from Boris Godunov (Moussorgsky); Leonora's Aria from Il Trovatore (Verdi); Second Hungarian Rhapsody (Liszt). 9.15, Time, News, Weather, Snow Report, and Programme Announcements. 9.35, New Gramophone Records. 10.0, Dance Music from London. 11.30 (approx.). Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0 p.m., News Bulletin. 6.15, Melodies by an Argentine Orchestra. 6.30, La Boite à Jonjoux (Debussy), for Orchestra. 6.45, Opera Music: Air from L'Attaque du Moulin (Boucaut); Siegmund greets the Spring Night, from The Valkyries (Wagner); O Wine, dispel the Heavy Sorrow, from Hamlet (Thomas); Air from Le Café (Thomas). 7.0, Accordion Solos. 7.15, News, Racing Results, and Market Prices. 7.25, Local News. 7.30, Music by a Viennese Orchestra. 8.0, Operatic Music: Airs from Tosca (Puccini); Manon (Massenet); and Mirella (Gounod). 8.15, Light Orchestral Music. 8.30, Operetta Music: Airs from Véronique (Messager); La Fille de Madame Angot (Lecocq); and Mamselle Nitouche

(Hervé). 8.45, 'Cello Solos: Mazurka (Chopin); Si mes vers avaient des ailes (Hahn); Melody (Tchaikovsky). 9.0, Extract from L'Africaine—Opera (Meyerbeer) followed by Music by a Symphony Orchestra: Marche joyeuse (Chabrier); Wedding March (Mendelssohn); Pacific, No. 231 (Honegger); Lieberstram (Liszt); Waltz, Splinx (Popy). 10.0, Sound Film Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco. 11.0, Request Concert. 11.30, Programme in English, by the I.B.C.: Concert of Light Music: Cheerful Little Earful Song, Down in the Fields where the Buttercups grow; Accordion Solo, Ragtime Memories, Part I; Comedy Duet, Laughing Susan and the Saxophone; Comic Song, I'm Milly the Merry Old Mermaid; Saxophone Solo, Handsome Gigolo; Song, Oh, how he looks at me; Finale, All through the Night. 12 Midnight, Weather and Announcements. 12.5 a.m. (Sunday), Dance Music. 12.15, Military Music. 12.30 (approx.). Close Down.

TRIESTE

247.7 metres; 10 kW.—6.0 to 6.30 p.m., See Turin. 6.30, Talk on Modern Music, with Illustrations: Suite for Pianoforte, The Circus (Turina). 7.0 till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relay by Milan, 331 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—5.0 p.m., Popular Music on Gramophone Records. In the intervals at 6.25, Tourist Report, and at 6.30, Time and News. 7.0, Giornale Radio and Weather followed by Variety Music on Gramophone Records. 8.30, Talk: Events and Problems. 7.45, A Review. 8.45, Book Review. 9.0, Variety Programme. 10.0, Giornale Radio

VATICAN CITY

10.84 metres (Morning) and 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Announcements in Different Languages. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relay by Graz, 352 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218 metres.—4.5 p.m., Concert by the Otto Römisch Orchestra: Overture, Pafograph 3 (Suppé); Waltz, Wenn du liebst (Lehar); Intermezzo Gelbe Narzissen (Martell); Viennese Song, Ein stilles Gassen in Ottakring (Römisch); Selection from The Little Dutch Girl (Kálmán); Intermezzo Liebesbriefe (Siede); Gavotte, Mondsche (Grünecke); Selection from The Rose of Stamboul (Fall); Gallop, En carrière (Konczak). 5.20, Talk: Stendhal, the Magician of Love, on the One Hundred and Fiftieth Anniversary of his Birth. 6.15, Time, Weather, Sports Notes and Programme Announcements. 6.25, Light Music by the Harry Taft Orchestra. 7.0, See Langenberg. 9.30, News, Weather and Announcements. 9.45, Dance Music from Berlin (Witzleben).

WARSAW

1,411 metres; 120 kW.—10.40 a.m., Press Review. 10.50, Weather Forecast for Aviation. 10.58, Time Signal and Bugle Call from St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Light Music on Gramophone Records. 12.10 p.m., Weather Forecast. 12.15, Educational Programme, relayed from Lwow (381 metres). 12.55 to 2.10, Interval. 2.10, Announcements. 2.2, Talk on Military Affairs. 2.35, Programme relayed from Lwow. 3.0, Popular Music on Gramophone Records. 3.30, Talk on Pilsuski. 4.0, Symphony in D Minor (Schumann) on Gramophone Records. 4.40, Technical Talk. 4.55, Programme Announcements. 5.0, Light Music, relayed from the Café Italia. Topical News in the Interval. 6.0, Miscellaneous Items. 6.20, Agricultural Bulletin. 6.3, Topical Talk. 6.45, Radio Journal. 7.0, Concert of Light Music by the Station Orchestra, conducted by S. Nawrot; Selection, Mm. Daniec (Soprano); March of the Gladiators (Fucik); Zintarsata (Pennati-Malvezzi); Waltz, Gold and Silver (Lehar); Three Song; Overture, Die Fledermaus (Strauss); Still Woodland Pictures (Fletcher); Three Song; Descriptive Piece (Peess); Butterflies (Schlack); Minuet (Kostal); Polka, from Frauentresser (Eysler); Mazurka (Namyslowski). In the interval, Sports Notes and Radio Journal. 8.45, Talk on Chopin in Italian. 9.0, Chopin, Pianoforte Recital by Sophie Rabezewicz; Polonaise in C Minor; Three Etudes: (a) in E Minor, Op. 25, (b) in C Sharp Minor, Op. 25, (c) in C Minor, Op. 10; Berceuse: Two Mazurkas: (a) in G, Op. 50, (b) in E Minor, Op. 41; Tarantella; Nocturne in C Minor; Polonaise in F Sharp Minor. 10.0, Announcements. 10.5, Dance Music from the Bogdga. In the interval, Polish News, by Members of the Polish Polar Expedition.

ZAGREB

307 metres; 0.75 kW.—6.40 p.m., Announcements. 7.0, Concert by the Radio Orchestra. Soloists: Sja Akinfjeva (Soprano) and Oskar Snodck (Pianoforte). 9.0, News, Weather and Snow Report. 9.10, Dance Music from the Hotel Esplanade. 10.0 (approx.). Close Down.

ZURICH.—See Schweizerischer Landessender.

Practical Automatic Volume Control

The Square-law System

(Concluded from page 4 of last week's issue)

By W. T. COCKING

LAST week's article concluded with a comparison of methods of automatic volume control, and, since it would appear that the square-law type of control is more suited to our present purpose of adding A.V.C. to an existing set, let us see how we can do this in the case of a receiver of the type described at the beginning of last week's article. The receiver chosen, it will be remembered, was a modern superheterodyne with a variable-mu H.F. stage, screen-grid first detector, variable-mu I.F. stage, and with a potentiometer volume control regulating the bias of both variable-mu valves.

The detector input will now be only about 1 volt, so that it is possible to control the I.F. valve, for an output of this order can readily be obtained from a variable-mu valve at a high bias voltage.

The anode-bend detector is perhaps the nearest practical approach to a square-law rectifier, and it is ideally suited for bias

in a direction that the anode becomes more negative than the earth line. This voltage is applied directly, through the usual filters, from the point "A" to the grids of the controlled valves as grid bias. By applying such a value of initial bias to the control valve that anode current does not flow until a certain signal input has been reached, the delayed action described for certain special diode connections can be readily obtained.

One of the advantages of this type of control lies in the fact that little alteration to the fundamental design of a receiver is necessary, for no limitation as to the use of tone correction is imposed. A high H.T. voltage is required, however, for the control valve needs a supply of some 50 to 100 volts, and this must be obtained in series with the supply for the controlled valves. In most cases this means a total supply of some 250 to 300 volts. Where provision is made for feeding the field winding of a loud speaker from the mains equipment, however, it will often be possible to employ the voltage drop across the field for operating the control valve. A further disadvantage lies in the fact that it is usually unwise to run the heater of the control valve from the same filament transformer winding as the other valves.

IN the first part of this article the use of the Double Diode valve for automatic volume control was discussed, and the author explained how the valve could be used in a modern receiver. In the present article an alternative method of A.V.C., known as the Square-law System, is explained, and the reader is shown how to apply it to existing sets.

The arrangement of Fig. 6 is usually employed in America with an anode-bend detector for the normal demodulation, instead of a power-grid type as shown. For good operation the control valve requires an input of some 5 to 10 volts on a local station, and an anode-bend detector also works best with about this value of input. Where both valves work on the anode-bend principle, therefore, the arrangement of Fig. 6 is entirely satisfactory. With a power-grid detector as a demodulator, however, it will often happen that the detector overloads before the full control is estab-

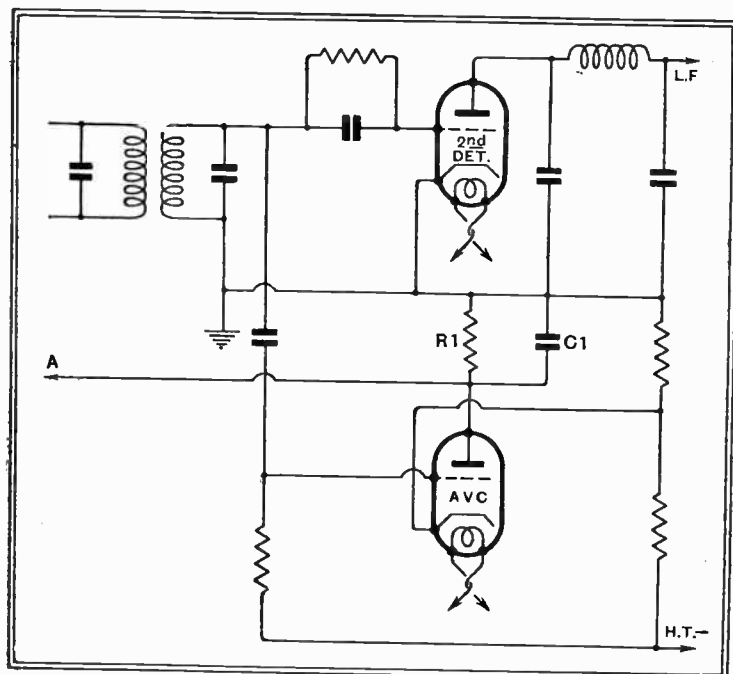
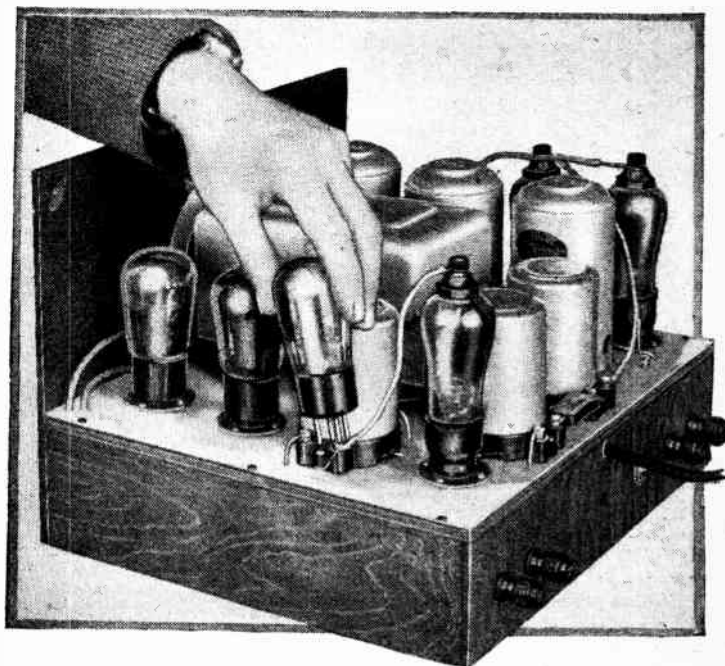


Fig. 6.—The simplest connections for a square-law type of control are apparent. The time constant depends upon the values of R1 and C1, as well as upon those used in the decoupling circuit.

control if the circuit be arranged in a similar manner to Fig. 6. It will be seen that the detector proper is of the normal distortionless power-grid type, while a separate anode-bend detector is used for the provision of grid bias. In the absence of a signal the cathode of the control valve is biased positively, which means that its grid is biased negatively, by the tapping on the potentiometer, to the point at which anode current just ceases to flow in the control valve or to a point slightly more positive. The grid circuits of the controlled valves are returned to earth through a resistance, which acts as the load on the A.V.C. valve. As no current flows through this resistance there is no voltage drop across it, and the bias is only the fixed minimum provided by other means for the H.F. valves.

Delayed Action

When a signal is applied to the control valve it is rectified, and anode current flows in the control valve. This current is more or less proportional to the square of the input, and flows through the resistance R1. As a result, there is a voltage drop across R1 which is directly proportional to the current, and which is in such



With the square-law A.V.C. system little alteration to the fundamental design of the receiver is necessary.

Practical Automatic Volume Control—

lished, for the normal power-grid detector input is only some 1 or 2 volts.

A solution would obviously be to provide the control valve with an additional stage of amplification, but this is hardly practicable on account of the expense. It is well known, however, that the H.F. input to a detector appears also in the anode circuit, due to the normal amplifying action of the valve. In normal design we try to keep this anode circuit H.F. as small as possible by using a large-capacity anode-cathode by-pass condenser. Suppose, however, that we turn this normally unwanted amplifying action into account, and make the valve amplify, not only the L.F.

receiver, is outlined in Fig. 7, and it may be said that in practice it has proved extremely effective. The only disadvantage of the arrangement appears to be that the tuned input circuit of the detector is more heavily damped than usual; but, as the damping in a superheterodyne is normally fairly heavy, this is of little moment.

With a receiver of the type shown, it has proved possible to obtain such a degree of control that the audible volume from the loud speaker from the local station at a distance of only nine miles is no greater than that given by Langenberg. On tuning from one station to another in daylight, when the distant station is at its weakest, the ear can detect no apparent change in volume.

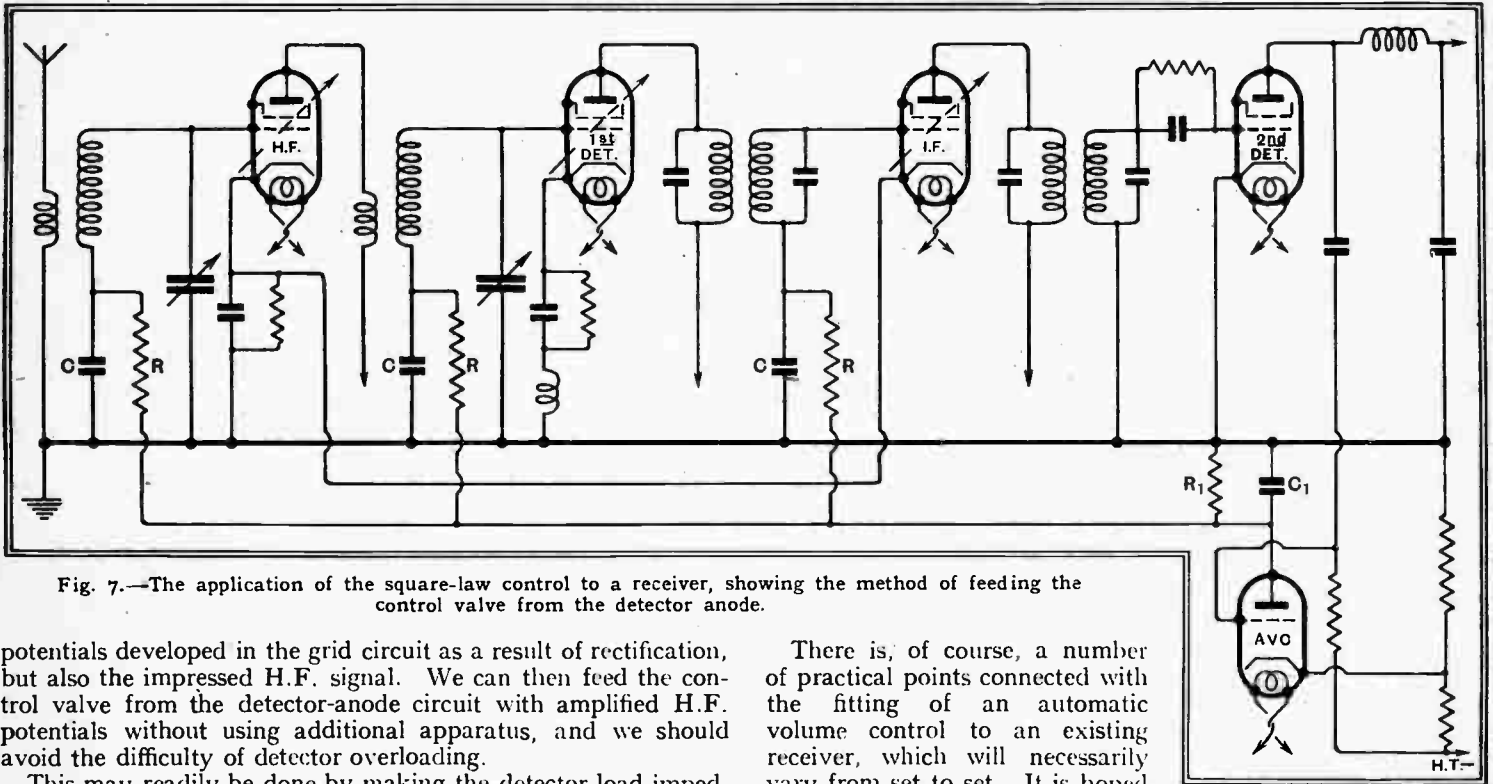


Fig. 7.—The application of the square-law control to a receiver, showing the method of feeding the control valve from the detector anode.

potentials developed in the grid circuit as a result of rectification, but also the impressed H.F. signal. We can then feed the control valve from the detector-anode circuit with amplified H.F. potentials without using additional apparatus, and we should avoid the difficulty of detector overloading.

This may readily be done by making the detector load impedance high at the input frequency, and the simplest method of arranging this consists in the omission of the anode-cathode by-pass condenser and the choice of a suitable H.F. choke for the usual filter circuit. This arrangement, as applied to a complete

There is, of course, a number of practical points connected with the fitting of an automatic volume control to an existing receiver, which will necessarily vary from set to set. It is hoped to deal with these in a further article, and to put the whole matter on a practical basis by describing the modifications necessary to incorporate an automatic volume control in the Monodial A.C. Super receiver.

ATMOSPHERIC ELECTRICITY, by B. F. J. Schonland, O.B.E., M.A., Ph.D. Pp. 100 + viii, with twenty-five diagrams. Published by Methuen & Co., London. Price 2s. 6d.

The literature—at least the English literature—of "Atmospheric Electricity" is in a singularly uncollected form, and the book under notice is to be commended as giving a very comprehensive review of the subject in a single volume. It is one of the latest additions to Messrs. Methuen's series of monographs on physical subjects.

It is perhaps a criticism of the work that—from a wireless point of view—it deals to only a very small extent with the ionisation of the upper atmosphere (i.e., the Kennelly, Heaviside and Appleton layer) that is of such importance in radio communication. While this is brought under review in its relation to the general subject of atmospheric ionisation at all levels, wireless readers might be inclined to imagine that the subject was worthy of more extensive treatment. Apart from this criticism the amount of information contained in the book is remarkable for a volume of its size.

Starting with ionisation of the atmosphere, the author traces the various factors that contribute to this condition, including that described as "the penetrating ionisation." This agency is considered of sufficient im-

portance to receive the next section to itself, with a review of the methods which have been used to measure it, and an account of the nature and origin of the radiation. The third section deals with electric fields and electric currents in the atmosphere, particularly with the potential gradient in the neighbourhood of the earth's surface, closing with a discussion of the mechanism by which the earth's charge is maintained. The last section of the book is devoted to discussion of thunderstorms and gives an account of the fields and field-charges due to thunderstorms, the electrical qualities involved, the formation of thunderclouds and the mechanism of the discharge.

J. F. H.

Radio Engineering, by F. E. Terman, Sc.D. —A comprehensive treatment of the more important radio phenomena, including the Propagation of Waves, Circuit Constants, Resonant Circuits, Valves, Modulation, Transmission, Reception, Direction Finding, Measurements, Microphones, Loud speakers, etc. Pp. 688+xi, with 417 diagrams and illustrations. Published by McGraw-Hill Publishing Co., Ltd., London. Price 30s.

NEW BOOKS

Störschutz am Rundfunk-Empfänger in der Praxis, by Heinrich Ike. 2nd Edition. Various methods of eliminating and avoiding electrical interference. Pp. 48, with 40 diagrams. Published by Rothglessner und Diesing, A.G., Berlin, price R.M.1.

Short Wave Wireless Communication, by A. W. Ladner, A.M.I.E.E., and C. R. Stoner, B.Sc., A.M.I.E.E.—Including a brief summary of the theory of Electromagnetic Waves and the Propagation of Short Waves, Problems of Reception, Commercial Receivers and Transmitters, etc. Pp. 348+xii, with 201 diagrams, frontispiece and twelve plates. Published by Chapman & Hall, Ltd., London. Price 15s.

Radio Research Board (of Australia): Reports No. 2, 3, and 4.—Report No. 2: Investigations on the state of Polarisation of Sky waves and height measurements of the Heaviside layer in the early morning, by A. L. Green. Pp. 80, with many diagrams. **Report No. 3:** The influence of the earth's magnetic field on the Polarisation of Sky waves, by W. G. Baker and A. L. Green. Pp. 32, with 5 diagrams and addendum. **Report No. 4:** A preliminary investigation of fading in New South Wales, by A. L. Green and W. G. Baker; Studies of Fading in Victoria, on medium waves at short distances, by R. O. Cherry and D. F. Martyn; Observations on Distant Stations in which no ground wave is received, by R. O. Cherry. Pp. 59, with many diagrams. Issued by the Council for Scientific and Industrial Research, Melbourne, Australia.

The Valve Filament

Part I.—The Services which it Renders

By R. T. BEATTY, M.A., B.E., D.Sc.

FOR the expert as well as the novice it is sometimes refreshing and profitable to turn from the complicated details of construction to the simple things which lie at the basis of wireless communication.

A receiving set in a shop window is like an engine with the boiler dry and cold. Switch on the low tension battery and the heated filament emits a copious cloud of slow-moving and, for the moment, useless electrons — a process which is equivalent to filling the boiler with hot water. Switch on the high tension battery and the electrons acquire energy as they are dragged from filament to plate, as steam acquires energy when the oil

burners are lit beneath the boiler. And as the slide-valves control the energy of the high-pressure steam, so do the valve grids compel the electrons to flow suitably round the attached coils and condensers.

We are accustomed to think of the electrons as emerging from the filament by a process similar to the evaporation of vapour from a wet surface, but in order to obtain a clearer picture of what is taking place we must examine the conditions inside the metal itself. It will presently appear that the stream of escaping electrons forms but a tiny fraction of a vast population of electrons imprisoned within the metal by a barrier which can only be surmounted by electrons which happen to be endowed with abnormally high velocities.

drift from their anchorages. There is none of the tumultuous motion displayed by the scurrying molecules of a gas. This stability of solid matter can be demonstrated in the case of metallic crystals, such as those produced when a tungsten

wire is drawn at a red heat through dies. By slow cooling of the drawn wire a single flexible crystal of several feet in length can be produced.

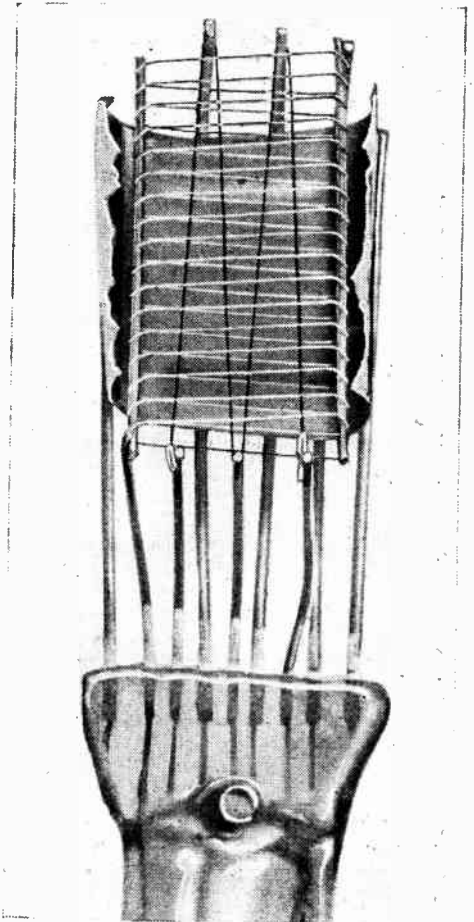
Even the most powerful microscope is unable to reveal the details of the crystal structure, for waves of light are much too coarse-grained to be affected by single atoms, just as a sea-wave reflected from a breakwater bears no trace of the roughness of the stonework though similar irregu-

larities would cause tiny ripples in a pond. But if a piece of the crystalline wire is held in the path of a beam of X-rays, in which the wave-length is comparable with the diameter of an atom, a regular shadow pattern can be obtained on a photographic plate, and from this pattern the crystal structure can be worked out. When the wire is heated the pattern grows indistinct, showing that the crystal is strained owing to the more violent vibration of the atoms, but does not disappear completely even at a red heat.

Sixty Miles per Second

Actually, a metal wire does not consist as a rule of a single crystal; usually innumerable small crystals are present

FAITHFUL and silent service rarely looms large in the public eye. In this article an account is given of the activities which are invisibly at work within and around the filament of a valve. These activities, which a labours of hundreds of research workers have controlled and developed, cause the modern filament to continue for thousands of hours to emit a stream of electrons with the degree of smoothness and steadiness required for first-class reproduction of speech and music.



cohesive forces and to allow the atoms to wander about in the way which is characteristic of a liquid.

Within the hollow spaces of the lattice work of atoms which composes a metal there moves a swarm of negatively charged electrons, flitting to and fro in a state of comparative freedom. When the terminals of a battery are connected by a wire it is these electrons which alone carry the current: if it were carried by the atoms the wire itself would in the course of a few minutes actually flow into the negative terminal of the battery and be replaced by metal from the positive terminal.

The electrons maintain their energy of motion by collision with the vibrating atoms and, as is the case with any system of colliding bodies, they acquire on the average the same energy of motion (kinetic energy) as the atoms themselves. But since their masses are so much smaller they attain very high speeds — nearly 60 miles per second at ordinary temperatures. The electrons may be thought of as an electrified gas moving freely in the pores of the metal, and when electric force is applied they drift through the metal like smoke through a cigarette.

In any metallic atom there are a few outlying electrons which give the metal its chemical properties. In a gas or vapour (mercury vapour, for example)

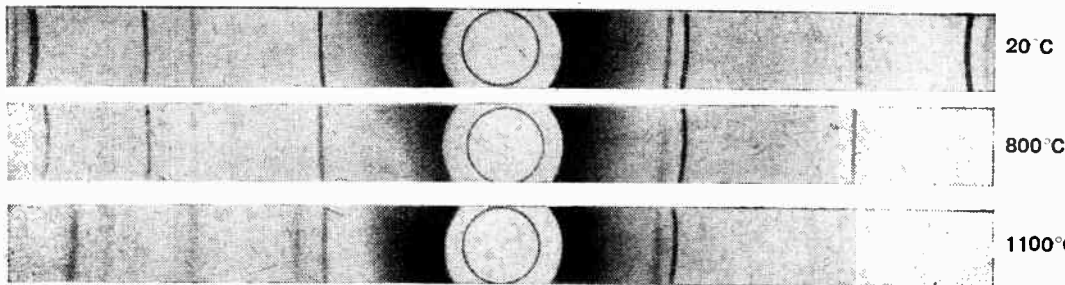


Fig. 1.—X-ray spectra of iron at different temperatures. Though the spectra change in heated iron, owing to recrystallization, the lines are still sharp at a bright red heat (1,100° C.)

We must regard a piece of metal as a lattice work composed of atoms arranged more or less in regular order and packed so closely that though they jostle each other in continual vibration they do not

cemented together by uncrystallised metal. But in any case the architecture is stable, and it is not until the melting point is reached that atomic vibrations become sufficiently violent to overcome the

LABORATORY TESTS

New Radio Products Reviewed

The Valve Filament.—

these electrons remain attached in spite of the shocks due to atomic collisions, and violent measures, such as bombardment by high-speed electrons or X-rays, are required to split them off. But in solid metal the atomic crowding is so great that the forces due to adjoining atoms can overcome the bonds which attach an electron to its own atom, and so the electron, pulled on all sides at once, moves about in a homeless condition. There is much evidence to show that the wandering electrons are about equal in number to the atoms; in a cubic centimetre their number is represented by one followed by 23 zeros, or 10^{23} per c.c.

To visualise this prodigious number we must think of the number of sand grains in a beach 700 miles long, 10 miles wide, and 20 feet deep, reckoning 10 grains per millimetre length.

A Potential Barrier

We have, then, this dense population of electrons careering about at 60 miles per second. Why don't they escape in enormous numbers into the air? Actually air contained in a metal box is almost empty of electrons. The tiny leak of a gold-leaf electroscope indicates only

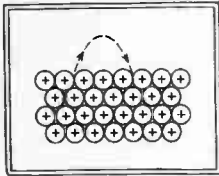


Fig. 2.—An electron can wander freely within a metal since the atoms pull it freely in all directions at once. But at the surface the charged atoms unite to pull it back and it fails to escape as shown by the dotted curve.

about ten charged particles per c.c. and even these seem to be due to the bombarding effect of cosmic radiations coming from the depths of outer space.

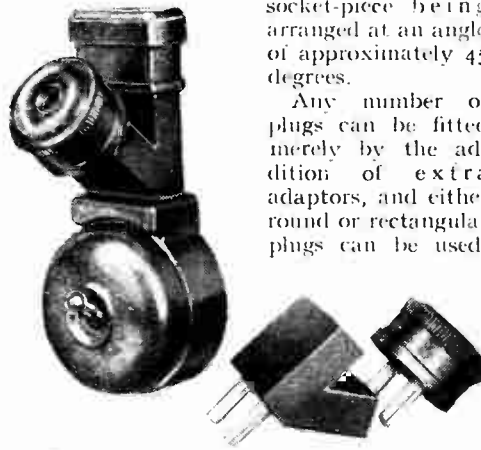
The reason is that when an electron reaches the surface it is pulled back by the positively charged atoms behind it. We may say that there is a potential barrier at

the surface which prevents escape. In the case of tungsten this barrier is equivalent to a voltage drop of 4.5 volts, as if there existed just outside the surface a grid biased negatively by this amount. At ordinary temperatures an electron has only enough energy to carry it across a fortieth of a volt, and hence it is unable to emerge.

If this barrier were annihilated (and manufacturers of filaments have already succeeded in reducing it to 1 volt) very remarkable things would happen. Batteries would rapidly run down owing to electrons streaming out of the negative terminal and rushing to the positive one, so that all metal parts in a circuit would have to be carefully varnished. And electric power distribution would suffer enormous losses from leakage which, though no doubt benefiting the crops immediately below the power lines, would make the grid system hopelessly inefficient. So we may be thankful that metal wires do actually keep electrons in strict confinement.

GRELCO MULTI-PLUG ADAPTOR

THIS adaptor fits the standard 5-amp. lighting and power two-pin mains sockets and is designed to provide extra connecting points where two or more pieces of electrical apparatus are in use and only one power point is available. It is especially suitable for use where a combined switch plug is mounted on the skirting board or the socket is so close to the floor as to preclude the use of the normal type of extra-point connector with side wings. The Grelco design is perfectly flat on one side,



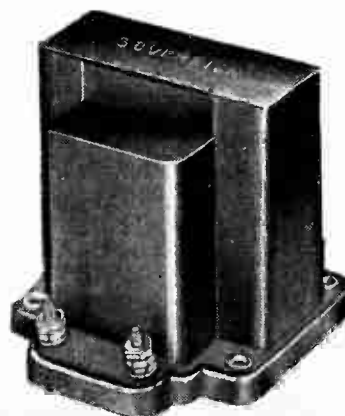
Grelco adaptor for adding extra points to a single power socket.

the additional socket-piece being arranged at an angle of approximately 45 degrees. Any number of plugs can be fitted merely by the addition of extra adaptors, and either round or rectangular plugs can be used.

SOVEREIGN L.F. TRANSFORMER

ALTHOUGH the price of the Sovereign L.F. transformer is but 5s. 6d., its performance is well above the average for its class, for tests made with a 1 to 3 ratio specimen show that the amplification is maintained at a satisfactorily high level up to well above 8,000 cycles. There is a gradual falling off below 500 cycles, however, but this reduction does not materially affect the reproduction, for even at 100 cycles the amplification is sufficient to ensure a reasonably good balance.

As the primary winding is designed to carry up to 10 mA. of D.C., the transformer may be connected, in most cases, in the anode circuit of the valve. Indeed, our tests



Sovereign L.F. transformer.

were made with the transformer connected in this manner, and with 1.5 mA. of D.C. flowing through the primary winding.

This transformer is housed in a neat bakelite case with the terminals mounted at an angle to afford easy connection.

Two models are available, viz., a 1 to 3 ratio and a 1 to 5 ratio, the price being the same in each case.

The makers are Sovereign Products, Ltd., Sovereign House, Rosebery Avenue, London, E.C.1.

SIFAM MULTI-RANGE TEST SET

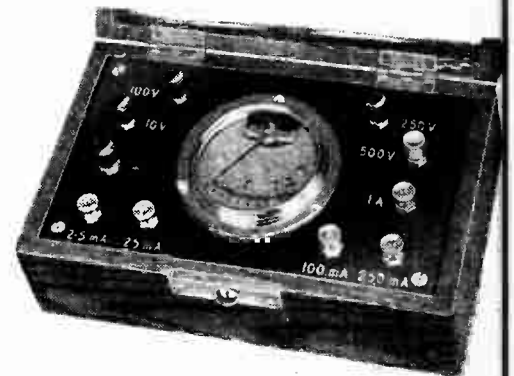
THIS test set has been designed to provide in one instrument means of measuring all the D.C. voltages and currents likely to be dealt with by the average experimenter and set constructor. The nucleus of the instrument is a high-grade moving-coil meter which has a dead-beat movement, and by the inclusion of suitable resistances and shunts provides nine different ranges, four for voltage measurements and five for current readings. These are arranged as follows:—

Volts, 0-10, 0-100, 0-250, and 0-500.

Milliamps., 0-2.5, 0-25, 0-100, and 0-250.

Amps., 0-1.

On the 250-volt and 500-volt ranges a current of 2.5 mA. is required for a full-scale deflection which gives a resistance of 400 ohms per volt in each case. The engraved scale is approximately 1.5 in. long, which naturally imposes a certain limitation to the accuracy that can be obtained, but this is largely offset by the generous number of ranges provided. Our tests show the calibration to be substantially correct on all scales, and the electrical error combined with the human error in interpreting



Sifam multi-range test set for D.C. voltage and current measurement.

the scale need not exceed about four per cent. if a little care is exercised. For a versatile instrument which costs but £3 15s. the degree of accuracy attainable is very high indeed.

The makers are the Sifam Electrical Instrument Co., Ltd., York Works, Brownning Street, London, S.E.17.

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CATALOGUES RECEIVED

J. J. Eastick & Sons, Elex House, 118, Bunhill Row, London, E.C.1.—Sixteen-page booklet dealing with the Elex superheterodyne and detector-type short-wave converter.

The British Rola Co., Ltd., 179, High Road, Kilburn, London, N.W.6.—Illustrated folder dealing with the full range of Rola moving coil loud speakers.

BROADCAST BREVITIES

The "Good Night" Mystery

NO one at Broadcasting House could, or would, tell me last week whether listeners heard a Blattnerphone record of Mr. J. C. Stobart's "Grand Good Night" or the plain un-be-ribboned voice of the Education Director himself. What is certain is that a Blattnerphone record of the talk was made on or about December 29th.

More Enigma Variations

When I sought enlightenment in the daily Press I was engulfed in still deeper doubt, for although two eminent journals declared that Mr. Stobart did indeed broadcast from his sick bedroom, their reports were, to say the least, contradictory.

One stated that, although Mr. Stobart returned to bed immediately after the broadcast, he had little sleep during the night. Quoth the other: "After his 'Grand Good-Night' to the world, Mr. Stobart sank down into the pillows and fell into a deep sleep."

Not This Time

SURPRISE has been felt in broadcasting circles that no one in the B.B.C. got included in this New Year's Honours List. Several well-known names had been bandied about as "dead certs."

The Facts about Droitwich

DROITWICH, to judge from certain newspaper reports, is to be the quickest and snappiest job ever conducted by the B.B.C. "Prestissimo" would have to be the watchword if the station were really to "begin testing next summer," and I am afraid all Trade Union rules would be broken in the process.

West Regional First

The authentic facts are that work on the 100 kW. successor to 5XX will not be begun until after the West National and Regional transmitters are fully launched on the ether. West Regional should begin testing in March, and, following its entry into full service, its twin brother should complete its tests towards the end of the summer.

The first signals from Droitwich need not be expected before the latter part of 1934.

High Tension

NO truthful observer could say that the state of affairs existing between the B.B.C. and the music-hall interests is all that could be desired. That the B.B.C. is considering the formation of its own repertory of vaudeville artistes suggests preparations for war rather than peace.

Many artistes, I understand, are quite ready to throw in their lot with the B.B.C.

A Thought for the G.T.C.

The General Theatres Corporation may, of course, modify its attitude, realising that artistes are just as eager to please the broadcasting public as their clientele of the "halls."

Celebrated Second-rankers

In the meantime the B.B.C.'s investigations have revealed quite a lot of useful talent among the lesser-known artistes, many of whom might easily become "top-liners" if given a chance at the microphone.

The existing celebrities are not the only fish in the sea.

By Our Special Correspondent

A QUIESCENT RECEIVER? Douglas Fairbanks and Maria Alba in the comedy-drama film "Mr. Robinson Crusoe," with a "home-constructed" radio set consisting of coconuts, seashells and other unusual components. Note the on-off switch.



It Might be True

Rumour has it that a celebrated music-hall magnate unconnected with the General Theatres Corporation is prepared to consider an arrangement for sharing artistes with the B.B.C.

Make of this what you will.

Mr. Ronald Norman

RESTRAINED excitement was observable at Broadcasting House last Wednesday, when the new Governors attended their first Board Meeting.

Great things are expected of Mr. Ronald Norman, the new vice-chairman, who, if his health permits, should make his influence felt very considerably in British broadcasting within the next few months.

Plenty to Talk About

Judging by the way the B.B.C. have started the New Year, the Board should have no difficulty in finding subjects for discussion. Poland, the music-halls, Athlone... all excellent ingredients for the stew. Others to follow.

"Burns' Night"

IN celebration of the great day of January 25th, the B.B.C. is this year putting out a simple, straightforward Burns' Concert which will include some of the best-known Burns' songs and extracts from his poems sung and spoken by leading Scots' singers and reciters. The programme will be woven together into one consecutive whole by Sheriff J. G. Jameson, who will take the chair. Other voices taking part in this programme are Albert Dewar, tenor; Anne Ballantine, contralto; Robert Watson, baritone; and Harold Wightman, reader.

The New B.B.C. Organ

IT will be two months, I understand, before listeners have a chance to hear the new £10,000 organ at B.B.C. headquarters.

The opening night will be a notable occasion, for the instrument is the first of its

type in this country specially built for broadcasting purposes.

Duplicate Playing Console

Sir Walter Alcock, its designer, has carefully considered the peculiar requirements of the microphone, and for this reason the organ will probably have an unusual sound to listeners in the Concert Hall itself.

The playing console will have a duplicate which can be plugged-in in another part of the building, so that the organist can judge the results *via* loud speaker.

An Operatic Conundrum

ALTHOUGH the last night of Rupert D'Oyly Carte's season of Gilbert and Sullivan operas at the Savoy Theatre will be relayed in the National programme on January 21st, no advance announcement is possible of the name of the opera, as no selection is made until the actual day.

"The School for Scandal"

THE first month of the New Year gives promise of a bumper harvest for 1933 in radio drama. On January 24th a broadcast adaptation of Dulcima Glasby of "The School for Scandal" will be given on the National wavelength, and the production is in the capable hands of Howard Rose.

B.B.C. as Frankenstein Monster

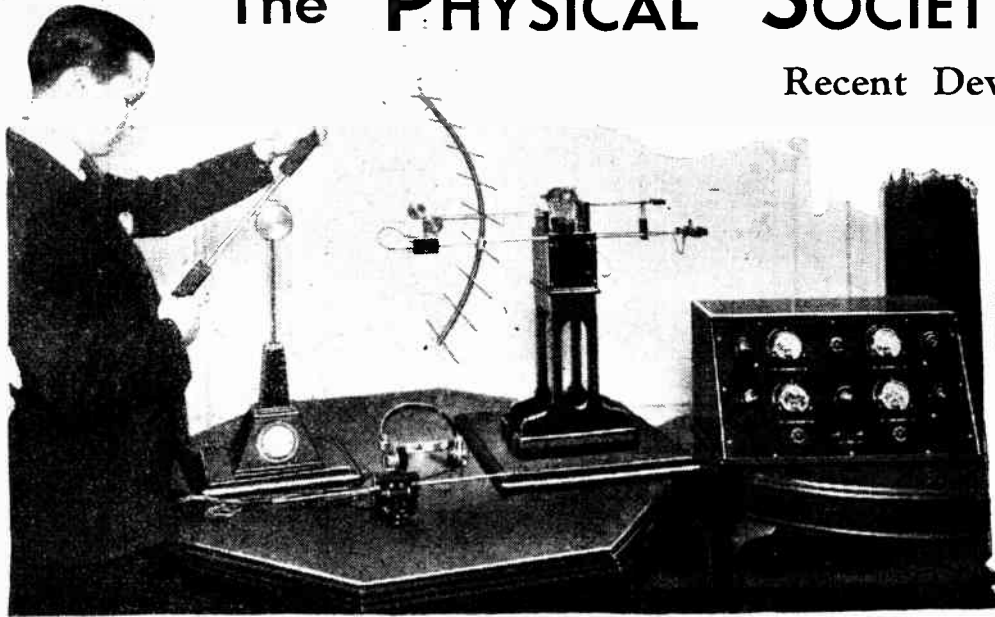
Most critics of the B.B.C. pour their lamentations upon the past, but John Goss, in a clever satirical prophecy under the title "Chord-Blasting" in the January *London Mercury*, looks ahead. He tells how, in its second decade, this Frankenstein monster gradually overcame all resistance until, indeed, all private performances of music became illegal and a contravention of public morals.

As his last sentence shows, Mr. Goss knows when to stop: "The description of the processes by which the British Broadcasting Corporation gained complete control of book-publishing, greyhound-racing, education, chiropody, and, ultimately, of Government itself, belongs to another chapter."

The PHYSICAL SOCIETY'S EXHIBITION

Recent Developments in

the Design of Wireless Measuring Instruments



Marconi transmitting and receiving apparatus for demonstrating the properties of ultra-short waves.

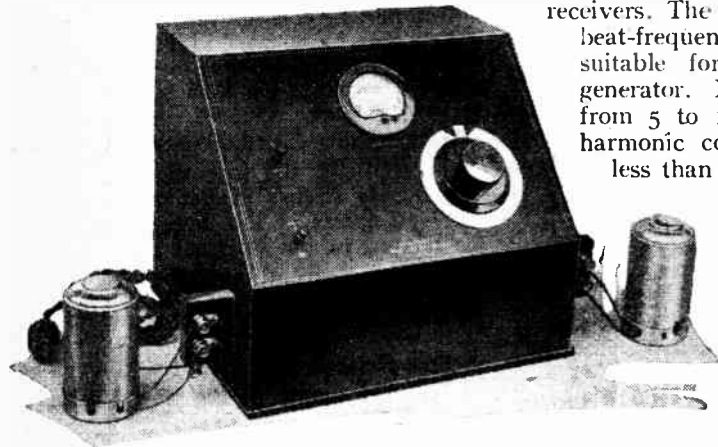
THE twenty-third annual exhibition of the Physical Society, held at the Imperial College of Science and Technology on January 3rd, 4th, and 5th, again provided a wealth of material of first importance to those interested in the scientific and engineering aspects of wireless communication. In addition to a number of demon-

cycles. The output voltage is adjustable from 0.5 microvolt to 1 volt, and the fact that all the controls are directly calibrated greatly reduces the time required to carry through a calibration. Provision is made for the connection of an external beat-frequency oscillator, so that the instrument is capable of carrying out all the usual tests of sensitivity, selectivity, and fidelity on broadcast receivers. The new "G.R." type 613-A beat-frequency oscillator is specially suitable for use with the signal generator. It has a frequency range from 5 to 10,000 cycles, and the harmonic content of the output is less than 2 per cent. The equipment for set testing is completed

by the new type 583-A output power meter. The input impedance range may be varied from 20 to 20,000 ohms, while the output meter, which is of

the rectifier type, is provided with a multiplier giving decade changes of full-scale readings from 5 to 5,000 milliwatts. A decibel scale is also printed on the meter dial.

In the rack-mounted heterodyne oscillator shown by Standard Telephones and



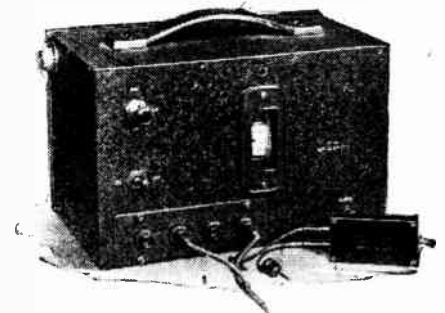
Mains-operated Sullivan inductance matching set for comparing screened or open coils.

strations illustrating recent developments in all the important research laboratories, the products of the leading makers of measuring instruments were on view.

Low-frequency oscillators and signal generators were especially well represented, and the new "G.R." equipment exhibited by Claude Lyons, Ltd., included many outstanding examples of instruments suitable for research and development. The latest model 603-A standard signal generator is an exceptionally versatile instrument. It is battery-operated and completely screened, and has a frequency range from 12 to 3,000 metres. Internal modulation up to 90 per cent. is provided at 400

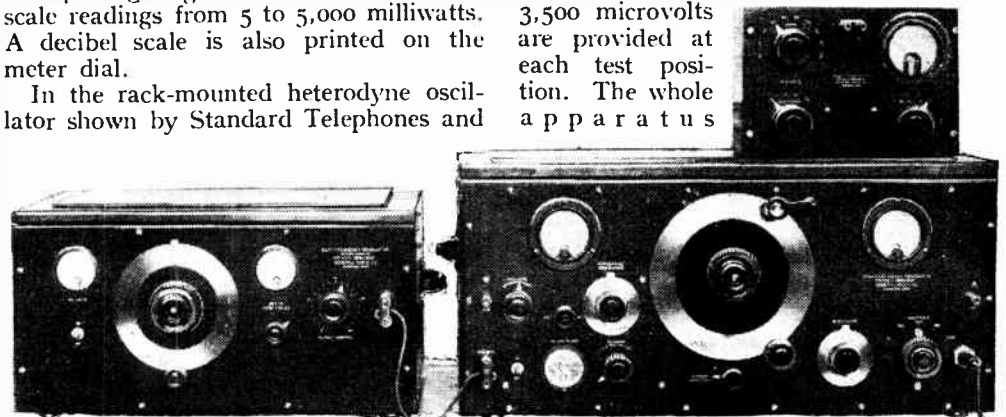
Cables, Ltd., an ingenious device is incorporated for checking the accuracy of the frequency scale. The output is switched on to a small moving-iron unit to which are attached two vibrating reeds tuned to resonate exactly at 50 and 500 cycles. The main dial is rotated until the amplitude of vibration of one of the reeds, as viewed through a small inspection door, reaches a maximum. The zero adjustment of the oscillator is then set to bring the main scale to the reading corresponding with the frequency of the reed in resonance. A similar device is incorporated in the Muirhead N.P.L. beat-tone oscillator.

The requirements of works test departments are somewhat different from those of the research and development sections, and Messrs. E. K. Cole, Ltd., were exhibiting a master signal generator capable



"Ekco" service oscillator incorporating three-step attenuator and dummy aerial.

of supplying as many as twelve test benches with a modulated source suitable for checking receivers in production. Five frequencies are provided, three on medium and two on long waves, and a separate oscillator panel incorporating its own L.F. oscillator and modulator is used for each frequency. A dummy aerial and an attenuator giving a variable output from 0.1 to 3,500 microvolts are provided at each test position. The whole apparatus



A group of the latest "G.R." instruments shown by Claude Lyons, Ltd. (Left) Type 613-A beat frequency oscillator; (Right) Model 603-A standard signal generator and Type 583-A output power meter.

The Physical Society's Exhibition—

is exceptionally strongly made and is well adapted to factory conditions. The same firm is also showing a compact test oscillator designed for use by service agents in fault-finding and checking the



Weston model 662 test oscillator with a modulated output covering the medium-wave, long-wave and I.F. ranges.

alignment of receivers under working conditions. A dummy aerial forms part of the equipment, and in addition to the usual medium- and long-wave H.F. ranges an I.F. range is provided, so that all circuits in a superheterodyne receiver may be checked for correct alignment.

The Weston model 662 test oscillator is another example of an instrument designed for the service man, and provides a modulated source of I.F., long-wave, and medium-wave power for routine testing.

Dynatron Oscillators

The dynatron oscillator seems to have come into its own this year and is being used, on account of its high degree of frequency stability, not only in heterodyne wavemeters, but also in beat-frequency L.F. oscillators. The new inexpensive universal wavemeter shown by Messrs. H. W. Sullivan, Ltd., is a good example of the application of the dynatron and has a frequency stability of the order of 0.001 per cent. By the addition of a valve voltmeter unit specially designed for the purpose, this wavemeter can be rapidly converted from the heterodyne to the absorption type. Incidentally, the coils used are a new form of the well-known Sullivan-Griffiths thermal-compensated type.

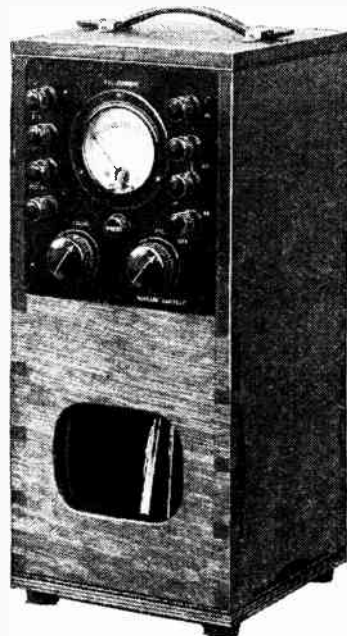
In modern receiver manufacture the correct matching of inductances and ganging of tuning condensers is of the first importance. The inductance matching set shown by Messrs. H. W. Sullivan, Ltd., and the gang condenser bridge made by E. K. Cole, Ltd., are examples of the type of instrument which is now available to the radio manufacturer.

But the interest of the Exhibition from the wireless point of view was not centred exclusively in measuring apparatus. There were a number of experiments and demonstrations on subjects closely allied to broadcasting. The Dubilier Condenser Co., for instance, were showing the effect of their sparking-plug interference suppressors on the character of the spark

discharge. This was viewed through an oscilloscope, and the effective radiation with and without suppressor was demonstrated simultaneously with a three-valve receiver of standard design.

On the Standard Telephones exhibit a demonstration was given of high-grade telephony, the instruments used being the latest moving-coil microphone and headphones in conjunction with one of their portable O.B. amplifiers. A comparison was made with a high-grade carbon microphone, and the improvement over the latter type, particularly in the reproduction of sibilants, was most marked.

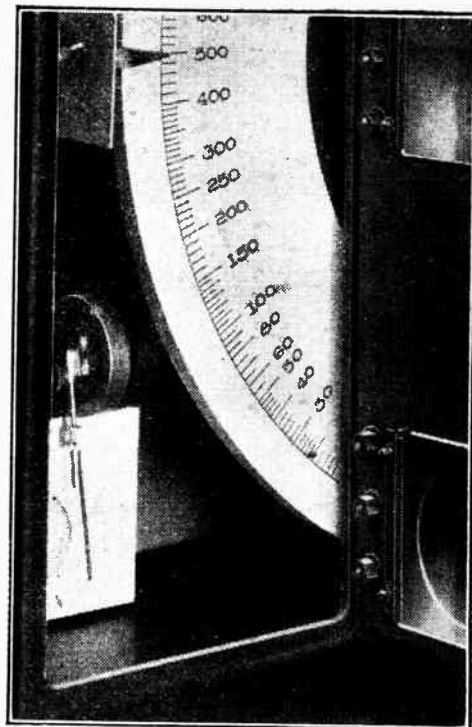
The Marconi Co. gave a demonstration of the properties of ultra-short waves with apparatus specially designed for schools and colleges. The wavelength used was 50 cm., and exploration of the space surrounding the transmitter with a doublet receiver demonstrated the properties of focusing and polarisation associated with



Standard Telephones portable cathode ray unit. The image is viewed downwards through the wall of the tube.

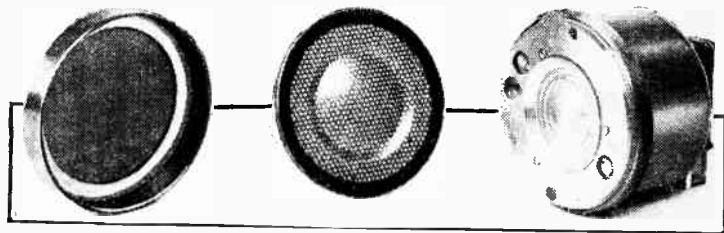
these short wavelengths. There was also a demonstration of the application of ultra-high-frequency currents for medical and surgical diathermy treatment. Another interesting exhibit from the design point of view was a television amplifier with a flat response characteristic from 10 to 150,000 cycles.

On the Westinghouse stand the advantages of the new "Westector" copper-oxide rectifier in A.C. instruments at high frequencies were demonstrated. Experiments were also arranged to illustrate the properties of cupreous oxide photo-electric cells, and demonstrations were given of the method of sputtering a gold film on the surface of the oxide to obtain good electrical contact without appreciable light absorption.



Vibrating reed frequency check in the Standard Telephones heterodyne oscillator.

One of the most interesting stands in the Research and Experimental Section was that arranged by the Post Office Engineering Research Station (Dollis Hill). The use of a sound film for replacing the familiar signalling tones in the automatic telephone exchanges by spoken words is a probable future development. The sound film, which gives such phrases as "Number engaged" or "Number unobtainable," is mounted vertically on the edge of a revolving drum through which light is passed on to a photo cell. The appropriate phrase is selected by switches controlled automatically from the exchange. Another outstanding exhibit on this stand was the precision heterodyne oscillator designed by Dr. Ryall. Dynatron oscillators are employed to give frequency stability and an ingenious correction circuit employing a shunted metal-oxide rectifier is incorporated in the amplified section to compensate for curvature of the valve characteristics. Between



Moving-coil microphone used in the demonstration of high-quality speech reproduction by Standard Telephones and Cables, Ltd.

20 and 12,000 cycles the output does not vary more than 0.1 decibel, and the harmonic content above 50 cycles is less than 1 per cent.

In conclusion, special mention should be made of the beautifully finished valve-maintained tuning fork panel made by Muirhead and Co., Ltd., for the British Broadcasting Corporation.



M.R.G. Console 3 Radio-gramophone

Satisfactory All-round Performance and Outstanding Quality

and, consequently, should make it possible to obtain greater H.F. amplification without running into instability.

In order that the constants of the input circuit may be adjusted to suit aerials of varying capacity, a get-at-able aerial series condenser is mounted at the back of the set.

Instead of soldering the various connections between the receiver chassis proper and the loud speaker, gramophone motor, and pick-up, plug-and-socket connections have been fitted for all these leads, with the result that the chassis may be removed from the container for examination or repair in a few moments without special tools or skill. This is a good point, and it has enabled the manufacturers to arrange a "service" scheme that is particularly attractive to owners.

Accessories associated with gramophone reproduction are of good quality and sensibly arranged; the electric turntable motor is a Garrard, fitted with automatic-stop mechanism.

WITH regard to the desirable qualities of a radio-gramophone, there are two schools of thought. It is often held that, on the radio side, reproduction of more than two or three programmes is unnecessary or even undesirable, and that the inevitable complications brought about by providing long range and high selectivity are quite out of place.

Those who hold the opposite opinion contend that, as a radio-gramophone is bound in any case to be bulkier and rather more costly than a plain radio set, a fairly ambitious receiver chassis might just as well be included, in order that the outfit may be placed in the "de luxe" class. Both sides make out a good case for their contentions, but they are in complete agreement with regard to the need for striving after the best attainable quality combined with realistic volume.

In the M.R.G. Console 3, what would appear to be a happy compromise has been struck; although the radio equipment is not of the most ambitious type, it is very much more than a local-station set, and should satisfy all reasonable needs. With regard to the all-important quality of reproduction, an exceptionally high standard has been achieved.

Although the circuit arrangement is basically the popular H.F.-det.-L.F. three-valve combination, there are several unusual features, which should perhaps more fairly be described as refinements. Input and output circuits of the H.F. stage are of the single-tuned variety; the tuned-anode system of intervalve coupling is employed, but, very wisely, the anode connection has been "tapped down" on both medium and long waves, in spite of the fact that this procedure necessitates an extra switching point. The H.F. valve is of the variable- μ type, and so its sensitivity is naturally controlled by variation of grid bias.

Separate reaction windings are provided

for each waveband, and waverange switching is arranged throughout so that the contacts are in series and not in parallel with any coil. When the detector valve is converted into an amplifier for gramophone reproduction its grid circuit is entirely disconnected from the tuning system by means of a three-point switch.

After the detector valve comes an output pentode, which is coupled by means of a resistance-fed transformer; decoupling is employed in both anode and grid circuits.

Rectified anode current, derived from a full-wave valve, is smoothed by the series-connected loud speaker field in conjunction with a pair of high-capacity dry electrolytic condensers.

A constructional point of special interest is the horizontal indicator scale, which is marked both in wavelengths and the settings corresponding to principal stations on both bands. The scale is actually of glass, and the tuning indicator is a narrow bar of light directed on the scale through a slotted metal cursor carried on a rubber-tensioned silk band suitably guided over pulleys.

FEATURES

General.—A three-valve self-contained radio-gramophone with built-in moving-coil loud speaker of the energised type. For operation on A.C. mains with an external aerial.

Circuit.—One H.F. stage, with single-tuned input and intervalve circuits. Capacity-controlled reaction and H.F. volume control by grid bias adjustment. Power grid detector, coupled by parallel-fed transformer to output pentode. Full-wave rectifier; smoothing by loud speaker field coil.

Controls.—(1) Single tuning control. (2) Combination on-off, radio-gramophone change-over and wave-range switch. (3) Reaction. (4) Combined radio and gramophone volume control.

Price.—23 guineas, complete.

Makers.—Mains Radio Gramophones Ltd., Vaughan Street, Bradford, Yorks.

The tuning coils, enclosed in cylindrical shields, are considerably larger—and, therefore, one may conclude, more efficient—than usual. They are mounted on a common axis, and in the operation of wave-changing are rotated bodily through a few degrees by a mechanical link controlled by the switch in order to transfer connections to the appropriate points for each waveband. This unconventional wave-changing system should offer the advantage of less exposed H.F. wiring,

Result of Tests

All the apparatus is housed in a large cabinet of quite attractive appearance, which, considering the extremely reasonable price of the set, is very well made. Most important of all, the cabinet is especially satisfactory from the acoustic point of view, giving no trace of undesirable resonance or "boxiness."

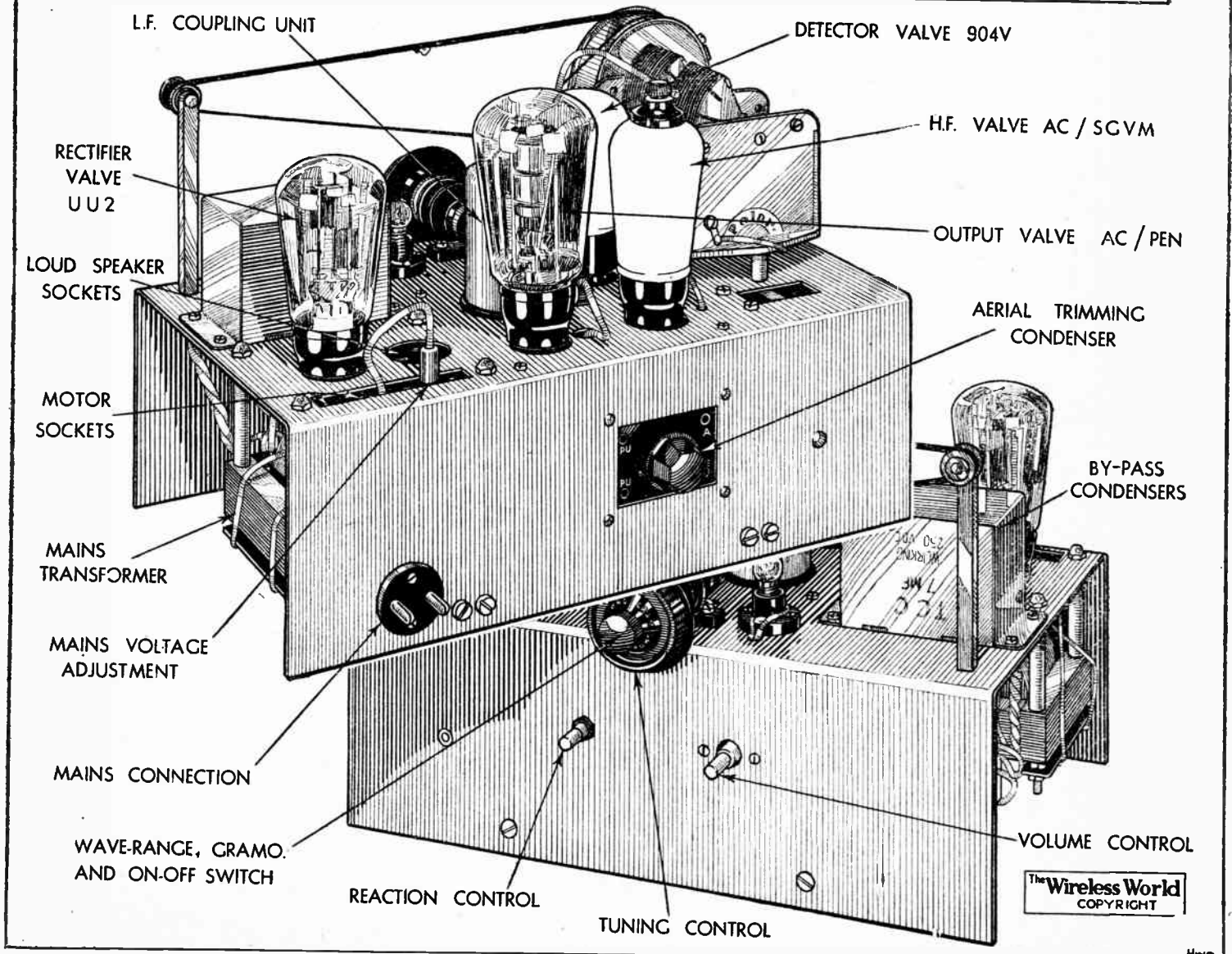
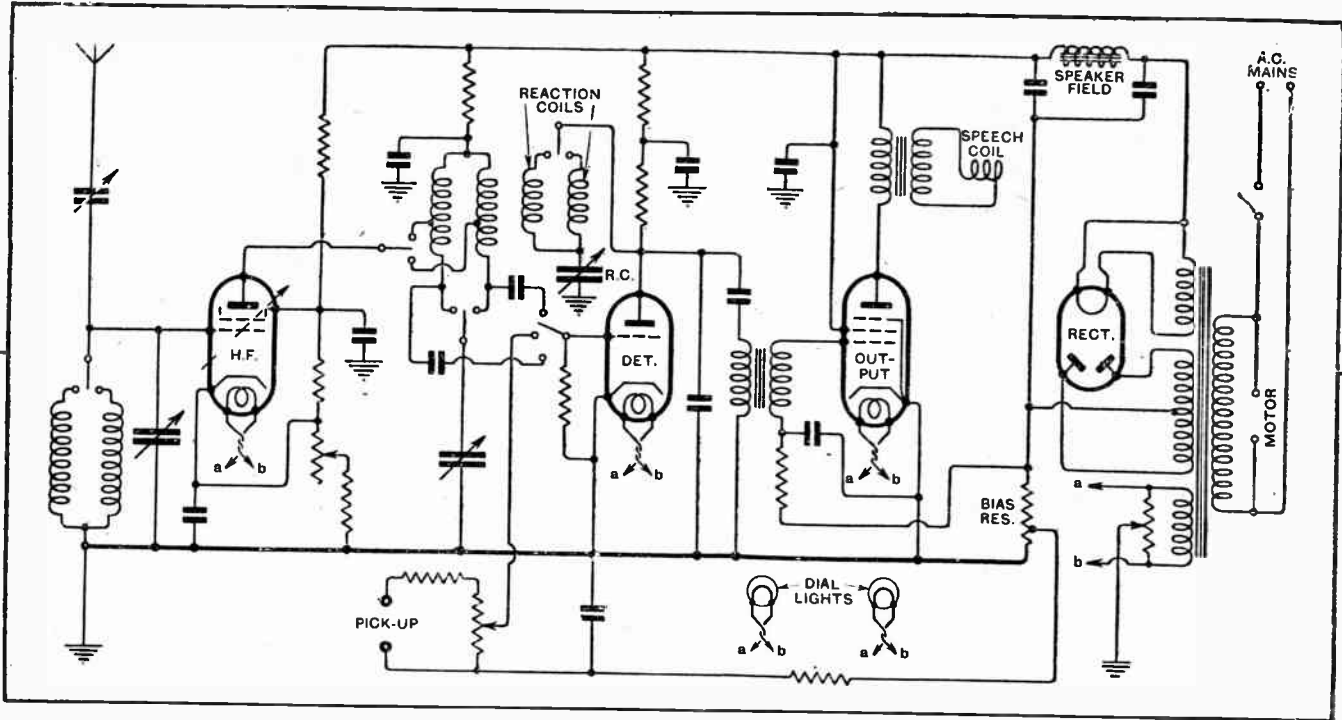
Judged on a combined basis of sensitivity and selectivity—the only fair way—the performance of the set is above the average standard. For this the variable- μ H.F. valve and efficient coils are no doubt largely responsible, as is also the special arrangement of the H.F. intervalve coupling. In spite of the fact that separate windings are provided for each band, reaction did not appear to be outstandingly good, but true sensitivity is sufficient to avoid too much dependence on this control as an aid to receiving the weaker stations.

We were particularly impressed by the crispness and clearness of reproduction; there were no signs of roughness or harmonic distortion. Speech is highly intelligible, and, when listening to an orchestral item, it is exceptionally easy to pick out individual instruments.

What bass resonance there is is slight, and occurs at a frequency well over 100 cycles. Those who favour excessively "mellow" reproduction might consider that the output of the M.R.G. set is rather on the "bright" side, but it is certainly a very pleasing instrument to listen to.

There is a similar absence of resonances in the middle and upper registers, output being sensibly constant up to about 4,000 cycles. Volume is satisfactory for ordinary domestic needs.

Radio or Records without Complications

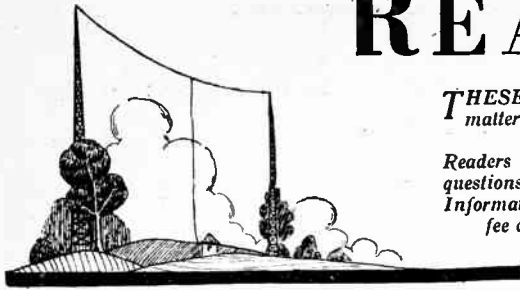


Two views of the M.R.G. metal-framed chassis, and (inset) the complete circuit diagram.

HIND

READERS' PROBLEMS

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.



Adding a "Loose Coupler"

WHEN readers ask for help in improving the selectivity of somewhat out-of-date sets, our first suggestion is that a separately tuned aerial circuit should be added whenever this feature is not already included. Except perhaps in a set with a variable- μ H.F. valve, one can hardly claim even to have begun to tackle the problem of interference until this addition has been made.

Circumstances alter cases, and so it is natural that the same type of "loose coupler" will not of necessity be best for every receiver. But very little risk will be run by adopting the arrangement shown diagrammatically in Fig. 1, and indeed this is the circuit recommended in nine cases out of ten, partly because of its adaptability and the fact that no internal alterations in the receiver are involved.

For the coil assembly almost any "two-range aerial tuner" of reasonably good design will be suitable, but reasonably efficient windings should be chosen. An arrangement with controllable aerial coupling between primary and secondary circuits is desirable but not essential.

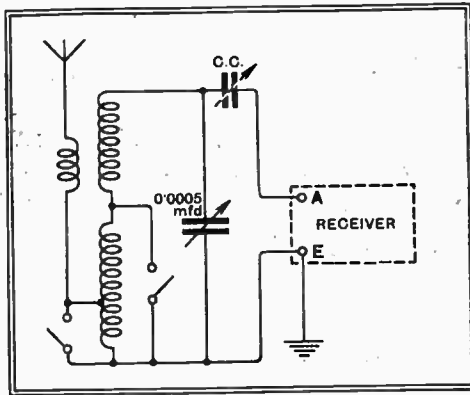


Fig. 1.—One of the simplest and most satisfactory methods of adding a separately tuned aerial circuit to an existing receiver.

Writing on the question of adding a two-circuit aerial tuner to his "kit" set, which is no longer selective enough for present-day conditions, a correspondent asks whether the external aerial coil should be screened. Direct magnetic coupling between the added coil and any coil in the set is bound to be harmful, but as our querist's receiver includes coils which are completely shielded, we think he will be safe in using an unscreened input coil. By doing so, the general efficiency of the set is likely to be rather better than if a small "potted" coil assembly were employed.

With regard to the coupling condenser (CC in the diagram) a maximum capacity of 15 or 20 micro-microfarads is ample when "direct" aerial coupling was fitted in the original set. In other cases, a capacity of 0.0001 mfd. may not be too high.

Double Superheterodyne

ALTHOUGH it is not impossible to employ a superheterodyne short-wave adaptor in conjunction with a set in which the same principle of reception is employed, the procedure is not one that can be generally recommended. Even although screening may be as complete as is normally practicable, it is probable that harmonics of the two oscillators will beat together and produce whistles at many points.

One way out of the difficulty is to connect the short-wave adaptor to the anode circuit of the first detector of the main receiver, and to remove or disconnect the oscillator valve.

Screened Pick-up Leads

WHEN a mains-driven set operates for radio reception with a silent background, hum being only evident on gramophone reproduction, we are always inclined to suspect electrostatic couplings to the pick-up leads, etc. If the hum be high-pitched, it is almost certain to be due to interference of this nature.

To overcome the difficulty, it is usually recommended that the pick-up connections should be run in earthed screened wire.

To a reader who has tried this plan with only partial success we recommend that he should also try the effect of screening in a similar way the leads connected to his radiogramophone change-over switch.

Balancing Push-pull Valves

IN view of the revival of interest in push-pull amplification, more especially as applied to battery sets, a query on this subject comes at a very opportune moment.

It is quite common practice to precede a push-pull stage by a split-secondary transformer, in which separate windings are provided, so that the anode current of each output valve may be balanced by an individual adjustment of grid bias. Without a special component of this type it is usually considered that each valve must of necessity be operated at the same bias.

A reader who has a plain "unsplit" trans-

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, Tudor Street, E.C.4, 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.

former asks whether it would not be possible to strike a balance by "backing off" the negative bias of the particular valve which happens to consume the lower anode current by means of one or two dry cells connected directly to its grid.

This plan runs contrary to usually accepted procedure, but is certainly quite practicable, although it is always considered that the grid of an amplifying valve should be kept clear of long wires or, in this case, of a mass of metal, which amounts to virtually the same thing. But, by using very small flashlamp cells, which may be suspended in the wiring, risk of trouble on

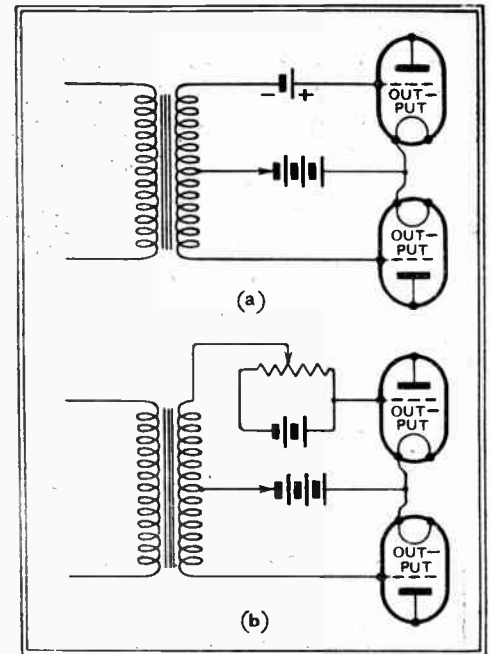


Fig. 2.—Provision for individual adjustment of grid bias in a push-pull output stage. Finer control is obtained by fitting a potentiometer, as in diagram (b).

this score is quite negligible, and so the scheme is well worth while trying. Connections will be as in Fig. 2 (a).

Where fine adjustment of the "backing-off" voltage is required, a potentiometer, in conjunction with dry cells, may be used. These additions should be carefully mounted in close proximity to the grid terminal, an insulating bracket being fitted as a support for the potentiometer.

Self Adjusting

A READER who has added an H.F. stage to an existing A.C. receiver sends us a circuit diagram showing modifications that have been made, and asks for information as to the changes in the values of bias resistors throughout the set.

Due to the extra demands of the added H.F. valve, anode voltages of all the original valves are bound to be slightly reduced. But it may be taken as an almost invariable rule that this does not imply the need for alteration of bias resistance values. Current flowing through the resistors will be less, and so the bias voltages built up across them will be proportionally reduced. It is fortunate that circuits of this type are almost perfectly self-regulating, and are capable of adjusting themselves automatically to suit quite considerable changes in H.T. voltage.



“absolutely amazed at the results” *see letter below.*

You can enjoy this perfect reception and reproduction by using the B.S.R. RADIO CHASSIS and Power Amplifier.

Extract from letter received from a Windsor customer, states:

“I should like to say that I am absolutely amazed at the results produced by this set. I had no idea—and I have handled a number of the big modern “Commercial” sets—that such superb quality could possibly be obtained on long distance reception. Selectivity seems to me to be more than “adequate” (which you suggest in your letter) and I may say I am using a 100ft. aerial (an old one) which doesn’t usually make for selectivity. Meanwhile on local work, the “Volume Controls” are so smooth and create so little change of tone that I obtain *real perfection* at quite low volume—though I observe that this is only obtainable if the ganging is correct. I cannot imagine a set that would be capable of better results as it seems to fulfil *all the conditions needed for a perfect receiver.*”

A Super-quality Radio-Gram can readily be built with these Two Units.

The B.S.R. Radio Chassis and Power Amplifier together provide radio reception and reproduction of the highest order, permitting British and continental stations to be tuned in without interference, and providing a quality and volume that is not surpassed by any commercial receiver, irrespective of price.

For Gramo Pick-up the Power Amplifier leaves nothing to be desired.

May we send our Representative to demonstrate in your own-home? No obligation on your part.

The ‘B.S.R.’ Radio Chassis

The B.S.R. Radio chassis employs 2 Variable Mu H.F. Valves, and Band Pass Tuning, thus ensuring a wonderful degree of selectivity and sensitivity. It is fitted with plugs for H.T. and L.T.A.C. supply, for connection to Power amplifier. An oxidised bronze panel can be supplied ready for fixing chassis in a cabinet.

Chassis dimensions 11 1/2" x 13 1/2" x 8".

The ‘B.S.R.’ Power Amplifier

The B.S.R. Power Amplifier is complete in every detail. It incorporates a 3 ratio Output Transformer and Volume Control. The frequency response is practically flat from 50 to 8,000 cycles and the quality of reproduction is unsurpassed. Two models are available to give an output of either 5 or 10 watts undistorted A.C.

RADIO CHASSIS
complete with Variable Mu Valves

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POWER AMPLIFIER
5.9 Watts undistorted A.C. complete with Valves

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Both these Instruments have double-range Logarithmic Scales reading from .5 to 40,000 ohms. Other ranges to order.

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MAINS TRANSFORMERS.—Input 200/250 volts, output 150 volts 30 m.a., good heavy job. Ridiculous clearance price 2/9, post 6d. All new and guaranteed. Also a few only of above with L.T. winding, 9 volts 1 amp., 3/9, post 6d. Kolster Brandes Mains Chokes, 3/6. Pye Chokes, all new, 4/6, post 6d. Igranite Mains Transformers, input 200/250 volts, output 130 volts 25 m.a., 4/6, post 6d.

VARIABLE CONDENSERS.—Bargain offer of new Formo de Luxe Log Variable Condensers, .00025 and .00035, all brand new and boxed. Listed 4/6, bargain clearance 9d, each, post 6d.

REGENTSTAT VARIABLE CONTROLS.—2 meg. for Eliminator Voltage Control, etc., listed 6/6, to clear 1/3 each, post 3d.

WESTINGHOUSE METAL RECTIFIERS.—120 volts 20 m.a., 4/6, post 6d. 180 volts 30 m.a., 8/6, post 6d.

BROADCAST MICROPHONES.—Pedestal type with rubber suspension, 15/6. Watch type pattern, very sensitive, 4/6, post 6d. Highest grade Reisz Pattern Microphones, in heavy polished octagonal aluminium case with rings for suspension, 55/-, post 1/-.

SHORT WAVE COILS, ETC.—2-Pin, 2 up to 9 turns, 9d, each. S.T. 100 Coils, high-class job on bakelite, Anode and Aerial, 5/6 per pair. S.T. 100 Coils wound on cardboard, 2/3 per pair. Cossor Melody Maker Coils, 3/-, post 6d. Indoor Tape Aerials, listed 2/-, to clear 9d, each. 7-Strand Copper Aerial, 100ft. 1/6, 50ft. 10d., post 6d. on former, 3d. on latter.

HEAVY BAFFLE BOARDS.—With cut fret for Moving Coil Speaker, etc., 7-Ply, 2ft. x 2ft., 1/11, post 6d. 18in. x 18in., 1/9, post 6d.

ML CONVERTERS.—Input 200/240 volts D.C., output 230 volts, 50 cycles, 40 watts, £3 10s.

PORTABLE ACCUMULATORS. BRAND NEW.—Unspillable, 4in. x 2 1/2in. x 3 1/2in. high, 6/6, post 6d.

CONDENSERS.—2 m.f., 1,000 volts A.C. test, 2/-; 500 volts test A.C., 1/9; 4 m.f., 1,000 volts test, 4/-; 500 volts test, 3/-; 1 m.f., 1,000 volts test, 1/8;

500 volts test, 1/4. Electrolytic, 2,000 and 2,000 m.f., max. working voltage 12. price 6/- each.

CENTRALAB VOLUME CONTROLS.—Suitable for radio-grains, etc., list 9/-, to clear, brand new, 1/9, post 3d.

THE LAST OF THE SLIDING RESISTANCES.—For cutting down mains voltages 2,000 ohms, calibrated scale from 0-250 volts, calibrations 60, 100, 110, 150, 200, 210, 220, 230, 240, 250. All perfect, very low price to clear, 2/6, post 6d.

PHOTO ELECTRIC CELLS.—For light control, and sound film reproduction. Something new with which to experiment. 5/- each, post 6d.

SPEAKER CONVERSION OUTFITS.—For converting your D.C. Moving Coil Speaker to A.C., complete with diagram and Westinghouse metal rectifier. Owing to the changing over of mains in this country it is advisable to have one in store ready, as they cannot be repeated at this very low price, 12/6, post 9d.

UTILITY .0005 TWIN GANG CONDENSERS.—With trimmers, brand new and boxed, list 17/6. Our price 9/6, post 6d.

SCREENED H.F. CHOKES FOR S.G.—Det. and eliminating h.f. in A.C. Mains, 1/- each, post 3d.

BELL TRANSFORMERS.—200/250 volts down to 3.6, 6 and 8 volts tapping at 1 amp., suitable for trickle chargers, 5/6, post 3d. Ekco Mains Transformers, input 200/250, tapped primary, outputs 325-0-325, 80 m.a. 1 volts 1 amp., and 4 volts 2 amp., 12/6, post 1/-.

D.C. ELIMINATORS.—Two pos. tappings, one variable, 200/250 volts input, output 0 to 180 volts at 30/40 m.a., all guaranteed, 15/-, post 9d.

SIMILAR ELIMINATOR with fixed tappings, 10/6, post 9d.

A.C. ELIMINATORS.—200/250 volts input, output 180 volts variable 25 m.a. All the highest grade components, Kolster Brandes mains transformers, Westinghouse rectification, two pos. tappings and one variable. All new and guaranteed. Clearance price, 28/6, post 1/3.

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SMALL 1,000 OHM CHOKES.—Suitable for eliminators, etc., tapped 500 ohms 500 ohms, 9d, each, post 3d.

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ROTARY CONVERTERS (HIGGS).—For charging accumulators 200 volts 50 cycles A.C. input, outputs 20, 25 volts 9 amp. D.C. Another, same input, 12/15 volts 15 amp. output, in perfect order, £6 each.

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DAVENSET

Transformers "...are well above the average."

(Vide "Wireless World," Nov. 11, 1932)

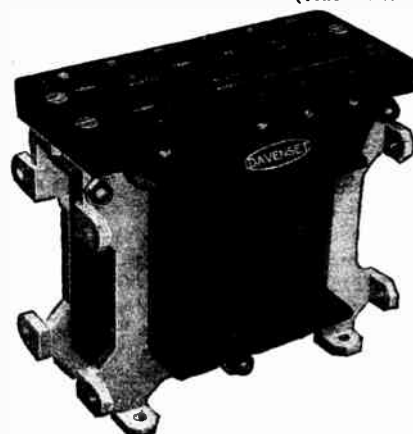


Illustration shows the DAVENSET Shell-Type Transformer

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The "Wireless World" Laboratory has tested DAVENSET Transformers and finds them "well above the average in performance and exceptionally well made." Such unbiased judgment is the best guarantee to home set constructors, and others, that DAVENSET Transformers will make a material contribution to the success of their sets.

Davenset Transformers are manufactured to your own individual requirements, whilst our Technical Department is at your service to advise and suggest the simplest and yet most practical schemes for overcoming your Transformer or Rectification problem.

PARTRIDGE, WILSON & CO.

Dept. 29, Davenset Works, Leicester.

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RECEIVERS FOR SALE.

HIRE a McMichael Duplex Portable; 15/- weekly, £2/12/6 monthly; amplifiers for dances, etc., on hire.—Alexander Black, Wireless Consultant, 55, Ebury St., S.W.1. Sloane 1655. [0328]

FERRANTI 7V. Superhet, 200-250 A.C., month old; cost £22, take £14.—55, Grove Av., N.10. Tudor 5706 after 7 p.m. [1507]

1933 Receivers, kits or components, all makes; amazingly high part exchange allowance on old; any type of set or components accepted; send description with details of receiver or components required; immediate quotation.—Wood, Fowleites Buildings, Holcombe Brook, near Bury, Lancs. [1536]

D.C. Super Selective 5 Superhet, Marconi M.C.; cheap.—Whiteman, Adbolton Grove, Nottingham. [1502]

BURNDIPT Empire Screened Four, ultra short and medium waves. List price £29/18, accept £6/6; also Philips Screen Grid Pentode, £3/10; both battery sets, can be heard any time.—Parker, 23, East Hill, Dartford, Kent. [1499]

"**WIRELESS WORLD**" A.C. Quality Radiogram and 50 H.M.V. records, the whole perfect; offers.—Hope, "The Wight," Blackwell Heath, High Wycombe. [1514]

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McMICHAEL Super Range 4, hide case, nearly new; £14, or near offer; trial.—Williamson, 40, Aylesbury St., Bletchley, Bucks. Phone: 193. [1511]

MARCONIPHONE, latest 4-valve A.C., model 253; cost £16/16 recently, perfect, nearest £11/17/6.—20, Kenneth Crescent, N.W.10. Gladstone 3191. [1510]

ALL-ELECTRIC Alba Quality Radiogram, list £23, used few weeks, perfect condition; £18.—26, Therapia Rd., S.E.22. [1509]

1932 Amplion Six A.C. Mains Receiver, in pedestal cabinet, with valves; £10.—Mitchell, 12, Woodlands, S.W.20. [1503]

ACCUMULATORS—BATTERIES.

BROWN'S 6v. Supersolders, limited number, brand new; 15/- each.—Harris, Townshend Terrace, Richmond. Phone: Richmond 2071. [1494]

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MET-VICK A.C. Eliminators, guaranteed new, complete with U.U.60/250 Mazda valves, suitable for screened grid 3- or 4-valve receivers, output 200 volts, 30 m.a., automatic bias, etc.; 47/6, carriage paid; c.o.d., or cash with order; send for list of other unused bargains.—Seekamp, 46, Farringdon St., London, E.C.4. [1426]

N.P. Battery Chargers, A.C. mains, valve and Westinghouse metal rectifiers; from 65/-; 28v. 1.5 amps.

N.P. 3-amp. Chargers, up to 18x2 volt cells; £5/5; trade.

N.P.—Shop soiled, with full guarantee, 10v. 3 amp.; 55/- to clear.—Nash Products, Stechford, Birmingham.

N.P. 1933 Trade Lists Now Ready; full range of chargers; metal rectification.

N.P. Battery Charging Boards for D.C. Current from 27/6, trade.—Full instructions, Nash Products, Stechford, Birmingham.

N.P. New Trade Lists of Battery Chargers Now Ready, also photographs; send your enquiries. [1492]

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McDANIEL and Co.—Mains chokes, guaranteed inductance at rated current; from 4/6.

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MAINS Transformers, 12 volts 1 amp., 7/6; 9 volts 1 amp., 7/6; 4 volts 4 amps., and 4 volts 2 amps., 8/6; 14 volts 3 amps., 12/6; 4 volts 3 amps., 7/6; 4 volts 5 amps., 8/6; 6 volts 2 amps., 7/6; 7 1/2 volts 2 1/2 amps., 7/6; 10 volts 3 amps., 10/-.

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H.T.8 Transformer, 10/-; with 4 volts 3-5 amps. low tension C.T., 15/-; complete with Westinghouse H.T.8 rectifier and L.T. winding, 27/6 (with screened primary).

MAINS Transformers, output 250-0-250 volts at 60 milliamps., 4 volts at 1 amp., 4 volts at 2 amps., 4 volts 3-amps., all centre tapped; 15/- (with screened primary).

MULTI-RATIO Output Transformers, 15 different ratios; 7/6.

PREMIER Chokes, 40 milliamps, 25 henries, 4/-; 65 milliamps, 30 henries, 6/-; 150 milliamps, 30 henries, 10/6; Pentode output chokes, tapped, 7/6.

PYE Chokes, 110 henries, 4/-; 20 and 32 henries, 4/6.

SMOOTHING Chokes for Series Connected Filaments from D.C. mains, carry 1 amp., 7/6.

KOLSTER-BRANDS 80 milliamp, 30 henry Chokes, taped, 1/3 and 2/3; rds., 7/6; McMichael binocular H.F. chokes, 2/-.

T.C.C. Condensers 2 mfd, 750 volts working, 4/-; 4 mfd, 750 volts working, 6/-; 4 mfd, 400 volts working, 4/-; 4 mfd, Electrolytic, 440 volts working, 4/-; 8 mfd., 4/6.

T.C.C. Block Condensers, 250 volts working, 8 1/2+2+1 +1 mfd., 5/6; 375 volts working, 1+1+0.1+0.1+0.1 +0.1+0.1+0.1 mfd., 2/-; 375 volts working, 6+4+2+2+2 mfd., 10/-; 250 volts working 2+2+2+2+1 mfd., 5/6.

WESTERN ELECTRIC, 0.01+0.01 mfd, 400 volts working, 1/-; block, 4+2+2+1+0.09 mfd., 400 volts working, 6/-; 10 mfd., 400 volts working, 5/-.

FERRANTI Condenser Blocks, 300 volts working, 4+4+2+2 mfd., 10/-; T.C.C. 0.1 mfd. non-inductive condensers, 9d.

VARIABLE Condensers, Polar 3-gang tube type, fully screened, split end vanes and disc drive, 0.0005, 12 s. 0.0005, 5/-; Ormund or Polar all-brass 0.0005 slow-motion condensers, with knob and dial, 3/6; Polar 0.0005 and 0.00035 Bakelite dielectric condensers, with knob, 1/-.

PREMIER Eliminators, input 200-250 A.C., 40-100 cycles, output 250 volts at 60 milliamps., 80 volt and 120 volt taps, incorporating Westinghouse rectifier, 42/6; with 4 volts 4 amps. L.T., 7/6 extra.

PREMIER Eliminators, input 200-250 A.C., output 80, 100 and 120 volts, at 20 milliamps., incorporating Westinghouse rectifier, 27/6; with L.T. charger incorporated, 35/-.

D.C. Eliminators, output 60, 90 and 120 volts, at 120 milliamps., 15/-; larger model, output 80, 120 and 200 volts, at 50 milliamps., 25/-.

ACCUMULATOR Chargers for A.C. Mains, input 100-250 volts, 1-2 amp., 17/6; 1 amp., 22/6.

PREMIER Eliminators, input 200-250 A.C., output 150 volts at 30 milliamps, 2 lower taps, incorporating Westinghouse rectifier, 37/6, with 4-volt 3-4 amp. L.T.

AMPLION Moving Coil Speakers, type E.M. 644, dual fields, 2,500 and 5,000 ohms (100 or 200 volts), with multi-ratio output transformer; 15/-.

B.T.H. R.K. Minor, moving coil speaker, 2,500 ohm field; 15/-, with multi-ratio transformer.

KOLSTER BRANDS Moving Coil, 4-6 volt field, with multi-ratio output transformer; 10/-.

K.B. Auditorium Speaker, 6 volt model, 25/-; A.C. model, £2, with output transformers.

S. G. BROWN Permanent Magnet Speakers, giant S. model, 12in. cone, high resistance speech coil; listed £8, our price £2.

AMPLION Permanent Magnet Moving Coil Speakers, type M.C.22, complete with multi-ratio transformer; 30/-.

SINCLAIR Permanent Magnet Moving Coil Speaker, with multi-ratio transformer; 18/6.

15,000 Ohm Wire Wound Potentiometers, 1/5; Centralab potentiometer volume controls, 50,000 ohms, 2/-; (Polyvars, logarithmically wound potentiometers, 6,000 ohms, 1/9).

WIRE Wound Resistances, any value, carry 20 m.a., 2/-; 40 m.a., 3/-; 60 m.a., 4/-.

WIRE Wound 5-watt Resistances, 3,500, 4,000, 7,500, 8,500, 9,000, and 10,000 ohms; 1/- each.

EDISON BELL Wire Wound Clip-in Resistances, 10,000, 60,000, 70,000, 80,000, and 90,000 ohms; 1/3 each.

CLAROSTAT Wire Wound Potentiometers, 50,000 ohms; 2/6.

HEAVY Duty Variable Resistances (slider type), wound on porcelain, 200 ohms 1 amp., 2/6; 350 ohms 1 amp., 2/6; 2,000 ohms 1/2 amp., 5/-; 500 ohms 1/2 amp., 5/-; 50 ohms 2 amps., 2/6; B.T.H. electric gramophone motors, induction type, 100-250 volts A.C., 30/- complete; double spring gramophone motors, complete 15/-, single spring 9/-.

WESTINGHOUSE Rectifiers, 120 volts at 20 m.a., 6/6; 180 volts at 30 m.a., 8/6; 8 volts at 0.5 amp., 6/6.

(This advertisement continued in third column.)

FOR EVERY SET—there's a

PILOT AUTHOR KIT

CASH—C.O.D.—or H.P.

DIRECT READING STATION FINDER

Described this week

Complete Kit including all components as specified by the designers, with Cabinet. CASH or C.O.D. only 37/6

W.W. STRAIGHT 3

KIT "A" Author's Kit of specified components including Ready Drilled polished Oak Ply Panel and ready drilled and assembled Baseboard, but less Valves and Cabinet. Specified Valves £1-12-3

CASH or C.O.D. Carriage Paid

£5-7-6

or 12 monthly payments of 9/9

MODERN D.C. 3

KIT "A" Author's Complete Kit of specified components with Ready Drilled and Assembled Plymax Baseboard, but excluding Valves and Cabinet. CASH or C.O.D. Carriage Paid.

£9-15-0

or 12 monthly payments of 18/-

D.C. MONODIAL

KIT "A" Author's Kit includes all components for Set only, as specified, with Ready Drilled polished Oak Panel, ready assembled and drilled Set Chassis, screws, wire, sleeving, but EXCLUDING Eliminator Components, Valves and Cabinet.

CASH or C.O.D. Carriage Paid

£9-13-9

or 12 monthly payments of 17/9

POWER PACK £7-10-9

Containing Author's specified parts, CASH or C.O.D. Carriage Paid.

or 12 monthly payments of 13/10

FULL KIT including all specified components for Set and Power Pack, Less Valves.

£17-4-6

CASH or C.O.D. Carriage Paid, or Deposit £2-15-0 and 11 monthly payments of 30/-.

COMPLETE KIT comprising all specified parts for Set and Power Pack including specified Valves, but excluding Cabinet, CASH or C.O.D. Carriage Paid. £23-8-6

or Deposit £4-8-6 and 11 monthly payments of 38/-.

Set of 7 specified Valves £6-4-0.

MONODIAL A.C. SUPER

KIT "A" Author's Kit includes all components for Set only, as specified, with Ready Drilled Polished Oak Panel, ready assembled and drilled Set Chassis, screws, wire, sleeving, but EXCLUDING Eliminator Components, Valves and Cabinet. CASH or C.O.D. Carriage Paid.

£9-10-0

or 12 monthly payments of 17/5

ELIMINATOR KIT

Include all specified components with ready drilled assembled Chassis, with screws, wire, sleeving, but LESS Valves. CASH OR C.O.D. Carriage Paid. £8-5-0

or 12 monthly payments of 15/2

FULL KIT

including all specified components for Set and Eliminator, LESS Valves. CASH OR C.O.D. Carriage Paid. £17-15-0

or Deposit £2-15-0 and 11 monthly payments of £1-10-0.

COMPLETE KIT

Exactly as FULL KIT but including 8 specified Valves (£6-11-6) but less Cabinet, CASH or C.O.D.

£24-6-6

or Deposit £4-6-6 and 11 monthly payments of £2.

IMPORTANT Parts Kits, Miscellaneous Components and Accessories can be supplied under our own Easy Way System of H.P. Send us a list of your wants for quotation by return.

To PETO-SCOTT CO. LTD. 77, City Road, E.C.1

Dear Sirs, Please send me by return CASH/C.O.D./H.P.

for which I enclose £ n. d. CASH/H.P. Deposit Name Address W.W.13/1/33

West End Showrooms: 62, High Holborn, W.C.1.

Components, etc., for Sale.—Contd.

(This advertisement continued from first column.)

AMPLION Pick-up Arm, with volume control; 18/6.

B.T.H. Gramophone Motors, Universal A.C. and D.C.; 55/-.

All the Following Lines 6d. Each, or 5/- dozen assorted: Trimming condensers; Mullard half-watt resistances, 60,000 and 16,000 ohms; vacuum resistances, 15,000 and 10,000 ohms; shielded S.G. or Pentode leads; Dübiliier 0.01 condensers; 2 meg., 1 meg., 1/2 meg. metalised resistances; 2ft. lengths of screened wire; 5-pin valve holders; 4-pin valve holders; any size grid leaks and condensers; fuse bulb with holder; Crabtree sunk 5-amp. switches.

FOR Callers Only.—The following guaranteed valves at 60% off list price: M.P.Pen.; U.U.60/250; P.T.625; M.V.S.G.; A.C.Pen.; V.D.S.; U.U.120 350; D.H.A.C.P.; D.P.T.; S.4.V.A.; M.S.4B.

All Orders to 20-22-24, High St., Clapham, S.W.4. Callers to High St., Clapham (Marcaulay 2188). Closed 1 o'clock Wednesday. Open till 9 o'clock Saturday. Nearest Station Clapham North Underground. [1476]

APPLEBY, London.—Bargains: slightly used material, as new, to our usual standard, continued from and see "Wireless World" last week; prices quoted are net cash, carriage chargeable on orders under 20/- and bulky items; enquiries, stamp, please! Items offered are standard, in proper order, and not job line rejects.

MOVING Coil Units etc.—Baker 6v. super power, coil for super power valve, 47/6; Magnavox R4 heavy built, 6v., in Magnavox cabinet, 39/6; R.C. heavy built, 6v., with output transformer, 38/6; Sonochorde, latest standard P.M. with matching transformer, 25/6; baffles, cut to fit, 2 1/2 sq., 4/6; Marconi 1931-32 type, 6v., 35/-; Rola small cinema model, with rectifier, 200-250v. A.C., in Vibrant walnut cabinet, 95/-; Avonston 200-250v. A.C., with rectifier, 32/6; Tefag 6v., 19/6; Baker 100-150v. D.C., 15/-; W.B. 6v., working order, wants slight attention, 14/6; N. and K. inductor chassis, 35/-; Amplion Lion power chassis, with artistic grille, 35/-; ultra air chrome chassis, 14in.x14in., 25/6; Magnavox balanced armature chassis, 18/6; Ormond Senior B.A. cone units, 7/6.

OLD Bargains.—Eddystone S.W. converters, with valve, 37/6; latest type, 47/6; Philips 3002 eliminator, 220-250 A.C., 52/6; Majestic ditto, A.C., 210-230v. output, 45 m.a., 150v., 58/6; ditto Ekco 3120 Westinghouse-rectifier, 200-250 A.C., 45/-; another ditto, 39/6; Ekco D.C. eliminator, 5700, 60 m.a. output, 42/6; G.E.C. D.C. ditto, cost £6 10s. 35/6; T.C.C. 2,000 mfd. electrolytic condensers, 8/6; double type 2,000x2,000, 14/6; T.C.C. Manbridge condensers, working 400v., D.C., 8 mfd., 9/-; 4 mfd., 5/3; 2 mfd., 3/3; 1 mfd., 2/6; Philips 730 a., 5v., all electric receiver for A.C. mains, 100-250v., 2 S.G., hand pump, moving coil, walnut case, £15/10; Ultra Panther 1933 4v. all electric receiver, for 200-250v. A.C., 25 G.V.M., moving coil, walnut case, £14/14; 1933 Magnum Stenode superhet radiogram, 7-valve, Senior R.K. speaker, D.O.24 output, Marconi pickup, metal rectifier for 200-250 A.C., cost £63 two months ago, fine bargain, £38/10; Igranie 7-valve Neutrosone Colonial transportable receiver, with frame aerial, portable H.T. and L.T. accumulators, and receiver, cost over £58, in fine order, £14; another ditto, receiver, with frame aerial, £10.

MORE Old Bargains.—Lewros C.T. frame aerials, 18/6; Cyclon 0.0005 twin Synchronite drum control condensers, 16/-; Cyclon three stage type 0.0005 Synchronite drum control extender condenser, 29/6; Geophone 4v. all electric receiver, 1931, for 200-250 A.C. mains, 2 S.G., cost £30, £13/10; B.T.H. Standard pickups and arms, nickel, 27/6; R.I. Ekersley tuners, 8/6.

OUR Normal Part Exchange Service for the Supply of New Material, as distinct from used bargains offered here, continues as usual, and particulars of this well known facility will be forwarded on application; applications for quotations of approximate allowances should be accompanied by two 1/2d. stamps.

OUR Buying Department is also Open to Purchase for Cash, at reasonable price, modern high grade moving coil speaker units, meters, gang condensers, screened tuning coils, mains and L.F. transformers, and chokes, etc.; approximate quotations on application; material must be modern and in good condition; no small articles considered.

FURTHER Quantities of Bargains (all subjected to rigorous test before despatch) next week.—Appleby's, Radio House, 198, Finchley Rd., Hampstead, London (opposite L.M.S. Station), Hampstead 3108. Open until 7 p.m., Saturday 1 p.m. [1524]

MORE Power Transformer and Choke Bargains.

250-0-250v. 60 m.a., 4v. 1-2a. C.T., 4v. 2-3a. C.T.; 10/-; post 9d.

350-0-350v. 70 m.a., 4v. 2-5a. C.T., 4v. 3-4a. C.T.; 12/6; post 1/-.

350-0-350v. 120 m.a., 4v. 2-5a. C.T., 4v. 4-6a. C.T., 4v. 1-2a. C.T.; 16/-; post 1/-.

500-0-500v. 120 m.a., 4v. 2-5a. C.T., 4v. 4-6a. C.T., 4v. 2a. C.T., 4v. 2a. C.T.; 25/-; post 1/3.

WESTINGHOUSE Model, 150, 200, 240v. 300 m.a., 4v. 2a. C.T., 4v. 2-6a. C.T., suitable for H.T.8, H.T.9, or H.T.10; 15/-; post 1/3.

CHOKES and Audio Transformers.—20h. 120 m.a., 8/6, post 9d.; 30h. 60 m.a., 6/-, post 6d.; 30h. 30 m.a., 3/6, post 6d.

AUDIO Transformers, ratio 3 1/2, 1 max. primary D.C. not to exceed 5 m.a., manufacturers' model, 3/6, post 4d.; or bakelite case, 3/9, post 4d.

CONDENSERS, Resistances, A.C. speakers in stock; write your requirements for bargains.

All Transformers are Guaranteed for 12 Months, and made from the finest material, primaries tapped and screened, clamped in aluminium frames and fitted with clearly marked terminal strip; better components are not available at double the price.

M. J. HOYNE, Offices and Works, 8a, Gladstone Rd., Wimbledon, S.W.19; also at 43, Enmore Gardens, East Sheen, S.W.14. Tel.: Liberty 3303. [1516]

AMPLIFIERS, partly dismantled, containing mains transformer by best makers; 550-0-550 at 120 m.a., 7.5 C.T. at 2.5a., 5.5. C.T. at 2a., 4v. C.T. at 4a., 3 Dübiliier 4 mfd., 1,000v. test—Pye choke, zenite resistances, miscellaneous condensers, valve holders, etc., price 50/-; also O.P.4 (C) Ferranti, 6/6—Spratley Radio, Hayes, 242, [1482]

THE DIX - ONEMETER

It has Two Clear Scales with Mirror for Accurate Readings, only 6 Terminals, but 50 Ranges.

ONLY 60/-

A remarkably low price for a meter worth £10. For Novice or Expert. Test Booklet Free.



The High-grade Radio Tester. Low Price. High Value.

INSTRUMENT IN CASE, 60-MULTIPLIERS, EACH, 6/6

COMPLETE RADIO OUTFIT £4:19:6



Get a GENEROMETER

BATTERY SUPERSEDER.—No H.T. Batteries needed for your set even if you are not on the mains. An H.T. Battery run down to 30 volts is useless and has to be thrown away. Yet you pay for the wasted volts.

The GENEROMETER makes H.T. from our L.T. 2-volt battery, rectified and smoothed. Gives 3 tappings and lasts indefinitely. A boon and blessing to all using H.T. Reduced from £3 15s. New and Guaranteed. 37/6 From us only.

CHARGING SETS A.C.

If you are interested in the profitable charging of a number of Radio Cells and a few Car Batteries at one time, write us for details.

SILENT — EFFICIENT — SIMPLE

1,000 other Bargains in our Sale List, post free. Send stamped addressed envelope to

ELECTRADIX RADIOS
218, UPPER THAMES STREET, E.C.4

RYALLS RADIO,

33, CHANCERY LANE, LONDON, W.C.2, accept used radio parts, or sets, in part or full payment for brand new, at list prices. Only good quality components accepted, accumulators and very small items cannot be taken. Goods bought for cash from callers, up to one third of list price paid, parcels by post by arrangement only.

HETERODYNE WHISTLE FILTERS, SCREENED H.F. CHOKES,



SHORT WAVE CHOKES, & TONE CORRECTOR COILS. Enclose stamp for Lists. POSTLETHWAITE BROS., KINVER, STOURBRIDGE.

GRIPSO
STANDARD PUSH-PULL INDICATING SWITCH
ADAPTABLE DOUBLE DIAL READINGS
ON AND OFF-LONG AND SHORT WAVE
ROBUST CONSTRUCTION
LISTS FROM MAILERS
THE GRIPSO COY.
32, VICTORIA STREET, LONDON, E.W.1

ONE HOLE FIXING
1/6 EACH

PARIMA SELENIUM CELLS

FOR ALL PURPOSES
Parima Light-Sensitive Resistances are constant, mechanically strong, moisture proof, instantaneous in action and exceedingly sensitive. Fully guaranteed for 12 months. Prices from 5/-
PARIMA MANUFACTURING CO.,
21, BROMLEY ROAD, S.E.6. *Hilker Green 2824*

Components, etc., for Sale.—Contd.

SOUTHERN RADIOS Guaranteed Wireless Bargains.—
S Mains transformers, fully tapped primary, 200-250v, 50 cycles, centre tapped L.T.: 250-0-250, 60 m.a., 4 volts 1 amp., 4 volts 3 amps., 11-; each; 350-0-350, 60 m.a., 4 volts 2 amps., 4 volts 4 amps., 13-; each; 350-0-350, 120 m.a., 4 volts 1 amp., 4 volts 2 amps., 4 volts 4 amps., 18-; each; 450-0-450, 120 m.a., 4 volts 2.5 amps., 4 volt., 4 amp., 4 volts 2 amps., 19 6 each; 500-0-500, 120 m.a., 4 volts 2.5 amps., 4 volts 5 amps., 21 7/8 each; 500-0-500, 20 m.a., 4 volts 0.7 amp., 4 volts 3 amps., 14 6 each; for H.T., Lissen and Loewe rectifiers; 250-0-250, 40 m.a., 4 volts 0.6 amp., 4 volts 3 or 4 amps., 12 6 each (for Pix and Tritron rectifiers); 135 volts, tapped 80 volts and 110 volts, 20 m.a., 4 volts 2 or 3 amps., 12 6 each (for Westinghouse rectifiers H.T.4, 5, 6 or 7); 240 volts, tapped 200 volts, 180 m.a., 4 volts 3 or 4 amps., 14 5 each (for Westinghouse rectifiers H.T.8 or 9).

SMOOTHING Chokes—40 henries 40 m.a., 700 ohms, 6 6 each; 20 henries 60 m.a., 480 ohms, 7 3 each; 15 henries 100 m.a., 330 ohms, 8 9 each; 20 henries 120 m.a., 270 ohms, 9 3 each; 10 henries 100 m.a., 118 ohms (as specified for new "Wireless World" D.C. Monodial), 8 3 each; pentode output choke, tapped 1 1/2 and 3 to 1 ratios, 50 henries 30 m.a., 7 9 each.

A.L.L. Transformers and Chokes Guaranteed for 12 months; special capacities quoted for and delivery given within 3 days from receipt of order.

SET Manufacturers' Genuine New Surplus, Mullard Radio for Million A.C. kits, in sealed cartons, including 3 Mullard A.C. valves, £3/12/6 (listed £6 10); Regentone 2-valve A.C. sets, including Westinghouse metal rectifier and valves, in sealed cartons, £3 19 6 (listed £6 10); condensers, 4 mfd. 2, 7, 2 mfd. 2, 2, 1 mfd. 1 each, all 750 volt; screened H.F. chokes (H.M.V.), 1 each, 9s; dozen; hundreds of bargains in M.C. speakers, pick-ups, electric gramophone motors, etc.; Allan Hough brand new A.C. record changers, all voltages, £5 10 (list £25); every article guaranteed and post paid.—Southern Radio, 323, Euston Rd., London, N.W.1. Phone: Museum 6524. [1535]

NEWT'S Offer Brand New Set Manufacturers' Surplus.—Mains transformers: Note: These are not the usual jobs that are flooding the market, but manufacturers' guaranteed standard lines. 500-0-500, 22 1/2; 450-0-450, 22 1/2; 350-0-350, 19 1/2; all as follows: 120 m.a. and L.T. windings: 4 volts 2.5 amps., 4 volts 2 amps., 4 volts 5 amp., 325-0-325 at 80 m.a., 4 volts 2.5 amps., 4 volts 4 amp., 12 1/2; 350-0-350 at 60 m.a., 4 volts 2.5 amps., 4 volts 3 amps., 13 1/2; 250-0-250 at 60 m.a., 4 volt., 1 amp., 4 volts 1 amp., 4 volts 3 amps., 13 6; note: All above tapped and screened primaries and L.T. windings C.T. For Westinghouse rectifiers H.T.8, 210 volts, 180 m.a., 4 volt., 3 amps., 12 6; for H.T.9 or "W.W." Baby Super, 220 volts 180 m.a., 4 volts 4 amps., 16 1/2; chokes, 20 henries 120 m.a. (400 ohms), 9s; 50 henries 60 m.a. (750 ohms), 8 6; 30 henries 60 m.a. (550 ohms), 6 6; 20 henries 30 m.a. (600 ohms), 5 6; condensers, 275 D.C. or 250 A.C. working, 1 mfd. 1, 1/2, 2 mfd. 1, 9, 4 mfd. 2, 7; 1,500 D.C. test, 1 mfd. 1/8, 2 mfd. 2, 4, 4 mfd. 4;—multiple banks, 1,500 test, 20 mfd., 4+2, 2+2, 2+2-1, 1, 10 9; also 11 mfd., 1,500 test, 4+2, 2+2, 1, 6 6; pick-ups, Elico, with volume control, list 50 1/2 at 16 1/2 each; constructors' kits, sealed, Mullard Radio for the Million, A.C.3, (H.F., S.G.), and Pentode, with valves (354V, 84V, Pen4V), list £6 10, 72 3/4; as above, battery kits (less valves), list £5 10, at £2 15 6; moving coil speakers, Rola (U.S.A.), 8 type, with multiple transformers, 6 10 volts D.C. (18 ohms), 110-175 D.C. (2,000 ohms), 50-110 D.C. (2,500 ohms), 150-200 D.C. (14,700 ohms), 200-250 D.C. (6,500 ohms), 17s; each; for motor magnets 9 1/2; cobalt magnet, 7,400 lines per inch, weight 6 lb, 27 6; dual compensated speakers, one of any mentioned above and one permanent magnet, £2; all goods guaranteed; carriage paid; cash or call.—Newt's Mayfair Radio, 31, George St., Hanover Sq., London, W.1. Mayfair 5746. [1534]

CONDENSERS, Radiophone, 2 gang 9 6, 3-gang 15 1/2, 4-gang 18 6, S.H. types 2 extra covers, 1 9, 2 3, 2 6; disc drives, 3 6; drum, 5 6; Radiophone, 36 1/2; moving coil speakers, Ormond, D.C. type 17 6, P.M. type 21 1/2, guaranteed unused; post extra.—Wilson, 62, Tottenham Rd., N.16. Callers evenings only. [1522]

BAYLISS B Converter, 220 D.C., 230 A.C., 50 cycles, auto transformer, new; nearest £7 10.—1,593, Coventry Rd., Yardley, Birmingham. [1525]

FURTHER Amazing Radio Bargains.

SPECIAL Lot of Handsome Radio Cabinets, 17 1/2-15 1/2 Bin., finished walnut, veneered front (usual price 35 1/2), complete with permanent magnet Bobo speakers (usual price 49 6), limited number of about 50 only; special price 36 1/2.

ALSO K.B. Gramophone Motors, A.C. and D.C., complete with turntable, auto stop, unused, 19 6; Radiophone 4-gang condensers, 0.0005, unused, 12 6, and various fixed condensers, etc.

A.L.L. Above, cash with order and on 7 days' approval.—J. Dorshill, 24, Legrams Av., Bradford, Yorks. [1525]

PEN220, 7 6; H.F.210, 3 6; P.M.2A, 4 6, boxed, as new; 7-1 Radiogrand, 5s.—"Kenva," Preston Rd., Harrow. [1523]

SHORTWAVE Adaptor of New Design, 12 to 80 metres, on one coil, write particulars, Street's Radio, 5, Combe Rd., Croydon. [1522]

R.K. True Speed Motor and Senior Pick-up, 52 6; O.P.(3)C, 9s; R.J. Hyperion, 7 1/2; 0.1 mfd. T.C.C. mica condensers, 2 6; Mitchell, 12, Woodlands, S.W.20. [1505]

COSMIC RADIO SERVICE, 23, Water St., Liverpool.—New Year clearance: Ferranti B1, 10 6; B7, 10 6; O.P.10C, 7 6; Varley Nicore 1, 9s; Nicore L.F., auto, 9s; Square Peak aerial coils, 7 6; and H.F. Interwolve, 4 6; H.T. pentode centretapped choke, 3 6; R.J. Varley Super S.H. L.F. transformer, 5s; R.J. Varley pick-up and auto stop, 15s; R.J. Varley and B.T.H. Senior pick-up heads, 5s; Meteor 3 kit, new, 15s; Philips 366 clock, with new valve, 210v, 14s; Burton micro-hp diode, 1 6; Micro-phoneme Ideal L.F. transformer, 5s; Micro-phoneme heavy-duty choke, 6s; Telsen 100H 3 m.a. choke, 3s; postage extra; write for part exchange terms. [1497]

WESTINGHOUSE H.T.5, R.1 transformer for H.T.5 or H.T.7; 40% off list, perfect.—Dunstone Park, Palatton. [1500]

a set is as good as its components

When you incorporate a **BURTON TRANSFORMER** in your set you are using a component of the highest efficiency, which will reveal itself in the tonal purity and volume of your set.

Ask your dealer for **BURTON**.
Wound in ratios of 3-1 and 5-1.
PRICE 5/9
Made by **C. F. & H. BURTON, Walsall.**

BUILD A BETTER SET WITH BURTON COMPONENTS

LOUD SPEAKER REPAIRS
Any make of Unit 4/-
Blue Spots ... 5/-
Moving Coils from 5/-
Repairs of any kind quoted for.
GUARANTEED AND TESTED.

A RECENT CLIENT WRITES:
"I have given this Speaker (Moving Coil) the most exacting tests I know, and would like to congratulate you on the really fine repair job you have made. It is, I believe, rather better in tone than when new. Again thanking you for your prompt service and fine workmanship."

REPAIR DEPT.:
WEEDON POWER LINK RADIO CO.,
185, Earham Grove, LONDON, E.7. Phone: Maryland 4311.

56/58 Clerkenwell Road
E.C.1
is the new address
W. BRYAN SAVAGE
Phone: Clerkenwell 3088 1/2

SHORT WAVE BARGAIN

SHORT WAVE PLUG-IN COILS, Nos. 2 to 9 Turns AIR DIELECTRIC. **8D.** Each
STANDARD SIZE 4 for 2, 4, 8 for 4, 6, all Post Paid.
No. 12 for 80 m. Band 1-5. Base-board coil Holders 6d.
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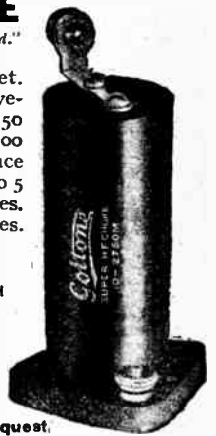
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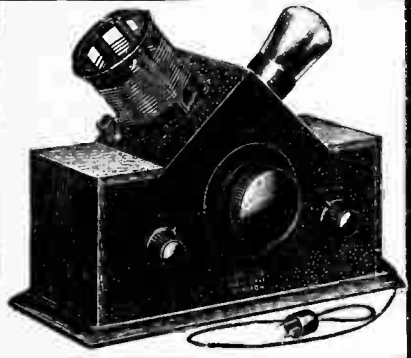
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WANTED, complete Jensen 14in. Auditorium Loud-speaker, for 250 volts A.C., new.—Reply Box 5773, c/o The Wireless World. [1484]

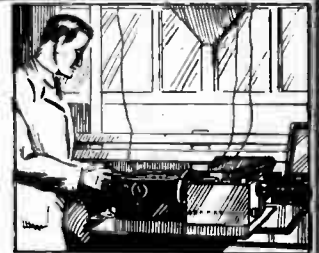
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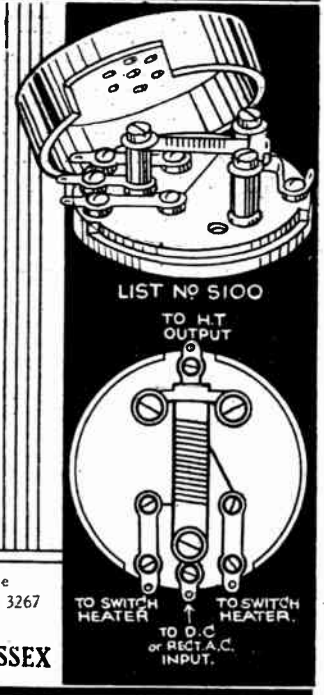
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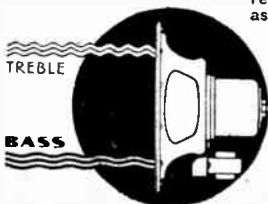
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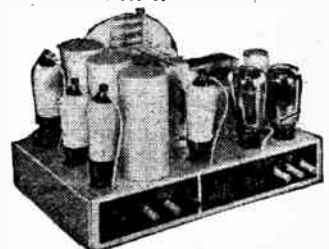
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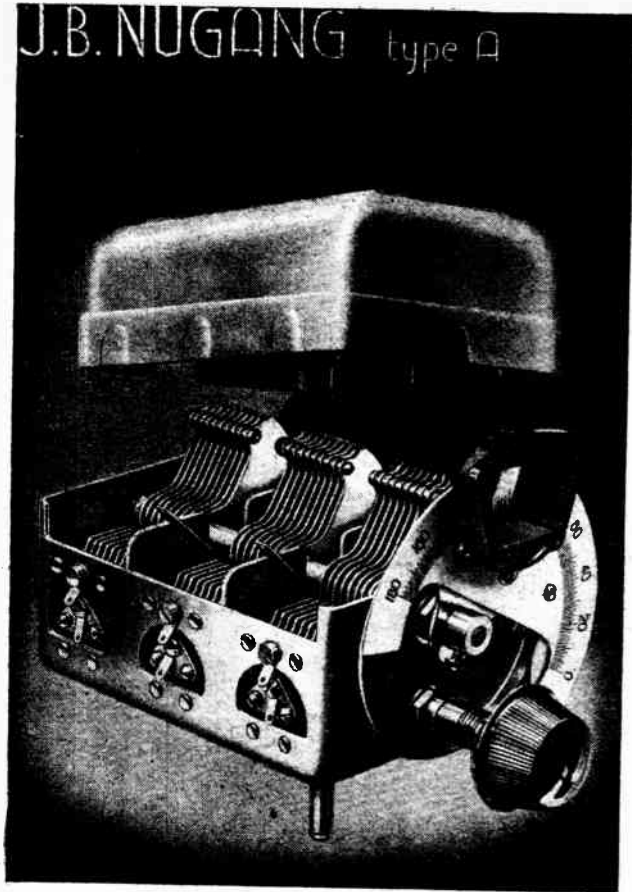
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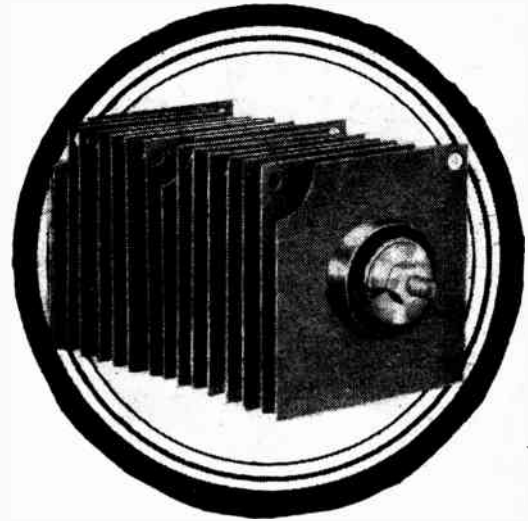


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Complete with Disc Drive.		
Fully screened.		Semi-screened (without lid).
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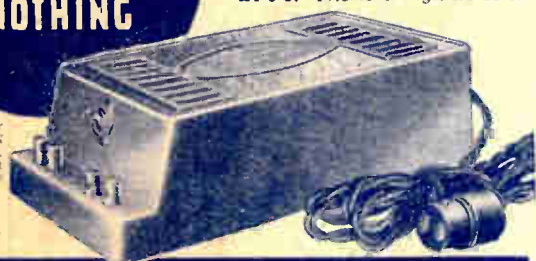
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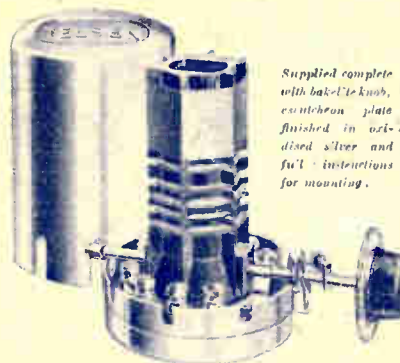


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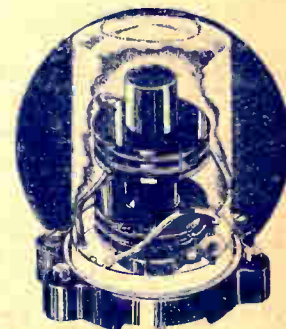
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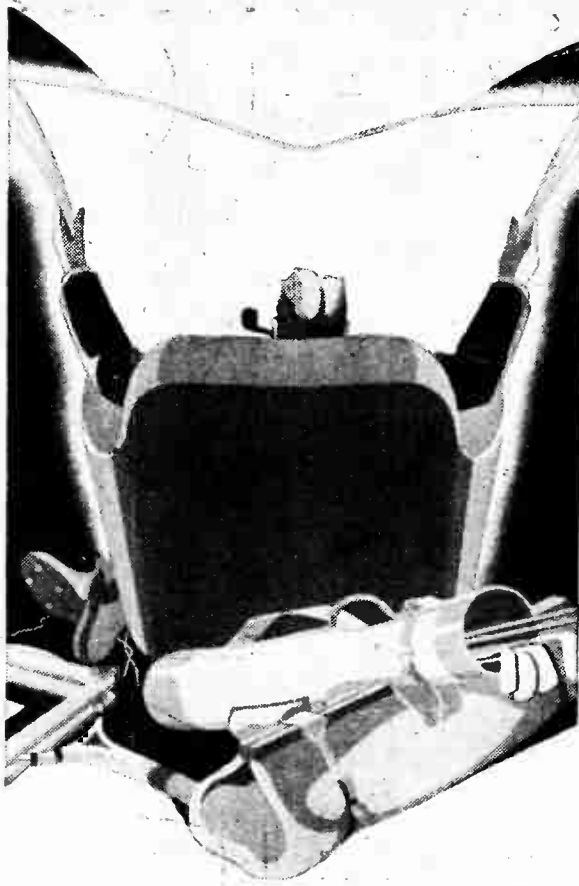
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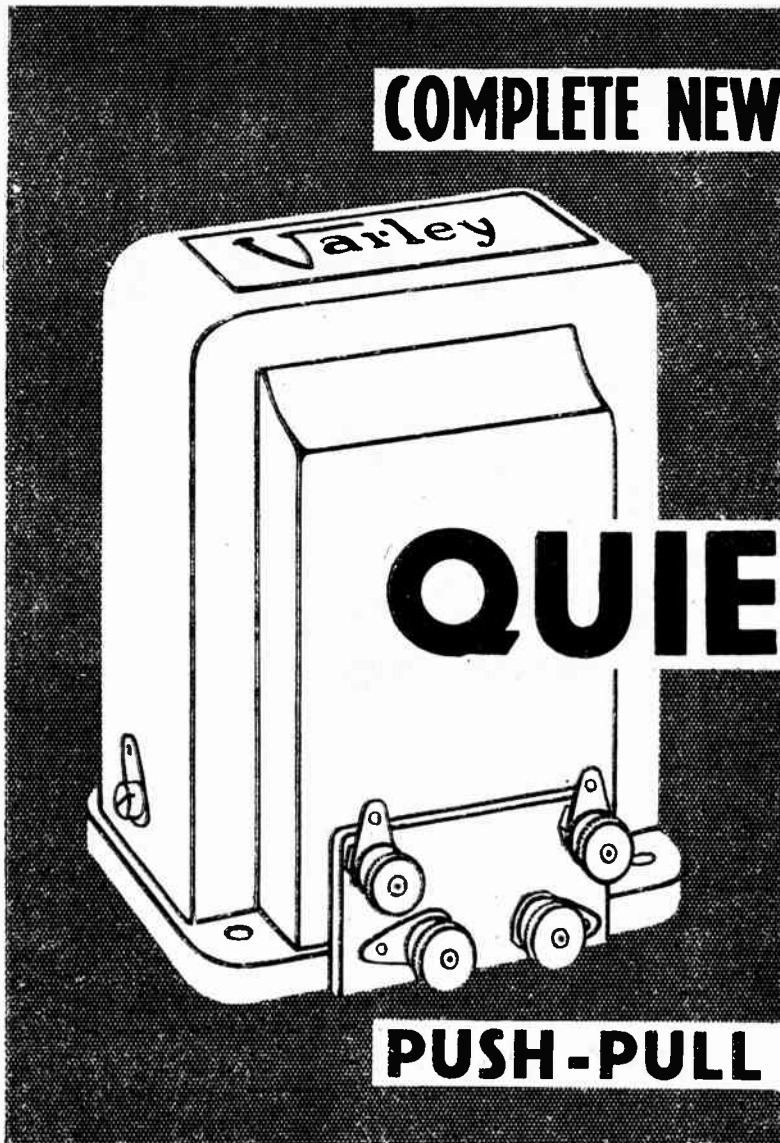
The Daily Telegraph

NEXT MONDAY

Monday morning — what did HOWARD MARSHALL think of the Harlequins on Saturday? What has HOTSPUR got to say about the surprising defeat of the favourite in the 2.30: and what are his latest, up-to-the minute hints for to-day's meetings? Does FRANK COLES agree with what you were saying about the Arsenal's forward line? Whom does WALLIS MYERS favour among the younger lawn tennis players?

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 Ratio..... 9/1
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 Ratios..... 3/1 and 50/1
 Primary D.C. Resistance 400 ohms.
 Sec. D.C. Resistance (3/1) 130 ohms.
 Sec. D.C. Resistance (50/1) 9 ohms.
 Primary Inductance each half
 8 henries with D.C. current of 26 M.A.
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● **DP39. QUIESCENT PUSH-PULL OUTPUT TRANSCHOKER**
 Ratios..... 3/1 and 75/1
 Primary D.C. Resistance 400 ohms.
 Sec. D.C. Resistance (3/1) 130 ohms.
 Sec. D.C. Resistance (75/1) 64 ohms.
 Primary Inductance each half
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Radio's newest need . . . Varley's latest achievement. A range of Quiescent Push-Pull Components designed and manufactured by a pioneer firm, famous for over 30 years for the quality of their electrical coil-windings.

You are adapting your existing battery set? Or building the Wireless World "Quiescent Push-Pull Two"? In either case can you do better than choose Varley? Varley Quiescent Push-Pull Components are made in a wide range to suit your every need . . . an Input Transformer, ratio 9/1, and three different Output Transchokes to give you accurate matching.

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Varley

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PEN 220A's
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1 MAZDA
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*—the new principle
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The problem of economically providing a battery operated set with sufficient power to operate a moving coil speaker efficiently has hitherto proved a serious difficulty. The new principle of Quiescent Push-Pull, developed in the Mazda Valve Laboratories, has solved this problem as, by the use of two Mazda Pen 220A's, a power output of as much as 1.3 watts can be obtained with a total H.T. consumption of only 6 m/A at 120 volts.

The new principle is used to great advantage in this new "Wireless World" circuit, which has been designed to work with Mazda valves.

For full report on Quiescent Push-Pull see article by E. YEOMAN ROBINSON, CHIEF ENGINEER, THE MAZDA VALVE LABORATORIES in "Wireless World" for January 6th, 1933. An extract from this article is quoted here.

READ THIS EXTRACT FROM THE "WIRELESS WORLD" JAN. 6th, 1933

The heart of many a conscientious set designer is broken when he tries to develop a battery set which will do justice to his ideals of quality of reproduction for, whilst engineering knowledge tells him that a power output of about one watt is necessary, common sense dictates that no H.T. battery is obtainable at a reasonable cost which will supply this power. Even with a high-efficiency pentode the drain on the H.T. battery for the power output valve would be about 20 milliamperes.

Moving-coil Output

Several methods of reducing the drain due to the power valve on the H.T. battery have been developed in the Mazda Radio Valve Laboratories. In one method about to be described two high-efficiency pentodes are operated in push-pull and are biased such that when no signal is received the H.T. consumption is negligible, and when a signal is received the anode current consumption is proportional to the amplitude of the signal. The result is amazing. A power output of 1.3 watts is obtained with a total H.T. consumption of only about 6 milliamperes at 120 volts H.T. This remarkable result opens up a new era in battery set design. A moving-coil loud speaker can be used, and a battery set can be built to give a performance comparable with that of a mains set. The method is termed "the quiescent operation of pentodes in push-pull."

155 CHARING CROSS ROAD, LONDON, W.C.2

The British Thomson-Houston Co. Ltd., London and Reg'd

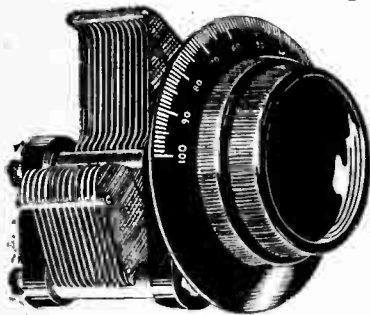


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- 0005 Cat. No. 10c.
- 00035 Cat. No. 11c.
- 00025 Cat. No. 12c.

6/-

Formo Components are stocked by all good radio dealers, but in case of difficulty, write for complete Catalogue and for Free Formo Blueprints.

Obtain REAL SELECTIVITY AND PERFECT QUALITY with FORMO Dual Range COILS



Formo Dual Range Coils are designed to give the finest possible selectivity without any loss of quality when tuning in difficult stations. There is no break-through between the long and medium waves. Careful selection of insulating materials, to minimise the losses, and careful combination of inductance values and coupling, ensure a very high degree of selectivity under all conditions. There are separate coupling coils for the long and medium waves. The switching is definite and reliable.

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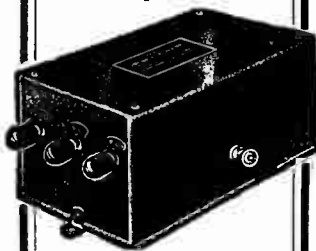
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Type J., for use with pick-ups of average impedance £3.3.0

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110v.	110v.	200	400	600	800	1000	1200	1500	2000	2500	3000	4000	5000	6000	8000	10000
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TRANSFORMER

15/-

Royalty 1/6 Extra

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tance 30 henries
without D.C.

Primary Induc-
tance 20 henries
with 1 M.A.D.C.

Primary Induc-
tance 16 henries
with 2 M.A.D.C.

R.I. "Q" Type
CHOKE **12/6**

List
No. D.Y. 35
For feeding into any exist-
ing matching transformer
as commonly fitted to loud
speakers.

R.I. are first (as usual) with their production of the components for this "revolutionary" amplification system, which gives mains set volume and quality to battery set performance with ordinary H.T. battery capacity, and reduces H.T. current consumption to less than half.

THE RESULT OF MONTHS OF RESEARCH

Constructors will realise that these two special components, the R.I. "Quiescent" P.P. Input Transformer and the P.P. Output Choke, are not the result of last-minute rushed designs. They are released after months of careful research and experimentation with the system, and rigorous laboratory tests carried out with a full knowledge and understanding of the New "Quiescent" amplification.

VALVE MAKERS' APPROVAL

R.I. "Quiescent" Components have been fully approved by the valve makers who have primarily been responsible for the new "Quiescent" system. They will undoubtedly be specified in all principal circuits and remodelled circuits on account of their special suitability for this form of coupling.

TRIODES AND OUTPUT PENTODES

It is important to note that the R.I. Transformer and Choke may be employed with triode valves as well as with output pentodes, and constructors may therefore remodel their existing battery sets at minimum cost to obtain the new power and volume together with H.T. current economy.

WRITE FOR R.I. QUIESCENT BROCHURE

Constructors may obtain full information regarding the system and its application to existing battery receivers as well as to new models. Direct and parallel feed couplings are shown in the diagrams for both triode and pentode output valves. The fact that 10,000 enquiries have already been received for these brochures is significant of informative value—write for a copy to-day, or ask your dealer.

R.I. "Q" TYPE TRANSFORMER

Distinctive features:—

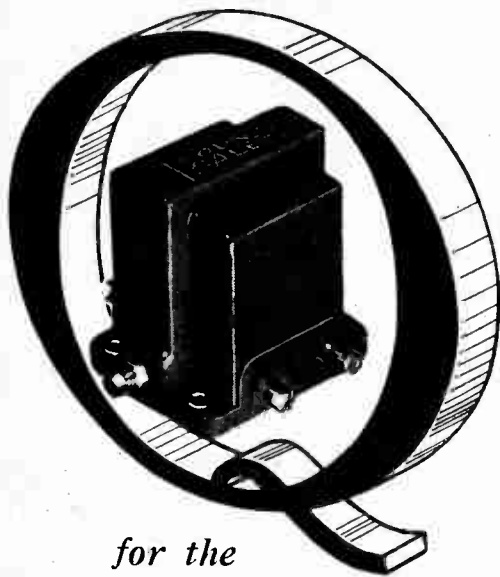
1. The high total ratio of 1/8 provides ample grid swing for output valves and this high gain is maintained at all frequencies.
2. The sectionalised low capacity windings are carefully matched to give the exact balance of secondary audio voltages which is absolutely imperative for faithful reproduction.
3. High primary inductance is provided by the use of high permeability nickel iron core. This ensures good bass note response.
4. As the transformer is internally screened it may be placed in any position without fear of interaction with other components. This screen may be earthed if desired.

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Main features:—

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5. The special design gives a very high power efficiency of about 90 per cent.

SPECIFIED BY THE EXPERTS
FIRST & FOREMOST



Ratio
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Price
15/-

for the

WIRELESS WORLD QUIESCENT PUSH-PULL TWO

Sound Sales special Push-pull intervalve transformer, Ratio 9:1—Multi-section wound—Special Alloy Core, High inductance, ample bass response. These are a few of the many reasons why the experts chose Sound Sales first and foremost.



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**QUIESCENT
PUSH - PULL
TWO**

A NEW BATTERY RECEIVER
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**COLVERN COIL
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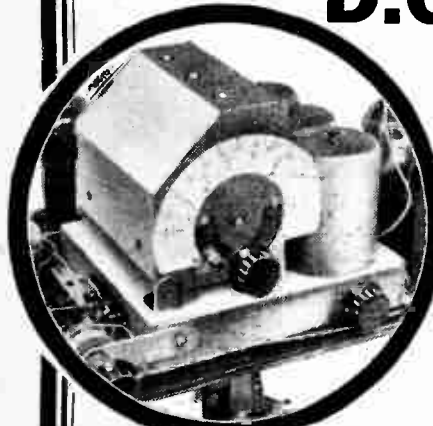
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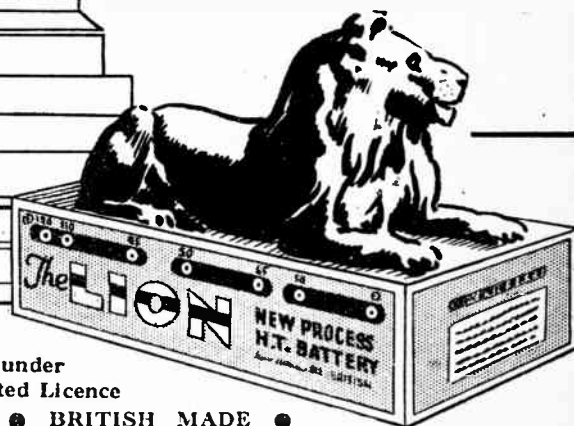
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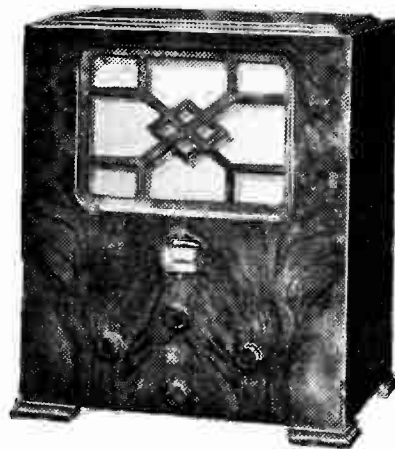
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EDITORIAL COMMENT

Quiescent Push-pull

Important Advantages

IN this issue we include the first design published in this country for building a receiver incorporating the new method of employing push-pull transformer coupling, which, because of its special properties, has come to be known as "Quiescent Push-pull."

The general principle of push-pull is, of course, old and it is necessary to be quite clear in the distinction between push-pull as we have been accustomed to understand it and the special effects obtainable under the new arrangement. In theory, the idea of quiescent push-pull has been with us for some time, and, to give only one example, we may refer to an article by Dr. N. W. McLachlan, in *The Wireless World* as far back as May, 1929, in which considerable light from a theoretical point of view was shed on the subject.

In the ordinary push-pull arrangement, where grid bias is applied in the orthodox manner at the mid-point of the valve characteristic, one valve pulls and the other pushes to an even amount, and there is a constant drain on anode current so long as the set is switched on, whether the signal is coming through or not.

In the case of quiescent push-pull the arrangement is altered so that the bias is at the bottom of the valve characteristic, and whilst one valve is pushing the other valve is inoperative or quiescent, the effect being that anode current remains at a very small value and only rises with a signal, and the average battery current over a period of listening is little more than the quiescent current.

The reason why we attach importance to this development in battery circuits is, first, on account of marked

economy in H.T. consumption, and, secondly, the very great increase in volume and improvement in quality which it is now possible to obtain from a battery set under economic conditions. The use of moving-coil speakers in conjunction with battery sets has hitherto been unusual, except where the user could afford to disregard the question of battery costs, or was prepared to use accumulator high tension batteries.

Two other points of importance should not be missed; first, that this development makes the truly portable set a much more attractive proposition now that it can be designed with a moving-coil speaker, and, secondly, gramophone reproduction with a quiescent push-pull output circuit becomes worth while.

Interference Crusade

Progress Towards Legislation

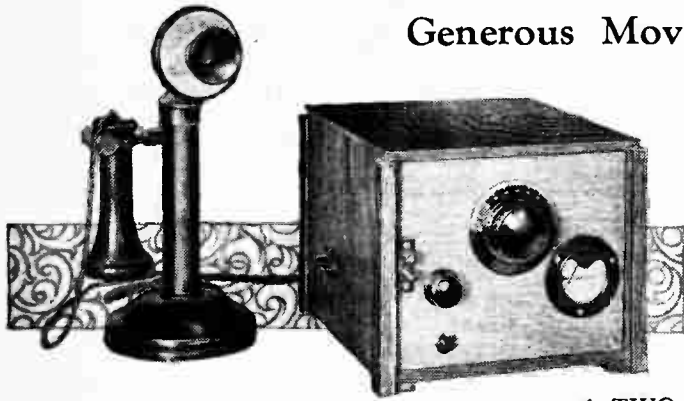
SUBSTANTIAL progress is being made towards the goal of legislation on the subject of electrical interference with wireless reception. Discussions which we have had with individuals and organisations whose support would be essential indicate that strong support will be forthcoming at the appropriate moment.

We would urge the importance of a discussion on various aspects of the problem and would welcome letters for publication in our Correspondence.

The proposal as it stands at present is that the first aim would be to prohibit or restrict the sale of any electrical apparatus capable of radiating so as to interfere with wireless reception; secondly, to prohibit the installation of such apparatus; and, thirdly, to legislate for reasonable but not oppressive action to suppress existing interference over which there is at the present moment no legal control.

THE QUIESCENT PUSH-PULL TWO

Generous Moving-coil Speaker Output from Small Battery Set



By
W. I. G. PAGE,
B.Sc.

FEW battery set users would deny that, in the chain of operations between aerial and loud speaker, the "missing link" has hitherto been that extra amount of power or "punch" necessary for life-like reproduction. However skilful the design and construction of the battery set of reasonable H.T. consumption, and however pure its output may be, there has always been this difference between it and even the less ambitious form of mains-operated receivers.

The new era ushered in by "Quiescent Push-Pull" will probably have a profound effect on our attitude towards battery sets and may give a new lease of life to a type of receiver which for some time past has unquestionably been neglected. It is interesting to note that there are already Quiescent Push-Pull commercial receivers appearing on the market—the first being the Pye G/B; this can be considered as a further endorsement of the efficiency of the arrangement.

Small Battery Consumption

"The Quiescent Push-Pull Two," constructional details of which form the subject of this article, has been designed to demonstrate this new development and amply justifies the brief description—"Multum in Parvo"—given to the receiver in last week's issue. The remarkable loud speaker output of nearly 1½ watts A.C.—volume enough for the largest of rooms—is obtained with a total average H.T. consumption of only 8 mA., which is within the capabilities of the smallest-capacity H.T. battery. The size of the receiver can best be gleaned from the title illustration above, where an ordinary desk telephone is shown alongside.

In addition to improved radio reception, one of the most important advantages conferred by quiescent push-pull (Q.P.P.) is in respect of gramophone reproduction. Hitherto, with the ordinary type of battery set, the acoustic output has been rather less than that of the gramophone alone—unaided electrically, and could hardly be considered worth

A TWO-STAGE battery receiver for local station reception embodying two pentodes in quiescent push-pull. Although the total H.T. consumption of the receiver is only 8mA. under working conditions, the power output reaches the remarkable level of nearly 1½ watts A.C. Thus it is possible with an H.T. battery of the smallest capacity to enjoy an output volume from both radio and gramophone which vies with that obtainable from a mains receiver.

while. Now it is possible with a simple and economical two-stage receiver to enjoy an output volume which is equivalent to that from a mains set. Pick-up sockets are included on the panel of the receiver under discussion and gramophone reproduction is extraordinarily effective.

Although Q.P.P. output calls for no special circuit in the H.F. or detector stages and any "straight" or superhet. scheme may precede it, it has been thought advisable to build the first constructional set for local station reception—an arrangement comprising a simple

detector transformer-coupled to two Mazda Pen. 220A valves in Q.P.P.

The input consists of a single tuned circuit in which an adjustable aerial rotor gives variable selectivity. Up to some forty miles from twin Regional transmitters the set gives satisfactory and interference-free local reception, but those living in the wipe-out area will perforce have to use a band-pass filter in place of the tuned circuit of Fig. 1, and will find that "The Flexible Band-Pass Unit"² will give excellent results.

Transformer Ratio

In order that the detector shall load completely the two output pentodes without the employment of an intermediate L.F. stage with its extra equipment and added H.T. consumption, it is essential that the intervalve transformer should have a ratio of 8 or 9 to 1, otherwise the detector will overload first and the full power output will never be obtained. Special transformers of suitable characteristic are available from Sound Sales, Multitone, R.I., and Varley, and are capable of giving an excellent performance when a primary current of 2 mA. (the anode current of the HL2) is passed. The secondary must be centre-tapped and close to the terminal a non-inductive resistance of 150,000 ohms (R4) must be connected to prevent parasitic oscillation which otherwise can give rise to an unpleasant form of distortion on loud signals. Separate grid stoppers close to the control grid of each pentode are not

² See *The Wireless World*, dated October 14th, 1932.

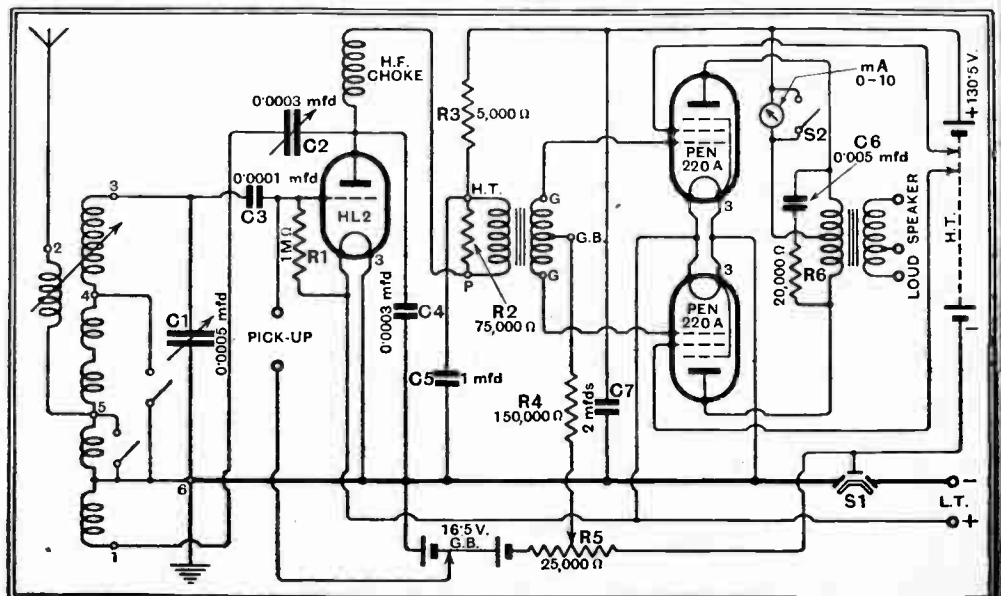


Fig. 1.—The complete circuit diagram. Care should be taken when wiring the valve-holder for the metallised HL2 valve to see that the pin marked 3 is connected to L.T. negative.

¹ See "Outstanding Battery Set Development," *The Wireless World*, January 6th, 1933.

The Quiescent Push-pull Two—

so effective as a single resistance. A transformer which has not yet been mentioned but which gives signals of exceptionally good quality is the well-known Ferranti AF6C, having the high primary inductance of 70 henrys when 2 mA. D.C. are passing. To those who will sacrifice some power output for better bass response, this transformer of 7 to 1 ratio should appeal.

The primary of the intervalve transformer must be shunted with a resistance of 75,000 ohms to prevent the demise of the pentodes should a surge take place as a result of breaking the anode circuit of the detector. The detector output circuit is decoupled by R3 and C5, and no L.F. oscillation is likely to occur when the resistance of the H.T. battery rises.

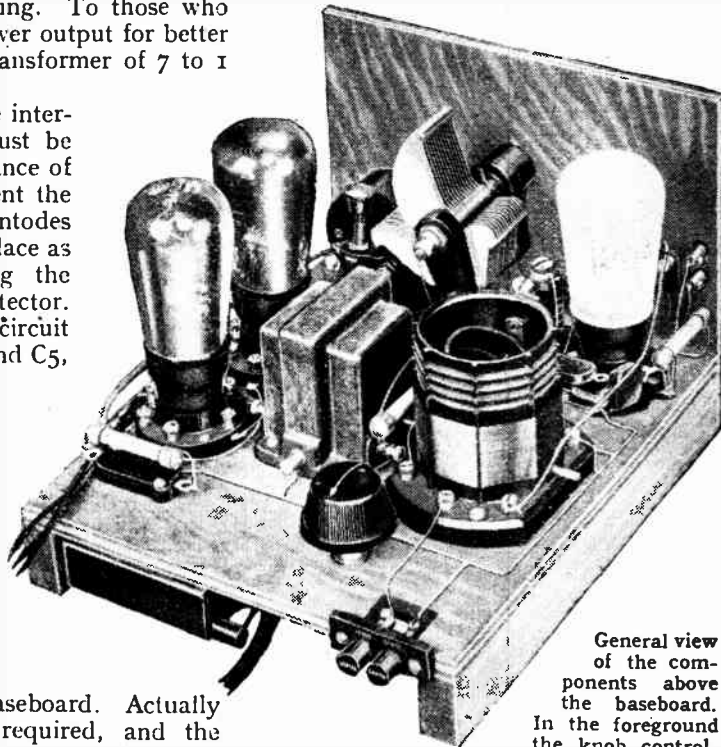
Bias for the output valves is derived from a 16½-volt battery, which is shunted by a 25,000 ohm potentiometer R5 and is housed beneath the baseboard. Actually about 15 volts are required, and the potentiometer slider is set with the help of the milliammeter on the panel, as explained later. When the set is in use the bias battery is discharging through R5 at such a rate that its voltage decreases in about the same proportion as the drop in H.T. volts. The 3-point switch S1 breaks the L.T. and open-circuits the bias battery.

A specimen receiver is available for inspection at 116-117, Fleet Street, London, E.C.1.

The filament terminals of the two valve holders for the Pen. 220A valves must be wired so that the valve pins marked 3 are connected to L.T. negative, thus ensuring that the suppressor grids (now connected to the end and not to the centre of the filament) are at true earth potential. A special 130-volt Drydex H.T. battery is available for this type of receiver and is arranged with 1½-volt tappings from 120 to 130½ volts, thus providing a means of matching the anode currents by the simple expedient of altering the individual H.T. voltages applied to the two auxiliary grids. The maximum H.T. voltage should be used for the anode circuits.

A milliammeter reading from 0 to 10 mA. is arranged on the panel, and is not only used for matching the output valves, but provides a means of setting the total quiescent anode current at 4 mA. when no signal is being received. Its assistance is only called upon during the initial

adjustments of the receiver and, say, at intervals of a month. Across the output transformer primary, which is centre-tapped, a compensator circuit C6R6 is joined so as to limit the impedance of the loud speaker at the higher fre-



General view of the components above the baseboard. In the foreground the knob controlling the bias potentiometer can be seen.

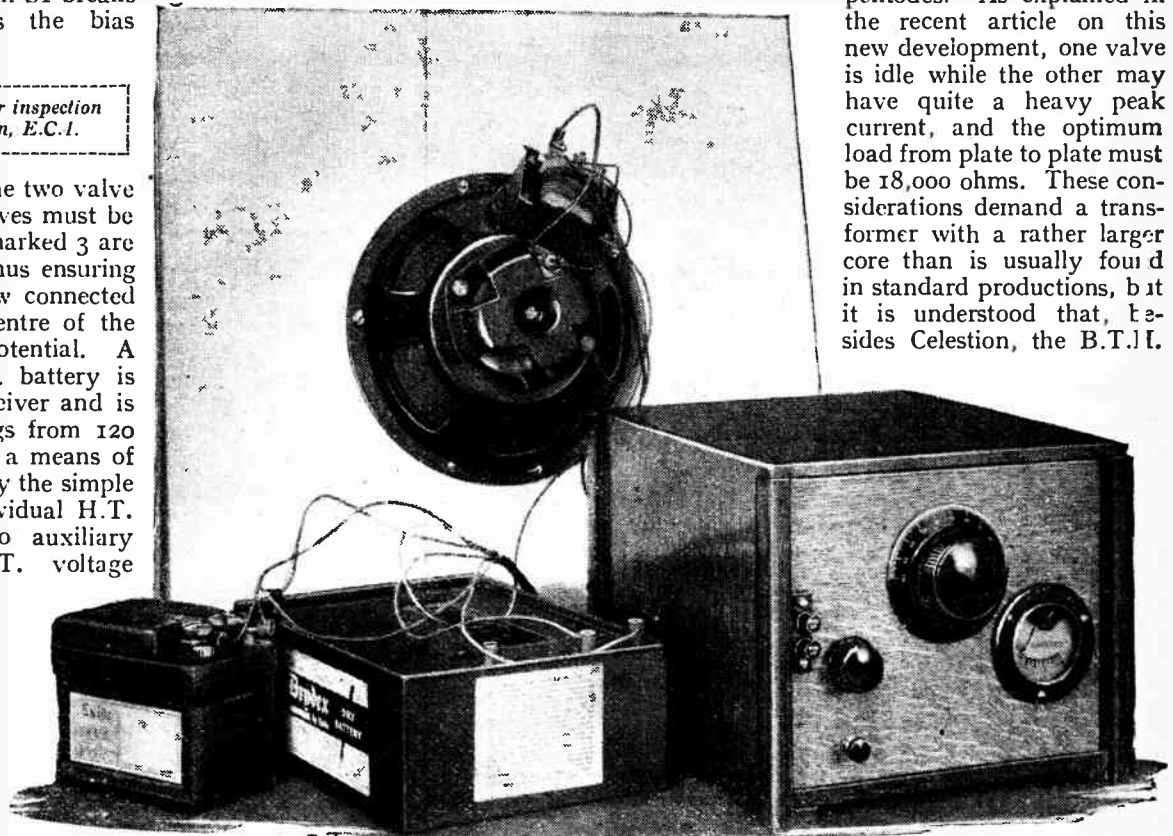
quencies. The best value for C6 in the case of the special Celestion moving-coil speaker specified is 0.005 mfd., while R6 should be about 20,000 ohms.

LIST OF PARTS

After the particular make of component used in the original model, suitable alternative products are given in some instances.

- 1 Slow motion variable condenser, 0.0005 mfd., C1 Formo No. 100
 - 1 Intervalve L.F. transformer, 9:1 Sound Sales SS/PP9 (Multitone, Ferranti, R.I., Varley)
 - 1 Dual range coil, with 20-, 40-, or 60-turn rotor Colvern RM28 (Lissen)
 - 1 Milliammeter, 0-10, moving iron Sifam E66
 - 1 On-off switch, with clips for meter, S2 Benjamin Type B
 - 3 Valve holders, 5-pin Junit
 - 1 Potentiometer, 25,000 ohms, R5 Rotorohm
 - 1 Pair C.B. battery clips Gripso
 - 1 Switch, 3-pt., S1 Telsen
 - 1 H.F. choke McMichael Binocular Junior
 - 1 Reaction condenser, 0.0003 mfd., C2 Polar "Compax"
 - 2 Twin socket strips, aerial, earth, 2 pick-ups Belling-Lee Dubilier
 - 1 Grid leak, 1 megohm, R1
 - 1 Metallised resistance, 5,000 ohms, 1 watt, R3 Dubilier
 - 1 Metallised resistance, 20,000 ohms, 1 watt, R6 Dubilier
 - 1 Metallised resistance, 75,000 ohms, 1 watt, R2 Dubilier
 - 1 Metallised resistance, 150,000 ohms, 1 watt, R4 Dubilier
 - 1 Fixed condenser, 0.005 mfd., C6 Dubilier No. 670
 - 1 Fixed condenser, 0.0001 mfd., C3 Dubilier No. 665
 - 1 Fixed condenser, 0.0003 mfd., C4 Dubilier No. 665
 - 1 Fixed condenser, 1 mfd., 250 volts, D.C., working, C5 Peak
 - 1 Fixed condenser, 2 mfd., 250 volts, D.C., working, C7 Peak
 - 3 Wander plugs, Grid+, Grid-, Grid- Belling-Lee "Bow Spring"
 - 1 Battery cable, 6-way, 30 ins. Belling-Lee
 - 1 C.B. battery, 16½ volts
 - 1 H.T. battery, 130 volts Drydex Type H1060 Special Quiescent Push-pull, Yellow Triangle
 - 1 Loud speaker, with transformer Celestion QPP19A
 - Cabinet with wood panel, baseboard and buttens Clarrion Radio Furniture, 28/38, Mansford Street, Hackney, E.2.
- Systoflex, 1 oz., No. 22 tinned copper wire, etc.
Screws, 12 ½ in. No. 4 R/hd., 8 ½ in. No. 4 R/hd., 6 ½ in. No. 4 R/hd., 4 ½ in. No. 4 C/sk., 2 ½ in. No. 6 C/sk.
Valves, 2 Mazda Pen.220A 1 Mazda H.L.2 metallised.
Approximate cost (excluding valves, batteries, speaker, and cabinet), £3 15s.

The success of the Q.P.P. system depends to a large extent upon the correct design of the output transformer or auto-choke which links the speaker to the two pentodes. As explained in the recent article on this new development, one valve is idle while the other may have quite a heavy peak current, and the optimum load from plate to plate must be 18,000 ohms. These considerations demand a transformer with a rather larger core than is usually found in standard productions, but it is understood that, besides Celestion, the B.T.I.I.



Showing the receiver alongside the moving-coil speaker and the H.T. battery, both of which have been specially developed for quiescent push-pull. On the left of the receiver panel can be seen the pick-up plugs and sockets.

The Quiescent Push-pull Two - and Amplion Companies will be producing speakers with special Q.P.P. transformers.

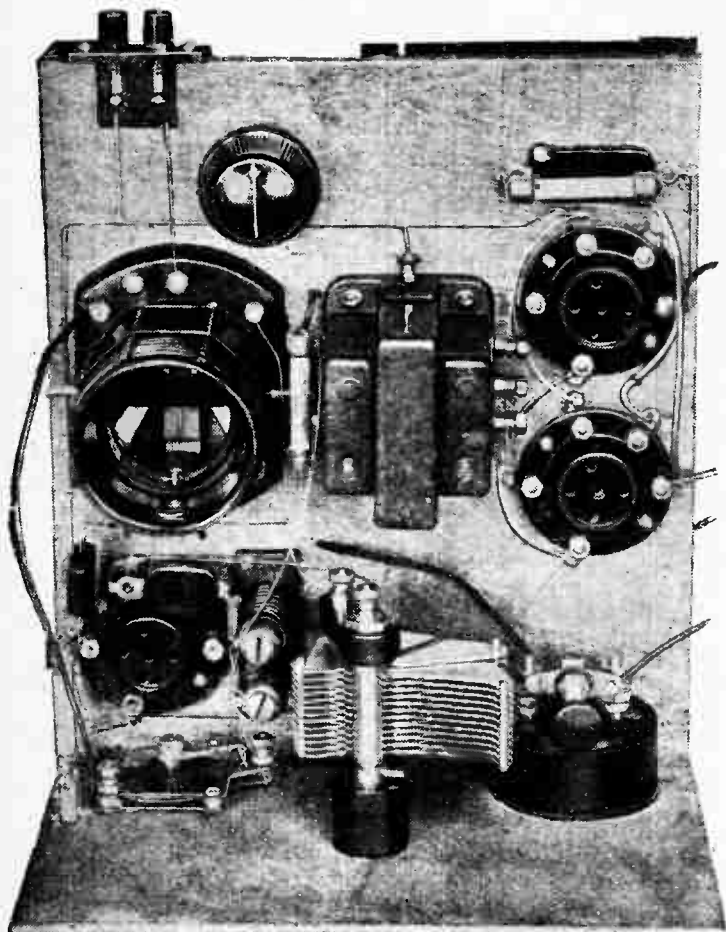
For those who wish to make use of existing permanent-magnet moving-coil speakers with or without built-in transformers (moving-iron speakers can be used, but the results are not so satisfactory) a series of auto-chokes and output transformers are being manufactured by R.I. and Varley giving the necessary

position, connect up the bias and the L.T. and H.T. batteries, the H.T. wander plug being put into the 130½-volt socket and the two auxiliary grid plugs into the next two sockets separated by 1½ volts each. Turn the bias-battery potentiometer fully anti-clockwise, and then give it a very slight rotation backwards so that about 15 of the total 16½ volts negative bias are applied. Put the detector and one Pen 220A valve in their holders. Next close the L.T. switch, having previously

opened the short-circuiting switch on the meter. If a reading of 2 mA. is obtained the auxiliary grid volts have the correct value for the pentode concerned. Should the reading differ from 2 mA. (and exact matching is not needed), the appropriate auxiliary grid-plug should be changed to another tapping on the H.T.

battery, always switching off the set during this adjustment by breaking the L.T. It will be found quite easy to get the reading approximately correct with the H.T. tapping, and, then, with the help of a very slight movement of the bias potentiometer, a final correction can be made. The second pentode is now inserted into the vacant valve-holder and the first pentode removed. The set is switched on and adjustments made until the anode current is again 2 mA., but this time the bias potentiometer must not be touched. The meter must now be short-circuited by the switch, as otherwise its windings act as a common impedance in the anode circuits and a loud whistle is superimposed on the programme.

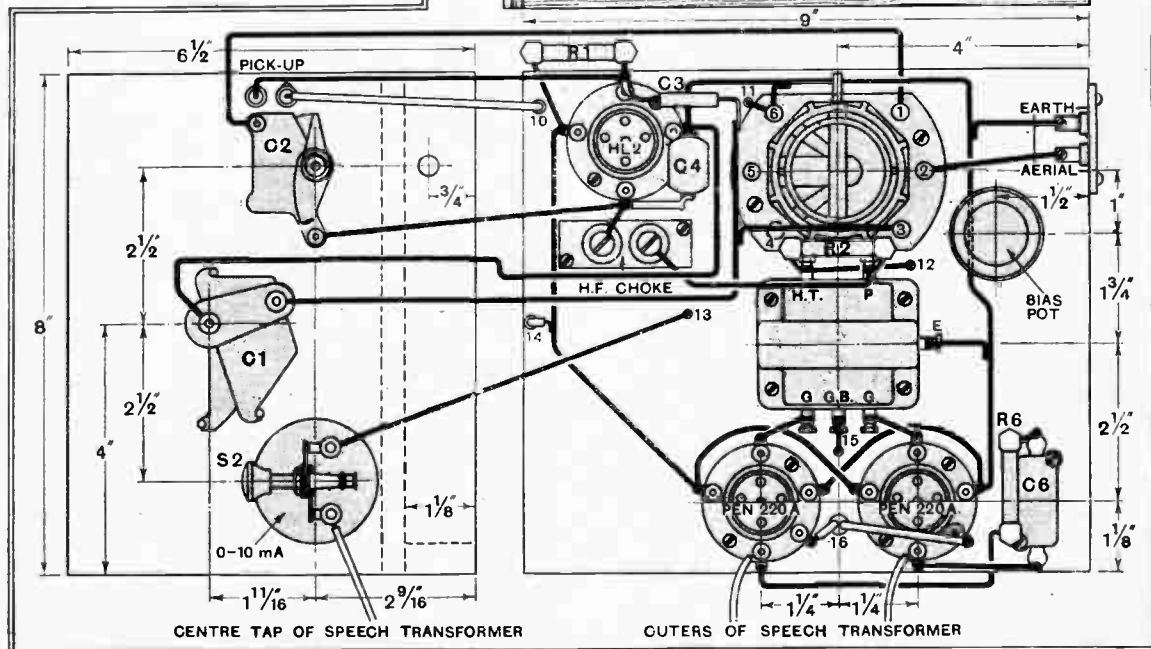
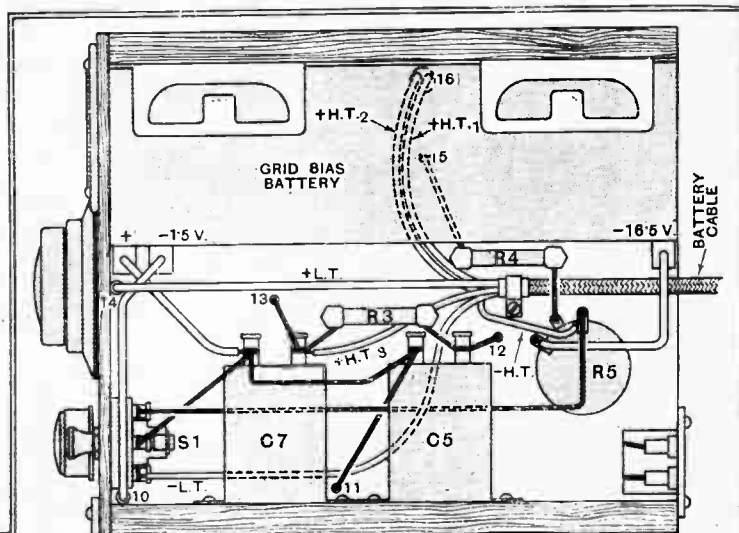
The set is now ready for test, and by loosening the aerial coupling, at the same time applying reaction, adequate selectivity can generally be obtained. The total H.T. consumption when the set is tuned off resonance is 6 to 6½ mA., and the average consumption taken over a number of hours of listening about 8 mA. Much could be said regarding the remarkable power output, but the receiver can be trusted to speak for itself.



The wiring of the receiver is made extremely simple by the paucity of components and the clean lay out.

range of step-down ratios. The construction of the set should present no difficulty as no component calls for any special skill in mounting. The switch which short-circuits the meter is held in position directly across the terminals of that component by two clips. Care must be taken to earth the core of the intervalve transformer, otherwise slight L.F. instability may be experienced.

When the wiring is completed, and the aerial, earth, and speaker connected, the initial adjustments must be carried out before the chassis is put into the cabinet. With the L.T. switch in the open



Practical wiring plan and dimensional data. The anodes, auxiliary grids and filaments of the valves are fed via a six-membered multiple cable.

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Sideband Splash



When We Hear Music "Inside Out"

By R. W. HALLOWS, M.A.

THOUGH sideband splash is no new thing, it is only during comparatively recent times that its effects have grown so noticeable as to attract much attention. As a result of the widespread increase that has taken place in the power of transmitting stations, the interference due to sideband splash has now assumed such serious proportions that it must be regarded as one of the most pressing problems in present-day broadcasting. Unless, in fact, some means of combating the evil is found, high selectivity may defeat its own ends by giving prominence to a type of interference which is apt to be more objectionable than the kinds from which it brings relief.

Every recent year has witnessed increases in the numbers of high-powered European stations operating within the limits of the medium-wave and long-wave bands. The cry has therefore been for a higher and higher order of selectivity in the belief that tuning of knife-edge sharpness would enable large numbers of stations to be received completely clear from interference, except, of course, that due to atmospheric, for which there is still no known remedy. The present Prague Plan, with its 9-kilocycle separation (in a few cases 11 kilocycles) between stations, is based upon this assumption. A highly selective receiving set enables stations observing the provisions of the Plan to be received without intelligible jamming or interference from one another, and, by suitably regulating the cut-off frequency of the set, any heterodyne beat between their carrier waves can be rendered innocuous. But no sharpening of the tuning can get rid of sideband splash, a fact strongly emphasised in the recently issued report of the Radio Research Board.¹

There are, however, certain aspects of sideband splash of which no mention is made in this report. After reading it through, for instance, one might conclude that sideband splash must inevitably be noticeable whenever an attempt is made to receive one of two high-powered stations working upon adjacent channels. That this is not so any reader who possesses a modern super-heterodyne set can readily ascertain for himself. If, for instance, Moravska-Ostrava is tuned in whilst the London National station is in operation, or Stuttgart during a transmission from the London Regional, it may be found that there are considerable periods during which no splash is to be heard. Then suddenly the unwelcome stsip-stsip-stsip sounds break through into the wanted transmission.

By tuning rapidly from wanted to unwanted station, one soon discovers that, speaking generally, interference from sideband splash is experienced only when the unwanted station is transmitting speech. Occasionally, splash may be heard when the unwanted station is sending out music, and we shall refer to this a little later. It may be taken, in any case, that, so long as stations preserve the intervals between channels laid down by the Prague Plan, speech is a far more prolific cause of sideband splash than is music; or, to put it in another way, if speech were never transmitted by broadcasting stations we might even now

regard sideband splash as an exceedingly rare and quite unimportant phenomenon.

This may seem surprising at first sight, for the range of musical frequencies is greater than that of speech frequencies, and the intensity of sound when, say, a full orchestra is playing would appear to be much greater than that of ordinary speech. Why, then, should speech transmissions be worse offenders than those of music in causing this kind of interference?

A musical transmission can give rise to a curious and interesting form of sideband splash if the wanted and unwanted stations are working with a comparatively small interval

between their carrier frequencies. This may be observed sometimes during intervals in the programme of Radio LL, when the unmodulated carrier alone is going out. Should Hamburg, 4.5 kilocycles away, be transmitting music, astonishing sounds may be heard. They are clearly due to music, but they are stranger far than even the wildest effects conceived by the most modern of modern composers. One is, in fact, hearing music inside out!

Splash Due to Speech

Sideband splash is caused by the beating of an unwanted side-wave with the wanted carrier. When the two transmitters have a 4.5 kilocycle (Fig. 1) separation a 3,000-cycle note from the unwanted causes a 1,500-cycle beat with the wanted. If the unwanted station transmits a high note, a low note is heard, and vice versa.

Take now the case of the London Regional and Stuttgart with a carrier frequency separation of 11 kilocycles. A 1,000-cycle note from London will produce a 10,000-cycle beat with Stuttgart's carrier, but since the modern super-heterodyne has usually a fairly sharp cut-off at 4,500-5,000 cycles in order to reduce heterodyne and mush effects there

MOST users of highly selective receiving sets must have experienced that very unpleasant form of interference in which intermittent splutterings from an unwanted transmission force their way through and become considerably more than a background to the wanted programme. This interference, which is known as sideband splash, offers one of the most pressing problems in modern broadcasting.

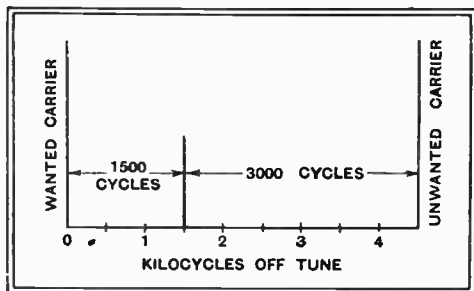


Fig. 1.—How "inside-out" music may be heard when two stations are working with small frequency separation. Here a 3,000 cycle note from the unwanted station provides a 1,500 cycle beat with the wanted carrier. High notes are heard as low notes and vice versa.

¹ Department of Scientific and Industrial Research. Radio Research. Special Report, No. 13.

Sideband Splash—

is no audible result. Clearly, though, a 7,000-cycle note from London may give rise (Fig. 2) to audible interference with Stuttgart, for in this case there is a 4,000-cycle beat, which is well within the range of a set that can lay claim to any approach to good quality in its reproduction.

In music frequencies of 7,000 cycles and more do occur, but those over 4,000 (C⁴, the highest note on a full compass piano) are mainly harmonics and the attenuation of such frequencies is so great that they produce very feeble side-waves, particularly as the general sound level is kept down in the control room during musical transmissions. It is necessary to do this in order to avoid peaking, owing to the wide range of loudness that may be expected between *pianissimo* and *fortissimo* passages.

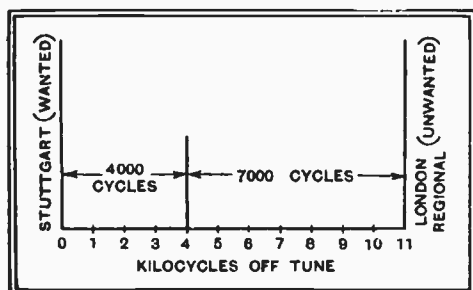


Fig. 2.—A strong 7,000 cycle note from the unwanted London Regional may cause a 4,000 cycle beat with the wanted Stuttgart. The text explains why the beat is audible when the unwanted station is transmitting speech but usually inaudible if it is sending out music.

Hence unless over-modulation is taking place from the unwanted station its musical transmissions do not cause audible sideband splash with the wanted even when the carrier frequency separation is no more than 9 kilocycles. In speech transmissions, though, certain factors of an entirely different kind present themselves. In the first place, unless, as rarely happens, some impassioned orator, conversant with every trick of the trade, is before the microphone, the variations in loudness are comparatively small. The voice of the studio announcer or the topical talker is neither raised nor lowered very much. It is thus accepted amongst broadcasting authorities all over Europe that peaking upon studio transmissions of speech is hardly to be feared, and for this reason it is the general practice to put up the sound-level in the control room when speech is in progress.

Sibilant Sounds

Secondly, speech can and does produce fundamentals—and very strong fundamentals—with frequencies of the order of 6,000 to 7,000 cycles. If the reader will pause for a moment to make a further experiment he will find that considerable energy is expended in the clear enunciation of many single consonants and consonant combinations. In making sibilant sounds such as “S” and “Z” air from the lungs is expelled forcibly between the almost closed teeth. Sounds such as

“T,” “D,” “P,” and “B” are produced by means of mild explosions. When, for instance, the sound “tat” is made the tongue is first of all pressed quite hard against the roots of the top teeth, from which position it is driven down by a sharp exhalation. For the final “t” it returns to its original position and is again driven sharply down. Repetition of words such as “strip,” “preach,” or “statistics” will serve to show how strongly certain consonantal sounds are produced.

With the general sound-level kept well up in the control room such sounds give rise to deep modulation of the carrier wave, and serious over-modulation is always a possibility. The result is that when, for instance, a 7,000-cycle speech sound is uttered a strong side-wave may occur from the unwanted station. In Fig. 2 the effect of this is seen when the unwanted station is the London Regional and the wanted station is Stuttgart. A sharp interfering sound with a frequency of the order of 4,000 cycles occurs.

Further experiments in rapid tuning will serve to show that sideband splash is at its worst when a speaker has clear and crisp enunciation, and that the “splashes” correspond with the sibilant or explosive consonant sounds that he utters. If he will forgive me for saying so, Dr. Walford Davies is a magnificent subject for such experiments when he is transmitting one of his music lessons for schools!

It is clear, then, that sideband splash severe enough to be offensive is due chiefly to speech transmissions by the unwanted station, and that it is the direct result of very deep modulation or even of over-modulation at high frequencies. Are we to conclude that the transmitting arrangements are entirely to blame for the unwelcome splutterings from which we

suffer when using a selective receiving set? There is no question that a large share of the blame must rest with those responsible for the transmissions and that complete freedom from sideband splash will not be enjoyed unless and until European broadcasting authorities can come to some agreement (the forthcoming spring conference at Prague would seem to be an admirable occasion) to limit the extreme depth of modulation permissible upon speech transmissions. At the same time the receiving set cannot be completely absolved.

In the course of some recent investigations into the incidence and the severity of sideband splash I assembled a team of no less than half a dozen different super-heterodyne receivers, some home-constructed and some of commercial make. It was clear from the outset that there were great differences in their performances. With some of them sideband splash reached noticeable proportions between very few adjacent pairs of stations; on the other hand, some showed distinctly offensive sideband splash between many such pairs. One set, rather surprisingly, brought out quite distressing splash from Stuttgart when the London Regional was being received at a range of fifteen miles. Against this last may be set the performance of *The Wireless World* “Monodial Super,” which is remarkably free from sideband splash interference.

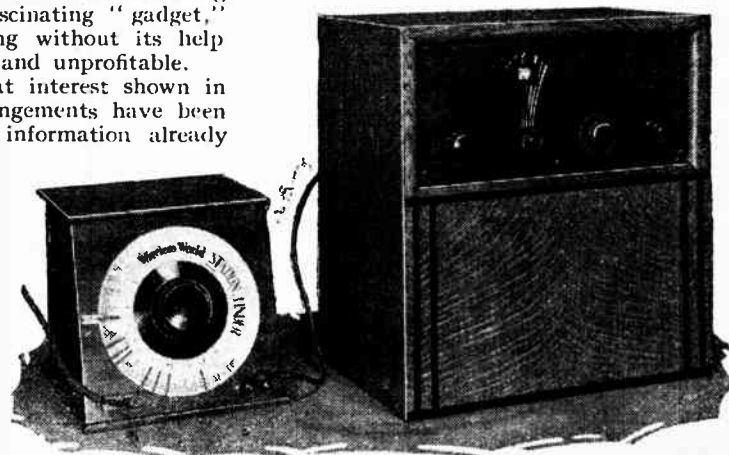
One is forced to the conclusion that the design of the receiving set plays a very important part, and experiments show that it is possible by attending to certain important points in the receiving set to reduce very greatly the effects of this kind of interference. To indicate how this may be accomplished is outside the scope of the present article, but an interesting and profitable field is opened both for the experimenter and for the designer of commercial receiving sets.

In Next Week's Issue:**MORE ABOUT THE STATION FINDER**

THOSE who have already constructed the Direct-reading “Station Finder” (described last week) will be ready to agree that it does a great deal more than “double the interest of long-distance reception,” as was originally stated. After becoming accustomed to this fascinating “gadget,” foreign-station listening without its help seems to be dull, flat and unprofitable.

In view of the great interest shown in this new device, arrangements have been made to amplify the information already given, and, in next week's issue, further notes on construction and operation will be published. The finer points of adjustment and calibration, by means of which an even greater degree of accuracy than is strictly necessary may be ensured, will be dealt with.

As stated last week, there are a few receivers with which the original Station finder will not operate; the simple addition necessary for use with these sets will also be described.



The Station Finder is connected between the aerial lead-in wire and the aerial terminal of the receiver.

Practical HINTS AND TIPS

AIDS TO BETTER RECEPTION

WHEN setting-up a gang-tuned receiver, it is usual to make initial trimming adjustments at the lower end of the medium waveband. On switching over for long-wave reception, it is generally assumed that all circuits will still remain in alignment, and that no further adjustment will be required.

Ganged Tuning on Long Waves

To ensure this desirable state of affairs, there are two main requirements. The inductance values of the long-wave coils must be as accurately

matched as on the medium band; this point everyone will appreciate. The second need is that the stray capacities of each circuit in the chain should be proportionally the same as on the medium band. These "strays" need not have the same absolute value on each band; indeed, they are almost certain to be higher on the long waves. The point is that any additional capacity transferred on switching over should have an identical value for each circuit; it is only in this way that the initial trimming adjustment can hold good on both bands.

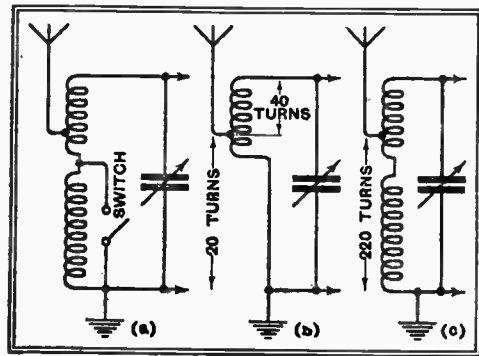


Fig. 1.—A type of dual-range tuning coil that is unsuitable for gang-controlled receivers. Equivalent circuits given in diagrams (a) and (b) show that the proportion of aerial turns is widely dissimilar for the two wavebands.

This being so, it will be appreciated that an aerial tuning coil such as that shown in Fig. 1 (a), can hardly be satisfactory in a gang-tuned set. Assuming that the medium-wave section be tapped so as to include one-third of its turns in the aerial circuit, the proportion of aerial capacity transferred to the tuned circuit will be quite small. But, on opening the switch for long-wave reception, the aerial will be connected across perhaps 90 per cent. of the total number of turns, with the result that nearly all its capacity will be additive to that of the tuning condenser.

Reasonably accurate alignment over both bands cannot possibly be maintained under these conditions. In order to ensure that the same proportion of aerial capacity is transferred on the long-wave

band the tapping might be changed over, for reception on that band, to such a point on the long-wave section that the same proportion of turns are included in the aerial-earth circuit.

Similar precautions should be taken when a tapped tuned-anode or tuned-grid intervalve coupling is fitted. Even with double-wound transformers it is a matter of some importance that the ratio between primary and secondary turns should be sensibly the same on both wavebands.

IN addition to performing the function for which it is intended, the Station Finder, described last week, will operate as a very efficient wave-trap. Although this method of eliminating interference has always a limited field of usefulness,

Station Finder as Wave-trap

it is often distinctly helpful, particularly when operating a set which is somewhat lacking in selectivity. For instance, when two more-or-less distant stations, working on adjacent channels, normally suffer from mutual interference, it may well be possible to receive either transmission with a substantially silent background by operating the Station Finder in the proper way.

With the instrument joined in the aerial circuit in the normal manner, the dial should be set so that the name of the interfering station registers with the index mark. At the worst, a useful reduction in the strength of interference may be counted upon, and, if conditions are favourable, it may become inaudible.

WHEN motor-boating or L.F. instability is encountered, it is often worth while, before applying more drastic measures, to try the effect of short-circuiting the grid circuit decoupling resistance, if one happens to be fitted. This simple

A Simple Cure

expedient may cure the trouble by allowing enough anti-reaction feed-back to neutralise the pro-reaction feed-back which caused the trouble.

As grid-circuit decoupling is often provided merely to prevent attenuation of low notes, it may seem that this simple cure, if it be effective, will have been achieved only by making sacrifices in the bass register. It does not of necessity follow that this will be so; for reasons that need not be explained here, there is a distinct possibility that the L.F. reaction which was responsible for the original trouble will provide enough compensation, and so well-balanced reproduction may be obtained.

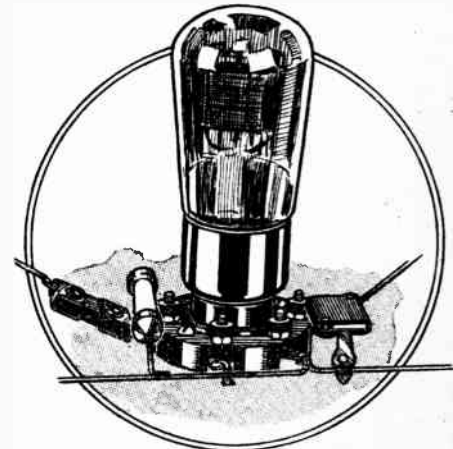
AMONG a certain section of wireless amateurs, there is an understandable prejudice against the modern practice of securing components in position merely by means of their connecting wires, with no other form of mechanical support. It

Suspended in the Wiring

is argued that this method of construction is slipshod, unworkmanlike and, more serious still, is open to technical objections on the grounds of permanence. In a receiver with single-dial tuning, it is obviously necessary that everything should be sufficiently rigid to prevent appreciable changes in stray capacity.

When one comes to examine the matter more closely, and from a strictly practical point of view, it seems quite certain that these objections are almost baseless. Given reasonable care and the exercise of common sense, there is no valid objection to anchoring light-weight parts such as resistances and fixed condensers by their connecting leads; in some cases, a definite reduction in stray capacity will result, and so the waverange covered by the set will be increased. For instance, it is not always realised that a detector grid-condenser of the flat type, when screwed to a metal chassis or baseplate, may add many micro-microfarads to the tuned circuit with which it is associated.

On the score of permanence, a careful test shows that the greatest mechanical displacement likely to occur in a properly constructed set will bring about a negligible change in capacity; so little, indeed,



With no other support than their connecting leads; illustrating a tendency in receiver construction.

that it would only assume any importance in such an instrument as a wavemeter.

There is, of course, a limit to the weight of components that may be suspended by their leads, as anyone blessed with the mechanical sense will realise when this limit is approached.

Reverberation and the Loud Speaker

Acoustic Control in Large Rooms

By W. H. O. SWEENEY

THERE is an old adage providing that the weakest link determines the strength of the chain, and it would be difficult to find a more apt example of this ancient saw than that represented by a modern broadcast receiver. It somehow seems a pity that so much attention should be paid to the development and design of high-class receivers and reproducers, when the question of what happens to the sound waves after leaving the loud speaker is scarcely considered at all. It is true that this matter hardly comes within the province of the designer, but the fact remains that, in many more cases than is generally realised, the careful fostering of the original waveform of the broadcast sounds right up to the moment that they leave the loud speaker is rendered quite useless by the violent distortion to which they are subjected before they finally reach the ear. This distortion is, fortunately, not as serious as the above statement would lead one to believe, due chiefly to the amazing tolerance of the human ear. It is, nevertheless, of suffi-

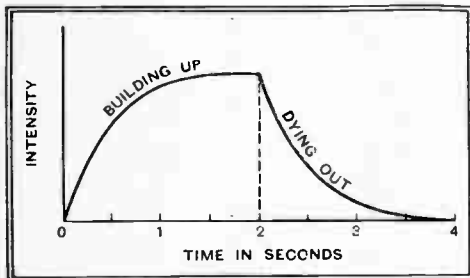


Fig. 1.—Graphical representation of the effect of cutting off suddenly a sustained sound.

cient moment to warrant some attention as listening conditions differ somewhat widely.

In the case of small adequately furnished rooms the question of acoustic control hardly arises; the position of the loud speaker is the only point of consideration, this being more usually governed by domestic requirements. It is when a large room, such as a school-room, or small hall, is encountered that the first difficulties are recognised. Everyone has, at some time or other, been present in an empty hall, or in an unoccupied house, and has instantly noticed the "hollowness" present. Such a hall is referred to by most people as being "echoey," although, as will be shown later, echoes form but a very small proportion of the phenomena. The most commonly known instance of rooms afflicted with the above symptoms is the school classroom, and in these days of extensive school broadcasts, when the curriculum of the majority of schools includes such broadcast lessons, any attempt to improve the acoustic qualities

ALTHOUGH meticulous care is given to the design of modern amplifying equipment to reduce distortion to the very minimum, the question of the mutilation of sound waves after they leave the loud speaker is often hardly considered at all. It is pointed out in this article that there are a number of causes of distortion in large rooms of poor acoustic properties, the most serious of which is insistent reflection or reverberation. Happily, in most cases this can be overcome.

of the classroom should merit some attention.

Before describing any practical methods of securing acoustic control it would be helpful to consider the different forms of distortion to which the sound waves are subject.

Causes of Distortion

If a single sound of very short duration be produced in a room the paths taken by the waves assume initially the form of concentric circles, with the source of sound as the focus. These circles are ever widening until the waves strike the walls of the room. They are then partly reflected in all directions, partly transmitted through the walls, and partly absorbed by the surfaces. At ordinary temperatures the sound waves travel at the rate of about 1,120ft. per second, and it will readily be realised that at the end of, say, half a second the waves have been reflected many times from the different walls of the room, and have travelled many feet. The energy of the wave is meanwhile converted into heat by con-

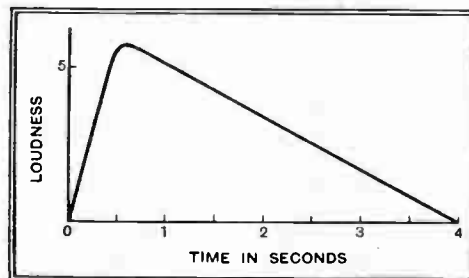


Fig. 2.—The effect on the ear of the sudden cutting off of a sustained sound, plotted logarithmically.

stant reflection and transmission, and eventually dies out. This promiscuous reflection has the advantage that it readily results in the room becoming comparatively evenly filled with the sound, with consequent even distribution of loudness;

It may, however, in certain circumstances, be a definite disadvantage. If the walls of the room happen to be of a hard non-porous nature the waves will be reflected many times, and over a long period, before they eventually die away. This insistent reflection is known as reverberation, and is probably the greatest of the evils which have to be combated.

It will readily be seen that if a succession of sounds is produced in a room possessing excessive reverberation each sound will, by virtue of the long period required for dying away, become merged into the other, and dire confusion will result. It has been found by experience that much more reverberation can be tolerated for music than for speech—in fact, a certain amount is definitely desirable to give life to the music. With speech, unintelligibility will result. Before dealing with reverberation in greater

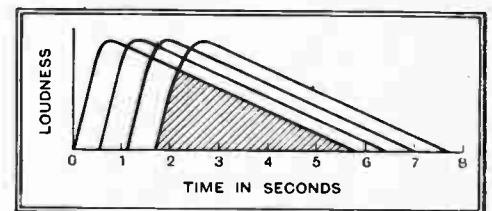


Fig. 3.—If four words are spoken in a reverberant room, the effect may be as shown in this illustration. The shaded portion is the overlap between first and last words and indicates unintelligibility.

detail the remainder of the causes of acoustic distortion should be understood. When a sound is produced, sustained, and then suddenly cut off, the result may be represented graphically, as in Fig. 1. This curve does not give an entirely accurate idea of what happens from the point of view of what is heard by the ear. Fig. 2, plotted on a logarithmic scale, shows the effect as noticed by the ear.

It will be seen from the two graphs that after the sound has reached a maximum the intensity falls rapidly at first, and more gradually later, although, to the ear, the decrease is gradual and constant. If, say, four words are spoken in succession in an empty and reverberant room the result may be shown graphically as in Fig. 3. The shaded portion shows the amount of overlap between the first and the last words, and is an indication of unintelligibility. If the same words are spoken in a more heavily damped room the result is as in Fig. 4, and it will be seen that the overlap, and consequent unintelligibility, is much less. It should be noted, incidentally, that, contrary to popular belief, the damping of the room has little effect on loudness.

Another phenomenon in a lightly damped room is that of resonance. That

Reverberation and the Loud Speaker—

is, the walls, and the volume of air contained within them, have a resonant frequency which will have a pronounced modification on any note of the same frequency sounded within the room. With regard to the air content, the resonant

spots a corresponding reduction in intensity may be noticed. This effect is similar to that of standing waves produced by a pure tone, and so readily noticed in the case of the B.B.C.'s tuning note.

Of the above acoustic faults the worst,

soft and porous.¹ Thus, in a room with hard plaster walls it is necessary to line the hard surfaces with a porous absorbing material or, at least, to introduce a sufficiently large area of absorbent to produce the required rapid conversion. In this connection the effect of bringing upholstered furniture into an empty room is well known.

Reverberation Periods

At this stage the obvious requirement is to know beforehand exactly how much absorbing material to introduce into a given room, and to determine the nature of the material. The late Professor Wallace C. Sabine, of Harvard University, was responsible for a great amount of work on this subject, and this research has made possible the ease with which problems such as this can be tackled to-day. His first important contribution was a formula showing the relation between the time of reverberation of a room, its volume, and the absorption power of the different materials in the room.

It is as follows: $t = 0.05 V/a$, where t = time of reverberation in seconds, V the volume of the room in cubic feet, and a the absorption power in absorption units.

If the optimum time of reverberation for a room be known, then it is possible to calculate the exact amount of absorption needed.

Dealing first with the optimum time of reverberation, this naturally varies with the size of the room and the nature of the sounds to be reproduced in it. For speech



The interior of one of the listening rooms at Broadcasting House, the headquarters of the B.B.C., where great care has been taken to provide realistic reproduction.

frequency is raised as the volume is reduced. When the walls, or solid contents, of a room resonate to any particular tone which is produced, the loudness of that tone is diminished owing to the absorption of energy by the vibrating bodies.

Echoes and Interference

Echoes form an acoustic fault which is confused by many people with reverberation. An echo is the reflection of a sound from a surface, and becomes noticeable only when the reflected sound is heard more than about one-sixteenth of a second after the direct sound. It differs from reverberation in that the latter is the

as has been indicated, is reverberation. If reverberation is excessive satisfactory or even intelligible listening is impossible. If, however, the time of reverberation is reduced to a suitable figure the other faults present usually become tolerably insignificant.

When a sound wave is set up in a room it spreads outwards to the walls, as has been pointed out above. Although the attenuation is obvious to the ear, the energy as represented by the sound is not destroyed, but converted to some other form of energy. On conversion, the energy ceases to be sound, thus producing attenuation, and ultimate silence. Part of the energy is used up in setting the walls in vibration, and part in friction, thus producing heat. If the walls of the room are hard and smooth the time taken for the conversion of the energy to heat is longer than if the walls are soft and porous. This is due to the longer time occupied by the successive reflections. It seems obvious, therefore, that, in order to produce rapid attenuation, it is necessary to have walls the surfaces of which are

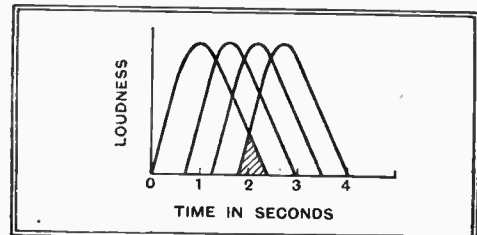
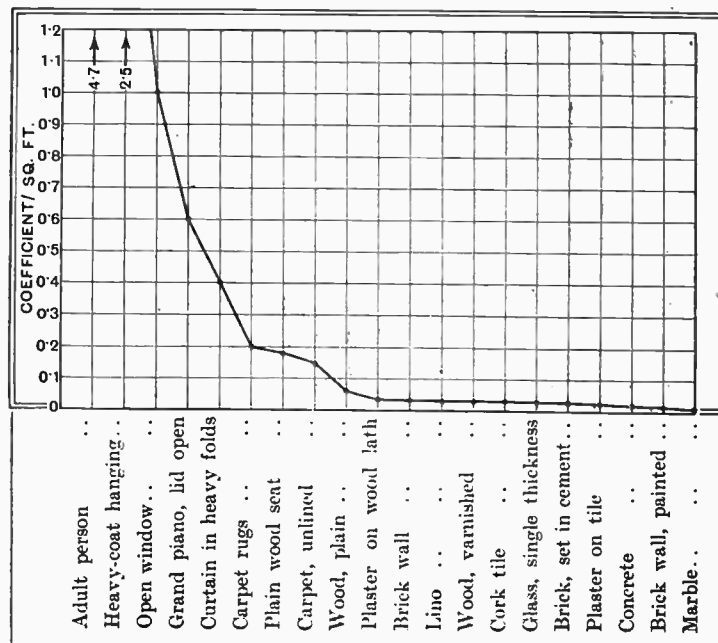


Fig. 4.—The same conditions as in Fig. 3 but in a heavily damped room. The overlap and unintelligibility are seen to be less.

constant reflection and attenuation of a sound over a definite period, this period being known as the time of reverberation. An echo is one single reflection, which may be heard at a definite time after the direct sound (in extreme cases up to six seconds or so). A further phenomenon is known as interference. When a reflected wave strikes a direct wave an intensification results at that spot, while in other



Graph showing the absorption coefficients of commonly used materials.

a very short period is required, and for music a rather longer one. In school classrooms, where reproduction of talks is more called for, a reverberation period of considerably less than a half-second should be aimed for, while if music be

¹ Lord Rayleigh has shown that the sound waves enter the pores and are reflected from side to side of the inner surfaces, thus producing heat by friction.

Reverberation and the Loud Speaker—

the chief object a period of approximately one second, or slightly less, would be acceptable, depending on the size of the room. This refers to normal-sized classrooms. Larger rooms and halls require a longer period. As an indication, for a compromise between optimum conditions for speech and music, a room of 1,000 cu. ft. requires a period of about 0.8 second, one of 8,000 cu. ft. a time of just over 1 second, and one of 27,000 cu. ft. a reverberation of 1.3 seconds. These times are about correct, assuming that the number of listeners in the room varies between the maximum and one-third capacity. Having determined the optimum reverberation time and measured the volume of the room, Sabine's formula will give the number of absorption units required.

The number of absorption units in any quantity of material is given by the product of the area, in square feet, and the coefficient of absorption. Thus, if we know the coefficients of all the materials in the room, the total number of absorption units present may be readily computed, and, from Sabine's formula, either the reverberation period may be worked out or the necessary additional absorption units to produce a given period may be calculated.

Practical Example

To assist in applying the formula to practical examples a graph has been prepared showing the absorption coefficients of all the most commonly used absorbing materials, also of most surfaces met with in practice. These figures have been compiled from the results of researches by most of the well-known acoustical authorities.

A practical example is perhaps the simplest way of showing how easy it is to apply the formula. In this case the volume of the room was found to be 3,360 cu. ft. Tabulating the areas of the various surfaces with their absorption units gave the following:—

Plaster	1,000 sq. ft.	@ 0.027	= 27	units
Wood (varnished)	100	0.03	= 3	"
Glass	96	0.027	= 2.6	"
Linoleum	204	0.03	= 6.1	"
Chairs	4	0.1	= 0.4	"
Piano	1	0.6	= 0.6	"
Table	1	0.2	= 0.2	"
Table	1	0.1	= 0.1	"
Audience	3	4.7	= 14.1	"
Two heavy coats on rack		2.5	= 5	"

59.1 units

With regard to the above list, it will be noted that certain individual objects have been treated as a whole, i.e., the chairs, piano, tables, and coats have been estimated as possessing a definite number of units each. In the case of one table a cloth was present; the piano was a horizontal grand, with the lid usually open. With the lid shut the absorption might be reckoned as being something less than 0.6—say, 0.4 units. From the volume of the room a reverberation period of 1 second was selected, this being considered to be the most favour-

THE MONODIAL A.C. SUPER

The reputation of *The Wireless World* Monodial Superheterodyne has grown so extensively as a result of the complete satisfaction which it is giving in the matter of range, selectivity, and quality, to all who construct it, that our publishers have been encouraged to meet the increasing demand with a booklet describing, in detail, the construction of the receiver.

Copies of this booklet, which is attractively illustrated, are obtainable from the offices of *The Wireless World*, at the price of 1/6 (post free 1/8).

able figure for music—for the reproduction of which the room was being used. Sabine's formula gave $1 = 0.05 \times 3,360 / a$, i.e., $a = 0.05 \times 3,360$ divided by $1 = 168$ units. There were already 59.1 units present, and therefore 109 units were still required. It was decided to use sheets of pulp board having a coefficient of 0.3, i.e., $109 / 0.3 = 363$ sq. ft. were needed.

In calculation of acoustic problems attention should be paid to the number of persons likely to be present in the room. The absorption offered by the clothing of an average person amounts to about 4.7 units, and is relatively higher than that given by anything else. It is usually safer to base all calculations on one-third maximum capacity. In this connection mention should be made of the Concert Hall in Broadcasting House. This has a reverberation period of slightly less than 2 seconds, and has a seating capacity of 700. The B.B.C. claims that the reverberation period remains practically unaltered whether the studio is empty or

the clothing of the occupier, and all the parts which remain in view should possess very little sound-absorbing powers. Thus, if the absorption units of each chair approached the figure possessed by the occupier, i.e., 4.7, the conditions claimed would be obtained. It is probable that this is so, since, when seated, a clothed person exposes only part of his clothing to the sound wave, and it is possible that the number of units then approach the figure 3, which could be obtained by a suitably padded seat.

NEW BOOKS

PHOTOCELLS AND THEIR APPLICATIONS (2nd edition), by V. K. Zworykin, F.E., Ph.D., and E. D. Wilson, Ph.D. Published by John Wiley and Son, Inc., at 18s. 6d.

A large portion of this book is devoted to the history of the development of photocells, and the experiments of the pioneers of this branch of electrical research are described in some detail. Both vacuum and gas-filled photocells are treated, as well as the photo-conductive and photo-voltaic types, and the theoretical considerations underlying their design are discussed at some length, and illustrated by details of commercial types. Having thoroughly dealt with photocells themselves, the authors proceed to their applications, and, in addition to citing numerous practical uses, they give details of suitable amplifiers and correction networks for sound recording and television work.

The book concludes with a résumé of the probable future trend of development; it is profusely illustrated, and its 321 pages are remarkably free from printers' errors. An exceedingly useful appendix is included.

Les Radio communications Modernes, by Pierre David, D.Sc. A short summary, for non-technical readers, of the Propagation of Wireless Waves, Valves, Spark, Arc and Valve transmission, Amplifiers, Receivers, etc., with chapters on Radio Communication, including Broadcasting, Direction Finding, Photo-telegraphy, and Television. Pp. 150 + 16, with 72 illustrations and diagrams. Published by J.-B. Baillière et fils, Paris. Price fcs. 20.

The Music Seller Reference Book, 1932-1933. A list of gramophone records and sheet music published since September 1st, 1931, and addresses of the manufacturers and suppliers of gramophones, radio-gramophones, and accessories. Published by Evans Bros.,

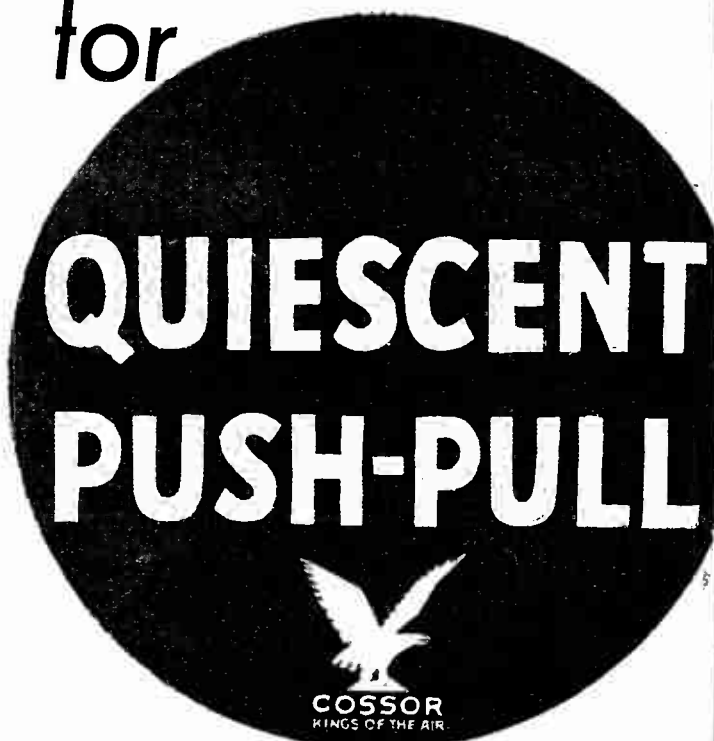
Ltd., Russell Square, London, W.C.1.
Small Transformers. Their Design and Construction. By A. H. Avery. In addition to practical instructions in building small mains transformers of the type used in wireless receivers, this booklet gives diagrams for the usual tests, and devotes two chapters to various types of rectifier. Pp. 56, with 46 illustrations and diagrams. Published by Percival Marshall and Co., Ltd., London. Price 9d.



A CIRCUS SIDELIGHT. Tannoy public-address amplifiers supplying the giant loud speakers at Bertram Mills' Circus at Olympia. The $\frac{1}{2}$ -kW. amplifier on the left delivers 180 watts of undistorted power and is used both for announcements and the relaying of bands.

full. Although it is at first somewhat difficult to accept this from a theoretical standpoint, it is conceded that, by giving each chair a very large absorption factor, this condition could be closely approached. The chairs should be designed so that when they are occupied the whole of the absorption surfaces are hidden by

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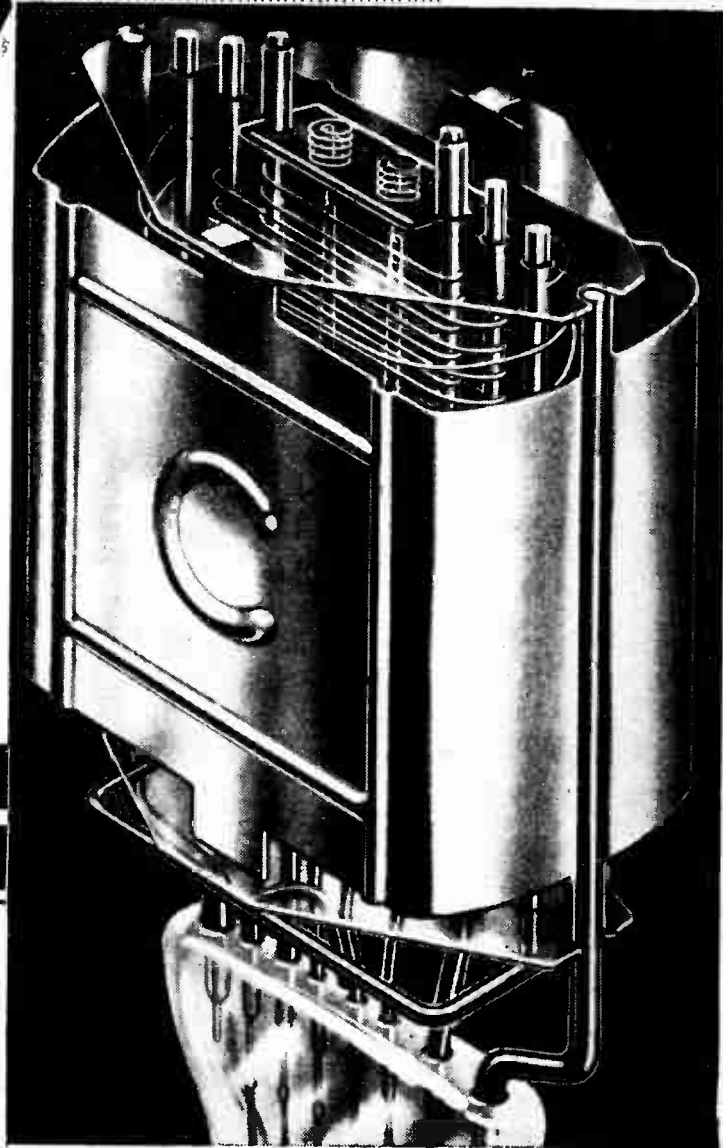
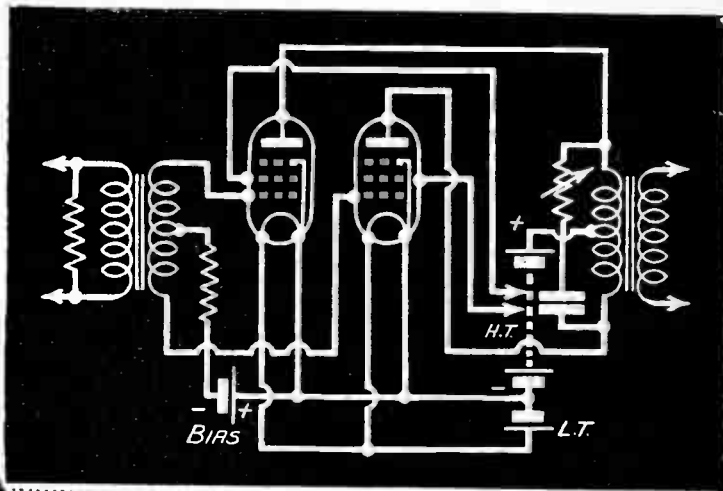
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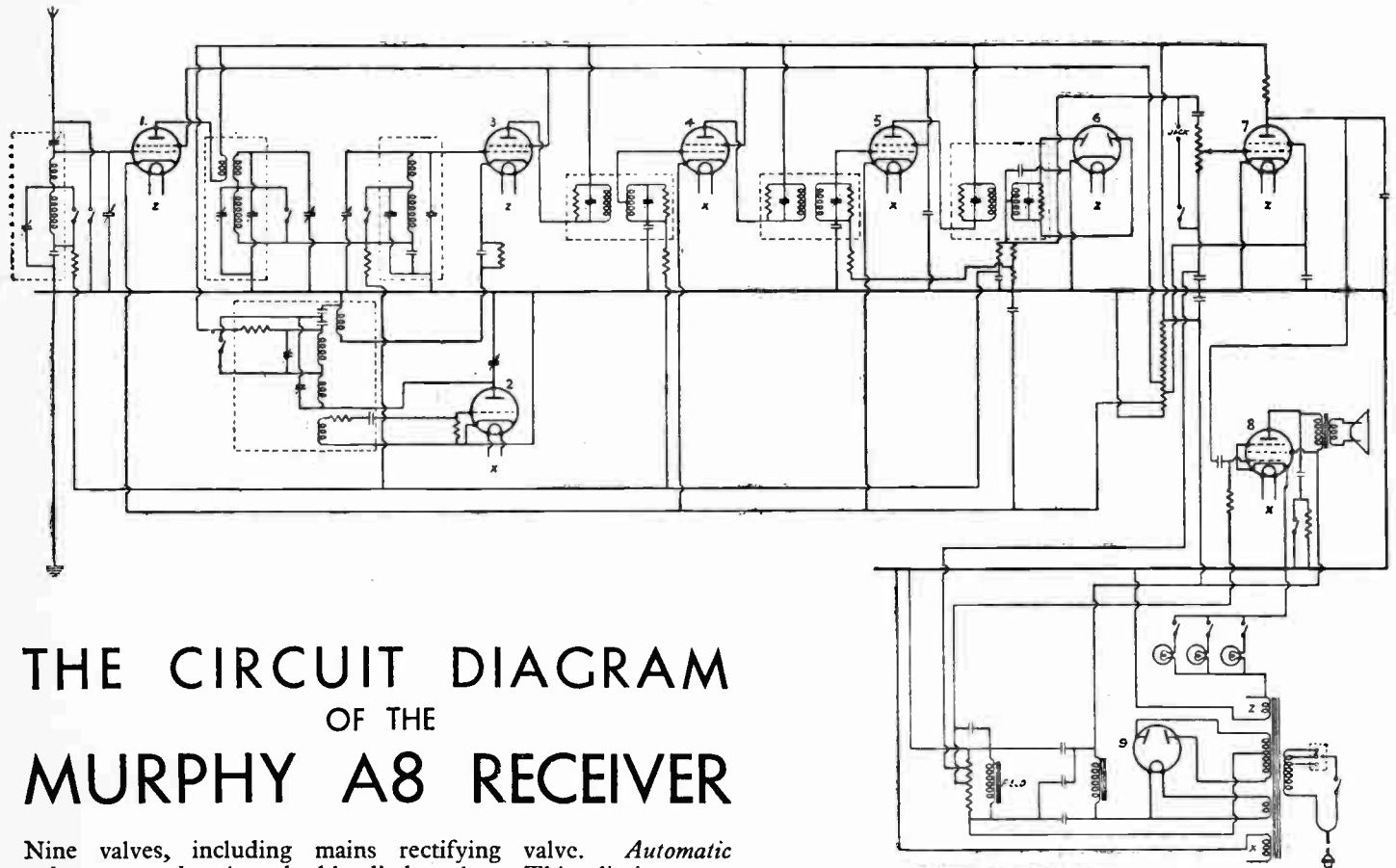
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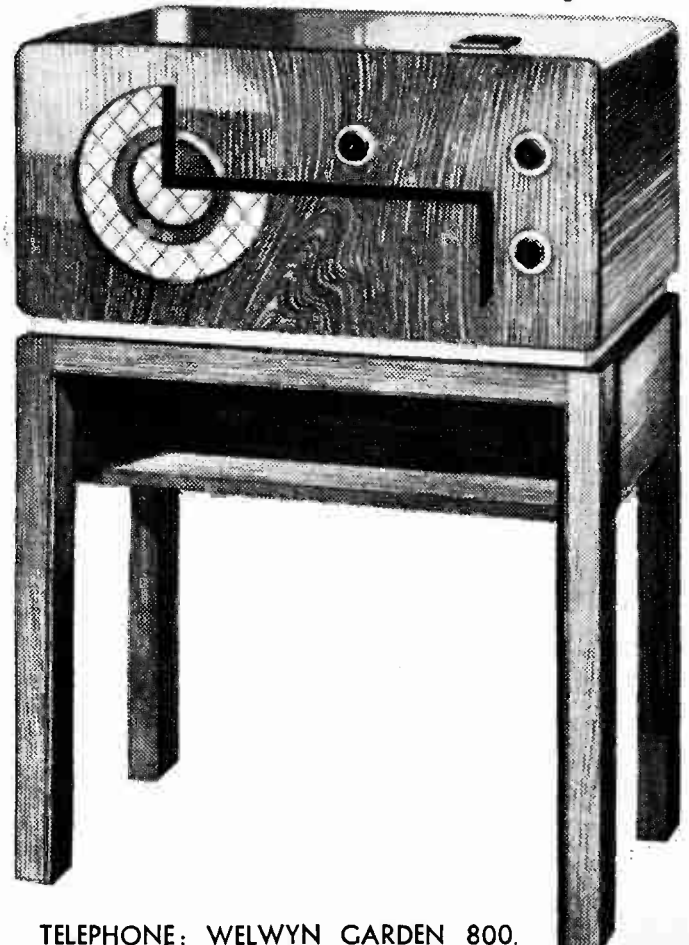
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PROGRAMMES FROM ABROAD



**Broadcasting Stations
Arranged in Order of
Wavelength**

**Times and Details of
Full Week's Foreign
Transmissions**

Metres.	Kc.	kW.	Station.	Tuning Positions.	Metres.	Kc.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania) ..	.....	447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.);	.....
1875	160	8.5	Hilversum (Holland): (<i>Exchanges wavelengths with Huizen every three months.</i>)	.....				Rjukan (0.15 kW.), Notodden (0.08 kW.) (Norway) (<i>relays Oslo</i>).	.....
1796	167	40	Lahti (Finland) ..	.....	441.2	680	50	Rome, IRO. (<i>S.-W. Station, 2RO on 25.4 m.</i>)	.....
1725	174	75	Radio Paris, C.F.R. ..	.....	435.4	689	55	Stockholm, SASA (Sweden) ..	.....
1635	183.5	60	Zeesen (Königswusterhausen) (Germany). (<i>Generally relays Berlin.</i>) (<i>S.-W. Stn. D.J.A on 31.38 m.</i>)	.....	430	698	2.5	Belgrade (Yugoslavia) ..	.....
					424.3	707	2	Madrid, EAJ7 (Union Radio). (<i>After 7.0 p.m.</i>)	.....
					424.3	707	1.3	Madrid, EAJ2 (Radio Espana). (<i>Up to 7.0 p.m.</i>)	.....
1600	187.5	10	Irkoutsk, RV14 (Russia) ..	.....	424.3	707	100	Moscow, Imini Stalina (Russia)	.....
1554.4	193	30	Davenport National ..	.....	419.5	715	1.5	Berlin, No. 1, Witzleben (Germany) ..	.....
1538	195	7	Ankara (Angora) (Turkey) ..	.....	416.4	720.5	5	Rabat (Morocco) ..	.....
1481	202.5	100	Moscow, RV1 (Old Komintern) (Russia)	.....	413	725	80	Athlone (Irish Free State) ..	.....
1446	207.5	13	Eiffel Tower, P.L., Paris ..	.....	408.7	734	16	Katowitz (Poland) ..	.....
1412	212.5	120	Warsaw I (Poland) ..	.....	403.8	743	25	Sottens (Radio Suisse Romande) (Switzerland)	.....
1380	217.5	100	Novosibirsk, RV6 (Russia) ..	.....	398.9	752	25	Midland Regional ..	.....
1348	222.5	30	Motala (Sweden). (<i>Relays Stockholm</i>)	.....	394.2	761	12	Bucharest (Roumania) ..	.....
1304	230	100	Moscow, WZSPS (Trade Union) (Russia)	.....	389.6	770	120	Leipzig (Germany) ..	.....
1275	235	0.5	Tunis-Kasbah (Tunisia) ..	.....	389.6	770	10	Archangel, RV36 (Russia) ..	.....
1260	238	10	Baku, RV8 (Russia) ..	.....	385.1	779	8	Toulouse (Radiophonie du Midi) (France)	.....
1235	243	0.6	Boden (Sweden). (<i>Relays Stockholm</i>)	.....	385.1	779	10	Stalino, RV26 (Russia) ..	.....
1200	250	5	Stamboul (Turkey) ..	.....	381	788	16	Lwow (Lemberg) (Poland) ..	.....
1200	250	21	Reykjavik (Iceland) ..	.....	376.4	797	50	Scottish Regional (Falkirk)	.....
1170	256	25	Tashkent, RV11 (Russia) ..	.....	372.2	806	1.5	Hamburg (Germany) ..	.....
1154	260	7.5	Kalundborg (Denmark). (<i>Relays Copenhagen</i>)	.....	370.1	810.5	0.8	Radio, L.L., Paris	.....
1117	268.5	40	Moscow, Popoff RV58 (Russia)	.....	368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (<i>relays Lahti</i>); Karkov, RV20 (10 kW.) (Russia).	.....
1105	271.5	35	Minsk Kolodtchi, RV10 (Russia)	.....			0.7	Fredrikstad (Norway). (<i>Relays Oslo</i>)	.....
1083	277	60	Oslo (Norway) ..	.....	367.6	816	1	Bergen (Norway) ..	.....
1071	280	35	Tifis, RV7 (Russia) ..	.....	364.1	824	13	Algiers (Algeria) ..	.....
1035	290	36	Kiev, RV9 (Russia) ..	.....	363.6	825	60	Mühlacker (Stuttgart) (Germany)	.....
1000	300	100	Moscow (Russia) ..	.....	360.6	832	50	London Regional (Brookmans Park) ..	.....
938	320	20	Kharkov, RV4 (Russia) ..	.....	355.9	843	7	Graz (Austria). (<i>Relays Vienna</i>)	.....
857	350	100	Leningrad (Russia) ..	.....	352.1	852	7.6	Barcelona, EAJ1 (Spain) ..	.....
849	353.4	4	Rostov-on-Don, RV12 (Russia)	.....	348.8	860	10	Leningrad, RV70 (Russia) ..	.....
845	355	18.5	Budapest (Hungary) ..	.....	348.8	860	11.5	Strasbourg, PTT (France)	.....
825	363.6	50	Sverdlovsk, RV5 (Russia) ..	.....	345.2	869	35	Brno (Brunn) (Czechoslovakia)	.....
779	385	10	Petrozavodsk, RV 29 (Russia)	.....	341.7	878	15	Brussels II, Velthem (Belgium). (<i>Flemish Programme.</i>)	.....
760	395	1.3	Geneva (Switzerland). (<i>Relays Sottens</i>)	.....	338.2	887		Cadiz (Spain) ..	.....
747	401	0.6	Ostersund (Sweden). (<i>Relays Stockholm</i>)	.....	335	896	5	Poznan (Poland) ..	.....
720	416.6	20	Moscow, RV2 (Experimental) (Russia)	.....	334.4	897	1.9	Milan (Italy). (<i>Relays Turin</i>)	.....
690	434.6	1.5	Oulu (Uleaborg) (Finland) ..	.....	331.5	905	60	Poste Parisien (France) ..	.....
680	441.2	0.6	Lausanne (Switzerland). (<i>Relays Sottens</i>)	.....	328.2	914	60	Breslau (Germany) ..	.....
575	521.5	1.2	Samara, RV16 (Russia) ..	.....	325	923	10	Göteborg (Sweden). (<i>Relays Stockholm</i>)	.....
574.7	522	2.5	Ljubljana (Yugoslavia) ..	.....	321.9	932	0.5	Sofia (Bulgaria) ..	.....
569	527	0.25	Freiburg-im-Breisgau (Germany). (<i>Relay Stn.</i>)	.....	318.8	941	0.25	Dresden (Germany). (<i>Relays Leipzig</i>)	.....
568.1	528	2	Grenoble (France) ..	.....	318.8	941	1.5	Naples, INA (Italy). (<i>Relays Rome</i>)	.....
566	530	0.25	Hanover (Germany). (<i>Relays Hamburg</i>)	.....	315.8	950	1.6	Marseilles, PTT (France)	.....
563	533	16	Wilno (Poland). (<i>Relay Station</i>)	.....	312.8	959	1.7	Cracow (Poland) ..	.....
560	536	0.25	Augsburg (Germany). (<i>Relays Munich</i>)	.....	312.8	959	10	Genoa, IGE (Italy). (<i>Relays Turin</i>)	.....
560	536	0.7	Hamar (Norway). (<i>Relays Oslo</i>)	.....	309.9	968	1	Cardiff	.....
560	536	1.5	Kaiserslauten (Germany). (<i>Relays Munich</i>)	.....	307	977	0.7	Radio Vitus (Paris). (<i>S.-W. Stn. on 43.75 m.</i>)	.....
558.6	537	1	Tampere (Finland). (<i>Relays Helsinki</i>)	.....	307	977	0.5	Falun (Sweden) ..	.....
550	545	18.5	Budapest No. 1 Lakihegy (Hungary)	.....	307	977	0.75	Zagreb (Yugoslavia) ..	.....
542	554	3	Palermo (Italy) ..	.....	304	986	13	Bordeaux Lafayette, PTT (France)	.....
542	554	10	Sundsvall (Sweden). (<i>Relays Stockholm</i>)	.....	301.5	995	50	North National (Manchester) ..	.....
533	563	60	Munich (Germany) ..	.....	298.8	1004	11	Tallinn (Esthonia) ..	.....
525	571	15	Riga (Latvia) ..	.....	296.1	1013	7	Huizen (Holland). (<i>Up to 4.40 p.m.</i>)	.....
517	580	15	Vienna (Rosenhügel) (Austria)	.....	296.1	1013	20	Huizen (Holland). (<i>After 4.40 p.m.</i>)	.....
509	589	15	Brussels No. 1, Velthem (Belgium). (<i>French Programme.</i>)	.....	293.5	1022	0.7	Limoges, PTT (France) ..	.....
509	589	10	Astrakhan, RV35 (Russia) ..	.....	293.5	1022	2.5	Kosice (Czechoslovakia) ..	.....
501.7	598	10	Nijni Novgorod, RV42 (Russia)	.....	291	1031	10	Viiuri (Viborg) (Finland). (<i>Relays Helsinki</i>)	.....
500.8	599	20	Florence, IF1 (Italy). (<i>Relays Turin</i>)	.....	288.3	1040	50	Scottish National (Falkirk)	.....
495.8	605	1.2	Trondheim (Norway) ..	.....	288.3	1040	—	British Relay Stations (Bournemouth, Plymouth).	.....
488.6	614	120	Prague, No. 1 (Czechoslovakia)	.....	286	1049	0.8	Montpellier (France) ..	.....
486.2	617	10	Oufa, RV22 (Russia) ..	.....	285.1	1052	0.7	Lyons (Radio-Lyon) (France)	.....
480	625	50	North Regional (Manchester) ..	.....	283.6	1058	0.5	German Relay Stations (Berlin, Magdeburg, Stettin)	.....
480	625	10	Ivanovo-Voznesenk, RV33 (Russia)	.....	283.6	1058	0.5	Innsbruck (Austria). (<i>Relays Vienna</i>)	.....
472.4	635	0	Langenberg (Germany) ..	.....	282.2	1063	2	Lisbon (CT IAA (Portugal). (<i>Short-wave Station on 31.25 m.</i>)	.....
467	642	0.4	Aalesund (Norway) ..	.....	281.2	1067	0.75	Copenhagen (Denmark) ..	.....
465.8	644	1.5	Lyons la Doua, PTT (France) ..	.....	278.8	1076	13.5	Bratislava (Czechoslovakia) ..	.....
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland).	.....	276.5	1085	60	Heilsberg (Germany) ..	.....
453.2	662		San Sebastian, EAJ8 (0.6 kW.): Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (<i>relays Helsinki</i>); Klagenfurt (0.5 kW.) (Austria) (<i>relays Vienna</i>); Porsgrund (0.7 kW.) (<i>relays Oslo</i>); Tromsø (0.1 kW.); Bodø (0.5 kW.) (Norway); Upsala (0.15 kW.) (Sweden) (<i>relays Stockholm</i>).	.....					.....
453.2	662	10	Odessa, RV13 (Russia) ..	.....					.....

BROADCASTING STATIONS ABROAD (In Order of Wavelength).

Metres.	Kc.	kW.	Station.	Tuning Positions.	Metres.	Kc.	kW.	Station.	Tuning Positions.
273.7	1096	7	Turin (Italy)		238.9	1256	2	Nürnberg (Germany). (Relays Munich)	
271.5	1105	1.3	Rennes, PTT (France)		238	1260	1	Nîmes (France)	
269.8	1112	0.25	Bremen (Germany). (Relays Hamburg)		237.2	1265	3	Bordeaux, Sud-Ouest (France)	
269.8	1112	20	Bari (Italy)		235.5	1274	0.5	Kristiansand (Norway)	
267.6	1121	1.5	Valencia (Spain)		235	1283	1.65	Łódź (Poland). (Relay Station)	
265.8	1128.5	1.3	Lille, PTT (France)		232.2	1292	0.25	Kiel (Germany). (Relays Hamburg)	
263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)		230.6	1301	—	Swedish Relay Stations. (Malmö, Norrköping, Karlstad and Trollhättan).	
261.5	1147	50	London National (Brookmans Park)		229	1310	0.5	Umeå (Sweden)	
259.3	1157	17	Frankfurt-a.M. (Germany)		227.4	1319	0.5	Flensburg (Germany). (Relays Hamburg)	
257.1	1167	10	Hörby (Sweden). (Relays Stockholm)		224.4	1337	1	Cork (Irish Free State)	
255.1	1176	0.7	Toulouse, PTT (France)		223	1345	10	Fécamp, Radio-Normandie (France)	
253.1	1185	5	Gleiwitz (Germany). (Relays Breslau)		222.9	1346	0.15	Häidiksval (Sweden)	
252	1193	1	Barcelona, EAJ15 (Assoc. Nat.) (Spain)		219.9	1365	1.5	Béziers (France)	
249.6	1202	—	Prague, No. 2 (Czechoslovakia)		218.5	1373	0.5	Salzburg (Austria). (Relays Vienna)	
249.6	1202	0.2	Kalmar (Sweden)		217	1382	0.5	Königsburg (East Prussia) (Germany)	
249.6	1202	0.8	Juan-les-Pins, Nice (France)		217	1382	0.25	Karlstad (Sweden)	
247.7	1211	10	Trieste (Italy)		215.6	1391	0.2	Halmstad (Sweden)	
245.9	1220	0.3	Varberg (Sweden)		215.6	1391	0.1	Brussels, Radio-Chatelineau	
245.9	1220	0.12	Swansea		214.3	1400	1	Aberdeen	
245.9	1220		Berne (0.5 kW.) (Switzerland) (relays Beromünster); Eskilstuna (0.2 kW.), Sälle (0.4 kW.) (Sweden) (relays Stockholm); Cassel (0.25 kW.) (Germany) (relays Frankfurt); Linz (0.5 kW.) (Austria) (relays Vienna); Pietarsari (0.5 kW.), Turku (Abo) (0.5 kW.) (Finland) (relays Helsinki); Scherbeeck (0.1 kW.) (Belgium)		214.3	1400	10	Warsaw, No. 2 (Poland)	
244.1	1229	0.5	Basle (Switzerland). (Relays Beromünster)		211.3	1420	1	Newcastle	
242.3	1238	1	Belfast (N. Ireland)		209	1430	0.8	Magyarovar and Miskolc (Hungary)	
240.6	1247	0.5	Stavanger (Norway)		207	1450	0.15	Boras (Sweden)	
					206	1460	0.2	Ornsköldsvik (Sweden)	
					204.1	1470	0.2	Gävle (Sweden)	
					202.7	1480	0.25	Kristinehamn (Sweden)	
					201.3	1490	0.25	Hälsingborg (Sweden)	
					195	1530	0.2	Karlskrona (Sweden)	

DISTANT RECEPTION NOTES

THOUGH the number of European stations receivable shows no falling off, and though all-round signal strength is as good as ever, there are one or two stations which have been behaving very queerly for some days now. Two of these, Huizen and Kalundborg, are long-wave stations. For months Huizen had always provided first-rate reception, but quite suddenly quite big variations in the signal strength became noticeable.

The record of this station for seven consecutive days shows that on two of them the volume control was required, on three full loud speaker strength could not be obtained, and on the remaining two re-

ception barely merited the epithet "loud speaker." Kalundborg did not begin to show variations until a few days before this note was written. They are not quite so marked as those of Huizen but they are definitely there.

The most important medium-wave variables at present are Budapest, Munich, Vienna, Brussels No. 1, Florence, Langenberg, Berlin, Witzleben, Leipzig, Toulouse, Brussels No. 2 and Trieste. So great have been the differences in strength from night to night that some listeners may have suspected that their receiving sets were at fault, particularly as the majority of these stations are regular standbys which in the

ordinary way one can be certain of receiving at full loud speaker strength.

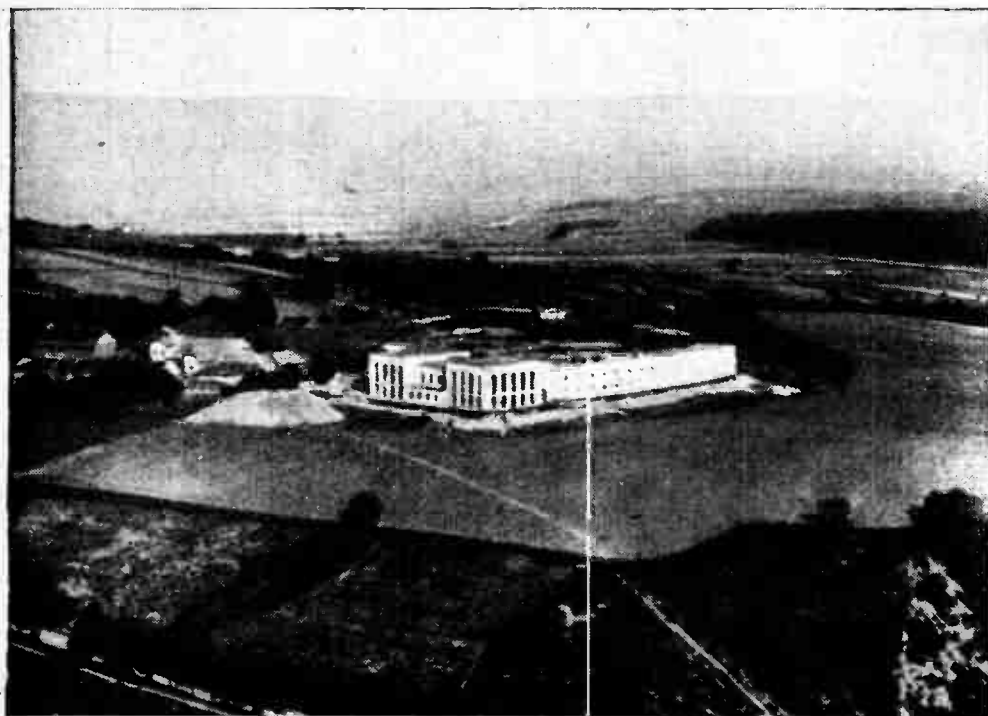
On the other hand many stations, some of them more distant and less powerful than those already named, have been perfectly constant. Katowice, for instance, has never failed; nor have Fécamp, Heilsberg, Hilversum, Breslau, Strasbourg, Rome or Prague.

Variations in Signal Strength

One often notices that when oddities of reception occur they are confined to some comparatively small portion of one wave-band or the other. The present variations in strength, however, have affected stations in all parts of both bands, and sometimes stations with wavelengths very close to one another have shown quite different behaviour. Again, the two Brussels stations, and Hilversum and Huizen, are not far apart geographically; yet of the quartet three show variations and one is constant.

Fécamp is in splendid form just now. This is one of the most valuable foreign stations for British listeners owing to its eight hour non-stop "evening" programmes which extend from seven o'clock until three the next morning. Luckily this station doesn't interfere in the least with American reception, for there are no U.S.A. stations worth attention between 205.4 and 230.6 metres. So far from being a nuisance in the small hours Fécamp is actually a help, for its settings make an excellent jumping off point when one is in search of such well-received stations as WIOD on 230.6 metres., WKAQ on 241.8 metres, and WCAU on 256.3 metres.

Bordeaux Lafayette is a station that should not be missed just now, for it is almost always to be received with excellent volume and quality. Milan is not quite fulfilling its promise of a week or two ago, though the station is generally to be picked up. Brno has become a rather difficult station to find, but on good nights it provides excellent reception. Hamburg shows another return to strength. Madrid Union Radio, though not as a rule hard to find, is seldom very strong, but the Ecole Supérieure comes in surprisingly well in view of its three-quarter kilowatt rating.



THE NEW VIENNA. An ideal position on high ground overlooking the surrounding countryside has been chosen for the new high power Vienna (Bisamberg) broadcasting station now in course of construction. The station buildings are seen in the centre of the picture. It is expected that the power of the new station will be 120 kW. and the wavelength the same as that of the present 15 kW. station.

FOREIGN SUNDAY PROGRAMMES

JANUARY THE TWENTY-SECOND

ALGIERS

363.3 metres; 13 kW.—7.0 p.m., Light Music on Gramophone Records. 7.30, Waltzes and Tangos. 7.45, Songs from Opera. 8.0, Concert of Viennese Music. 8.35, Last in his Repertoire. 8.50, Orchestral Music. 9.30, Dance Music from the Hotel Aletti.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—11.0 a.m., Chimes from the Cathedral and Weather Forecast. 1.0 p.m., Popular Music on Gramophone Records. 1.30 (in an interval), Theatre Notes. 2.0, Film Review, followed by Concert by the Station Sextet. 3.0, Programme for Hospitals and other Benevolent Institutions, with Gramophone Records. 4.0 to 5.30, Interval. 5.30, Agricultural Talk in Catalan followed by Part Relay of an Opera from the Gran Teatro del Liceo. 9.0, Request Gramophone Concert. 10.0 (in an interval), Vicente Diaz da Tejada reads from his own Works. 10.45, Chess Lesson. 11.0 (approx.), Close Down.

BARI

270 metres; 20 kW.—9.30 a.m., Bible Reading. 9.45, Sacred Music. 10.0, Agricultural Hints. 12 Noon, Giornale Radio. 12.10 to 1.15 p.m., Concert of Light Music: in the intervals at 12.55, Weather, and at 1.0, Time and Announcements. 4.20 to 5.30, Gramophone Records of Variety Music and Sports Notes. 7.0, Giornale Radio and Sports Notes. 7.25, Announcements. 7.32 (approx.), Concert of Variety Music. 9.30, Light Music on Gramophone Records. 9.55, News Bulletin.

BASLE.—See Schweizerischer Landessender.

BELGRADE

BEOGRAD: 430.4 metres; 2.8 kW.—4.0 p.m., Popular Music on Gramophone Records. 5.55, Time and Programme Announcements. 6.0, Variety Music on Gramophone Records. 6.50, Popular Song Recital by Natascha Strahova. 7.0, Talk on Wireless. 7.30, Sonata, Op. 18, for Cello and Pianoforte (Rubinstein). 8.0, Radio Play. 8.45, News, followed by Concert of Light Music by the Station Orchestra.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 80 kW.—10.30 a.m., See Leipzig. 10.55, Dr. Ernst Zahn reads from his own Works. 11.15, Concert from Leipzig. 11.55 (in an interval), Nation Time Signal. 1.0 p.m., Talk for Parents: Preparation for the First Day at School. 1.30, Talk on Great Philosophers: Lessing. 2.0, Talk: Art Centres and Art Treasures of the German Nation. 2.30, Concert from Berlin (Witzleben). 3.15, George Britting reads from his own Works. 3.30, Odet in F for String Quartet, Double Bass, Horn, Bassoon and Clarinet, Op. 166 (Schubert). 4.15, A Discussion for Young People on the Correspondence on Previous Dialogues on Vocational Subjects. 5.0, The Chamber Symphony in the Classical and Romantic Periods—Concert conducted by Paul Scheinpflug. 6.0, Rural Programme Address, followed by Choral Music and Reading. 7.0, See Hamburg. 9.0, Weather, News and Sports Notes. 9.45, Weather Report for Shipping, followed by Wind Relief Concert from Vienna. 11.30 (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—10.30 a.m., See Leipzig. 10.55, Discussion: Should a Woman have a Career as well as her Household Duties, or treat her Household Duties as a Career? 11.15, Concert from Leipzig. 1.0 p.m., Talk for Parents. 1.30 to 2.0, Fairy-Tales for Children. 2.30, Wind Instrument Concert. 3.15, Are you going to fly in this Weather?—an Interview with Otto Brauer, Commander of the D. 2500 and Hellmuth Schmidt-Rops, Chief of the Wireless Service of the Luft Hansa. 3.40, Wind Instrument Concert (contd.). 4.30, Commentary on the Final of the German Ice Hockey Championship, relayed from Munich. 4.45, Talk: Hunting in North Africa. 5.0, String Quartet in C, Op. 61 (Dvorak). 5.30, An Address by H. Wirth: The Bequest of an Earlier Age. 5.55, Sports Notes. 6.0, From the Diary of a Reporter of Criminal Cases. 7.0, Concert by the Philharmonic Orchestra, conducted by Prof. Julius Priver, relayed from the Philharmonic; Soloist: Prof. Nikolai Graudan (Cello): Overture, Euryanthe (Weber); Largo in F sharp Minor for Strings (Haydn); Cello Solos: (a) Intermezzo (Granados), (b) Tango (Albeniz), (c) Dragonfly (Delucé); Ballet Music from Coppélia (Delibes); Prelude to Lohengrin (Wagner); Hungarian Dances in G Minor and D (Brahms); Peer Gynt Suite No. 1 (Grieg); Waltz from Die Fledermaus (Joh. Strauss); Overture, Mignon (Thomas). In the interval at 8.0 (approx.), News and Sports Notes. 9.0, Weather, News, and Sports Notes. 9.30, See Vienna. 12 Midnight, Close Down.

BERNE.—See Schweizerischer Landessender.

BEROMUNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL

"The Future Life," by Dr. Edwyn Bevan. Military Band programme of Russian music. Haydn choral and orchestral concert. Pianoforte recital. Special musical Service, from a studio. Orchestral concert, from the Pavilion, Bournemouth.

LONDON

Service from Beckenham Congregational Church. Sunday orchestral concert.

REGIONAL

MIDLAND REGIONAL

Orchestral concert. Service from Carrs Lane Church, Birmingham.

NORTH REGIONAL

Service from Worsley Parish Church, Manchester.

WEST REGIONAL

Service from the Presbyterian Church of Wales, Llanelly. Carlare No. 5, Choral programme. Orchestral concert.

SCOTTISH REGIONAL

Professor Tovey's Sunday concert, relayed from the Usher Hall. Song recital.

BELFAST

National programme.

ABROAD

BRUSSELS

(No. 1)

Opera: "The Rhinegold" (Wagner), concert version.

COPENHAGEN

Concert of dances by the Station Orchestra, conducted by E. Reesen.

HAMBURG

Verdi and Puccini concert, by the Philharmonic Orchestra, conducted by R. Richter.

OSLO

The Station Orchestra, conducted by H. Kramm.

PRAGUE

The Czech Philharmonic Orchestra.

STRASBOURG

The Conservatoire Concert Society, relayed from Paris.

TOULOUSE

Light orchestral concert, English programme by the I.B.C.

BRATISLAVA

279 metres; 14 kW.—10.0 a.m., See Prague. 11.5, Concert by the Station Orchestra, conducted by F. Dyk. 12.30 p.m., Agricultural Talk. 12.45 to 12.50, Hydrographic Report. 3.0, Popsant Programme, relayed from Trenin. Talk on Folklore, Country Scenes, Songs with Orchestral Accompaniment and Military Band Concert. 6.55, See Prague. 9.20, Concert by the Station Orchestra, conducted by F. Dyk. 10.0 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres; 60 kW., and GLEIWITZ, 253 metres.—9.0 a.m. (from Gleiwitz), Catholic Service. 10.0, Talk: Adalbert Stifter on the Sixty-fifth Anniversary of his Death. 10.30, See Leipzig. 11.0, Concert by the Silesian Philharmonic Orchestra, conducted by Ernst Prade; Academic Festival Overture (Brahms); The Unfinished Symphony (Schubert); Divertimento (Trapp); Comolietta (Graener); Dance Suite (Frankenstein); Overture, The Queen's Kerechif (Joh. Strauss); The Emperor Waltz (Joh. Strauss). 1.0 p.m. Announcements. 1.10, Talk: Old German Postage Stamps. 1.30, Talk: Friedrich Fröbel, the Educationist. 2.30, Programme for Children. 3.0, Concert of Light Music, by the Station Orchestra. 5.0, Sports Notes. 5.30, Violin Recital by Terese Petzke-Schubert: Introduction (Saumartini-Sondheimer); Concertino (Hermann); Rondino on a Theme, by Beethoven (Kreisler); Adagio (Grazioli); Etude No. 28 (Florillo-Wolffthal). 6.0, Talk: In what Year are we now Living?—a much-discussed Topic throughout the Ages. 6.25, Weather for Farmers. 6.30 (approx.), Fritz Dietrich reads from his own Works. 7.0, See Hamburg. 7.50, Announcements. 8.0, Relay of a Variety Programme. 9.0, Time, Weather, News, Sports Notes and Programme Announcements. 9.30, See Vienna. 12 midnight (approx.), Close Down.

BRNO

342 metres; 25 kW.—11.5 a.m., See Bratislava. 12.30 p.m. to 12.45, Agricultural Talk. 3.0, See Bratislava. 4.30, See Prague. 5.0, Violin and Pianoforte Recital by A. Maendzinski and Norbert Matzka (Pianoforte); Sonata in E flat for Violin and Pianoforte, Op. 18 (Richard Strauss); Sonata for Pianoforte in F Minor, Op. 5 (Brahms). 6.0, Military Band Concert. 6.55, See Prague. 9.20, See Bratislava. 10.0 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—10.0 a.m., Concert by the Small Station Orchestra, conducted by P. Leemans. 11.0, Gramophone Concert: Part One: Light Music; Part

Two: Chopin Pianoforte Recital. 12.0 Noon, Concert by Mickey's Club Jazz Attraction. 1.0 p.m., Le Journal Parlé. 1.10, Concert, relayed from the Grand Hotel, Antwerp. 5.0, Concert, by the Radio Orchestra, conducted by Franz André; Sing, Brothers (Waller); Hochzeitssong in Lilliput (Translatour); Parade of the Tin Soldiers (Jessey); Heire Kati (Hubay); Selection from The Desert Song (Romberg); Romanian Dances (Borch); Russian Dances (Borch). In the interval at 5.30, Football Results. 6.0, Pianoforte Recital by Mlle. Berthe Bernard: Sonata in A (Mozart); Nocturne in F Sharp (Chopin); Danseuse de Delphes (Debussy); Les Collines d'Amecapi (Debussy); Toccata (Debussy). 6.30, The Adventures of Bonzo—Radio Sketch (Léon Leroy). 6.50, Frauenliebe und-leben—Song Cycle (Schumann), by Lina Falk. 7.15, Religious Address. 7.30, Talk and Music Review. 8.0, The Rhinegold—Opera (Wagner), Concert Version. In the interval at 9.0 (approx.), Partant pour la soirée—Radio Sketch (Lauville). 10.0, Le Journal Parlé. 10.10, Concert, by Willie Lewis of the Penguin Club. 12.0 Midnight, Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Finnish.—10.0 a.m., Gramophone Records: Cockney Suite (Ketelhey); Havannaise (Saint-Saëns); Norwegian Rhapsody (Laby); Quartet in C Minor, Op. 15, No. 4 (Borlioven). 11.0, Concert, by the Small Station Orchestra, conducted by Paul Leemans; Ballet Overture (Lincke); Gramophone Records: (a) Les échos d'Alsace (Ruequoy), (b) Schön Rosmarin (Kreisler); Rapsodie Nivaise (Scott); Violin Solo: The Cantory (Poliakini); Flute Solo: Fandana (Paul (Gilson)); The Clock and the Dresden Figures (Ketelhey); Waltz, Stundenlang, tagelang (Samek); Selection from Nina Rosa (Romberg). 12.0 Noon, Concert, conducted by André Fellemann, relayed from the Grand Hotel, Antwerp; Czardas (Grossmann); Waldteufel Potpourri (Kling); Dance (Micheli); Foxtrot (Schwat); Suppé Potpourri (Michelelov); Selection from Wild Violets (Stolz). 1.0 p.m., Le Journal Parlé. 1.10, See Brussels, No. 1. 5.0, Dance Music, relayed from St. Sauveur Palais de Danse. In the interval at 5.15 (approx.), Sports Results. 6.0, Concert, by the Small Station Orchestra, conducted by Paul Leemans: Pasodoble (Billy-Fray); In the Steppes of Central Asia (Borodin); Impromptu for Pianoforte (Brenta); Syncope (Kreisler); Selection from No. No, Naneite (Youmans). 6.30, Saxophone Solos by M. Gason: Rhapsody (Debussy); Berceuse (Fauré); La Gitana (Kreisler). 6.45, Organ Recital, relayed from the Carmelite Church; Allegro from the Concerto in D (Händel); Selection from Orpheus (Gluck);

Noël (Daquin); Chant séraphique (Guilmant); Finale from the Pièce symphonique (Casar Franck). 7.45, Religious Address. 7.50, Music Review by Paul Gilson. 8.0, Concert, by the Station Orchestra, conducted by Franz André; Overture, The Gipsy Baron (Strass); Russian Dances (Billierian); Russian Songs and Balalaika Solos, by M. Boyarin; Finnish Dances (Black); Esquisses flamandes (Brusselmann). 8.45, The Psychiatrist—Radio Play (Roda Roda). 9.0, Concert of Light Music, by the Station Orchestra. 10.0, Le Journal Parlé. 10.10, Popular Music on Gramophone Records. 10.30, Concert, conducted by Paul Moroux, relayed from the Memline Hall, Antwerp. 11.30, Variety Music on Gramophone Records.

BUDAPEST

550 metres, 18.5 kW. Also relayed on 844 metres from 6.15 to 11 p.m.—8.0 a.m., News and Beauty Hints. 9.0, Protestant Service Relay. 10.0, Service from the Church of the Sacred Heart, followed by Time, Weather and Concert by the Opera House Orchestra, conducted by Friedrich Friedl. In the interval, Radio Review. 1.0 p.m., Variety Music on Gramophone Records. 2.0, Agricultural Talk. 2.45, Two Talks for Schools. 3.30, Time and Weather. 3.40 (approx.), Concert by the Budapest Concert Orchestra. 4.40, Ethnographical Programme in the Form of a Relay from a Hungarian Province. 5.50, Programme by Emerich Farkas. 6.45, Rund um die Liebe—Operetta (O. Straus). 8.40, Time, Weather, Racing Results and Sports Notes, followed by Concert by the Atipád Toll Cigány Band from the Kovácsesvizi Restaurant. 10.0, Dance Music by Alexander Jávör and Fia Band from the Hotel Bellevue. 11.0 (approx.), Close Down.

CASSEL.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW., and KALUNDBORG, 1,153 metres; 7.5 kW.—9.0 a.m., Divine Service, from the Garrison Church. 10.30, Weather. 10.40, News. 11.0, Time Signal and Chimes from the Town Hall. 11.2, Concert by Mogens Hansons Instrumental Ensemble. 12 Noon, Talk in English: The Grand Tour of England. 12.20 p.m., Reading in German (Gorhart Hauptmann). 12.40, Talk in French. 1.3, Accordion Music. 1.25, Gramophone Concert of Popular Music. 1.55, Programme for Children. 3.25, Concert by the Station Orchestra. 4.0 (also relayed by Skamleback on 31.51 metres), Divine Service. 5.20 (from Christiansborg Castle Church), Talk: Hygienic Conditions in Soviet Russia. 5.50, Weather. 6.0, News. 6.15, Time and Sports Notes. 6.30, Talk. 7.0, Time Signal from the Town Hall. 7.2, Concert of Dances by the Station Orchestra, conducted by Emil Reesen; March and Gavotte from Idomeneo (Mozart); Minette from Armide (Glück); Polonaise, Op. 61 (Schubert); Gavotte (Saint-Saëns); Bourrée from the Suite ancienne (Halvorsen); Waltz from Der Rosenkavalier (R. Strauss); Minnet from the Petite Suite (Debussy); Gollwog's Cake Walk, from the Children's Corner (Debussy); Airs (Ravel): (a) Pavane, from the Mother Goose Suite, (b) Passepied, from Le tombeau de Copérnic. 7.50, Song Recital and Talk. 8.30, Caprice on Danish and Russian Folk Songs, Op. 79, for Flute, Oboe, Clarinet, and Pianoforte (Saint-Saëns). 8.45, The Hansen Family—Radio sketch (Jens Locher). 9.0, News. 9.10, Concert by the Station Orchestra, conducted by Emil Reesen: Concert Overture, Meeresstille und glückliche Fahrt (Mendelssohn); Extracts from the Serenade for Strings (Tchaikovsky); Extract from the Suite, In Brittany (Rhené-Baton); Three Dances from The Bartered Bride (Smetana). 9.50, Dance Music by the Teddy Peteraen Band, relayed from the Wivex Restaurant. In an interval at 11.0, Time and Chimes from the Town Hall. 11.30 (approx.), Close Down.

CORK.—See Dublin.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN; 413 metres; 1.2 kW., and CORK, 224.4 metres.—8.30 p.m., Time Signal. 8.31, Variety Concert. Music by an Orchestra, Leo Rowson and S. O'Mahony (Pipes and Fiddle), and Josephine Tyrrell (Soprano). Gaelic Songs, by Aine Ní Gáin and Variety Items by Frank O'Donovan. 11.0, Time Signal, News, Weather Report, and Close Down.

FECAMP

223 metres; 10 kW.—12 Noon, Radio Gazette. 12.30 p.m., News Bulletin. 12.40, Concert of Variety Music. 4.0 to 8.0, Programme in English in the I.B.C. 4.0, International Broadcasting Club Concert: On the Quarter Deck (Alford); Song, Phil the Fluter's Ball (French); Policeman's Holiday (Ewing); Banjo Quartet: Darktown Dandies; Song, Maire my Girl (Aitken); Valencia (Padilla). 5.0, Programme for Children. 5.30, Children's Club Concert. 6.0, Quintet Concert:

JAN. 22nd

SUNDAY

continued

The Wedding of the Birds (Peterson); Everybody sings a Love Song in the Spring (Harley); The Song of Songs (Moya); Mari-gold (Mayerl); By the Waters of Minnetonka (Lieurance); Because (d'Hardelot); Wrap your Troubles in Dreams (Crosby). 6.30, Variety Concert: When they're on the Love Parade; Isn't it Romantic? Spanish Gipsy Dance; I guess I'll have to change my Plans; Sergeant Jock McPhee; Leave a little for me; Desert Song; Let's all dance the Polka; Big Ben's saying Goodnight. 7.0, Sextet Concert: Spring Song (Mendelssohn) Minuet in D (Mozart); Le Cygne (Saint-Saens); Adagio in A (Schubert); Two Melodies from the Peer Gynt Suite (Grieg); (a) Anitra's Dance, (b) Solveig's Song; Serenade (Pierne). 7.30, Orchestral Concert: Selection from Il Trovatore (Verdi); Waldteufel Potpourri (arr. Finck); Polonaise in A (Chopin); Invitation to the Waltz (Weber); Selection from Sylvia (Delibes). 8.0, Variety Concert. 9.0 till Close Down, Programme in English by the I.B.C. 9.0, Cinema Organ Recital. The Sacred Hour (Kettelbey); On Wings of Song (Mendelssohn); Four Indian Love Lyrics (Woodforde-Finden): (a) Temple Bells, (b) Less than the Dust, (c) Kashmiri Love Song, (d) Till I wake; Roses of Picardy (Haydn Wood); White Dove (Grey-Lehar). 9.30, Vocal and Orchestral Concert: Prelude to Carmen (Bizet); Songs: (a) Elegy (Massenet), (b) La Mantilla (Alvarez); Hungarian Medley (arr. Leggett); Songs: (a) Gopak (Mussorgsky), (b) Hindu Song (Rimsky-Korsakov); Modern Conception of Russian Melodies (arr. de Filippi). 10.0, Songs of the Sea; The Drunken Sailor; Shenandoah; \$1.50 a Day; The Hog's Eye Man; A-roving; Rio Grande; One more Day; Sacramento. 10.30, Dance Music; Wanderer; Pal of my Dreams; Try a little Tenderness; I guess I'll have to change my Plans; When the Morning rolls around; Good morning, Mr. Sun; You've got me in the Palm of your Hand; Sweethearts. 11.0, Concert of Light Music: The Leader of the Town Brass Band (Longstaffe); The Song of the Vagabonds (Friml); Just keepin' on (Carter); Vienna, City of my Dreams (Reeve); Serenade (Hoykens); Songs: (a) My Mother bids me bind my Hair (Hinterhaydn); (b) By the Bend of the River (Edwards). 11.30, Orchestral Selections from Shows: (a) Bow Bells (Sullivan-Hamilton), (b) The King of Jazz (Whiteman), (c) The Three Musketeers (Friml), (d) Show Boat (Kern). 12 Midnight, Three and a Piano-forte; Hot Scotch (Peterson); A Pair of Blue Eyes (Kernell); Bubbling over with Love (Agor); Trees (Kilmer); When it's Sleepy Time down South (Muse); Laughing down the Lane (Benson); Laughing at the Rain (Gilbert); Squirrel Dance (Elliott Smith). 12.30 a.m. (Monday), Song Recital: I'm in the Seventh Heaven (Henderson); Wishing and waiting for Love (Aktst); Just Plain Folk (Gilbert); Selection, Children of Dreams (Romberg); Little Pal (Henderson); Am I blue? (Aktst); The Heart of the Sunset (Nicholls); Selection from The Grand Companions (Adinsell). 1.0, The IBCO Harmony Four: Three Old Songs: (a) Nancy Lee, (b) My Bonnie, (c) Sailing, Sailing; Three Glee's: (a) Winter is gone, (b) Sweetly blows the breath of Spring, (c) Now is the Month of May; Violin Solo, Old Scottish Songs: Three Songs: (a) Sweet Genevieve, (b) Believe me if all those endearing young charms, (c) Come to the Fair; Violin Solo, O to the Airts; Song, Where'er you walk. 1.30, Hawaiian Band Concert: Aloha Oe (Lilo-kalani); Manilla Moon (Gaston); Maria Mari (di Capua); Somehow (Haeckforth); Silvery Moon (Frazzini); Sleepy Head (Haeckforth); Kilima (Traditional); My Waikiki Maid (Traditional). 2.0, Dance Music: Today's the Day; Round the Marble Arch; By the Bend of the River; Paradise; Goodnight, Vienna; Hurt; Just another Dream of you; Selection from On with the Show; When the Band goes Marching by; I ain't no Fault of mine; I wonder why; Lullaby of the Leaves; Five Minutes to Twelve; Bathing in the Sunshine; I love a Parade. 2.57, I.B.C. Goodnight Melody. 3.0 (approx.), Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW.; and CASSEL. 245.9 metres.—12.5 p.m., Concert from Langenberg. 1.0, Agricultural Hints. 1.10, Agricultural Talks. 2.0, See Stuttgart. 2.50, See Munich. 3.30, Concert by the Municipal Orchestra, relayed from the Kurhaus, Wiesbaden; Overture, Der Freischütz (Weber); Minuet in G (Beethoven); Second Suite from L'Arlesienne (Bizet); Fantasia on Themes from Rienzi (Wagner); Kavalierwalzer from Polenlut (Nedbal); Overture, The Thieving Magpie (Rossini). 5.0, Reading, 5.15, Wilhelm Michel discusses his Book, Geliebte Welt. 5.30, Humorous Interlude. 6.0, Topical Talk. 6.20, Sports Notes. 6.30, Zither Concert. Soloist: Richard Grünwald (Violin). Im promptu, Op. 142, No. 3 (Schubert-Grünwald); Paraphrase on Strauss Waltz Themes (Grünwald); Violin Solo: Spanish Dances (Sarasate). 9.30, See Vienna. 12 Midnight (approx.), Close Down.

FREDRIKSTAD.—See Oslo.

FREIBURG.—See Stuttgart.

GENOVA.—See Radio-Suisse Romande.

GENOA.—See Turin.

GLEIWITZ.—See Breslau.

GOTEBORG.—See Stockholm.

GRAZ.—See Vienna.

HAMAR.—See Oslo.

HAMBURG

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 227.4 metres; Hannover, 566 metres; and Kiel, 232.2 metres.—10.30 a.m., See Leipzig. 11.0, Time and Weather. 11.5 (from Flensburg), Orchestral Concert. In the interval, Reading of a True Sea Story. 1.0 p.m., Programme for Children. 2.0, Der Wallenschmied—Comic Opera in Three Acts (Lortzing), relayed from the Municipal Theatre, Lübeck. 3.40 (from Hannover), Military Band Concert, relayed from the Hofjäger, Brunswick. 4.30, Oldenburg Dialect Programme, relayed from the Museum Altona: Alma Rogge, August Hinrichs, and Heinrich Diers read from their own Works. 5.0, Chamber Music, August Becke (Flute), Dr. Rolf Friedrich (Violin), Alfred Mann (Violin), Willy Roger (Viola) and Helmut Paulsen (Piano-forte). Trio Sonata (Albinoni); Allemande and Gavotte from Monalichien Klavierfrüchten (Graupner); Spielmusik No. 1 (Paulsen); Spielmusik (Maasz); Trio Sonata in G, Op. 14, No. 1 (Stamitz). 5.45, Humorous Programme. 6.30, Talk on Water Polo. 6.40, Sports Notes. 6.55, Weather Report. 7.0, Verdi and Puccini Concert, relayed from the Musikhalle. The Philharmonic Orchestra, conducted by Richard Richter. Soloists: Rose Ader and Herbert Ernst Groh. Prelude to Aida (Verdi); Air from Turandot (Puccini); Waltz from La Bohème (Puccini); Selection from Il Trovatore (Verdi); Aria from Louisa Miller (Verdi); Overture, Nebuchadnezzar (Verdi); Selection from Madame Butterfly (Puccini); Duet from La Traviata (Verdi); Selection from La Bohème (Puccini); Triumphal March from Aida (Verdi). In the interval, News. 9.0, Time, News and Announcements. 9.15, Topical Talk. 9.30, See Vienna. 12 Midnight, Close Down.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW.; and DANZIG, 453.2 metres.—10.30 a.m. to 1.0 p.m., See Leipzig. 1.0 p.m., Talk on Chess. 1.30, (from Danzig), Talk: The Life of Peter Rosegger. 2.0, Concert by the Königsberg Folk Choir. 2.30, Talk in connection with the opening of a Memorial Exhibition for Walter Gramatte in Königsberg Castle. 2.50, See Munich. 3.30, Request Concert by the Little Orag Orchestra, conducted by Eugen Wilchen. 4.25 (in an interval), Sports Notes. 5.30, Talk: In Memory of Konrad Kob. 6.0, Flute and Piano-forte Recital. 6.30, Reading from the Works of Johannes Jensen on his Sixtieth Birthday. 7.0, Sports Notes. 7.10, Concert by the Königsberg Opera House Orchestra, conducted by Earl Hrubetz, with the Wireless Male Voice Choir. Humorous Topical Review in the Interval. 9.10, News Bulletin. 9.30, See Vienna. 12 Midnight (approx.), Close Down.

HILVERSUM

Announced HUIZEN; 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—11.55 a.m. to 4.40 p.m., Programme of the Catholic Radio Society (K.R.O.). 11.55 a.m., Concert by the K.R.O. Sextet. 1.40, Variety Music on Gramophone Records. 1.40, Review of New Books. 2.10, Concert by De Koninklijke Harmonie of Bois le Duc, conducted by J. Wierds. Soloists: J. Heidriks (Tenor) and F. Boshart (Piano-forte). Odeon March (Tierolf); Overture (Kessels); Waltz, The Skaters (Waldteufel); Selection from Il Trovatore (Verdi); Song (Barthelmy); Aria from L'Africaine (Meyerbeer); March Potpourri (Ciere); Overture, Post and Peasant (Suppé); Selection from A Waltz Dream (O. Strauss); Two Airs from Tosca (Puccini); De Premersberg (Koeneman); March, Stars and Stripes (Souza); Popular March (Wierds). 4.10, Programme for Invalids. 4.40 to 7.25, Programme of the Christian Radio Society (N.C.R.V.). 4.40, Concert of Sacred Music by a Mixed Vocal Quartet. 5.30, Sacred Music on Gramophone Records. 6.0, Divine Service from a Church in Angerlo. 7.25 till Close Down K.R.O. Programme. 7.25, Talk. 7.50, Football Results. 7.55, Concert by the K.R.O. Orchestra, conducted by Johan Gerritsen. In the interval at 8.15, News. 11.20, Epilogue by the Choir.

HORBY.—See Stockholm.

HUIZEN

(Announced HILVERSUM), 1,875 metres; 8.5 kW.—11.40 a.m. to 4.40 p.m., Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 11.40, Time Signal. 11.40, Concert by the Wireless Orchestra, conducted by Nico Treep, with Interludes by a Male Voice Choir. 1.25 p.m., Running Commentary on the Football Match, Holland v. Switzerland. 3.40, Variety Music on Gramophone Records. 3.55, Book Review. 4.25, Talk on Sports. 4.40 to 7.40, Programme of the Workers' Radio Society (V.A.R.A.). 4.40, Programme for Children. 5.40, Concert by the V.A.R.A.

Orchestra, conducted by Hugo de Groot. Overture, The Gipsy Baron (Joh. Strauss); Suite, Summer Days (Coutes); Kamarinskaja (Glinka); Scherzo (Mendelssohn); Flemish Dances (Bloek); Meditation for Violin (Massenet); Concert Waltz (Glazunov). 5.30, The Adventures of Messrs. Wakker and Treppduut. 6.50, Concert (contd.), Soloist: G. Hekking (Cello); Symphony in G (Mozart); Concerto for Cello and Orchestra (Haydn). 7.40 till Close Down, A.V.R.O. Programme. 7.40, Time Signal. 7.41, News Bulletin. 7.55, Concert of Light Music by Dajos Bela and his Orchestra. 8.40, Recitations. 9.0, Concert by the Wireless Orchestra, conducted by Albert van Raalte; Soloists: Henriette Bosmans and George van Renesse (Piano-forte). 9.40, Light Music on Gramophone Records. 10.0, Concert (contd.). 10.40, Light Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.0 p.m., Announcements and Popular Music on Gramophone Records. 6.25, See Warsaw. 6.55, Sports Notes. 7.0, See Warsaw. 10.0, Dance Music. 10.45, Reports in Polish and French on the Monte Carlo Motor Races.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

473 metres; 60 kW.—10.50 a.m., The World on Gramophone Records—On the North Coast of Colombia. 11.20, Review of Articles on the Economic Crisis. 11.45, Music Review of the Week. 12 Noon, Concert by the Station Orchestra, conducted by Spitz; Waltz, Künstlerleben (Joh. Strauss); Selection from Madame Butterfly (Puccini); Selection from Where the Lark sings (Lehar); Loin du bal (Gillet); Baed al buio (Mielich); Kaiserwalzer (Strauss); Potpourri of Kálmán's Music, Fortissimo (Feigel). 1.30, Shorthand Dictation. 1.50, Talk on Music. 2.20, Legal Talk: Smuggling with Motor Cars. 2.45, Talk: The Animal World. 3.10, A Dialogue on Civil Service and Similar Competitive Examinations (on Gramophone Records). 3.30, Concert from Frankfurt. 5.0, Talk: Towns of the Rhineland and Westphalia—Gladbach-Rheylt. 5.40, Gymnastic Competition, Rhineland v. Westphalia, relayed from the Friedenbaum, Dortmund. 6.0, An Entertainment. 6.45, Sports Notes. 7.0, See Hamburg. 8.55, News and Announcements. 9.10, Sports Relay from the Rheinlandhalle, Cologne (reproduced on Gramophone Records). 9.30, Programme from Vienna. 12 Midnight, Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW.; and DRESDEN, 319 metres.—10.30 a.m., Herr, wie Du willst, so schick's mit mir—Cantata (Bach), by the Municipal and Gewandhaus Orchestra, the Choir of St. Thomas, and Soloists. 11.0, Concert by the Dresden Philharmonic Orchestra, conducted by Eugen Gottlieb-Hellmesberger. Overture, Martha (Flotow); Spanish Dances Nos. 1, 3, and 4 (Moszkowsky); Serenade No. 5 in D, Op. 53 (Fuchs); Melodies from A Masked Ball (Verdi); Music from the Fairy Ballet—Andersen (Nedbal); Waltz, Ernst and Humor (Jos. Strauss); Selection from La Vie Parisienne (Offenbach); Sizzietta (Bloni); Three Ländler (Zschorlich). 1.0 p.m., Weather and Time. 1.5, Programme Announcements. 1.25, Agricultural Hints. 1.40, Quartet in F, Op. 18, No. 1, for Two Violins, Viola, and Cello (Beethoven). 2.20, The Voice of the Steppes—Sound Pictures from the Primeval Forests of Africa. 2.40, Cello and Piano-forte Recital by Christian Klug and Friedbert Sammler; Andante (Glück); Sarabande (Bach); Tarantella (Popper); Gavotte in D, Op. 23 (Popper). 3.15, Two People in Love—Comedy (Bruno Wellenkamp). 4.30, Baritone, Piano-forte, and Zither Recital, with Recitations. 5.15, Concert by the Dresden Soloist Ensemble. 6.15, A Journey into the Blue—the Solution and the Solvers. 6.25, See Munich. In an interval, Sports Notes. 8.40, Topical Talk. 8.50, When the Amateur dabbles in the Crafts—an Ironical Radio Sequence (Johann Günther). 9.20, News Bulletin. 9.30, See Vienna. 12 Midnight (approx.), Close Down.

LINZ.—See Vienna.

LWOW

381 metres; 16 kW.—6.5 p.m., Miscellaneous Items. 6.25, See Warsaw. 8.5, Sports Notes. 9.0, Talk. 9.20, Dance Music from Warsaw. 11.0 (approx.), Close Down.

LYONS

LA DOUA; 465.8 metres; 1.5 kW.—8.0 a.m., Review of the Paris Morning Press, relayed from Paris (Ecole Supérieure) (447.1 metres). 10.30, Orchestral Concert, conducted by Pierre Lorraine, with Songs by Georges Cecil (Tenor). In an interval at 11.0 (approx.),

Sports Talk. 12 Noon till Close Down, Programme relayed from Paris (Ecole Supérieure). 12 Noon, Programme to be announced. 3.0, Conservatoire Concert. After the Concert, Programme to be announced. In an interval, News. 11.0 (approx.), Close Down.

MADRID

ARANJUEZ (EAQ); 30.43 metres; 20 kW.—11.30 p.m., Variety Music. 11.45, Humorous Talk. 12 Midnight, Classical Concert. 12.35 a.m. (Monday), Talk. 12.40, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—8.0 to 9.0 a.m., Topical Review. 2.0 p.m., Chimes, Time Signal, Theatre Notes and Concert by the Arlys Orchestra. 4.0 to 7.0, Interval. 7.0, Chimes and Dance Music relayed from the Ritz Hotel. 7.30, Agricultural Talk, followed by Dance Music (contd.). 8.30 to 9.30, Interval. 9.30, Chimes and Time Signal. 9.35 (approx.), Song Recital by Jose Angeri. Interlude by Ramon Gomez de la Serna, and Reading (Marlano Sanchez de Palacios), followed by Dance Music relayed from Gong. 12 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—11.5 a.m., See Bratislava. 12.30 to 12.45 p.m., See Prague. 3.0, See Bratislava. 4.30 to 5.45, See Prague. 6.0, See Brno. 6.55, See Prague. 9.20, See Bratislava. 10.0 (approx.), Close Down.

MOTALA.—See Stockholm.

MÜHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—11.0 a.m., See Leipzig. 12.5 p.m., Time, Weather, and Programme Announcements. 12.15, Agricultural Talk. 12.35, Concert of Dance Suites on Gramophone Records. 1.30, Elementary Chess Lesson. 2.15, Programme for Children. 2.30, Zither Concert. 2.50, Relay of the German Ice Hockey Championship from the Gaspalast. 3.30, Concert, conducted by Erich Kloss. 4.40, Talk: Saint Sebastian Protector against Plagues. 5.0, Variety Programme. 6.0, Sonata in G Minor for Cello and Piano-forte, Op. 65 (Chopin). 6.25, Talk: A Journey through Lower Bavaria. 6.45, Weather and Sports Notes. 7.0, Concert by the Radio Orchestra, conducted by Hans Winter; Soloists, Ada Sari (Coloratura Soprano of the Milan Scala) and Helen Zimmermann (Piano-forte); Overture, The Merry Wives of Windsor (Nicolaï); Two Arias for Coloratura Soprano and Orchestra (a) Aria from The Barber of Seville (Rossini), (b) Aria from Lucia di Lammermoor (Donizetti); Concerto in A for Piano-forte and Orchestra (Mozart); Waltz (Tchaikovsky); Violetta's Aria from La Traviata (Verdi); Preludes and Entr'actes from Carmen (Bizet); Variations for Coloratura Soprano with Flute obbligato (Mozart); Overture, The Magic Flute (Mozart). 8.40, News Bulletin. 8.50, Station D in the Arch Seas—Radio Play (Hanns Braun). 9.10, Time and News. 9.45, Dance Music. 11.0 (approx.), Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredrikstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres; and Rjukan, 447.1 metres.—9.50 a.m., Chimes. 10.0, Divine Service, relayed from the Castle Chapel. 4.0 p.m., Orchestral Concert, relayed from the Grand Hotel. 5.0, Talk on the Theme of Bernard Shaw's Pygmalion. 5.30 (from Hamar), Agricultural Talk. 6.15, Weather and News. 6.30, The Kreuzer Sonata (Beethoven), by Mme. E. Aarvold-Glaser (Piano-forte) and M. Ernest Glaser (Violin). 7.0, Mme. Ingrid Arntsen reads from her own Works. 7.20, Concert by the Station Orchestra, conducted by Hugo Kramm; Overture, Der Freischütz (Weber); Selection from Boris Godunov (Mussorgsky); Indian Lament (Dvorak); In a Nuthell (Grainger); Melody (Grieg); Selection from Death and Transfiguration (Richard Strauss). 8.20, Talk: Rich and Poor in the U.S.A. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Cabaret Programme. 10.0, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—9.25 a.m., Bible Reading. 9.40, Sacred Music. 10.5, Agricultural Report. 11.45, Giornale Radio. 12 Noon to 1.0 p.m., Concert of Variety Music. In the interval at 12.30, Time, Announcements and Weather. 4.30 to 5.30, Concert from the Olympia Tea Rooms. 7.0, Announcements and Giornale Radio. 7.20, Sports Report. 7.40, Time, Announcements and Light Music on Gramophone Records. 8.0, Rossini—Opera in Three Acts (Ettore Bellini). In the intervals: Talk, Notes on Art and News.

JAN. 22nd

SUNDAY

continued

PARIS

EFFEL TOWER, Call FLE, 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).—1.0 to 2.0 p.m., Concert by the Rex Orchestra. 5.45, Le Journal Parlé. 6.45, Programme for Children. 7.20, Weather. 7.30, Gramophone Concert: Part I, Music by Gounod; Julex from Mors et Vita; Prelude; Cavatina from Cinq Mars; Selection from Faust; Cavatina from The Queen of Sheba; Song: Plus grand dans son obscurité; Duet from Romeo and Juliet; Selection from Philémon et Baucis; Ballet Music from Faust; Part II Potpourri (Jessec); Variety Intermezzo (Charlie); Melody (Charlie); March (Zimmer); Pour longtemps (Gavel); Flottez, drapeaux (Paradis). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—9.45 a.m., Bible Reading and Sacred Music on Gramophone Records. 10.0, News. 10.5 to 12.45 p.m., Sponsored Concerts. 12.45, Chansonnets by Paul Weill. 1.15, Interval. 1.30, Sponsored Programme. 2.0 to 6.45, Interval. 6.45, Le Journal Parlé. 7.0, Talk on Drainage. 7.15, Sports Review. 7.30, Catholic Review. 8.0, Light Music on Gramophone Records. 8.30, Interval. 8.45, Sponsored Concert with Gramophone Records. 10.15, Organ Recital by Maurice Duruflé; Noël in D Minor (Dupin); Sicilienne (Bach-Widor); Choral with Variations on Veni Creator (Duruflé). 10.30, News Bulletin.

PARIS

RADIO PARIS, Call GFR, 1,725 metres; 75 kW.—7.45 a.m., Gramophone Records of Light Music. 8.0, Press Review and Weather. 8.30, Physical Culture. 10.0, Elementary Book-keeping Lesson. 10.20, Advanced Book-keeping Lesson. 10.40, Spanish Lesson. 11.30, to 12 Noon, Programme in English by the I.B.C.: Concert of Imperial and Broadcast Records; Jolly Fellows, by the Band of H.M. Welsh Guards, under the Direction of Captain Andrew Harris; Dreaming, by Val Rosing; Old Mother Hubbard, by the Blue Mountainers; Please; Sandy at the North Pole, Part I, by Sandy Powell; Let's put out the Light and go to sleep, by Jack Payne and his Band; Rosa Mia, by Tom Burke; I want to go to Idaho, by G. H. Elliott. 12 Noon, Religious Address by the Reverend Father Paidé. 12.20 p.m., Sacred Music: Prelude in E Minor (Bach); Choral (Bach); Variation (Mendelssohn). 12.30 p.m., Bilboquet. 12.45, Press Review, News and Weather. 1.0, Orchestral Concert. 1.30, Light Music on Gramophone Records. 2.0, Popular Music on Gramophone Records. 3.0 to 3.30, Programme in English by the I.B.C.: Blue Kentucky

Moon; Bijou; Hummin' to myself; Ooh that Kiss; Song of Songs; Music—Music everywhere; Old Fox. 3.30, Orchestral Concert. 4.0 to 5.0, Programme in English by the I.B.C.: Tea-time Variety Hour: Mr. S. H. C. Williams announcing. 5.0, Variety Concert. 5.30 to 8.0, Programme in English by the I.B.C. 5.30, Philco Concert. Mr. Glynn Williams announcing. 6.30, Gramophone Concert: Lineke-Wincke. Part I, by the Commodore Grand Orchestra: The Merry-go-round, by Morlais Morgan, with Orchestral Accompaniment; Love is the Sweetest Thing, by the Scala Dance Band; Yodelling Polka, by the Cosmopolitan Accordion Band; Let's put out the Light and go to sleep, by Roslando and his Blue Salon; Second Hungarian Rhapsody, by the Black Dyke Scala Band; How deep is the Ocean, by the Scala Dance Band; Indian Love Lyrics, Part II, by the Commodore Grand Orchestra. 7.0, Gaumont-British Film Fans' Hour, Mr. S. H. C. Williams announcing. In the intervals at 8.0, News, Sports Notes and Weather, and at 9.15, Press Review and News.

PORSGRUND.—See Oslo.

PRAGUE

458.6 metres; 120 kW.—10.0 a.m., Trio Concert: Trio in C, Op. 101, No. 3 (Rejcha); Trio in G, Op. 1, No. 2 (Beethoven). 11.0, Chimes. 11.5, See Bratislava. 12.30 p.m., Agricultural Review. 12.45, to 12.55, Talk. 3.0, See Bratislava. 4.30, Talk: From Trieste to Jerusalem. 4.45, Popular Music on Gramophone Records. 5.0, German Transmission: Songs (Beethoven), and News in German. 6.0, See Brno. 6.55, Introductory Talk to the following Transmission. 7.5, Concert by the Czech Philharmonic Orchestra, relayed from the Smetana Concert Hall: Conductor: Prof. Fierek; Soloists: Alfred Cortot (Pianoforte); Symphony in G No. 100 (the Military) (Haydn); Pianoforte Concerto in F Minor, Op. 21, No. 2 (Chopin); Pianoforte Concerto (Beethoven); Symphonic Poem, Till Eulenspiegel's Merry Pranks (R. Strauss). 8.0 (in the interval), Time Signal. 9.0, Time, News, Announcements and Sports Notes. 9.20, See Bratislava. 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres, 25 kw.; LAUSANNE, 580 metres; and GENEVA, 760 metres.—8.40 a.m., (from Lausanne), Chimes. 8.45 (from Lausanne), Postulant Service from the Chapelle des Terraux. 10.0 (from Geneva),

Variety Music on Gramophone Records. 11.0 (from Geneva), Literary Talks. 11.30, News and Weather. 11.40 to 1.0 p.m. (from Geneva), Popular Music on Gramophone Records. 2.0, Running Commentary on the International Football Match, Switzerland v. Holland, relayed from Amsterdam. 5.30 (from Geneva), Catholic Address. 6.0 (from Geneva), Organ Recital by William Montillet. 6.40 (from Lausanne), News Bulletin. 7.0 (from Lausanne), Violin and Pianoforte Recital by MM. Desarzens and Sauvageat. 7.40 (from Geneva), Swedish Song Recital by Mme. Alvar. 8.0, Concert by the Radio Orchestra. 9.0, News and Weather. 9.15 (approx.), Close Down.

RIGA

525 metres; 15 kW.—6.5 p.m., Concert of Light Music. 7.0, News. 7.20, Pianoforte Recital. 7.50, Popular Music. 8.0, Weather and News. 8.30, Old Dances. 9.0, Modern Dance Music. 10.0 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call IRO, 441 metres; 50 kW. Relayd by Naples, 319 metres; and 2RO, 25.4 metres.—9.10 a.m., News, Sports Notes, and Amusement Guide. 9.30, Agricultural Report. 9.45, Bible Reading. 10.0 to 11.0, See Turin. 11.30 to 12.30 p.m., See Turin. In the interval at 12 Noon, Time and Announcements. 12.30 to 1.30, Orchestral Concert. 2.45 (Naples), Programme for Children. Weather, and Sports Notes. 3.0, Football Report. 3.15, Variety Music on Gramophone Records. 4.0, Ernst Bloch Concert, conducted by the Composer, relayed from the Augusteo: Soloist, Alessandro Barjansky (Cello): Symphonic Poem, Printemps-Hiver; Trois Poèmes Juifs—for Orchestra; Hebrew Rhapsody for Cello and Orchestra, Schelomo; Symphonic Poem, Helvetia. Sports Notes in the interval. 6.30, Sports Report, Football Report, Announcements, and Sports Notes. 7.0, Time and Announcements. 7.30, Sports Report. 7.45, Il Capitano Fracassa—Operetta in Three Acts (Mario Costa). In the intervals: Talk and Reading. News after the Programme.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY); 379.5 metres; 50 kW. Relayd at intervals by W2XAF on 31.48 metres, and by W2XAD on 19.56 metres.—7.0 p.m. till Close Down,

New York Relay. 7.0, Musical Programme. 7.15, Clyde Doerr and his Saxophone Octet. 7.30, Moonshine and Honeysuckle. 8.0, Wayne King's Orchestra. 8.30, Hour of Worship. 12 Midnight, Harmonica Rascals. 12.15 a.m. (Monday), Wheatena Ville. 12.30, Pickens Sisters. 12.45, Smith Brothers Programme. 1.0, Chase and Sanborn Hour. 2.0, General Electric Programme. 2.30, American Album of Familiar Music.

SCHWEIZERISCHER LANDESENDER

BEROMUNSTER, 459 metres; 60 kW.; BASLE, 244.1 metres; and BERNE, 245.9 metres.—9.0 a.m. (from Basle), Catholic Address. 9.45 (from Basle), Concert of Dances and Dance Songs from Five Centuries by the Freiburg Chamber Trio for Old Music. 10.30 (from Basle), Talk on Lisa Wenger on her Seventy-fifth Birthday, with Readings from her Works. 11.0, Concert by the Radio Orchestra. 11.28, Time and Weather. 11.30, News Bulletin. 11.40, Orchestral Concert (cont'd). 12.30 p.m. (from Basle), Rural Programme: Concert by the Moser Pauli Peasant Orchestra and Talk on Fruit Growing. 1.30 to 2.0, Interval. 2.0, Running Commentary on the Football Match, Holland v. Switzerland, relayed from Amsterdam. 3.45 to 4.0, Interval. 4.0 (from Basle), Bich den Hungrigen dein Brot, Cantata (Bach), by the Bach choir, conducted by Adolf Hamn, an Orchestra and Soloists, relayed from the Cathedral. 5.10 to 5.30, Interval. 5.30 (from Basle), Talk by Lily Hanna Switzer-Kelly, There's English and English. 6.0, Time, Weather and Sports Notes. 6.15 (from Basle), Reading in Alsatian Dialect. 6.40 (from Basle), Violin Sonata Recital by Erich Wolf (Violin) and Kamala Wolf (Pianoforte), with Introductory Talk by Otto Mang. 7.40, Weather and News, followed by Overture, The Mastersingers (Wagner). 8.0 (from Basle), Act III of The Mastersingers, Opera (Wagner), relayed from the Municipal Theatre. 10.0 (approx.), Sports Notes and Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayd by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motåla, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres. 10.0 a.m., Divine Service Relay. 11.45, Weather. 1.30 p.m., Beethoven Concert. Leonora Overture No. 1, Trio for Soprano, Tenor and Bass, Symphony No. 9 in D Minor Op. 125, for Soloists, Choir and Orchestra. 3.15, Talk. 3.45, Popular Music on Gramophone Records. In an interval at

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4.0, Weather. 4.30 (from Sundsvall), Talk. 5.0 (from Göteborg), Even-song. 6.15, Weather and News. 6.30, Concert by the Station Orchestra. Soloist: Anna Tibell (Songs); Symphonic Variations (Alnæs); Two Songs (Sibelius); Two Songs (Peterson-Berger): (a) När jag för mig själv i mörka skogen går, (b) Som stjärnorna på himmelen; Concert Overture, Nachklänge aus Ossian (Gade); Symphonic Dances (Grieg). 7.45, Gårdskonsert. Radio Play (Rudolf Värnlund). 8.45, Weather and News. 9.0, Orchestral Concert of Light Music. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—9.30 a.m., Orchestral Concert, conducted by M. de Villers. 10.45, Protestant Service in French. 11.30, Catholic Service in German. 12 Noon, Massenet Concert on Gramophone Records. 12.45, News. 1.0, Time. 1.1, Gramophone Concert of Light Music. 2.0, Agricultural Talk in German. 2.15 to 2.0, Interval. 3.0, Concert by the Conservatoire Concert Society, relayed from the Conservatoire, Paris. 5.0, Concert of Sacred Music, relayed from St. Paul's Church. Address in the interval. 6.0, Medical Talk. 6.15, Sports Notes. 6.30, Concert relayed by the Municipal Band, relayed from Sétesat. 7.30, Time, News, and Sports Notes. 7.45, Dance Music on Gramophone Records. 8.25, Lottery Results. 8.30, Alsatian Evening—Variety Programme. 10.30, Dance Music from the Savoy. 11.0, Quintet Concert relayed from Radio Coloniale (25.63 metres). 12 Midnight (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and FREIBURG, 570 metres.—9.35 a.m., Protestant Service. 10.30, See Leipzig. 11.0, Concert of Dances by the Heilbronn Theatre Orchestra. 12.5 p.m., Topical Talk. 12.30, Variety Music on Gramophone Records. 1.30, Song Recital by M. A. Souhlay (Baritone). 2.0, Programme for Young People, relayed from Mannheim. 2.50, See Munich. 3.30, See Frankfurt. 4.15, Choral Concert, relayed from Karlsruhe. 4.45, Cello and Piano-forte Sonatas by Ferdinand Merten and Erwin Kibler: Sonata in G Minor, Op. 19 (Rachmaninov); Sonata in D Minor (Debussy). 5.40, Sports Notes. 6.0, Variety Music on Gramophone Records. 7.0, See Copenhagen. 8.20, Concert from Hamburg. 9.0, Time, News, Weather, Programme Announcements, and Sports Results. 9.30, See Vienna. 12 Midnight, Close Down.

SUNDSVALL.—See Stockholm.

JAN. 22nd

SUNDAY

continued

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—12.15 p.m., News Bulletin. 12.30, Catholic Service and Music. 1.0, Amusements Guide. 1.5, Orchestral Concert: Historischer Marsch (Kaiser); Selection from Martha (Plotow); Melody (Manfred); Selection from Narkaris Hochzeit (Lincke). 1.30, Operetta Music: Airs from (a) A Waltz Dream (Strauss), (b) Paganini (Lehár). 1.40, Agricultural Report. 1.45, Protestant Service and Music. 2.15, News Bulletin. 2.20, Orchestral Concert of Variety Music. 3.0, Opera Music: Selection from (a) Boris Godonov (Mussorgsky), (b) Faust (Gounod), (c) Hérodiade (Massenet). 3.15, News and Racing Results. 3.20, Opera Music: Overture, Amereon (Chenubini), Selection from (a) L'Africaine (Meyerbeer), (b) Tosca (Puccini), (c) Cavalleria rusticana (Mascagni). 3.45, Light Music. 4.0, Music by a Viennese Orchestra. 4.15, Racing Results and News. 4.20, Accordion Music. 4.30, Dance Music. 5.0, Popular Melodies. 5.15, News and Racing Results. 5.20, Operetta Music: Potpourri of Melodies from The Geisha (Jones); Selection from (a) The Gipsy Princess (Kálmán), (b) Edevez-moi (Gabaroché), (c) Le Jour et la Nuit (Lecocq). 5.45, Chansonnettes. 6.0, News. 6.15, Military Music. 6.30, Songs from Sound Films. 6.45, Concert Overture, Fingal's Cave (Mendelssohn). 7.0, Music by an Argentine Orchestra. 7.15, Racing Results, Market Prices, and News. 7.25, Local News. 7.30, Popular Melodies. 7.45, Concert by a Viennese Orchestra. 1.15, Opera Music: Airs from (a) Cavalleria Rusticana (Mascagni), (b) Werther (Massenet), (c) Carmen (Bizet). 8.30, Accordion Music. 8.45, Instrumental Solos. 9.0, Programme of Musical Novelties. 9.30, Operetta Music: Selection from (a) Victoria and her Hussar (Abraham), (b) The Merry Widow (Lehár), (c) The Land of Smiles (Lehár). 9.45, Extracts from Sound Films, followed by Instrumental Music. 10.15, North African News. 10.30, Programme in English by the I.B.C.: Light Orchestral Concert: Souvenirs classiques. Nos. I and II; Waltz Dream (Strauss); My Heart sings a Broken Melody; Quintet, Minuet from Berenice (Handel); Titania; Quintet, Ma Curry Headed Babby (Clutsam); You are my Heart's Delight (Lehár). 11.0, Concert for Listeners in Monaco. 11.30, Balalaika Music and Russian Songs. 11.45, Organ Recital. 12.0 Midnight, Weather and Announcements. 12.5

a.m. (Monday), Symphony Music: Symphony No. 39 (Mozart), and Symphonic Dances. Nos. 1 and 2 (Grieg). 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—8.10 a.m., See Turin. 8.55 to 10.0, Mass from the Cathedral of San Giusto. 10.0 to 10.20, Agricultural Talk. 11.0 a.m. till Close Down. See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW., Relayed by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—8.40 a.m., Giornale Radio. 9.40, Agricultural Report. 10.0, Mass from the Church of the Annunziata. Florence. 11.0 to 11.15, Bible Reading. 11.30, Orchestral Concert. In the interval at 12 Noon, Time and Announcements. 12.30 to 1.30 p.m., See Rome. 2.30, Gramophone Records of Variety Music. 4.0, See Rome. 5.0, Giornale Radio, Football Report, and Sports Results. 5.10 to 5.20, Second Football Report. 6.0, Announcements. 6.5 to 7.0, Gramophone Records of Variety Music. In the interval at 6.30, Time and Announcements. 7.0, Giornale Radio, Sports Notes, and Light Music on Gramophone Records. 8.0, Relay of an Opera. In the intervals, Talk on Turgenev, Theatre Notes, and Giornale Radio.

VIENNA

517 metres; 15 kW., Relayed by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218.5 metres.—10.20 a.m., Symphony Concert by the Vienna Symphony Orchestra, conducted by Anton Konrad. Soloist, Fanny Cleve (Soprano). 11.45, Orchestral Concert. 1.0 to 2.0, Interval. 2.0, Time, Programme Notes and Announcements. 2.5, Book Review. 3.30, Chamber Music. Eine kleine Nachtmusik (Mozart); String Quartet in F Minor, Op. 10 (Hindemith). 3.25, Talk with Gramophone Illustrations: Afghanistan. 3.55, Orchestral Concert. 5.40, Carl Tindöfer reads from his own Works with Introductory Talk by Rudolf List. 6.5, Time, Programme Announcements, and Sports Report. 6.20, Song Recital by Elisabeth Gödel: Phyllis (Duparc); Clotilde (Humperger); Asturiana (Falla); Seguidilla murciana (Falla); Barcelona (Mau); Japanese Reel (Mau); Gefährt Abschied (Königsd); Ich

trage meine Minne (R. Strauss); Cécilie (R. Strauss); Fekete fűd (Béla Bartók); Olvas a hó (Béla Bartók); A esitari legyek alatt (Kodaly). 7.0, The Arctic Fox, Comedy in Three Acts (Franz Hertzeg). 8.45, News. 9.0, Paul Whiteman and his Band on Gramophone Records: Tchaikovskyiana; Sweet Sue (Harris-Young); I can't give you anything but love (McHugh-Fields); Liebestraum (Liszt-Bragy); Hindu Song (Rimsky-Korsakov-Grofé). 9.30, Concert in Aid of the Winter Relief Fund, relayed from the Konzerthausaal. 12 Midnight, Close Down.

WARSAW

1,411 metres; 120 kW.—8.55 a.m., Programme Announcements. 9.0, Divine Service relayed from Lwow (381 metres). 10.58, Time Signal and Bugle Call from the Tower of St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Weather Forecast. 11.15, Symphony Concert by the Warsaw Philharmonic Orchestra, conducted by J. Oziminski; Soloist, I. Southon (Soprano); Suite No. 1 in D Minor (Tchaikovsky); Symphonic Poem, Le Chasseur maudit (César Franck); Songs; Symphony, from The New World, Op. 95 (Dvorak). In the interval, Talk: Medical Treatment under the Sickness Insurance Scheme. 1.0 p.m., Agricultural Hints. 1.20, Song Recital by Mme Orłowska. 1.40, Agricultural Talk. 2.0, Concert by the Blaschke Octet; Suite from Faust (Gounod); Mazurka (Dvorak); Selection from The Duchess of Chicago (Kálmán); Roses from the South (Joh. Strauss). 3.0, Programme for Children. 3.25, Light Music on Gramophone Records. 3.45, Reading. 4.0, Baritone and Piano-forte Recital by J. Gacynski and A. Kagan; Songs, (a) Arioso from Chatterton (Leonecavallo), (b) Aria from La Favorita (Donizetti), (c) Aria from Don Carlos (Verdi); Piano-forte Solos, (a) Piece in F Minor (Medtner), (b) Toccata (Ravel); Songs: (a) O Star of Eve, from Tannhäuser (Wagner), (b) Aria from Zaza (Leonecavallo); Piano-forte Solo: Fantasia in C (Schumann). News in the interval. 4.55, Programme Announcements. 5.0, Light Music from the Café Ziemianska. News in the interval. 6.0, Miscellaneous Items. 6.25, A Sketch. 7.0, Popular Italian Songs by a Village Choir. Sports Notes in the interval. 7.20, Popular Concert by the Station Orchestra, conducted by J. Oziminski; Soloist, Eva Bandrowska-Turka (Soprano). In an interval at 8.5, Sports Notes. 9.0, Dance Music. 9.55, Weather Forecast and Police Report. 10.0, Dance Music from the Oaza Dance Hall. 11.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender.

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MONDAY

JANUARY THE TWENTY-THIRD

PRINCIPAL EVENTS OF THE DAY:

AT HOME

- NATIONAL** "Makers of the Modern Spirit—St. Thomas Aquinas," by Reverend Father M. C. D'Arcy. Vaudeville programme. Orchestral concert.
- LONDON REGIONAL** A septet of harps in a selection of popular music. "The School for Scandal," by Sheridan, adapted for broadcasting by Dulcinea Glasby. Choral programme.
- MIDLAND REGIONAL** Organ music. Orchestral concert. Dance music.
- NORTH REGIONAL** Orchestral concert. "Six Centuries of Village Life," by Mr. F. W. Brooks.
- WEST REGIONAL** Orchestral concert, from the National Museum of Wales. Welsh interlude.
- SCOTTISH REGIONAL** Orchestral concert. Instrumental concert.
- BELFAST** Light music. Italian orchestral programme.

ABROAD

- BRUSSELS (No. 2)** The Symphony Orchestra, conducted by M. Meulemans.
- COPENHAGEN** Music for strings by the Station Orchestra.
- HAMBURG** The Philharmonic Orchestra, conducted by Dr. Karl Muck, with Igor Stravinsky, solo pianist.
- HILVERSUM** Opera: "Der Freischütz," by Weber.
- LEIPZIG** "Symphonia Domestica" (R. Strauss), by the Symphony Orchestra, conducted by C. Schuricht.

BRATISLAVA

279 metres; 14 kW.—3.10 p.m., Concert by the Station Orchestra, conducted by F. Dyk. 4.10, Variety Music on Gramophone Records. 4.20, Talk: The Romanian National Festival. 4.30, Romanian Song Recital by Vera Hora in Honour of the Romanian National Festival. 5.0, Concert by the Station Wind Instrument Quintet (Gieseking); Small Dance Suite, Op. 10 (Sudky); Waltzes, Op. 54, Nos. 1 and 6 (Dvorak). 6.0, See Prague. 6.5, Literary Talk. 6.25, See Prague. 6.40, See Brno. 7.35, See Prague. 8.0, See Brno. 9.0, See Prague. 9.15 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres, 60 kW.; and GLEIWITZ, 253 metres.—12.10 p.m., Gramophone Concert, relayed from Hanover: Overture, Rienzi (Wagner); Intermezzo Sinfonico (Mascagni); Lyric Vision (Mascagni); Chant sans paroles (Tchaikovsky-Loehmann); Ballad, Archibald Douglas (Loewe); Waltz, Roses from the South (Joh. Strass). 12.45, Time, Weather, News and Exchange. 1.5, Gramophone Concert: Selection from Gasparone (Müllcker); Waltz from A Waltz Dream (O. Strauss); Selection from The Mikado (Sullivan); Song, Es war einmal, from Im Reiche des Indra (Lincke); Selection from Der liebe Augustin (Fall); Drinking Song from Der lachende Ehemann (Eysler); Two Marches (Blon): (a) Mit Eichenlaub und Schwertern, (b) Unter dem Siegesbanner. 1.45, Sponsored Programme with Gramophone Records. 2.10, Agricultural Prices and Exchange. 2.40, Review of Books on Animals. 3.0, Book Review. 3.20, Concert by the Station Orchestra, conducted by Franz Marszalek. Soloist: Bruno Janz (Violin). First Movement from the Sonata in A (Franek); Two Symphonic Poems (Dvorak); Violin Solo: Romance from the Concerto in D Minor (Wieniawsky); Melody (Moszkovsky); Air from La Vita nuova (Wolf-Ferrari); Invitation to the Dance (Weber); Overture, Die Felsenmühle (Reissiger); Elve's Dance from Wayland (Henriques); Selection from The Lazy John (Nedbal). 4.30, Agricultural Prices, followed by a Technical Review. 4.55, Educational Talk. 5.15, English Lesson. 5.40, Programme to be Announced. 6.0, Natural History Talk. 6.30, Second Weather for Farmers. 6.35, Concert by the Station Orchestra: March, Augustusburger (Schicke); Serenade, To Columbine (Juel-Frederiksen); Rusticella (Cortopassi); Selection from The Geisha (Jones); Spanish Dances (Moszkovsky); Coronation March from Die Folkinger (Kreschner). 7.10, Du bist Orplid, mein Land—Eduard Mörke and his Work. Programme arranged by Erich Köhler, with Kurt Hattwig at the Pianoforte. 8.0, Announcements. 8.10, Concert by the German Workers' Mandoline Society, relayed from the Saal des Schiesswerder: Festival Hymn No. 2 (Schau); Dr Wald (Wölki); Selection from

The Bird Fancier (Zeller); Waltz, Wine Woman and Song (Joh. Strauss); Two Pieces (Oertel): (a) Erinnerung an Sibirien, (b) Wann wir schreiten. 9.10, Time, News, Sports Notes, Colonial Market Prices and Programme Announcements. 9.30, Answers to Technical Correspondence. 9.45 (approx.), Close Down.

BRNO

342 metres; 15 kW.—3.10 p.m., See Bratislava. 4.10, Talk for Young People: The History of Winter Sports in Czechoslovakia. 4.20, Review of New English Literature. 4.40, Programme for Women. 5.0, Gymnastic Review. 5.15, See Prague. 5.25, German Transmission—News, French Lesson and Talk on Chemistry. 6.0, See Prague. 6.5, Elementary English Lesson. 6.25, See Prague. 6.40, Cabaret Programme. 7.35, See Prague. 8.0, Orchestral Concert, conducted by Janota. Soloist: Josef Beran (Violin); Symphony in D, Op. 3, No. 2 (J. V. Stamie); Concerto for Violin (Anton Stamie); Symphony, No. 8, in E Flat (Karel Stamie). 9.0, See Prague. 9.15 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—12 Noon, Concert by the Small Station Orchestra, conducted by P. Leemans: Marche militaire française (Saint-Saëns); Suite, Mascaraide (Lacôme); Barcarolle, Venitienne (De Tasse); Selection from Rip van Winkle (Planchette); Russian Dance for Violin (Fairchild); Concert Mazurka for Flute (Dopppler); Foxtrot, Adios, my Señorita (Zanicchi); Tango, Jealousy (Gade); Selection from White Horse Inn (Benatzky-Stolz). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Concert: Selection from Lakmé (Delibes); Waltz (Joyce); Iberian Dance (Nin); Cara Vecina (Lama); A la Poste (Bach-Lavigne); Selection from Marietta (O. Strauss). 2.0, Educational Programme. 3.0, Concert by the Symphony Orchestra, conducted by A. Meulenmans: March from Tannhäuser (Wagner); Overture, Phèdre (Massenet); Four Pieces (Kreisler); Dances (Montagne Phillips); Interlude in Old Style (Glazunov); Waltz, Du und du (Joh. Strass); Little Russian Cossack Dance (Tchaikovsky); March and Cortège from The Queen of Sheba (Gounod). 5.0, Talk: The Protection of Workers in Mines. 6.15, Song Recital by Mlle. Julie Namur; Song from Pelléas et Mélisande (Debussy); La Vague et la Cloche (Duparc); Nuit d'autrefois (Rhené-Baton); Triste est le steppe (Gretchaninov); Scottish Song (Schumann). 6.30, Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Der Scheuspieldirektor (Mozart); Suite (Berardi); Russian Folk Songs and Dances (Bronci). 6.45, L'Affaire Mireuiloux—Radio Sketch (Léon Donnay). 7.0, Concert (cont'd.); Sicilienne (Halphen); Beghine in Chiesa (Signorini); The Wee Macgregor Fâtról (Amers). 7.15, Talk: Through Bel-

gium—Le Architectural Marvels of Brabant. 7.30, Theatre and Cinema Review. 8.0, Concert by the Radio Orchestra, conducted by Charles Walpot. Soloists: Mme. Cambien (Songs), Marche russe (Ganne); Waltz, Mon Réve (Waldteufel); Overture, The Gipsy Baron (Joh. Strauss); Songs; Scènes alsaciennes (Massenet); Overture, Si j'étais Roi (Adam); Rondo capriccioso for Violin and Orchestra (Saint-Saëns); Selection from The Desert Song (Gombargo); Songs; Potpourri, Les Airs de Gabaroché (arr. Salabert); Slow Foxtrot, Dors mon tout petit (Langlois). 10.0, Le Journal Parlé. 10.10, Hot Jazz—with Commentary. 10.40, Light Music on Gramophone Records. In the intervals from 9.0 to 11.0 p.m., Running Commentary on the Six Days' Racing from the Sports Palace.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish. 12 Noon, Gramophone Concert: Extracts from: (a) Fedora, and (b) Siberia (Giordana). 1.0 p.m., Le Journal Parlé. 1.10, Concert of Light Music by the Small Station Orchestra, conducted by Paul Leemans. 2.0, Educational Programme. 3.0, Concert by the Station Orchestra, conducted by M. Walpot: March, Wien bleibt Wien (Schrammel); Invitation to the Waltz (Weber); Selection from Tosca (Puccini); Dance Suite (Zimbalist); Intermezzo (Rush); Suite carnavalesque (Thomé). 5.45, Programme for Children. 6.30, Gramophone Concert: Taras-Bomba chez les Cosaques (A. Georges); Allegro appassionato (Saint-Saëns); Two Humorous Scenes (Leonard); The Bride (Tchaikovsky); Legend (Coppola); Prelude to Le Déluge (Saint-Saëns); Si je le savais (Tchaikovsky); Spanish Dance from La Vida Breve (Fallá); Air from Mlada (Rinsky Korsakov); Gopak (Mussorgsky). 7.15, Notes for Pigeon Fanciers. 7.30, Le Journal Parlé. 8.0, Concert by the Symphony Orchestra, conducted by M. Meulenmans. Soloists: W. Weyler (Violin) and Mme. Noiret-Geefs (Soprano). Overture, Der Freischütz (Weber); Concerto for Violin and Orchestra (Beethoven). 8.45, Talk: The Port of Antwerp. 9.0, Concert (cont'd.): Rhapsody (Candae); Soprano Solos: (a) Air from Fidelio (Beethoven), (b) Frühlingsglaube (Schubert), (c) Du bist die Ruh (Schubert); Concert Piece for Trumpet and Orchestra (d'Hayer); Violin Solos: (a) Andantino (Martini-Kreisler), (b) The Fountain of Arethusa (Szymanovsky); Rondo (Mozart-Kreisler); Canadian Rhapsody (Gilson); Old Flemish Songs (De Greef). 10.0, Le Journal Parlé. 10.10, Light Music on Gramophone Records. In the intervals from 9.0 to 11.0, Commentary on the Six Days' Racing. 11.0 (approx.), Close Down.

BUDAPEST

550 metres; 18.5 kW. Also relayed on 840 metres from 6.45 to 11.0 p.m.—4.0 p.m., Concert by the Janesi Rigo Cigány Band. 5.0, Talk. 5.30, Gramophone Concert: Song (Kola); Warum schmerzt das Herz from Die Rotschilds (Jajtai); Selection from Manolita (Fenyves); My Golden Baby, from The Flower of Hawaii (Abraham); Selection from Maya (Fenyves); Song from Sybill (Jacobi); Three Songs (Abraham). 6.15, German Lesson. 6.45, Pianoforte Recital by Nándor Ember. 7.30, Programme by Frana Kiss. 8.0, Concert by the Opera House Orchestra, conducted by Ernst Dolmányi. Soloist, Ludwig Laurisin (Ernst); Overture, La Dame Blanche (Boieldieu); Songs: (a) Aria from Manon (Massenet), (b) Aria from Gianni Schicchi (Puccini); Scherzo (Goldmark); Song (Rekai); Song (Laurisin); The Fourth Symphony (Beethoven). In the interval at 8.45, News. 9.30, Concert by the Karl Bura Cigány Band from the Hotel Metropole. 11.0 (approx.), Close Down.

CASSEL.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW.; and KALUNDBORG, 1,153 metres; 7.5 kW.—11.0 a.m., Time Signal and Chimes from the Town Hall. 11.2, Concert by the Max Skalka String Ensemble, relayed from the Hotel d'Angleterre. 1.0 to 2.20, Interval. 2.20, Talk for Housewives. 2.30, Concert by the Louis Preis Instrumental Ensemble. Soloist: Esther Scheel (Songs). Entry March of the Janissaries (Giel); Valse douce (Nikisch); Russian Fantasia, Hallo Moscow! (Grotthe and Kirshstein); A Little Song (d'Amrosio); Czardas (Niklass-Kempner); Three Pieces from Orkenlegender (Prelin); Foxtrot, Sing a New Song (Wever and Ager); Reading; Fontaine (Nussbaum); Boston from Schön ist die Welt (Lehar); Eterpetete (Dufort); Viennese Song. In einem kleinen Cafe in Hernalz (Leopoldi); Spanish Serenade, Salamanca (Grit); Good-bye Blues (Hugh, Fields and Johnson); Selection from Déjà (Christine); Foxtrot, Marimba-Jack (Kjaer). 4.40, Exchange and Fish Market Prices. 4.50, Talk: Political Reminiscences of Odense. 5.20, English Lesson. 5.50, Weather. 6.0, News. 6.15, Time Signal. 6.30, Talk: Insects and Man. Kind. 7.0, Time Signal from the Town Hall. 7.1, Military March by the Station Orchestra, conducted by Launy Gründahl. 7.30, A Visit with the Microphone to the Municipal Continuation School. 8.0, Music for Strings by the Station Orchestra: Suite from The Gordian Knot untied (Purcell); Three Pieces (Grétry): (a) Caravan March, (b) Air de danse, (c) Tambourin from Denys le tyran, Contredanse (Mozart).

ALGIERS

363.3 metres; 13 kW.—7.0 p.m., Financial Notes and Exchange. 7.10, Shipping Report. 7.15, Weather Report. 7.20, Operetta Songs. 7.35, Wireless Notes. 7.40, A Bach-Lavigne Programme. 7.55, News. 8.0, Time Signal. 8.2, Orchestral Music. 8.30, Book Review. 8.45, News. 8.50, Orchestral Concert. 9.30, News. 9.35, Music Hall Programme. 9.50, News. 10.0 (approx.), Close Down.

BARCELONA

RADIO-BARCELONA; Call EAJ1; 348.8 metres; 8 kW.—7.30 p.m., Exchange Quotations and Talk in Catalan. 8.0, Popular Music on Gramophone Records, and News Bulletin. 9.0, Chimes from the Cathedral. Weather Forecast, Exchange Quotations, and Market Prices. 9.5, Humorous Review of the Week's Events, in Verse. 9.15, Recital of Sardinias by the Cobla Albert Martí. 10.0, Programme by Pili Canete, Argentine Artist. 10.30, Concert of Russian Music by the Station Orchestra: Selection from The Snow Maiden (Rinsky-Korsakov); Romance, Je me souviens du soir (Cui); Persian Dances (Mussorgsky); Hymn to the Sun (Rinsky-Korsakov); Près du heron (Moszkovsky); Canzonetta, Op. 35 (Tchaikovsky); Polonaise (Tchaikovsky). 10.50, Dance Music, relayed from the Hollywood Bar. 11.0 (in an interval), News Bulletin. 12 Midnight (approx.), Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Report, Tourist Talk, and Announcements. 7.20, Giornale Radio and Press Review. 7.30, Time and Announcements. 7.35 (approx.), Concert of Operetta Music and Songs: Soloists: Michele Montanari (Tenor) and Clara Denitri (Soprano); Selection from Liselott (Kunneke); Melody (Jurmann); Tenor Solos: (a) L'Ultimo menestrello (Rusconi), (b) Sarà... ma non cri credo (Franco); Selection from Polenbut (Nedbal); Soprano Solos: (a) Good Night, Billy (Caslar), (b) Berrettino (Mascaroni); Tell me I'm forgiven from Wonder Bar (Katscher); Bombolo (Mascaroni); Lady (Abel); Tenor Song, Tormento (Rusconi); Soprano Song, Rotale (Bixio); Visione (Pennati-Malvezzi); Selection from Il re della reclame (Bettinelli); Soprano Song, Per me per te (Rizza); Tenor Song, Ti voglio bene (Mariotti); Signora felicità (Moletti); Sorrento (De Sena); Talk in the interval. 9.30, Variety Music on Gramophone Records. 9.55, News Bulletin.

BASLE.—See Schweizerischer Landessender.

BELGRADE

BEOGRAD, 430.4 metres; 2.8 kW.—4.0 p.m., Dialogue in German. 5.55, Time and Programme Announcements. 6.0, Concert of Light Music by the Station Orchestra. 7.0, Concert of Yugoslav Music, relayed from Zagreb (307 metres). 9.0, News, followed by Cigány Music from the Potrosucka Zadruga Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.55 a.m., Nauen Time Signal. 12.35 p.m., News Bulletin. 1.0, Gramophone Concert relayed from Berlin (Witzleben). 2.0, Talk for Women: The Arrangement of the Toilet Table. 2.30, Weather and Exchange. 2.45, Review of Books. 3.0, Talk: The State of Education at the Present Time. 3.30, Concert from Berlin (Witzleben). 4.10, Talk: The Student in the Struggle for German Nationalism. 4.30, Recital of old German Duets. 5.0, A Discussion on German Civil Service during the Crisis. 5.25, Making Music with Invisible Partners. 5.55, Weather and Announcements. 6.0, English Lesson. 6.30, A Poem. 6.35, Concert from Breslau. 7.0, See Stuttgart. 8.40, The Fight between David and Goliath—Biblical Sonata for Pianoforte (Johann Kubhan, arr. Franz Konrad Hoefert). 9.10 (approx.), Talk: The Artist and his Time. 9.20 (approx.), Weather, News, and Sports Notes. 9.45, Weather for Shipping, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—6.0 p.m., Topical Talk. 6.10, Mandoline Concert on the Tenth Anniversary of the Greater Berlin Branch of the German Workers' Mandoline Society: March, Per aspera ad astra (Irbach); Paraphrase, Die Loreley (Silcher); Waltz, The Blue Danube (Joh. Strauss); Andante from the Symphony in G (Haydn); Wolgaklänge (Ritter); March, Vita mandolinistica (Kok). 7.0, The Mad Conductor—Opera in Three Acts (Benno Bardi), relayed from the Municipal Theatre, Stettin. In the interval at 8.40 (approx.), News and Sports Notes. 9.30, Weather, News, and Sports Notes. 9.40 (approx.), Dance Music relayed from the Police Charity Ball in the Marmor-Saal of the Zoo. 11.0 (also relayed on Zeen, on 31.38 metres), Variety Programme.

BERNE.—See Schweizerischer Landessender. **BEROMUNSTER.**—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

JAN. 23rd

MONDAY

continued

8.30, Gramophone Concert: Inga Waller: När svalorna komma och bygga sitt bo (N. Georg); Anny Ondra: Mir ist heut' Nacht so sonderbar (Roland); Renate Müller and Hermann Thimig: Ich möcht' heiraten (Krauss); Gitla Alpar: Es klingt aus dem Herzen süß und schwer (Strinsky); Bert Ambrose: The Oi Song (Carlton); Comedian Harmonists: Mein lieber Schatz, bis du aus Spanien? 8.50, Reading. 9.15, News. 9.30, Symphony No. 2 in C, Op. 25 (P. Gram). 10.0 (approx.), Close Down. CORK.—See Dublin.

CRACOW

312.8 metres; 1.5 kW.—5.50 p.m., Miscellaneous Items and News. 6.15, Educational Talk. 6.30 to 11.0, See Warsaw. In the interval at 7.55, Sports Notes. 11.0 (approx.), Close Down.

DANZIG.—See Heilsberg. DRESDEN.—See Leipzig.

DUBLIN

Call 2RN; 413 metres; 1.2 kW.; and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. 6.0, Gramophone Concert of Popular Music. 6.15, Programme for Children. 7.0, Variety Music on Gramophone Records. 7.20, News Bulletin. 7.30, Time Signal. 7.31, Gaelic Talk. 7.45, Talk for Farmers. 8.0, Concert by the Station Sextet. 8.30, Pianoforte Recital by Lillian Conolly. 8.50, Baritone Solos by Robert Irwin. 9.10, The Station Sextet. 9.20, Violin Recital by Henry Franklin. 9.45, Mezzo Soprano Solos by Mary Crowley. 10.5, Pipe and Fiddle Music. 10.30, Time Signal, News, Weather Report and Close Down.

FECAMP

223 metres; 10 kW.—12 Noon, Light Music on Gramophone Records. 12.30 p.m., News Bulletin. 12.45, Popular Concert. 7.0, Local News. 7.15, Variety Music on Gramophone Records. 7.30, Radio Gazette. 8.0, Light Music on Gramophone Records. 8.15, News Bulletin. 8.30, Popular Music on Gramophone Records. 9.0, Dance Music. 10.0 till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: 'Them there Eyes; Always in All Ways; My Sweet Virginia; Dreaming of my Indiana Sweetheart; When I take my Sugar to Tea; 1 Apologise; Just you, Just Me; Moonlight on the Colorado; Must it end like this; Memories of You; River stay 'way from my door; That's Somerset; Why shouldn't I? The Parade of the Minutes; When you were the Blossom of Buttercup Lane; Koppa Kabanua. 11.0, Recital of Longstaffe's Songs: The Driver of the 8.15; The Leader of the Town Brass Band; When the Sergeant Major's on Parade; Take off your Coat; P.C. Brown; Archie of the R.A.F.; The Captain of the Team. 11.30, Extracts from The Maid of the Mountains (Fraser Simpson); Chorus: Introduction; Solo: A Bachelor's Duet; A Paradise for Two. 11.45, Music by the Hawaiian Trio. Sing Something Simple (Huppfield); Three Little Words (Cheek); Goodnight Sweetheart (Noble). 12 Midnight, Philco Concert: Try a Little Tenderness; Now's the time to fall in Love; Now that you're gone; Let's all sing like the Birdies Sing; When the Morning rolls around; Only me knows why; Blues in my Heart; Wanderer. 12.30 a.m. (Tuesday), A Cossack Band in Traditional Airs; In a Pine Forest; Lovely Night; The Cossack Prisoners; Gipsy Songs; Moonlight; The Twelve Robbers. 1.0, Orchestral Concert with Songs and Pianoforte Solos: Stephanie Gayotte (Czibulka) Songs: (a) Cuban Love Song (Strathairn), (b) Honest, really truly (Turk); Pianoforte Solo: I found You (Noble); Songs: (a) I am the Words (de Sylva), (b) Little White Lies (Donaldson), (c) Trees (Bilmer), (d) Sleepy-time down South (Muser); The Wedding of the Winds (Hall); Songs: (a) Should I? (Nacio); (b) What Wouldn't I Do? (Conroy); Pianoforte Solo: Let Love take care of You (van Phillips); Songs: (a) Take off your Coat (Longstaffs), (b) When the Sergeant Major's on Parade (Longstaffs). 2.0, Dance Music. 2.57, I.B.C. Goodnight Melody. 3.0 (approx.), Close Down.

FLensburg.—See Hamburg. FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW.; and CASSEL, 245.9 metres.—4.0 p.m., See Munich. 5.15, Economic Notes. 5.25, Talk: With Chamisso in the South Seas. 5.50, English Lesson. 6.15, Time, Programme Announcements, Weather and Economic Notes. 6.30, Hans Fallada discusses his Book, Kleiner Mann was nun? 6.45, Reading. 7.5, Seventh Monday Concert of the Frankfurt Orchestra Society, by the Station Symphony Orchestra, conducted by Hans Rosbald. Soloists: Maria Basca (Contralto) and Béla Bartók (Pianoforte). Chaconne in G Minor (Puccini); Aria (Handel); An die Hoffnung (Reger); Pianoforte Concerto (Bartók); Sinfonia Domestica, Op. 53 (R. Strauss). 8.45, German Castles—Burg Lahneck—Radio Sequence (H. Eulenberger). 9.20, Time, News, Weather and Sports Notes. 9.45, See Munich. 11.0 (approx.), Close Down.

FREDRIKSSTAD.—See Oslo.

Freiburg.—See Stuttgart.

Geneva.—See Radio-Suisse Romande.

Genoa.—See Turin.

Gleiwitz.—See Breslau.

Göteborg.—See Stockholm.

Graz.—See Vienna.

Hamar.—See Oslo.

HAMBURG

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 218 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—6.5 p.m., Review of New Books. 6.30, Weather Report. 6.35 (from Hanover), Organ Recital of Music by Brunschwic Composers, relayed from the Cathedral, Brunswick: Beho Prelude in E Flat (Leyding); Lass mich dein sein (Strungk); Die Braunschweiger Fuge (Friedemann Bach). 7.0, Concert, relayed from the Musikhalle, The Philharmonic Orchestra, conducted by Dr. Karl Muck. Soloist: Igor Stravinsky (Pianoforte), Suite from The Fire Bird (Stravinsky); Caprice for Pianoforte and Orchestra (Stravinsky); Fifth Symphony, Op. 64 (Tchaikovsky). In the interval, News. 9.0, Time, News and Announcements. 9.10, Topical Talk. 9.15 (approx.), Concert and Dance Music relayed from the Café Atlantik, Bremen. In the interval at 9.50, Ice Report.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW., and DANZIG, 453.2 metres.—12.5 to 1.30 p.m., Gramophone Concert of Variety Music. In the interval at 12.20, Announcements. 2.0, Market Prices and Exchange. 3.0, Reading: Revolt among Manual Workers. 3.35, Concert from Breslau. 4.30, Do you speak German? 4.45, Review of Books. 5.15, Market Prices. 5.25 (from Danzig), The Danzig Programme—Talk: Danzig Warehouses and their Names. 5.50, Talk: Memorable Days of the Week. 6.0, Song Recital by Elsa Koch: Aria from Robert le Diable (Meyerbeer); Song from I Pagliacci (Leoncavallo); Aria from the First Act of A Life for the Czar (Glinka); Cradle Song from Sacko (Rimsky-Korsakov); Ruhe Süßliebchen (Brahms); Night (Rubinstein); Und gestern hat er mir Rosen gebracht (Josef Marx); Stelldichein (Max Reger). 6.30, Elementary English Lesson. 6.55, Weather and News. 7.5, All about Love—Three One-Act Plays, an Operetta and Variety Items (Erik Schvabitz); Music by Allan Gray. 8.5, Talk: Stendhal's Life and Philosophy of Life (on the 150th Anniversary of the Author's Birth). 8.25, String Octet in E Flat, Op. 20 (Teitelsohn). 9.15 (approx.), Weather, News and Sports Notes.

HILVERSUM

Announced HUIZEN, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.)—Programme of the Christian Radio Society (N.C.R.V.). 11.10 a.m., Gramophone Records: Pianoforte Solo: Jeux d'eau (Ravel); Concerto for Pianoforte and Orchestra (Ravel); Pavane pour une Infante défunte (Ravel). 11.40, Police Notes. 11.55, Clock Music on Gramophone Records. 12.10 p.m., Organ Recital from a Church in Amsterdam. 1.40, Talk for Schools. 2.15, Gardening Talk. 2.55, Dress-making Lesson. 3.25, Programme to be announced. 3.40, Bible Reading and Sacred Songs. 4.40, Instrumental Concert. 5.10, Question Time. 7.40, Police Notes. 7.25, News Bulletin. 7.40, Choral Concert. 8.40, Talk: Medical Supervision of the Worker. 9.10, Concert by the Litt'e Radio Orchestra, conducted by Piet van den Hurk: Overture, Post and Peasant (Suppé); Blumenlied (Lange); Waltz, Wiener Blut (Joh. Strauss); Stolzenfels am Rhein (Meissler); Grossmütterchen (Langer); Was Blumen träumen (Translatour); Cavatina for Violin and Organ (Raff); Das treue Deutsche Herz (Weninger); Comedy Overture (Keler-Bela). 9.40, News Bulletin. 10.40, Gramophone Records of Variety Music. 11.10 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 1,875 metres; 8.5 kW. 11.40 a.m. till Close Down, Programme of the Workers Radio Society (V.A.R.A.). 11.40, Concert by the Little V.A.R.A. Orchestra, conducted by P. Duchant. 1.40 to 2.10, Interval. 2.10, Popular Music on Gramophone Records. 2.40, Recitations. 3.10, Concert by De Fibereiditers, conducted by Hugo de Groot. 4.20, Programme for Children. 4.50, Concert by De Notenkrakers, conducted by D. Wims: Andalous (Popy); Spanish Charm (Mezzapop); Melancholy (de Micheli); Hungarian Dances (Brahms); Valse bluette (Drigo); Musical Whimsies (Kotzebey); Sempere (Gianco); Hispania (Dreyer). 5.30, Aeolian Solos by C. Steyn: Stenka Razin (Kubat); Zigeuner du hast mein Herz gestohlen (Grotche); All of me (Simons). 5.40, Concert by the V.A.R.A. Orchestra, conducted by Hugo de

Groot: Overture, Zampa (Hérold); Selection from Surcouf (Platquette); Serenade (Métaxa); Four Orchestral Pieces (d'Ambrósio); Old Kentucky Home; Old Folks at Home; Concert, Waltz (Mozzkovsky). 6.40, Talk on Music. 7.25, S.O.S. Messages. 7.40, Organ Recital by Johan Jong: Ballade der Säckenschneisser (Eisler); Selection from Victoria and her Hussar (Abraham). 7.55, Der Froschschütz (The Marksman)—Opera (Weber), relayed from the Casino, den Heller. In the interval at 9.20, News and Popular Music on Gramophone Records. 10.30, Light Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.5 p.m., Announcements, Theatre Notes and Light Music on Gramophone Records. 6.30, See Warsaw. 9.0 (approx.), The Letter Box. 9.20, See Warsaw.

Kiel.—See Hamburg.

Klagenfurt.—See Vienna.

Kosice.—See Prague.

LAHTI

1,796 metres; 40 kW.; and HELSINKI, 368.1 metres.—4.20 p.m., German Lesson. 5.15, Agricultural Bulletin. 5.25, Violin Recital by Hilding Hastesko; Cavatina (Raff); Schön Rosmarin (Kreisler); Meditation (Massenet); Sicilienne and Rigaudon (Francoeur-Kreisler). 5.50, Talk. 6.15, Song Recital by Heige Virkkunen. 6.30, Concert by the Station Orchestra, conducted by Erkki Linko, with a Commentary by Toivo Haapanen: Suite, Karelia (Sibelius); Andante from Symphony No. 1 (Beethoven); Moment musical (Schubert); Violin Solo: Canzonetta (Tchaikovsky); Overture, Der Freischütz (Weber); Rakoczy March (Berlioz). 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert conducted by Wolf: March, Am Wache (Rosey); Overture, Der Bettelstudent (Müllbächer); Two Ains from Bunte Blätter (Reger); Scandinavian Suite (Frederiksen); Fantasia, Gondoliana (Rhode); Waltz, Wiener Blut (Joh. Strauss); Slav Rhapsody No. 2 (Friedmann); Potpourri of Folk Songs, Deutscher Sang (Hannemann). 1.0 p.m. (in an interval), News. 1.30, Meat Market Prices. 2.30, Exchange and Time Signal. 2.50, Programme for Children. 3.20, Programme for Young People. 4.0, Concert conducted by Eysoldt: Overture, In the Well (Blöck); First Suite (Pierné); Lyric Intermezzo (Bece); Serenade, Invano (Amadei); Song without Words (Tchaikovsky); Ständchen (R. Strauss); Ballet Suite from Sylvia (Delibes); Valse poudrée (Popy). 5.10, Reading (Walter Gizewski). 5.30, Talk for Women. 5.50, Weather, Time, Exchange and Sports Notes. 6.5, Talk: The 150th Anniversary of the Birth of Stendhal. 6.30, Talk: Should we be afraid of Mechanical Progress? 6.55, First General News. 7.0, Concert of Overtures: Masaniello (Anber); Das Nachtlager in Granada (Kruetzer); Suzanne's Secret, Der Opernball (Houberger). 7.30, Concert by the Station Chamber Orchestra, conducted by Spitz. Soloists, Kläre Hansen (Soprano), Marita Gründgens (Soprano), Leonardo Aramesco (Tenor), Hans Woeke (Baritone), and Wilhelm Strienz (Bass). 8.30, Concert of Dances and Marches by the Station Orchestra, conducted by Kühn: March, Vater Rhein (Linke); Waltz, Karnevalshochschaffer (Strauss); Polka, Bitte schön (Strauss); Mazurka (Gatme); Waltz, Pierrot and Pierrette (Lehar); King Cotton March (Sousa); Bumba, Schön sind lachende Frauen (Lehar); Gallop, Tritsch-Tratsch (Strauss); Victoria March (Blon); March, Abmarsch in die Quartiere (Blankenburg). 9.5, News and Sports Notes. 9.30, Chamber Music. 10.0, Gramophone Dance Music. 11.0 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

369.6 metres; 120 kW.; and DRESDEN, 319 metres.—12.15 p.m., Chopin Concert on Gramophone Records: Ballad Fragment in G Minor; Fantasia-Improromptu; Mazurka in D Minor; Polonaise in A; Scherzo in C Sharp Minor; Larghetto in A; the Pianoforte Concerto in E Minor; Papillons; Etude in G Flat; Waltz in E Minor; Mazurka in B Minor; Bolero in C. After the Concert, Exchange Quotations. 1.0, Art and Film Review. 1.30, Advice for the Unemployed. 1.45, Jakob Danziger reads from his Book Der Reisende. 2.10, Dialogue for Women: The Heating of Living Rooms. 2.35, Exchange and Market Prices. 3.0, Concert by the Leipzig Wind Instrument Society and Soloists. 4.30, Weather and Time. 4.50, Exchange Quotations. 5.0, Educational Talk: Religious Instruction in Secondary Schools. 5.30, Talk: A Thousand Years of German

Literature—The Period of the Mastersingers. 5.50, Talk: The 150th Anniversary of the Birth of Stendhal. 6.0, Dialogue: Training Tram Drivers and Conductors. 6.30, Gramophone Concert: Aria from Rigoletto (Verdi); Puniculi-Punicula (Dezza); They call me Mimi, from La Bohème (Puccini); Aria from The Voice of Destiny (Verdi); Der Wanderer an den Mond (Schubert); Der Haidgast (Schumann); Rheinlegendchen (Gustav Mahler). 7.0, An Hour of Humour. 8.0, Introductory Talk to the following Transmission. 8.15, Symphonia domestica, Op. 53 (Richard Strauss), by the Leipzig Symphony Orchestra, conducted by Carl Schuricht. 9.5, News Bulletin. 9.15 (approx.), Concert by the Dresden Soloist Ensemble: Finnish Lyric Pieces (Palmgren); Dance Suite for Violin, Cello, and Pianoforte (O. Strans); Berceuse (Bizet); Waltz, Frühlingszauber (Translatour); Spanish Dance for Violin and Pianoforte (Falla-Kreisler); Suite from La Source (Delibes); Zug der Zwerge (Grieg); Polka from Hullo, die grosse Revue (Linke); Melodies from Der Lebemann (Grünfeld); Waltz, Morgenblätter (Joh. Strauss); Gallop, En carrière (Komzak). 11.0 (approx.), Close Down.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—4.30 p.m., Quinte Concert. 5.30, Esperanto Lesson. 6.0, Serbo-Croatian Lesson. 6.30, Talk on Hygiene. 7.0, Chamber Music. 8.0, Quinte Concert. 9.0, Time, Weather and Light Music on Gramophone Records.

LOWO

381 metres; 16 kW.—6.20 p.m., Popular Music on Gramophone Records. 6.30, See Warsaw. 9.0, Literary Talk. 9.15, Dance Music from the Bagatela Variety Theatre. 9.55, See Warsaw. 10.30 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—6.15 p.m. Radio Journal, relayed from Paris (Ecol Supérieure (447.1 metres). 7.20, Parsifal—Opera (Wagner), relayed from the National Theatre. After the Opera: News Bulletin.

MADRID

ARANJUEZ (EAQ), 30.43 metres; 20 kW.—11.30 p.m., Variety Music. 11.45, Itald Chrome. 12 Midnight, Popular Music. 12.35 a.m. (Tuesday), Sports and Bullfighting Notes. 12.40, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres: kW.—7.0 p.m., Chimes, Exchange and Request Gramophone Concert. 8.0, Sports Talk. 8.15, News Bulletin. 8.30 (approx.), Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—3.10 p.m., See Bratislava. 4.10, See Prague. 4.50, Popular Music on Gramophone Records. 5.0, Talk: The Most Important Ocean Currents and their Significance. 5.15, See Prague. 5.30, German Transmission: Two Talks: (a) The Economic Crisis, and (b) Umbria, the Heart of Italy. 6.0, See Prague. 6.5, See Brno. 6.25, See Prague. 6.40, See Brno. 7.36, See Prague. 8.0, See Brno. 9.0, See Prague. 9.15 (approx.), Close Down.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—3.0 p.m. (from Nürnberg), Vocal and Instrumental Concert: Contralto Solos: (a) Die rechte Stimmung (Tschann); (b) Die Alte (Goerner); (c) An Doris; (d) Blumenbeet (Grann); (e) Plönis (Pl. Bach); (f) Der Reichtum (P. E. Bach); (g) Auf ein Schneeglöckchen (Hiller); Pianoforte Solos: (a) Heideblud (R. Strauss); (b) Sketches (Relikov); (c) Abend im Dorf Abendgang Schlittenfahrt (Zilcher); Soprano Solos: (a) Aria from Die toteu August (d'Albert); (b) Aria from Andre Chénier (Giordano). 3.40, Conversations Overhead. 4.0, Concert by the Radio Orchestra, conducted by Dr. Otto Wartsch: Soloist, Stephanie Rose (Contralto). 5.15, Talk: The Fate of German Communities cut off from the Fatherland. 5.35, Talk for Workers. 5.55, Time, Weather and Market Prices. 6.5, Reading (Norbert-Jacques). 6.25, Talk on the following Transmission. 6.55, Der Waffenschmied—Comic Opera in Three Acts (Lortzing), relayed from the Residenz Theatre. 9.20, Time, Weather, News and Sports Notes. 9.45, Serenade Concert, conducted by Erich Kluss: Soloists: Hedra Anann (Soprano) and Josef Schindler (Tenor). 11.0 (approx.), Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredriksstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 452

JAN. 23rd

MONDAY

continued

metres; and Rjukan, 447.1 metres.—6.0 p.m., Announcements, Weather, and News. 6.30, Concert of Popular Swedish Melodies and Dances by the Viriulandpoikarne Violin Ensemble. 7.0, Time Signal. 7.1, Talk on Smuggling. 7.30, Choral Concert, conducted by Jens Bernsten; Soloists: M. Sigurd Hoff (Tenor) and W. Andresen (Baritone); Gamle Norig (Johnsen); Baritone Solo: Norge mit Norge (Paulsen); Tenor Solo: En engel har rört (Lange-Müller); Tonerria (Sjöberg); Finnish Lullaby (Palmgren); Two Melodies (Lie); (a) Jubilata, (b) Cock Dance; Solfest (Eling). 7.50, Recitations. 8.10, Political Review. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Concert by the Station Orchet.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. 7.20, Light Music on Gramophone Records. 7.30 (in an interval), Time Signal and Announcements. 7.45, Concert of Chamber Music: A. La Bruna (Pianoforte), R. Profeta (Violin), and S. Gallei (Oboe); Pianoforte Solo: (Ciaccone (Bach-Busoni); Violin Solos: (a) Le Cygne (Saint-Saëns); (b) Hungarian Dance (Brahms); Oboe Solos: (a) Romance without Words; (Hoffmann); (b) Nocturne (Hoffmann); Violin Solo: Sonata in Three Movements (Leclair-Alard); Oboe Solos: (a) Pastorale (Soulage), (b) Le Verger (Barthe), (c) Scherzo (Barthe); Pianoforte Solos: (a) Intermezzo No. 1 (Brahms), (b) Etude in C (Rubinstein), (c) Polka (Smetana). After the Concert, Symphony Music on Gramophone Records. 9.55, News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 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. 7.20, Weather Report. 7.30, Parsifal—Opera in Three Acts (Wagner), relayed from the Opera House.

PARIS

POSTE PARISIEN; 328.2 metres; 60 kW.—7.0, Dance Music on Gramophone Records. 7.30, Sponsored Concert. 8.0, Talk. 8.15, Interval. 8.30, Sponsored Concerts. 10.40, News Bulletin.

PARIS

RADIO PARIS; Call CFR; 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture. 7.45, Gramophone Records: Overture, Tutti in Maschera (Pedrotti); Selection from Die Teresina (O. Straus). 8.0, Press Review and Weather Forecast. 12 Noon, Extracts from The Damnation of Faust—Opera (Berlioz). 12.30, p.m., Gramophone Records of Light Music. 1.0, Concert by the Radio Paris Orchestra: Scènes napolitaines (Massenet); La farandole (Dubois); Suite funambulesque (Busser); Au Japon (Ganne); Three Dances (Casadesu). In the intervals at 1.30 and 2.0, Exchange. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Elementary English Lesson. 6.50, Talk: Epics on the Films. 7.0, Book Review. 7.20, Concert by the Radio Paris Orchestra: Suite, Les Constellations (Tremisot); Ronde de Nuit (Boëllmann); Passacaglia (Brun); Cardas (Gungl). 7.45, Commercial Prices and News. 7.50, Horticultural Talk. 8.0, Le Chemineau—Opera-Comique (Leroux). In the intervals at 8.30, News and Weather; at 8.40, Review by Pierre Seize; and at 9.15, Press Review and News.

PORSGRUND.—See Oslo.

POZNAN

335 metres; 1.9 kW.—6.0 p.m., Miscellaneous Items and Announcements. 6.28, Time Signal. 6.30 to 9.0, See Warsaw. In the intervals, News and Announcements. 9.0, Time Signal, Sports and Police Notes. 9.15 (approx.), Close Down.

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., See Bratislava. 4.10, Talk. 4.20, Talk. 4.30, Programme for Children. 4.50, Gramophone Records of Light Music. 5.5, Agricultural Talk. 5.15, Talk for Workers. 5.25, German Transmission: News in German and Talk: The Present State of Television. 6.0, News. 6.5, See Brno. 6.25, Talk on Flowers. 6.40, See Brno. 7.35, Quartet Concert: Seguidilla; Minuet (Boccherini); Old Czech Polka (Hilmar); Polka (Kovarovic); Italian Melodies (arr. Modry): (a) Song of the Goldfinch, (b) Santa Lucia, (c) At Full Moon, (d) Antonia. 8.0, Time. 8.2, See Brno. 9.0, Time, News, Announcements and Sports Notes. 9.15 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; LAUSANNE, 680 metres; and GENEVA, 760 metres.—5.30 p.m. (from Lausanne), German Lesson. 6.0, News Bulletin. 6.30 to 9.0, Programme from Lausanne. 6.30, Lesson in Metallurgy. 7.0, Concert from the Métropole Bel-Air. 7.25, Maurice Port reads from his own Works. 7.40, Concert (contd.). 8.0, Cabaret Programme. 9.0, News and Weather. 9.15 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather Report. 8.40, Musical Programme and Announcements. 9.0, Chimes. 9.2, News Bulletin. 9.50, Reading. 10.0, Popular Concert by the Station Quartet with Songs.

RIGA

525 metres; 15 kW.—6.5 p.m., Concert of Romantic Music. 7.0, News. 7.20, Italian Songs and Arias by Elizabete Nezmanova. 7.40, Light Music. 8.0, Weather and News. 8.30, Dance Music. 9.30 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call IRO, 441 metres; 50 kW. Relayd by Naples, 319 metres, and 2RO, 25.4 metres.—7.15 to 7.30 a.m., Giornale Radio and Announcements. 11.30, Weather, and Light Music on Gramophone Records. 12.0 Noon, Time and Announcements. 12.2 to 1.15 p.m., Orchestral Concert. In the interval at 12.30, Giornale Radio and Exchange. 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.30, Concert by the Pro Musica Gerthler Quartet, relayed from the Royal Philharmonic Academy. 6.10 (Naples), Shipping and Sports Notes. 6.15, Agricultural Report, Announcements and Giornale Radio. 7.0, Time and Announcements. 7.30, Sports Notes and Tourist Report. 7.45, Concert of Light Music. 9.55, News Bulletin.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY); 379.5 metres; 50 kW. Relayd at intervals by W2XAF on 31.48 metres, and by W2XAD on 19.56 metres.—7.30 p.m., The Revolving Stage, from New York. 8.0, Talk, from New York. 8.15, Antoinette Halstead (Contralto). 12 Midnight, Stock Reports. 12.15 a.m. (Tuesday) till Close Down, New York Relay. 12.15, Musical Programme. 12.30, Melody Keepsakes. 12.45, The Goldbergs. 1.0, Seonoyland Sketch. 1.30, Voice of Firestone. 2.0, A and P Gipsies. 2.30, Buick Programme.

SCHWEIZERISCHER LANDESENDER

BEROMUNSTER, 459 metres; 60 kW.; BASLE, 244.1 metres; and BERNE, 245.9 metres.—11.28 a.m., Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40 (from Basle), Concert conducted by Richard Klaus. 12.35 p.m., Weather and Exchange. 12.45 to 2.30, Interval. 2.30, Concert by the Little Radio Orchestra. 3.0, Gramophone Concert of Descriptive Pieces. 3.30, Gramophone Concert of Songs by Children. 3.45, Fairy Tales on Gramophone Records. 4.0, Gramophone Concert of Swiss Folk Music. 4.30, Weather. 4.35 to 5.30, Interval. 5.30 (from Zürich), Programme for Young People. 6.0, Time and Weather. 6.5 (from Zürich), Talk: Winter Sports in Switzerland. 6.15 (from Zürich), Talk: Regulating Prices. 6.45 (from Basle), Concert by the Post Office Male Voice Choir and the Radio Orchestra. 7.45 (from Basle), Raffael Schirki—Comedy in Basle Dialect (Gletysen). 8.30, Weather and News. 8.40 (from Basle), Recital of Accordion and Yodelling Solos by Max Eglin and Hans Finselsen. 9.15 (approx.), Close Down.

SEVILLE

Call EAJS, 368.1 metres; 1.5 kW.—2.0 to 3.0 p.m., Orchestral Concert: Pasodoble, El Niño del Matadero (García Matos); Fundanguillo del Perchel (Cabas); Selection from The Valkyries (Wagner); Selection from Danza de apaches (Serrano); Dance Music. 9.0, Concert, Part I: Portuguese Music; Part II: Band Concert: Overture, Poet and Peasant (Suppé); Waltz, Dolores (Waldteufel); Indian March and Passacaglia from El Niño Judío (Luna); Song from The Huguenots (Meyerbeer); Selection from Pan y Toros (Barbieri); Pasodoble, La perfecta casada (Alonso). Part III: Dance Music. In the interval, News, Exchange, Market Prices, and Weather. 11.0 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayd by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—4.5 p.m., Light Music. 4.45, Reading (Fahlerantz). 5.15, Concert by a Salvation Army Band, conducted by Erik Jehrin. 6.15, Weather and News. 6.30, Parliamentary Report. 7.0 (from Göteborg); Symphony Concert by the Göteborg Chamber Orchestra, conducted by Tor Mann; Symphony in D (Mendelssohn); Suite No. 7, Op. 29 (Atterberg); Liebeslied (K. Kämpf); Molly on the Shore (Grainger). 8.0, Talk on Astronomy. 8.30, French Suite in C Minor for Pianoforte (Bach), by Aigot

Ilaquinius. 8.45, Weather and News. 9.0, Popular Music on Gramophone Records. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Schubert Concert on Gramophone Records. 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Quintet Concert, relayed from Bordeaux-Lafayette. 1.50 to 4.45, Interval. 4.45, French Lesson in German. 5.0, Dance Music by the Roskum Jazz Band. 6.0, Literary Review in French. 6.15, Topical Talk in German. 6.30, Orchestral Concert, conducted by M. de Villers: Marche de l'Emir (Luigini); Overture, Medea (Cherubini); Ballet Music from Romeo and Juliet (Gounod); Italian Caprice (Tchaikovsky); Selection from Madame Butterfly (Puccini). 7.30, Time and News. 7.45, Orchestral Concert (contd.): Orchestral Suite from Callirhoë (Chaminade); Selection from Orpheus in the Underworld (Offenbach); Waltz, Flattergeister (Jos. Strauss); Intermezzo, Sefira (Siede); March, Le cou gauleois (Popy). 8.25, Lottery Results. 8.30, Concert, relayed from Nancy. Soloists: Mme. Ferdinand Houzé (Recitations), Mme. Ginette Gobert (Songs), Marguerite Greff (Pianoforte), Josette Durivaux (aged five) (Violin), and Marcel Durivaux (aged five) (Pianoforte Solos: (a) Etude in F Major (Chopin), (b) Prélude (Debussy); Songs: (a) Aria from The Magic Flute (Mozart), (b) La mer grise (Hüe); Violin Solos: (a) Minuet (Boccherini), (b) Rondo (Mozart); Concerto for Oboe (de Grandval); Recitation, La Neige (Fabié); Pianoforte Solos: (a) Invocation from Iberia (Albeniz), (b) Toccata from Le tombeau de Couperin (Ravel); Songs: (a) Dans le jardin multicolore (Hüe), (b) O! mon champ bien aimé (Rachmaninov); Oboe Solo, Concertino (Hubber); Recitation, Le Pardon (Chamnet). After the Concert, Talk on Art. 10.15 (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and FREIBURG, 570 metres.—11.50 a.m., Heinrich Rebkenper sings on Gramophone Records; Der Lindenbaum (Schubert); Auf dem Flusse (Schubert); Storchenehlschaft (H. Wolf); Der Feuerreiter (H. Wolf); Heiterkeit und Fröhlichkeit, from Der Wiltshütz (Lortzing); Soldatentart (Abt). 12.15 p.m., Time, News, Weather, and Programme Announcements. 12.30, Concert from Langenberg. 1.0, Sponsored Music. 1.15, Sponsored Music, relayed from Karlsruhe. 1.30, Spanish Lesson. 2.0, English Lesson for Beginners. 2.30 to 4.0, Interval. 4.0, Concert from Munich. 5.15, Time, Weather, and Agricultural Report. 5.25, Talk: The Industrial Life of Germany—Shipping and the Railways. 5.30, See Frankfurt. 6.15, Time and News. 6.20, Heinrich Cassimir Concert, relayed from Karlsruhe: Else Blank (Soprano); Mathilde Press-Roth (Pianoforte); Oskar Schmidt (Violin); Fritz Kölblé (Cello); and Heinrich Cassimir (Pianoforte); Sonata for Violin and Pianoforte; Songs for Soprano, Pianoforte, Violin and Cello, Fränkisches Liederspiel. 7.0, Winter Festival Concert of the Choir of the Württemberg Landestheater, relayed from Liederhalle; Overture, Rienzi (Wagner); Song from The Huguenots (Meyerbeer); Song from L'Africain (Meyerbeer); Credo from Othello (Verdi); Duet from Madame Butterfly (Puccini); Overture, The Merry Wives of Windsor (Nicolai); Waltz, Frühlingsstimmen (Joh. Strauss). 8.10, Time, News, Weather and Programme Announcements. 8.30, Winter Festival Programme (continued): Ahoj!—Revels on board the Liner Stuttgart (arr. Fritz Schaezler). 10.15, News. 10.25, Chess Lesson. 10.45 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0 p.m., News Bulletin. 6.15, Operetta Music: Selection from (a) Le Postillon de Longjumeau (Adam), (b) La Fille de Madame Angot (Lecocq), (c) Les Saltimbanques (Ganne), (d) The Drum-Major's Daughter (Offenbach). 6.30, Egyptian Ballet (Luigini). 6.45, Music by an Argentine Orchestra. 7.0, Tourist Talk. 7.15, Racing Results, Market Prices and News. 7.25, Local News. 7.30, Chansonnettes. 7.45, Operetta Music. 8.0, Extracts from Opera: (a) Carmen (Bizet), (b) Mignon (Thomas), (c) Thaïs (Massenet). 8.15, Accordion Music. 8.30, Military Music. 8.45, Airs from Opera: (a) Tannhäuser (Wagner), (b), Prince Igor (Borodin), (c) Faust (Gounod). 9.0, Schubert Concert: Military March, No. 1; Overture, Rosamund; Berceuse; Ständchen; Suite, Death and the Maiden; Ungeduld; Moment Musical. 9.30, Sponsored Concert: Programme of Schubert Music (continued). 10.0, Music by a Viennese Orchestra. 10.15, North African News. 10.30, Concert for Listeners in Morocco: Selection from The Pearl Fishers (Bizet); Tango (Horitzka); Selection from: (a) La Traviata (Verdi), (b) Il Trovatore (Verdi); España (Waldteufel); Le Tram (Montgou). 11.0, Recount Concert, Extracts from: Grisélidis (Massenet); Radio Gaeties; Overture, Carmen

(Bizet); Song from Her Majesty Love; O Sole mio (Di Capua); Ballet Music from Hérodiade (Massenet). 11.30, Programme in English by the I.B.C.: Instrumental and Vocal Music; Pianoforte: Selection from The King of Jazz; Guitars: My Wakiki Mermaid; Saxophone: Happy Days Are Here Again; Pianoforte: Puttin' on the Ritz; Accordion: Paradise; Steel guitar: Dear Old Pal. Handsaw: Un pen d'amour. Pianoforte and Dance Band: Selection from White Horse Inn (Benatzky). 12.0 Midnight, Weather and Announcements. 12.5 a.m. (Tuesday), Dance Music. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—4.30 to 6.30 p.m., See Turin. 6.30, Orchestral Concert from the Café Dante. 7.0 till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayd by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—4.30 p.m., See Rome. 5.35, Giornale Radio, Agricultural Report and Announcements. 6.0, Gramophone Records of Light Music. 6.25, Tourist Report. 6.30, Time, Announcements and Light Music on Gramophone Records. 7.0, Giornale Radio and Weather. 7.30, Trio in D Minor for Pianoforte, Violin and Cello (Carmine Guarino). 8.20, A Comedy in One Act. 9.0, Orchestral Concert. 10.0, Giornale Radio.

VATICAN CITY

19.84 metres (Morning) and 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

517 metres; 15 kW. Relayd by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218.5 metres.—3.50 p.m., Concert by the Josef Weber Orchestra: March, Geh'n ma nit (Slezynski); Waltz, Schallwellen (Joh. Strauss); Overture, Erlenhügel (Kuhlan); Suppé Potpourri (Rode); Waltz from Eva (Lehar); Potpourri, Notenregen (Czabach); Boston, Schlaf, Mutti, schlaf (Michalov); Pasodoble, Ins blaue Leben (Erwin). 5.5, Dramatic Criticism. 6.25, Talk: Books of Reference in Connection with the Week's Talks. 5.30, Talk: House-keeping in the Mountains, Now and in the Past. 5.55, English Lesson. 6.20, Time, Weather, and Programme Announcements. 6.30, Reading from the Works of Hans Frankfurter for his Seventieth Birthday. 7.0, Concert of Music from Old and New Sound Films. 7.30, Concert by the Vienna Schubert Society and the Vienna Women's Symphony Orchestra—Part Relay from the Konzerthausaal. Conductor: Viktor Keldorfer. Soloist: Julius Patzak (Tenor); Pilgrims' Chorus from Tannhäuser (Wagner); Tenor Solos: (a) Grab und Mond (Schubert), (b) Um Mitternacht (Bruckner). Male Voice Choir and Full Orchestra: Das Liebesmahl der Apostel (Wagner). 8.25, News, Weather, and Announcements. 8.40, Dance Music by the Eric Herse Jazz Band, relayed from the Westminster Café.

WARSAW

1,411 metres; 120 kW.—11.10 a.m., Popular Music on Gramophone Records. 12.20 p.m., Weather Forecast. 12.25 to 12.10, Interval. 2.10, Announcements. 2.15, Economic Talk. 2.25, Traffic Report. 2.35, The Letter Box. 2.50, Light Music on Gramophone Records. 3.25, Elementary French Lesson. 3.40, Talk on Economics: Why are there so many international conferences? 4.0, Chamber Music: Trio in D minor (Mendelssohn) for Violin, Cello, and Pianoforte. In the interval, Announcements. 4.55, Programme Announcements. 5.0, Light Music, relayed from the Café Italia. In the interval, News. 5.58, Miscellaneous Items. 6.20, Agricultural Report. 6.30, Topical Talk. 6.45, Radio Journal. 7.0, Die Fäsehingsfee (The carnival fairy)—Operetta (Kálmán). In the interval, Sports Notes and Radio Journal. 9.15, Dance Music, relayed from Lwow (381 metres). 9.55, Weather Forecast and Police Notes. 10.0, Dance Music from the Adria, 11.0 (approx.), Close Down.

WILNO

563 metres; 16 kW.—4.55 p.m., Programme Announcements. 5.0, See Warsaw. 5.40, Talk: The Development of German Colonisation on the Baltic Coasts. 5.55, Programme Announcements. 6.0, Reading. 6.10, Miscellaneous Items. 6.15, Sports Notes. 6.30 till Close Down, See Warsaw. 11.0 (approx.), Close Down.

ZAGREB

307 metres; 0.75 kW.—6.0 p.m., Book Review. 6.15, Educational Notes. 6.35, Health Talk. 7.0, Concert of Yugoslav Music: Maja (Viljusaec (Soprano), Vjera Turk (Pianoforte), and Jaroslav Front (Violin). 8.0, Lully Concert by the Academic Quartet: Vjera Richter-Marakovic (Soprano) and Vjera Turk (Pianoforte); Overture, Roland, Three Arias, L'Apothéose de Lully (Couperin). 9.0, News, Weather, and Snow Report. 9.10, Concert of Light Music. 10.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender.

ALGIERS

363.3 metres; 13 kW.—7.0 p.m., Financial Notes and Exchange. 7.10, Shipping Report. 7.15, Weather. 7.20, Songs from Sound Films. 7.40, Opera and Operetta Songs. 7.55, News. 8.0, Time Signal. 8.2, Chamber Music: Trio in G for Pianoforte, Violin and Cello (Mozart); Trio for Pianoforte, Flute and Oboe (Loicillet). 8.40, News. 8.45, Talk on Algiers. 9.0, Concert of Eastern Music. 9.30, News. 9.35, Concert (cont'd.). 9.50, News.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—7.0 p.m., Request Gramophone Records. 7.30, Exchange Quotations and Talk on Art. 8.0, Popular Music on Gramophone Records, followed by News Bulletin. 9.0, Chimes from the Cathedral. Weather Forecast, Messages for Seamen, Exchange Quotations, and Market Prices. 9.10, Part Relay of an Opera from the Gran Teatro del Liceo. 11.0 (in an interval), News Bulletin. 12 Midnight (approx.), Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Report, Tourist Notes and Announcements. 7.20, Giornale Radio and Press Review. 7.30, Time, Announcements and Popular Music on Gramophone Records. 7.45, Relay of an Opera from the Petruzzelli Theatre. In the intervals, Talk and Notes on Art. News after the Programme.

BASEL.—See Schweizerischer Landessender.

BELGRADE

BEOGRAD; 430.4 metres; 2.8 kW.—4.0 p.m., Talk. 6.40, Violin Recital by Mary Zvezelj. 7.30, Choral and Orchestral Concert. 8.30, News, followed by Light Music on Gramophone Records. 9.10, Cigány Music from the Rudnicani Restaurant.

BERLIN

KÖNIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.55 a.m., Nauen Time Signal. 12.35 p.m., News Bulletin. 1.0, Gramophone Concert, relayed from Berlin (Witzleben). 2.0, Talk for Young People; Seal Hunting with a Film Camera. 2.30, Weather and Exchange. 2.45, Reading (Justus Mäser). 3.0, Programme for Women. 3.30, See Leipzig. 4.10, Topical Talk. 4.30, Fantasia in G, Op. 17 (Schumann). 5.0, Talk: Handicrafts in Modern Times and their connection with Agriculture, Trade and Industry. 5.5, Talk on Music: How to play Bach. 5.55, Weather and Announcements. 6.0, Talk: Mental Diseases. 6.30, A Poem. 6.35, Political Press Review. 7.0, Concert from Vienna. 8.10, International Concert, relayed from Geneva. The Broadcasting Seminars, conducted by Jean-Marie Pasche. Soloists: Jean Wiener and Clemens Bonetti (Pianists) and M. Hugues Cuénot (Tenor), of the Ziegfeld Theatre, New York. The Broadcasting Seminars: (a) English Style, (b) Cuban Rhythms, (c) American Cocktail, (d) Musical Eccentricities; Pianoforte Duets: (a) Three South American, (b) Three North American Airs; Black Magic: (a) Negro Spirituals by Hugues Cuénot, (b) Black and Tan Fantasy, and (c) Tiger Rag, by the Broadcasting Seminars; Russian Fantasy (Engel). 9.15, Weather, News and Sports Notes. 9.45, Weather Report for Shipping, followed by Concert from Hamburg. 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—4.10 p.m., Songs by the Berlin Station Choir, conducted by Maximilian Albrecht. 4.25, Talk: From the Tree Trunk to Artificial Silk. 4.40, Programme for Young People. 5.5, Song Recital by Elisabeth Friedrich (Soprano). 5.30, Talk: The Disarmament Problem of 1932. 5.55, The Witzleben Station informs its Listeners. 6.0, Topical Talk. 6.10, The World Dances—An International Dance Revue on Gramophone Records, with Introductory Talk by Rudolf Kirsche. 7.0, Das Käthchen von Heilbrunn—Play (Heinrich von Kleist), with Music by Pfützer. 9.0, Weather, News and Sports Notes. 9.30, See Hamburg. 11.0 (approx.), Close Down.

BERNE.—See Schweizerischer Landessender.

BEROMÜNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BRATISLAVA

279 metres; 14 kW.—3.10 p.m., See Moravská-Ostrava. 4.10, Variety Music on Gramophone Records. 4.40, Violin Recital by G. Pauliny; Chaconne from the Fourth Sonata for Violin (Bach); Minuet (Mozart-Burmeister); Violin Solo from the Violin Maker of Cremona (Hubay); Serenade (Pierné). 5.10, Comedy (Fredro). 5.45, Lesson in Slovak Spelling. 6.0, See Prague. 6.50, See Brno. 7.40, See Prague. 10.0 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres; 60 kW.; and GLEIWITZ, 253 metres.—12.5 p.m., Weather for Farmers,

TUESDAY

JANUARY THE TWENTY-FOURTH

PRINCIPAL EVENTS OF THE DAY:

	AT HOME
NATIONAL	Military Band programme. "Social Psychology," by Professor Cyril Burt. "The School for Scandal," by Sheridan, adapted for broadcasting by Dulcinea Blashy.
LONDON REGIONAL	Concert from Houldsworth Hall, Manchester. Chamber music. Orchestral concert.
MIDLAND REGIONAL	Choral programme. Orchestral concert. Music of the East, pianoforte recital.
NORTH REGIONAL	Concert from Houldsworth Hall, Manchester. Instrumental concert. Liverpool Philharmonic Society's concert.
WEST REGIONAL	"Homeward Bound," a programme of Welsh seafaring life. Pianoforte recital.
SCOTTISH REGIONAL	Pianoforte recital. Lessons in Scottish country dancing, with musical illustrations, by Mr. J. M. Duthie.
BELFAST	Dance music. Orchestral concert.
	ABROAD
BRUSSELS (No. 2)	Gala Concert for the Fifth Anniversary of the Antwerp section of the S.A.R.O.V.
COPENHAGEN	Popular classical music by the Station Orchestra, conducted by E. Reesen.
STOCKHOLM	Act 3 of "Siegfried" (Wagner), relayed from the Opera House.
STRASBOURG	Orchestral concert, conducted by M. de Villers.
TOULOUSE	Selections of operatic music.

followed by a Gramophone Concert of Light Music. 12.45, Time, Weather, News and Exchange. 1.5, Gramophone Concert: Overture, Così fan tutte (Mozart); Romance in F (Beethoven); Moment Musical (Schubert); Song without Words (Mendelssohn); Andante grazioso (Brahms); Aria from The Magic Flute (Mozart); Overture, Oberon (Weber). 1.45, Sponsored Programme with Gramophone Records. 2.10, Agricultural Prices and Exchange. 2.40, Programme for Children. 3.10, Song and Pianoforte Recital by Elli Molle-Kosa (Soprano) and Susanne Tranggott; Chaconne (Handel-Kwast); Four Melodies (Mozart); (a) Dulcissimum convivium, (b) Wohl lauscht ihr Vögelchen, (c) Schon klopfet mein liebender Busen, (d) Variations on a Hungarian Song, (e) Pastorale, (f) An die Nachtigall, (g) Der Schmetterling, (h) Melodie (Brahms); (a) Komm' bald, (b) In Waldessamkeit, (c) Am Sonntag Morgen, (d) Intermzzo, Op. 117, No. 1, (e) Variations on a Hungarian Song. 4.0, Gramophone Concert: Overture, Die schöne Galathee (Suppe); Selection from The Bird Fancier (Zeller); The Emperor Waltz (Joh. Strauss). 4.30, Agricultural Prices and Book Review. 4.50, Talk by Robert Maritz. 5.20, Talk: The Silesian Building Industry and the Breslau Technical School. 5.50, Talk. 5.10, Talk: Animals which change their Colour. 6.30, Weather for Farmers, followed by Light Music on Gramophone Records. 7.0, Concert by the Silesian Philharmonic Orchestra: A Comedy Overture (Reger); German Dances (Schubert-Webern); Vision (Leifner); Tanz der Blumen (Schilling); In cmezzo (Albussorgsky); Reverie (Scriabin); Swedish Dance (Aulin); Military March (Korngold). 8.0, Announcements. 8.10, Weber in Silesia—A Programme arranged by Dr. F. Müller-Prem. Weber Programme: The Silesian Philharmonic Orchestra. Soloists: Berta Elner-Oswald (Soprano), Kur. Hartwig (Pianoforte), Fritz Küper (Violin) and Felix Fischer (Horn). Introductory Talk by Dr. Fritz Müller-Prem: Concertino for Horn and Orchestra; Song, Ich denke dein, for Soprano and Pianoforte; Six Variations on the Austrian Folk Song, A Schüssel und a Haberl is all mei Kuchel-seldner, for Viola with Orchestral Accompaniment; Pianoforte Solo: Seven Variations on the Song Vieni qua Donna bella; Second Movement from the Second Symphony; Finae Presto from the First Symphony. 9.10, Time, Weather, News, Sports Notes and Programme Announcements. 9.30, Political Press Review. 9.55, Theatre Notes. 10.5, A Gramophone Cabaret. 11.0 (approx.), Close Down.

BRNO

342 metres; 35 kW.—3.10 p.m., See Moravská-Ostrava. 4.10, Fairy Tales. 4.20, See Prague. 4.50, Esperanto Lesson. 5.0, Review of Music. 5.15, Talk for Workers. 5.25,

German Transmission—News and Two Talks. 6.0, See Prague. 6.5, Poetry (Antonin Sová). 6.30, Recital of Moravian Folk Ballads (Kovalinka). 6.50, Winter in the Mountains—Programme of Songs and Music. 7.40, See Prague. 10.0 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—12 Noon, Gramophone Concert: Part I: Mascagni Programme: Overture, Le Maschere; Intermezzo from William Ratcliff; Hymn to the Sun from Iris, Part II: Massenet Programme: Entr'acte and Minuet from the Third Act of Manon; Ballet Music from Manon; Air à danser and Finales from Manon. 12.30 p.m., Song Recital by Mlle. Simone Ghislaine (Soprano): Song from The Cid (Massenet); Song from Cavalleria rusticana (Mascagni); Clair de lune (Fauré). 12.45, Ballade, Op. 19, for Pianoforte and Orchestra (Fauré) on Gramophone Records. 1.0, Le Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by P. Leemans: Granada (Albeniz); Elégie (Massenet); Menuet de l'amour from Thérèse (Massenet); Selection from Madame Butterfly (Puccini); Serenade (Widoy); Violin Solo: Meditation from Thaïs (Massenet); Cello Solo: O Star of Eve (Wagner); Selection from Etienne Marcel (Saint-Saëns). 5.0, Andran Concert: The Radio Orchestra, conducted by Franz André; Overture, Le Grand Mogol; Selection from (a) Miss Decima, (b) La Mascotte, (c) Gillette de Narbonne. 5.30, Programme for Children. 6.5, Literary Review. 6.15, Eine kleine Nachtmusik (Mozart) on Gramophone Records. 6.30, Sacred Songs, followed by Sacred Music on Gramophone Records. 7.15, Report of the Belgian Catholic Radio Society. 7.30, Talk for Women. 8.0, Concert by the Radio Orchestra, conducted by M. André. Soloist: Simone Galin (Soprano). Overture, William Tell (Rossini); Ballet Music from The Queen of Sheba (Gounod); Songs: (a) Song from L'Enfant Prodigue (Debussy), (b) Nouveau né (Brumant); Overture, The Merry Wives of Windsor (Nicolai); Ballet Music from Manon (Massenet); Songs: (a) Prayer from Tosca (Puccini), (b) Les petits ânes (Rasse); Ballet Music from The Sleeping Beauty (Tchaikovsky). 8.45, Talk: The Walloon Author, Joseph Mignolet. 9.0, Military Band Concert. Soloist: M. Gilson (Baritone). Les Lupercales (Wormser); Military March arranged in the style of Bach, Haydn, Mozart, Strauss, Verdi, Gounod, Beethoven, Mendelssohn, Schumann, Brahms, Meyerbeer, and Suppé (Van Oseh); Songs: (a) Elégie (Massenet), (b) Song of Songs (Moya), (c) Plaisir d'amour (Martini); Finales from the Symphony No. 16 (Haydn); Adagio from the Pathetic Sonata (Beethoven); Second Movement from the Unfinished Symphony (Schubert). 10.0, Le Journal Parlé. 10.10, Request Gramophone Records: The Lancers'

Quadrille (Metra); Rhapsody No. 6 (Biszt). Elle était très bien (Nauroll); A Peasant Wedding (Södermann); Sonata for Violin and Pianoforte (Debussy); Minstrels (Debussy). 10.55, Christus Vincit. 11.0 (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish. 12 Noon, Orchestral Concert, conducted by Paul Leemans: Pompadour March (Fall); Japanese Divertissement (Laurens); Spanish Waltz (Mascheroni); Selection from The Drum-Major's Daughter (Offenbach); Cello Solo: Berecene slave (Neruda); Pianoforte Solos: Marionette (Billy Mayerl); (a) Golliwog, (b) Judy, (c) Punch; Danse des Lutins (Leemans); Russian Fantasy (Lange); Selection from Eine einzige Nacht (Stolz). 1.0, Le Journal Parlé. 1.10, Gramophone Concert of Music dedicated to Love. 5.0, Concert by the Small Station Orchestra, conducted by Paul Leemans: Hungarian Comedy Overture (Keler-Bela); Waltz Suite, Die Kosende (Lammer); Algerian Song (Kettelbey); A Day in Naples (Byng); Serenade (A. de Boeck); Spanish Dance, No. 8 (Saraste); Ballet Suite (Poppy). 5.45, Programme for Children. 6.30, Concert by the Small Station Orchestra, conducted by Paul Leemans: March Immer so weiter (Borgmann); Small Spanish Suite (Vidal); Der Rosenkranzzeit (Jessel); Zigeunerfest (Heykens); Pianoforte Solos: (a) Sleepy Piano, and (b) Atiquary (Billy Mayerl), (c) Pianoflage (Bary); Scène enfantine (Brusselmaus); Selection from Tip Toes (Gershwin). 7.3, Talk on the Fifth Anniversary of the Antwerp Section of the S.A.R.O.V. 7.30, Le Journal Parlé. 8.0, Gala Concert for the Fifth Anniversary of the Antwerp Section of the S.A.R.O.V. Part I: Le Fario di Artocchino—Opera (Luadi)—Concert Version on Gramophone Records. 8.25, Gala Concert: Part II: Gramophone Records: Air from Der Freischütz (Weber); Pianoforte solo: Perpetuum mobile (Weber); Humoresque (Dvorak); Czardas from Die Fledermaus (Johann Strauss); Ik lees in Uw oogjes zo geeren (Van Dussse); Violin Solo: Capriccio Viennois (Kreisler); Pianoforte Solo: Spanish Caprice, Op. 37 (Moszkowsky). 9.2, Talk. 9.15, Gala Concert, Part III: The Station Orchestra, conducted by Franz André: Cossack Dance (Tchaikovsky); Hungarian Dance, No. 6 (Brahms); Variety Items by P. Collin and H. Stunorp; Norwegian Dance, No. 4 (Grieg); Slav Dance, No. 3 (Dvorak); Spanish Dance, No. 2 (Fallá). 10.0, Le Journal Parlé. 10.10, Gala Concert, Part IV: Gramophone Records: Selection from: (a) Die Fledermaus (Johann Strauss), and (b) The Land of Shiloh (Lehar); Interlude: Variety Items by Collin and H. Stunorp; Selection from: (c) The Desert Song (Romberg), (d) The Blue Mazurka (Lehar), (e) White Horse Inn (Benatzky). 11.0 (approx.), Close Down.

BUDAPEST

550 metres; 18.5 kW. Also relayed on 900 metres from 6.25 p.m. to 11.0 p.m.—4.0 p.m., Concert by the Georg Guttenberg Jazz Band, relayed from the Café Ostende; Foxtrot, My Romance (Washington); Oriental Bignio (Darvay); Tango from Kadetentelike (Gyöngy); Rumba, Flower of Cuba (Coyers); Selection from The Pearl Fishes (Bizet); Waltz Song (Bányai); Selection from Kadetentelike (Gyöngy); Kálmán Pourri; Sound Film and Operetta Melodius. 5.0, French Lesson. 5.20, Concert by the Imre Magyari Cigany Band. 6.0, Programme by Robert Kertesz. 6.30, La Bohème—Opera (Puccini), relayed from the Royal Hungarian Opera House. News in the interval. After the Opera, Concert by the Sándor Lúca Cigány Band from the Hotel Dumapadota. 10.15, Concert by the Gyula Meygeri Dance Band, from the Hotel Dumapadota, with Songs by Ernst Horváth: Slow Foxtrot (Nicholls); Waltz Song (Nádor); Foxtrot, Thanksgiving (Carmichael); Song (Weingand); Foxtrot, Crazy People (Leslie); Vocal Tango (Gara); American Jazz Impourri; Marching along together (Steinger). 11.0 (approx.), Close Down.

CASSEL.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW.; and KALUNDBORG, 1,153 metres; 7.5 kW.—11.0 a.m., Town Hall Chimes. 11.2 to 1.0 p.m., Concert from the Bellevue Strandhotel. 2.0, Orchestral Concert. Soloist: Karl Johan Klinge (Soprano). Overture, The Bohemian Girl (Balfé); Waltz, Roses from the South (Joh. Strauss); Selection from The Magic Flute (Mozart); Minuet from Samson (Handel); Serenade (Lange-Müller); Minuet for Strings (Simonetti); Polonaise from Eugene Onegin (Tchaikovsky); Six Songs (Grieg); Selection from The Little Princess (Grieg-Rygardt); Jule, Pomona (Lambye); Rapsodieta (Jule Gade); Gavotte (Michailoff); Dance in Old Style (Rydahl); Selection from The Circus Princess (Kálmán); Spanish Dances (Moszkowsky). 4.0, Programme for Children. 4.40, Exchange and Market Prices. 4.50, Talk: Insurance against Fire and Burglary. 5.45, German Lesson. 5.50, Weather Report. 6.0, News Bulletin. 6.15, Time Signal. 6.30, Talk: The Danish National Character. 7.0, Town Hall Chimes. 7.2, Operetta Concert

JAN. 24th

TUESDAY

continued

by the Radio Orchestra, conducted by Emil Reesen. Soloist: Lisa Rantzau Meyer (Songs). Overture, Der Schatzmeister (Zieler); Waltz from Madame Pompadour (Fall); Selection from Rose Marie (Friml); Songs: (a) Waltz from Schön ist die Welt (Lehar), (b) Slow Foxrot from The Duchess of Chicago (Kálmán), (c) Foxrot from The Three Musketeers (Benatzky). 8.0, Lyrik—Comedy in One Act. 9.0, News Bulletin. 9.15, Concert of Popular Classical Music by the Radio Orchestra, conducted by Emil Reesen; Overture, Il Seraglio (Mozart); Air from the Suite in D (Bach); Allegretto and Finale from the Military Symphony (Haydn); Rondo from the Divertimento No. 17 in D (Mozart); Overture, Prometheus (Beethoven); Ronde de nuit from Les deux aveurs (Grétry); Melody from Le carnaval (Dittersdorf). 10.0, Dance Music from the National Scala. 11.0 (in an interval); Town Hall Chimes. 11.30 (approx.), Close Down.

CORK.—See Dublin.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN; 413 metres; 1.2 kW.; and **CORK**, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report and Variety Music on Gramophone Records. 6.0, Light Music on Gramophone Records. 6.15, Programme for Children. 7.0, Popular Music on Gramophone Records. 7.15, News and British Market Report. 7.30, Time Signal. 7.31, Gaelic Talk. 7.45, Talk. 8.0, Concert by the Augmented Station Orchestra, conducted by V. O'Brien. 8.30, Soprano Solos by Hilda White. 8.45, Pianoforte Recital by Dina Copeman. 9.10, The Augmented Station Orchestra. 9.30, A Sketch by Henry Fraser and Company. 10.0, The Augmented Station Orchestra. 10.30, Time Signal, News, Weather Report and Close Down.

FECAMP

223 metres; 10 kW.—12.0 Noon, Military Music. 12.30 p.m., News Bulletin. 12.45, Concert of Variety Music. 7.0, Local News. 7.15, Light Music on Gramophone Records. 7.30, Radio Gazette. 8.0, Gramophone Records and News Bulletin. 8.15, Talk, arranged by the Tour de Garde. 8.30, Concert, relayed from Le Havre. 10.0 till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: Under a Texas Moon; Blue is the Night; Love in a Mist; Hello, Baby; Blue Pacific Moonlight; Crying for the Carolines; Mother's Smile; Swanee Shuffle; If I can't have you; Marianne; The Sunshine of Marselles; When the Red, Red Roses get the Blues for you; The Love Waltz; Dreamy Honolulu; An Old Italian Love Song; A Night of Happiness. 11.0, Music by a Symphony Orchestra: Rakoczy March from The Damnation of Faust (Berlioz); Violin Solo: Air on the G String (Bach); Night on the Bare Mountain (Mussorgsky); Selection from I Pagliacci (Leoncavallo); Slav Dance, No. 10 (Dvorák); Hungarian Dance, from The Swan Lake (Tchaikovsky); Liebesträume (Liszt). 11.30, Concert of Light Music: Dancer while the Music is ringing; Songs: (a) Down the Lane to Home, Sweet Home, (b) Ragamuffin Romeo; River stay 'way from my Door; When it's Night-time in Nevada; Songs: (a) It happened in Monterey, (b) My Song; The Match Parade. 12.0 Midnight, Philco Concert: Marta; We will always be Sweethearts; Moonlight on the River; Hoch, Caroline; Shadows on the Window; What would you do? Song of the Harp; Sing, Brothers. 12.30 a.m. (Wednesday), The Sentimental Songsters; Orchestra: Kiss me again; Duets: (a) Put your loving arms around me, (b) You are my heart's Delight, (c) For you, (d) When the Moon comes over the Mountain, (e) I found you, (f) Good-night, Sweetheart; Orchestra: The Song is done. 1.0, Light Orchestral Concert, with Songs: The Wedding of the Birds (Peterson); A Little Love (Silesu); Songs: (a) My Lover (Yellen), (b) Exactly like you (Fields), (c) I like to do things for you (Yellen), (d) On the Sunny Side of the Street (McHugh); Marigold (Mayerl); Love's Old Sweet Song (Molloy). 1.30, Phonovariety: River stay 'way from my Door; Rocking Chair; Nowt about ow; Painting the Clouds with Sunshine; In Dark Subjects; O'er the Hills to Ardennemy; Somebody's waiting for me. 2.0, Dance Music. 2.57, I.B.C. Good-night Melody. 3.0 (approx.), Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW.; and **CASSEL**, 245.9 metres.—4.0 p.m., See Langenberg. 5.15, Economic Notes. 5.25, A Discussion by Two Soldiers—Reminiscences of the Great War. 5.50, Talk: Behind the Footlights. 6.15, Time, Programme Announcements, Weather and Economic Notes. 6.20, Yodelling Concert from Stuttgart. 6.45, See Stuttgart. 8.15, See Berlin (Königswusterhausen). 9.20, Time, News, Weather and Sports Notes. 9.45, See Stuttgart. 11.0 (approx.), Close Down.

FREDRIKSSTAD.—See Oslo.

FREIBURG.—See Stuttgart.

GENEVA.—See Radio-Suisse Romande.

GENOA.—See Turin.

GLEIWITZ.—See Breslau.

GÖTEBORO.—See Stockholm.

GRAZ.—See Vienna.

HAMAR.—See Oslo.

HAMBURG

Call ha (in Morse); 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 227.4 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—5.15 p.m., (from Hanover), Paul Losse Baritone Recital. 5.55, Exchange Quotations. 6.0, Radio Report from an Agricultural School for Women. 6.25, Weather Report. 6.30 (from Bremen), Wind Instrument Concert, conducted by Wilhelm Jung; March, Wilhelmus von Nassauen (Grawert); Overture, Friedensfeier (Reineke); Königsmarsch (Richard Strauss); Prince Eugen—from Old Themes (arr. Hilge); Military Tone Picture, Militaria (Schreiner); Marsch des Hessischen Kreisregiments; Heineken-Marsch (Voigt); March, Aiderflug (Blankenburg); Dramatic Overture (Blon); Selection from The Dramatic Singers (Wagner); Bonner Insarner Marsch (Walter von Simon); Mit Vollkamm vorans (Voigt); Kinderliederwalzer (Becker); March, Brautwerber (Becker). 7.50, First General News. 8.0, On the Other Bank—a Dream Play for the Radio by Herbert Scheller. Music by Siegfried Sheffer. 9.10, News Bulletin. 9.20, Topical Talk. 9.30 (from Flensburg), Concert by the Municipal Orchestra, conducted by Kurt Barth; Overture, Preciosa (Weber); Moment Musical (Schubert); Romance, from the Fourth Symphony (Schumann); Variations on a Theme by Haydn (Brahms); Symphonic Poem, Orpheus (Liszt); Air from the Serenade in D (Brahms); Abendlied (Schubert). 10.20 (in an interval), Ice Report.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW.; and **DANZIG**, 453.2 metres.—12.5 p.m., Gramophone Concert of Variety Music. In the interval at 12.20, Announcements. 1.30, Sponsored Programme with Gramophone Records. 2.0, Exchange and Market Prices. 2.30, Musical Improvisations for Children. 3.0, Concert by the Little Orag Orchestra, conducted by Eugen Wilcken. Part I: Flotow Music for the Fiftieth Anniversary of the Composer's Death; Overture, Albin; Selection from Martha; Overture, Indra; Selection from Alessandro Stradella. Part II: A Wedding Day on Troldhaugen (Grieg); Selection from Rigoleto (Verdi); Overture, Les Quatre Fils d'Aymon (Balfe). 4.45, Talk: The Position of East and West Prussia with regard to the Kings of Poland. 5.15, Market Prices. 5.30, Talk for Manual Workers: Blacklegs. 6.0, Shorthand Dictation. 6.25, Concert of Light Music by the Little Orag Orchestra, conducted by Eugen Wilcken. Soloist: Walter Simlinger. 7.0 (in an interval), News. 7.40, Reading: Amadeus im Blutzgericht—a Tale of Old Königsberg (Walter Becker). 7.55 (from Danzig), Pianoforte Recital by Franz Josef Hilt. 8.30, E. Th. A. Hoffmann Programme (arr. M. Bormann). 9.30 (approx.), Weather, News and Sports Notes.

HILVERSUM

Announced **HUIZEN**; 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.). Programme of the Catholic Radio Society (K.R.O.).—11.40 a.m., Police Announcements. 11.55, Concert by the K.R.O. Boys and J. Mossel (Songs). 12.40 p.m., Popular Music on Gramophone Records. 1.0 p.m., Concert (contd.). 1.25, Interval. 1.40, Talk on Economics. 2.15, Talk for Women. 3.10, Dressmaking Lesson. 3.40, Millinery Lesson. 4.10, Orchestral Concert: March, Granada (Garcia); Overture, Nakiri; Hochzeit (Lincke); Selection from Martha (Flotow); Tesoro mio (Beccini); Goodbye (Tosti); Tempo-Tempo (Postal); Selection from Der Rastebinder (Lehar); March, Nos garçons (V. Louwen). 5.10, Popular Music on Gramophone Records. 5.40, Orchestral Concert. Soloists: Mile. Steff Jeyer (Violin). Overture, The Bartered Bride (Smetana); Violin Concerto in A Minor, Op. 53 (Dvorak); Violin Solos: (a) Slav Fantasia (Dvorak); Hungarian Dance in F Sharp (Brahms); Hungarian Dance in F Sharp Minor (Brahms). In the interval at 6.10, Esperanto Lesson. 6.50, Talk on Ecclesiastical Questions. 7.10, Police Announcements. 7.25, Talk. 7.40, Requiem (Verdi), relayed from the Concertgebouw, Amsterdam, in Memory of Cardinal von Rossum. In the interval at 8.55, News. 10.40, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced **HILVERSUM**, 1,875 metres; 8.5 kW.—Programme of the Algemeene Vereniging Radio Omroep (A.V.R.O.). 11.40 a.m.,

Time Signal. 11.41, Concert by the Small Station Orchestra, conducted by Nico Treep. Soldiers in the Park (Monckton); Overture, Flotte Bursche (Suppé); Selection from Herodiade (Massenet); Waltz, Rudolfsklänge (Jos. Strauss); Barcarolle (Tchaikovsky); Melody (Percy); Einzug der Hellenbarriere (Blankenburg). 12.40 p.m., Popular Music on Gramophone Records. 1.25, Orchestral Concert (contd.): March (Sullivan-Komzak); Waltz, Estudiantina (Waldteufel); Paraphrase on Noch sind die Tage der Rosen (Baumgartner-Mamfred); Was Blumen träumen (Translatour); Das Blumenmädel (Siede); Leichtes Blut (Joh. Strauss). 1.55 to 2.10, Interval. 2.10, Orchestral Concert (contd.): Overture, Der Göttergatte (Lehar); Zigeunerfest (Heykens); Cradle Song (Fucik); Melody (Leuschner). 2.40, Talk. 3.40, Pianoforte Recital by Hugo van Dalen: Two Pieces (Tchaikovsky): (a) Meditation, Op. 72, No. 5, (b) Berensse, Op. 62, No. 2; Two Pieces (Bortkiewicz): (a) Ballad, Op. 42, (b) Lamentation. 4.10, Concert by a Children's Choir, conducted by Jacob Hamel. 4.40, Programme for Children. 5.10, Talk. 5.40, Concert by the Station Orchestra, conducted by Nico Treep; Overture, Light Cavalry (Suppé); Melodies (Grieg); Waltz from Eugene Onegin (Tchaikovsky); Romance (Svensen); Entry March of the Boyards (Halvorsen). 6.10, Talk. 6.40, Orchestral Concert (contd.): Bizet's Wunderklänge (Urbach); Melody (Amadei); Wine, Women and Song (Joh. Strauss); Melody (Feiszeire); March (Lehar). 7.10, English Lesson. 7.40, Time Signal. 7.41, News. 7.45, Relay of a Revue. 9.45, Variety Music on Gramophone Records. 9.55, Radio Play. 10.40, News. 10.45, Variety Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.0 p.m., Talk. 6.15, Announcements, Theatre Notes, and Light Music on Gramophone Records. 6.25, Sports Notes. 6.30, See Warsaw. 7.0, Light Music, relayed from Vienna. 9.0, Reading from The Year 1863 (Marshall Pilsudski). 9.20, Dance Music on Gramophone Records. 9.55, See Warsaw.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres; 40 kW.; and **HELSINKI**, 368.1 metres.—5.40 p.m., Choral Concert. 6.5, Recitations. 6.30, Concert by the Station Orchestra, conducted by Toivo Haapanen. Soloist: Anna Hagelstam (Songs). 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert, conducted by Eysoldt: March, Via Eupen (Creutz); Overture, Der Wildschütz (Lortzing); Waltz, Frühlingszauber (Translatour); Two Pieces (Drlla); Ballet Music from Faust (Gounod); Homage March from Sigurd Jorsalfar (Grieg); Egyptian Serenade, Anina (Lincke); Prairie Lily (Mills); Potpourri, Pikante Blätter (Komzak). 1.0 p.m. (in an interval), News Bulletin. 1.30, Sponsored Programme with Gramophone Records. 2.30, Exchange and Time Signal. 2.50, Fairy Tales (Hans Andersen). 3.20, Notes on the Broadcasts to Schools. 3.30, Geographical Talk. 4.0, Concert, conducted by Eysoldt: Coronation March (Kretschmar); Overture, Hunyadi Laszlo (Erkel); Suite, Wedding Scenes (Smetana); Melody (Michele); Reminiscences of Lehar (Muzilli); Waltz, Amorettenzäune (Gunkl); Potpourri, Echo der Welt (Zimmer); Viennese Dance No. 2 (Friedmann-Gärtner). 5.15, Italian Lesson. 5.45, Weather, Time, Exchange and Sports Notes. 6.0, Agricultural Talk. 6.20, Poems (Görhitz). 6.30, Talk: Statistics about International Art Treasures. 6.55, First General News. 7.0, Flotow Concert for the Fiftieth Anniversary of the Composer's Death: The Station Orchestra, conducted by Kühn. Soloists: Hansen (Soprano), Guernanova (Contralto), Aramesco (Tenor), and Strienz (Bass); Commentary by P. H. Gehly. 8.0, Concert by the Station Orchestra, conducted by Beschkötter. Soloists: Ilse Bernatz (Cello) and Grete Eweiler (Violin). Concerto for Cello (Dvorak); Violin Concerto in A Minor, Op. 82 (Giazoun). 9.5, News, Sports Notes, and Silent Night.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW.; and **DRESDEN**, 319 metres.—11.5 a.m., Gramophone Concert: Two Melodies from A Kiss in Spring (Kálmán); Melody from The Girl in the Taxi (Gilbert); Selection from Paganini (Lehar); Selection from Die Forsterchristel (Jarno); Melodies from Der Fürst der Berge (Lehar); Johann Strauss Operetta Potpourri (Schlögel); Adieu, mein kleiner Gardeoffizier (Stolz); Das Lied ist aus (Stolz);

Melodies from The Maid of the Black Forest (Jessel). 12.15 p.m., Wind Instrument Concert on Gramophone Records. After the Concert, Exchange Quotations. 1.0, Advice for the Unemployed. 2.35, Exchange and Market Prices. 3.0, Talk: History in Street Names. 3.30, Concert by the Dresden Philharmonic Orchestra, conducted by Dr. Rudolf Oels; Overture, Dame Kolold (Reinecke); Gavotte and Rigandon (Rameau); Shakespeare Suite, No. 2 (Humperdinck); Wedding Scenes (Smetana); Selection from The Lazy John (Nedbal); Overture, Das Süsse Mädel (Reinhardt). 4.30, Weather and Time. 4.50, Exchange Quotations. 5.0, Talk: The Dutch Author, Maarten Maartens. 5.30, French Lesson. 5.50, Introductory Talk on the Gewandhaus Concert on Jan. 26th. 6.0, Discussion on Amateur Theatricals for Children. 6.30, Friedrich von Flotow Memorial Programme, with Introductory Talk and Commentary. 7.30, Talk on Economic Questions of the Day. 7.40, Literary and Musical Programme: Readings from the Works of Goethe, Mörike, Uhland, Chamisso, and Others, and Music by Beethoven, Schumann, Brahms, Wolf, and Mahler. 8.30, Concert of Chamber Music by the Reitz Quartet, Weimar; String Quartet in A Minor, Op. 29 (Schubert); String Quartet in A (Protz). 9.25, News Bulletin. 9.30 (approx.), Concert of Light Music and Dance Music on Gramophone Records: Dolores Waltz (Waldteufel); Waltz, Echte Wiener Herzen (Feitel); Melodies from Der Obersteiger (Zeller); Two Tangos: (a) Durello Viejo (Arolas), (b) Duello Criollo (Rezzano); Waltz Song, Dorfselbstwaben aus Oesterreich (Jos. Strauss); Rumba, Bianca (Samuels-Whitcup); Rumba, Foxrot, Just once for all Time (Heymann-Gilbert); Das muss ein Stück von Himmel sein (Heymann-Gilbert); Two Foxrots from The Duchess of Chicago (Kálmán); Overture, Light Cavalry (Suppé); Melody from A Waltz Dream (O. Straus); Royal Grenadiers' March (Teike); Waltz, Am Wörther See (Kosclat); March and Dance Potpourri (Armandola). 10.30 (approx.), Close Down.

LINZ.—See Vienna.

I JUBLJANA

574.7 metres; 2.5 kW.—4.30 p.m., Quintet Concert. 5.30, German Lesson. 6.0, Talk on Seafaring. 6.30, Talk on Geography. 7.0, Vocal Quintet Concert. 7.45, Recitations. 8.30, Quintet Concert. 9.15, Time, News and Light Music on Gramophone Records.

LWOW

381 metres; 16 kW.—6.30 p.m., See Warsaw. 10.0, Relay of Foreign Stations. 11.0 (approx.), Close Down.

LYONS

LA DOUA; 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South East. 8.30, Concert of Popular Music. After the Concert, News Bulletin.

MADRID

ARANJUEZ (EAQ), 30.43 metres; 20 kW.—11.30 p.m., Variety Music. 11.45, Radio Chronicle. 12.0 Midnight, Concert of Popular Spanish Music. 12.35 a.m. (Wednesday), Answers to Correspondence. 12.40, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO; Call EAJ7; 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotations, Talk on Infant Mortality, and Request Gramophone Records. 7.30, Talk by Joaquín España Cantos, and Gramophone Records (contd.). 8.25, News Bulletin. 8.30 to 9.0, Interval. 9.0, Linguaphone English Lesson. 9.30, Chimes and Time Signal. 10.30, Concert by the Madrid Symphony Orchestra, conducted by Enrique Fernandez Arbos, relayed from the Monumental Cinema: Overture, The Bartered Bride (Smetana); Concerto for Flute and Harp, with Orchestral Accompaniment (Mozart); Symphony No. 5, from The New World (Dvorak); Concertante Overture for Pianoforte and Orchestra (Rodolfo Halfter); Spanish Caprice (Rimsky-Korsakov). In an interval, News Bulletin. 1.0 a.m. (Wednesday), Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—3.10 p.m., Orchestral Concert: Overture, To the Story of the lovely Melusina (Mendelssohn); Czech Suite, Op. 39 (Dvorak); Slow Foxrot, I would place confidence in you (Reisfeld-Marbock); Waltz (Heinl); Tango, Don't tell it my boy (Plichta); Foxrot (Tichy); Polka (Vackar); Ländler (Heymann); Foxrot, If you kissed me (Wilczynsky); Slow Foxrot, Nothing is sweeter than you (Bob). 4.10, See Prague. 4.50, See Brno. 5.0, Medical Talk. 5.15, See Brno. 6.0, See Prague. 6.20, Band Concert. 6.50, See Brno. 7.40, See Prague. 10.0 (approx.), Close Down.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—3.45 p.m., Gramophone Concert of Variety Music. 4.45, A Visit to

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TUESDAY

continued

the Theatrical Museum in Munich. 5.15, Talk: An Industrial Dictionary. 5.35, Talk: Film Problems. 5.55, Time, Weather, and Market Prices. 6.5 (from Nürnberg), Bunte Stunde. 7.30, Talk: America and Germany. 7.50, Brahms Song Recital by Maria Basca (Mezzo-Soprano); Six Gipsy Songs: (a) He Ziegenher, (b) Hochzeitstürme Rinfahrt, (c) Lieber Gott, du weisst, (d) Brauner Bursche, (e) Kommt dir manchmal in den Sinn, (f) Röslein drei; Von ewiger Liebe; Ständchen; Sind es Schmerzen; Weit über das Feld; Meine Liebe ist grün. 8.20, Discussion: An Excursion to Mars. 8.45, Cello and Pianoforte Recital: Sonata in F (Tessari); Variations on the Theme Bei Männern, welche Liebe fühlen (Mozart); Song without Words (Mendelssohn); Serenata napoletana (Sgambati); Zapateado (Sarasate). 9.20, Time, Weather, News and Sports Notes.

NAPLES.—See Roma.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredrikstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres; and Rjukan, 447.1 metres.—6.0 p.m., Announcements and Weather Forecast. 6.30, English Lesson. 7.0, Time Signal. 7.1, Symphony in B Minor—the Unfinished (Schubert), by the Station Orchestra, conducted by Hugo Kramm. 7.30, Kyvind Alnæs Memorial Concert by the Station Orchestra, and the Holter Choir. 8.15, Talk on Taxation. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Oscar Braaten reads from his own Works. 9.45 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tourist Talk, Agricultural Notes and Giornale Radio. 7.20, Popular Music on Gramophone Records. 7.30 (in an interval), Time Signal and Announcements. 8.0, Relay from the Teatro Massimo Vittorio Emanuele. In the intervals: Talk, Art Review and News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and six-dot signals).—5.45 p.m., Le Journal Parle. 7.20, Weather. 7.30, Different Forms of Pianoforte Music. Recital by Marie Antoinette Pradier, with Commentary by André Delacour: Five Nocturnes: (a) Op. 27, No. 2 (Chopin), (b) Op. 55, No. 1 (Chopin), (c) Liebestraum (Liszt), (d) Nocturne (Debussy), (e) Nocturne, No. 11 (Faure), (f) Nocturne in Waltz Form (Pierce). 8.0, Concert by the Firmin Touche Quartet: Quartet No. 21 in D (Mozart); Quartet in E Flat (Dvorak). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—7.0 p.m., Sponsored Concert with Gramophone Records. 8.0, Film Review. 8.5, Legal Talk. 8.15, Interval. 8.30, Concert of Romanian Music by the Station Symphony Orchestra, conducted by Théodore Mathieu. 10.30, News Bulletin.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—8.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (cont'd). 7.45, Gramophone Records: Spring Song (Mendelssohn); Aubade d'amour (Mondt); Melody (Tchaikovsky); Catalan-Murcian Melody (Nin). 8.0, Press Review and Weather Forecast. 12 Noon, Concert by the Kretzky Orchestra: Part I—Opera Music; Selection from Le Nouveau Seigneur de Village (Boieldieu); Dance of the Hours from La Gioconda (Ponchielli); Selection from La Boutique Fantasque (Rossini-Respighi); Selection from Carmen (Bizet); Spinnier's Chorus from The Flying Dutchman (Wagner); Ballet from Cinderella (Massenet); Two Airs from Le Roi malgré lui (Chabrier), on Gramophone Records; Two Songs from Louise (Charpentier) on Gramophone Records; Part II—Orchestral Suites; Les Histoires dolentes (Dupont); Suite from Ramintho (Pierné); Suite française (Poulenc). In the intervals at 1.0 p.m., Exchange, News, and Weather. At 1.30, Exchange, and at 2.0, Exchange and Announcements. 3.45, Exchange and Market Prices. 4.30, English Lesson. 6.10, Agricultural Talk. 6.30, Advanced English Lesson. 6.50, Theatre Notes. 7.5, Talk on Art. 7.20, Concert by the Kretzky Orchestra: Suite in Old Style (Caden); Aven dans le Soir (Paray); Invocation à Schumann (de Severac). 7.40, Concert, relayed from the Reformation Hall, Geneva. 8.0, Reading. 8.30, News and Weather. 8.40, Review by Zamacois. 8.45, Chamber Music: Soloists: Madeleine Peltier (Pianoforte) and Roger Boulmé (Cello); Trio (Lalo); Pianoforte Solos: (a) Barque sur l'océan (Ravel), (b) Vent dans la Plaine (Debussy), (c) Etude en forme de Valse (Saint-Saens), (d) Melody (Philipp); Cello Solos: (a) Romance in F (Saint-Saens), (b) Le Baiser d'Éunice (Nouguès), (c) Tarantella (Popper); Quartet with Pianoforte (Jongen). In the interval at 9.15, Press Review and News.

PORSGRUND.—See Oslo.

POZNAN

335 metres; 1.9 kW.—5.50 p.m., Miscellaneous Items and Announcements. 6.10, Book Review. 6.28, Time Signal. 6.30 to 7.0, See Warsaw. 7.0, See Vienna. In an interval, News and Announcements. 9.0, See Warsaw. 9.15, Time Signal and Announcements. 9.30, Dance Music relayed from the Esplanade Café. 11.0 (approx.), Close Down.

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., See Moravská-Ostrava. 4.10, Talk on Industry. 4.20, Czech Lesson for Germans and German Lesson for Czechs. 4.50, Popular Music on Gramophone Records. 5.5, Agricultural Report. 5.15, Talk for Workers. 5.25, German Transmission: News in German and Talk: Is Musical Talent inherited or acquired. 6.0, News. 6.5, Talk on Economics. 6.20, Pianoforte Recital by Norbert Goldmann: Organ Prelude and Fugue in A Minor (Bach-Liszt); Andante in F (Beethoven); Au bord d'une source (Liszt). 6.50, See Brno. 7.40, Concert by a Zither Quartet. 8.0, Time Signal. 8.2, Orchestral Concert, conducted by Otakar Jeremias; Slav Dances (Dvorak): (a) No. 9 in B and (b) No. 10 in E Minor; Idyll (Fibich); Symphonic Poem, Hakon Jarl (Smetana); Overture, Op. 18, Marjasa (Novak). 9.0, Time Signal. 9.2, News, Daily Review and Sports Notes. 9.15, Popular Music on Gramophone Records. 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; LAUSANNE, 660 metres; and GENEVA, 760 metres.—6.30 p.m. (from Lausanne), English Lesson. 6.0 (from Lausanne), News Bulletin. 6.20 (from Geneva), Answers to Correspondents. 6.30 (from Geneva), Newly Released Gramophone Records. 7.0 (from Lausanne), Anniversary Programme in Celebration of the Independence of Vaud. Address, Vocal Concert and Talks. 7.45 (from Geneva), Symphonic Jazz Concert by the Broadcasting Serenades, conducted by J. M. Pasche. Soloists: Jean Wiener and Clément Doncet. (Pianoforte). 9.0, News and Weather. 9.15 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—3.30 p.m., Weather Report. 8.40, Musical Programme and Announcements. 9.0, Clinics and News Bulletin. 9.30, Reading. 10.0, Cello Recital by Thorhallur Arnason. 10.15, Recitations. 10.35, Scheherazade (Rimsky-Korsakov) on Gramophone Records.

RIGA

525 metres; 15 kW.—5.0 p.m., French Lesson. 5.30, Talk: Feminine Psychology. 6.0, Weather. 6.5, The Land of Smiles—Operetta (Lehár). News in the interval. 8.0, Weather Report. 8.45, Dance Music. 9.30 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call IRO, 441 metres; 50 kW. Relayed by Naples, 319 metres, and 2RO, 25.4 metres.—7.15 to 7.30 a.m., Giornale Radio and Announcements. 11.30, Weather and Gramophone Records of Variety Music. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Orchestral Concert. In the interval from 12.30 to 12.45, Giornale Radio and Exchange. 1.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.50 to 5.15, Concert from Turin. 6.10, (from Naples), Shipping and Sports Notes. 6.15, Atmospheric Signals, Announcements, Agricultural Report and Giornale Radio. 7.0, Time and Announcements. 7.20, Talk on Astronomy. 7.15, Gramophone Records of Light Music. 7.30, Sports Notes and Tourist Report. 7.45, Variety Concert. Soloists: Theodate Johnson (Soprano) and Ugo Cantelino (Tenor); Quartet in F for two Violins, Viola and Cello (Dvorak); Three Old English Songs: (a) Phillis (Anthony Young), (b) Sweet Kate (Robert Jones), (c) Song (Dr. Arno); Two Modern American Songs: (a) Blues, Negro Song (Kett), (b) How am I to know (Jack King). 8.30, Bedtime Comedy in One Act (de Mussat). 9.0, Concert (cont'd): Wolan's Farewell and Fire Magic from The Valkyries (Wagner); Carnival from the Suite The Eternal City (Massenet); Tenor Solos: (a) Agnus Dei (Bizet), (b) Romance from L'Alceste (Gile), (c) Anapola (Lacalle); Arioso, Barcarolle and Duet from Samson and Delilah (Saint-Saens). 9.55, News.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY); 375.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres, and by W2XAD on 19.56 metres.—12 Midnight, G-E Circle. 12.15 a.m. (Wednesday), Stock Reports. 12.30 till Close Down, New York Relay. 12.30, Barbasol Programme. 12.45, The Goldbergs. 1.0, Blackstone Plantation. 1.30, Wayne King's Orchestra. 2.0, Ben Bernie's Blue Ribbon Orchestra. 2.30, Ed Wynn and the Fire Chief Band. 3.0, Lucky Strike Hour. 4.0 (approx.), Close Down.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW.; BASEL, 244.1 metres; and BERNE, 245.9 metres.—9.20 to 9.50 a.m., Broadcast for Schools: French Lesson. 11.28, Time Signal from Neuchâtel Observatory. 11.50, Weather and News. 11.40, Concert of Light Music by the Radio Orchestra. 12.35 p.m., Weather and Exchange. 12.45 to 2.30, Interval. 2.50, Gramophone Concert of Cinema Organ Music. 2.50, Carnival Songs on Gramophone Records. 3.10, Gramophone Dance Music. 3.30, Concert by the Little Radio Orchestra. 4.0, Popular Music on Gramophone Records. 4.30, Weather Report. 4.35 to 5.30, Interval. 5.30 (from Berne), Talk: The Life of Women in India. 6.0, Time and Weather. 6.1 (from Berne), Notes on the Broadcasts for Schools. 6.15 (from Berne), Frank Thiess reads from his Novel, The Cerfleur. 6.45 (from Berne), Talk on the following Transmission. 7.0 (from Berne), Symphony Concert by the Berne Music Society, conducted by Dr. Fritz Brun. Soloist: Arthur Rubinstein (Pianoforte). 8.50 (approx.), Weather, News and Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—4.5 p.m., Folk Music, relayed from Falun (307 metres). 9.25, Reading. 4.45, Variety Music on Gramophone Records. 5.45, Elementary French Lesson, relayed from Malmö (231 metres). 6.15, Weather and News. 6.30, Talk, relayed from Uppsala (453.2 metres). 7.0, Concert by the Stågtigi Orchestra: Overture, Le cheval de bronze (Auber); Suite, The Pagoda of Flowers (Woodforde-Flindon); Waltz, Künstlerleben (Joh. Strauss); Selection from Faust (Gounod); Fantasia on a Tale by Oscar Wilde (E. Coates); Operetta Melodies from Vienna (Robrecht). 8.15, Literary Review. 8.45, Weather and News. 9.0, Act III of Siegfried, Opera (Wagner), relayed from the Opera House. 10.30 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Gramophone Concert of Classical Music. 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Variety Music on Gramophone Records. 2.0 to 4.45, Interval. 4.45, Talk on the French Colonies. 5.0, Orchestral Concert, conducted by Roskam. Soloist: M. Roskam (Cello). March, Saint-Cyr (Dollinger); Waltz (Fétras); Spanish Dances Nos. 2 and 5 (Mozzkowsky); Overture, Les Saltimbanques (Ganne); Selection from Eva (Lehar); Cello Solo: Three Dances (German); March, Piccadilly (Benoit). 6.0, Medical Talk in German. 6.15, Topical Talk in French. 6.30, Orchestral Concert, conducted by Maurice de Villers: Overture, Prometheus (Beethoven); The Jupiter, Symphony in C (Mozart); First Suite from L'Arlesienne (Bizet); Scènes pittoresques (Massenet). 7.30, Time and News. 7.45, Variety Music on Gramophone Records. 8.25, Lottery Results. 8.30, Orchestral Concert, conducted by M. de Villers. Soloists: Mme. Lévyal (Soprano) and M. Povel (Horn). Italian Symphony (Mendelssohn); Songs: (a) Cantata, L'Amour pique par une abeille (Clémabault), (b) Arietta from Hippolyte et Aricie (Rameau); Overture, Gwendoline (Chabrier); Larghetto for Horn and Orchestra (Chabrier); Rhapsody, España (Chabrier); Song, The Pirates (Laparra); Mother Goose Suite (Ravel); Song, Villanelle (Pierné); Prelude and Waltz from L'Étoile (A. Wormser) 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and FREIBURG, 570 metres.—12.15 p.m., Time, News, Weather, Show Report and Programme Announcements. 12.30, The Surprise Symphony (Haydn) on Gramophone Records. 1.0, Sponsored Concert. 1.30, Advanced English Lesson. 2.0 to 3.0, Interval. 3.0, Talk on Flowers. 3.30, Talk for Women. 4.0, See Langenberg. 5.0, Time, Weather and Agricultural Report. 5.10, Talk on Gustav Dore, relayed from Mannheim. 5.35, Talk: Observations between Bagdad and the Straits of Bosphorus in the Autumn of 1932. 6.0, Time and News. 6.15, Recital of Swiss Yodels. 6.45, The Life and Work of Mozart—a Radio Sequence from Contemporary Documents with Music by the Station Choir, the Stuttgart Philharmonic Orchestra, and Soloists. 8.10, See Berlin (Königs Wusterhausen). 9.15, Time, News, Weather, Snow Report and Programme Announcements. 9.45, Dance Music by the Stuttgart Philharmonic Dance Band, conducted by Harry Risch. Soloist: Käthe Mann. 11.0 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0 p.m., News Bulletin. 6.15, Music by an Argentine Orchestra. 6.20, Opera Music: Airs from: (a) Carmen (Bizet), (b) Romeo and Juliet (Gounod), (c) The Pearl Fishers (Bizet), (d) Lakmé (Delibes). 6.4, Mazepa—Symphonic Poem (Liszt). 7.0, Accordion Music. 7.15, Racing Results, Market Prices and News. 7.25, Local News. 7.30, Opera Music: Selection from: (a) Hérodiade (Massenet), (b) The Tales of Hoffmann (Offenbach), (c) Figaro (Mozart). 7.45, Variety Music. 8.0, Songs from Some Films. 8.15, Opera Music: (a) Intermezzi from Act II of I Pagliacci (Leoncavallo), (b) Selection from Madame Butterfly (Puccini), (c) Prelude to Act IV Werther (Massenet). 8.30, Chansonnettes. 8.45, Violin Solos: (a) Berceuse (Fauré), (b) Spanish Serenade (Chaminade), (c) Tambourin (Leclair). 9.0, Extracts from Carmen—Opera (Bizet). 9.2, Concert of Viennese Music. 10.0, Programme of Balalaika Music and Russian Songs. 10.15, North African News. 10.30, Concert for Listeners in Morocco: Soap Bubbles (Lachner); Song from The Pearl Fishers (Bizet); Overture, Le Roi d'Ys (Lalo); My dis Ty ouh (Bousquet). 11.0, Military Music. 11.15, Orchestral Music. 11.30, English Programme by the I.B.C.: Dance Music: O! Donna Clara; Bird Songs at Eventide; Tap your Feet; Sweet Jennie Lee; I'll be Blue just thinking of you; Without a Song; If I could be with you; I still get a Thrill. 12 Midnight, Weather and Announcements. 12.5 a.m. (Wednesday), Orchestral Music. 12.5, Military Music: Military March from the Algerian Suite (Saint-Saens); Empire Festival (Maekenzie). 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—4.0 to 5.0 p.m., Concert of Chamber Music. 5.35 till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayed by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—4.40 to 5.0 p.m., Orchestral Concert. 5.35, Giornale Radio, Agricultural Report and Announcements. 6.0, Gramophone Records of Variety Music. 6.25, Report of the Royal Geographical Society. 6.30, Time, Announcements and Light Music on Gramophone Records. 7.0, Giornale Radio, Weather and Programme of Light Music on Gramophone Records. 7.30, An Operetta in Three Acts. In the intervals: Talk, Notes on Art and Giornale Radio.

VATICAN CITY

19.84 metres (Morning) and 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in Spanish. 7.0 to 7.5 p.m., Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by Graz, 351 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218.5 metres.—6.20 p.m., Time, Weather and Programme Announcements. 6.30, Reading. 7.0, Concert by the Josef Holzer Orchestra. Soloists: Maria Gerhart (Soprano), Dario Medina (Tenor), and Wilhelm Daxholzal (Violin). Overture, Der Waldmeister (Joh. Strauss); Galathée's Song from Die schöne Galathée (Suppé); Waltz, Wie die Rosen (Ertl); Tenor Solo: Song from White Horse Inn (Graenichersteden); Duet from Der Göttergatte (Lehar); Soprano Solo: Potpourri, Was die Donau erzählt (Marenco); Tenor Solo: Ich bin verliebt in dich, mein Wien (Biron); Vienna Jubilee Overture (Suppé); Soprano Solo from Schön ist die Welt (Lehár); Waltz, Künstlerleben (Joh. Strauss); Tenor Solo: Du wirst mein ganzes Glück (Beeth); Violin Solo: Hungarian Fantasy (Lehár); Serenade, Drei gelbe Rosen (Strecker); Tenor Solo: Ich bin verliebt (Stolz); March Song, Brüder, ich bin verliebt (Nedbal); Duet; Potpourri, Beim Heiligen (Kronegger). 9.0, News, Weather and Announcements. 9.15, Dance Music by the David Mathé Orchestra, relayed from the Café Palmhof.

WARSAW

1,411 metres; 120 kW.—11.10 a.m., Popular Music on Gramophone Records. 12.20 p.m., Weather Forecast. 12.25 to 2.10, Interval. 2.10, Announcements. 2.15, Economic Report. 2.25, Aviation and Anti-Gas Report. 2.30, Announcements. 2.35, Book Review. 2.50, Light Music on Gramophone Records. 3.25, Talk for Teachers. 3.40, Talk, relayed from Wilno (563 metres). 4.0, Symphony Concert by the Warsaw Philharmonic Orchestra, conducted by Fiteberg: Leonora Overture, No. 3 (Beethoven); Symphony in D, No. 2 (Beethoven). In the interval, announcements. 4.55, Programme Announcements. 5.0, Dance Music, with News in the interval. 6.0, Miscellaneous Items. 6.0, Agricultural Report. 6.30, Talk on Music. 6.45, Radio Journal. 7.0, Light Music, relayed from Vienna. In the intervals: Sports Notes and Radio Journal. 9.0, Reading from The Year 1803 (Joseph Pilsudsky). 9.15, Light Music on Gramophone Records. 9.45, Weather Forecast and Police Notes. 1.0, Dance Music, relayed from the Café Italia. 11.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender.

ALGIERS

363.3 metres; 13 kW.—7.0 p.m., Financial Notes and Exchange. 7.10, Shipping Report. 7.15, Agricultural Report and Weather. 7.20, Light Music. 7.30, Talk: The Films of the Week. 7.45, Light Music. 7.55, News. 8.0, Time Signal. 8.2, Talk: The Season in Algiers. 8.15, Dance Music. 8.45, News. 8.50, Twenty Minutes Wait—Comedy in One Act. 9.15, The Fourth Symphony (Brahms). 9.30, News. 9.35, Symphony (contd.). 9.50, News.

BARCELONA

RADIO-BARCELONA, Call EAJI, 348.8 metres; 8 kW.—7.0 p.m., Request Gramophone Records. 7.30, Exchange Quotations. 8.0, Popular Music on Gramophone Records, followed by News Bulletin. 9.0, Chimes from the Cathedral. Weather Forecast, Exchange Quotations and Market Prices. 9.5, Concert by the Station Orchestra: Military March (Granados); Selection from El padrino del Nene (Caballero-Hermoso); Nocturne, No. 1 (Jorda); Bonita y graciosa (Dobras Vila); Spanish Caprice (Ponatti); Rigaudon, from Dardanus (Rameau). 10.0, La Creu de la Masia—Catalan Play in Three Acts (F. Soler). 11.0 (in an interval), News Bulletin. 12 Midnight (approx.), Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Report, Tourist Talk and Announcements. 7.20, Giornale Radio and Press Review. 7.30, Concert of Chamber Music. Soloists: Franco Ruggiero (Pianoforte), Euzza Motti Messina (Soprano) and Nilde Pignatelli (Violin); Selection from The Secret Marriage (Cimarosa); Pianoforte Solos: (a) The Harmonious Blacksmith, with Variations (Händel), (b) Andantino e presto (Michelangelo Rossi), (c) Passacaglia (Händel); Soprano Solos (Schubert): (a) Morgenlied, (b) Heiden-Röslein, (c) Erlkönig; Violin Solo, Rondino on a Theme by Beethoven (Kreisler); Pianoforte Sonata, Op. 57 (Beethoven); Soprano Solos: (a) Nana (Fallu), (b) El Pescador (Turina); Violin Solos: (a) Aria (Porpori-Corti), (b) Allegretto (Boccherini-Kreisler); Selection from Così fan tutte (Mozart); Soprano Solos: (a) Recitative (Respighi), (b) Il mago Pistagna (Mortari), (c) La storiella di Piccinni (Mortari); Prelude and Allegro for Violin (Pugnani-Kreisler); Pianoforte Solos (Chopin): (a) Prelude in D, (b) Etude in C Minor, Op. 20; Talk on Science in the interval. 9.30, Concert from the Café del Levante. 9.55, News.

BASLE.—See Schweizerischer Landessender.

BELGRADE

430.4 metres; 2.8 kW.—4.0 p.m., Medical Talk. 5.55, Time and Programme Announcements. 6.0, Variety Music on Gramophone Records. 6.30, Talk. 7.0, Choral Concert. 8.0, Orchestral Concert, relayed from Novi Sad: Overture, Rienzi (Wagner); Yugoslav Dances (Vilhar); Scènes Pittoresques (Massenet); Pianoforte Concerto No. 20 in D Minor (Mozart); Marche solennelle (Cui). 9.30, News.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.55 a.m., Nauen Time Signal. 12.35 p.m., News Bulletin. 1.0, Gramophone Concert, relayed from Berlin (Witzleben). 2.0, Programme for Children. 2.30, Weather and Exchange. 2.45, Reading by Albert Daudistel. 3.0, Talk: The Secrets of Fortune-Telling. 3.30, See Hamburg. 4.10, Talk: The Penal Code. 4.30, Talk: The Beginnings of the German Nation. 4.55, String Quartet for Two Violins, Viola, and Cello: Op. 18, No. 3 (Beethoven). 5.30, Talk on Philosophy. 5.55, Weather and Announcements. 6.0, French Lesson. 6.30, A Poem. 6.35, Concert from Breslau. 7.0, See Berlin (Witzleben). 8.0, Fairy Tales by Hans Andersen. 8.30, Song Recital from Berlin (Witzleben). 9.0, Weather, News and Sports Notes. 9.45, Weather Report for Shipping, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—5.5 p.m., Viola and Pianoforte Recital by Reinhard Wolf and Winfried Wolf. 5.30, Book Review. 5.55, The Witzleben Station informs its Listeners. . . . 6.0, Topical Talk. 6.10, The Adventures of Two Rivers a Sketch (Heinrich Hauser). 7.0, New Music for Electrical Instruments—Compositions by Paul Höffer, Wolfgang Jacobi and Ernst Lothar von Knorr, with Introductory Notes and Commentary by Prof. Gustav Leyh-lhäuser and Hans von Benda. 8.0, Reading by Ernst Kreuzträger. 8.30, Song Recital by Karl Erb. Part One—Liszt Programme: "Fried' ist versagt mir; So sah ich dem auf Erden Engelsfriden; Sei zusehnet immerdar. Part Two—Schubert Programme: Wehnut; An die Leyer; Totengräbers Heimweh; Das Lied im Grünen. 9.0, Weather, News and Sports Notes. 9.15 (approx.), Dance Music, relayed from the Wilhelmshallen of the Zoo. 10.10, Concert of Old Music. Conductor: Alfred Herzig; Overture for Violin and Chamber Orchestra (J. B. Bach-Hering); Cantata for Contralto

WEDNESDAY
JANUARY THE TWENTY-FIFTH

PRINCIPAL EVENTS OF THE DAY:

NATIONAL

Orchestral concert, from Bournemouth. Professor H. J. Laski: "The State and the Individual." Symphony concert from Queen's Hall. "Strange Music." feature programme. Programme of National Melodies of the British Isles.

LONDON REGIONAL

Orchestral concert. Military Band programme. Burus' Night Programme, Vaudeville programme. Requests, orchestral concert. Organ recital.

MIDLAND REGIONAL

NORTH REGIONAL

Mr. E. J. S. Donner: "Brazil, Colombia, and Venezuela." Orchestral and choral concert. Old World music, violoncello recital.

WEST REGIONAL

Orchestral concert, from the National Museum of Wales. Mr. A. G. Prys-Jones: "The Centenary of Sir Lewis Morris." A Burns concert.

SCOTTISH REGIONAL

Ballad concert. A Burns concert.

BELFAST

Orchestral concert, from Stranmillis.

ABROAD

BERO-MUNSTER

Opera: "Don Pasquale" (Donizetti), from Zurich.

FRANKFURT

Operetta concert, by the Station Orchestra, conducted by R. Merten.

HAMBURG

Opera: "The Pearl Fishers," by Bizet.

HEILSBURG

Flotow concert by the Danzig Municipal Theatre Orchestra, conducted by O. Seiberg.

LEIPZIG

The Symphony Orchestra, music by Anber,

and Chamber Orchestra. Ich sprach in meinem Herzen (Buxtehude); Trio No. 5 in B Flat (Stamitz-Hering). 11.0 (approx.), Close Down.

BERNE.—See Schweizerischer Landessender.

BEROMUNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BRATISLAVA

279 metres; 14 kW.—3.10 p.m., See Prague. 4.10, Popular Music on Gramophone Records. 4.35, Programme for Children. 4.45, Polish Lesson. 5.0, Hungarian Programme: Review of New Books and Song Recital by Irma Weide-Barkany. 6.0, See Prague. 6.20, Concert of Light Music. 7.0, See Brno. 9.0, See Prague. 9.15 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres; 60 kW.; and GLEIWITZ, 253 metres.—12.5 p.m., Weather for Farmers, followed by a Gramophone Concert of Classical Music. 12.45 p.m., Time, Weather, News, and Exchange. 1.5, Gramophone Concert: Overture, The Daughter of the Regiment (Donizetti); Love Waltz and Waltz Duet from Wiener Blut (Joh. Strauss); Waltz, Wiener Bürger (Ziehrer); Waltz, Wiener Kinder (Jos. Strauss); Air from Frau Luna (Lincke); Vitas' Song from The Merry Widow (Lehar). 1.45, Sponsored Programme, with Gramophone Records. 2.10, Agricultural Prices and Exchange. 2.35 (from Gleiwitz), Educational Talk. 3.0, Sketches from Upper Silesia, by Hans Wolfgang Emler. 3.30, The Programme of the Upper Silesian Land-theatre-concert, by Operetta Soloists. 4.10, Talk: Skiing in the Beskiden Mountains in Czechoslovakia. 4.30, Agricultural Prices. 4.35, Talk: The Campaign against Damage to Forests. 4.50, Concert of Light Music by the Emil Glielink Orchestra. 5.20, Talk: The Need for the Protection of Natural Scenery and Animals. 5.40, Talk: The Christmas Amnesty and its Effects. 6.5, Concert of Light Music by the Emil Glielink Orchestra. In an interval at 6.30 (approx.), Weather for Farmers. 7.0, The January Cantata in Silesian Dialect (Words by Ernst Schenke, Music by Karl Seruka). 8.0, Announcements. 8.10, Request Concert by the Station Orchestra. 9.10, Time, Weather, News, Sports Notes, and Programme Announcements. 9.30, Talk: Young People in the Country. 9.50, Dance Music from Berlin (Witzleben). 10.30, Dance Music from the Café Anglais, London. 12 Midnight (approx.), Close Down.

BRNO

342 metres; 55 kW.—4.10 p.m., See Moravská-Ostrava. 5.5, Review of Periodi-

AT HOME

cert by the Budapest Concert Orchestra, conducted by Otto Berg. 5.15, Italian Lesson. 5.45, Choral Concert of Hungarian Songs, conducted by Josef Uj. 6.45, Concert by the Mándita Orchestra. 7.45, News Bulletin. 8.0, Cello Recital by Eugen Kerpely. T. Polgar at the Pianoforte: Sonata in A Flat (Valentini); Seklor Ballade and Spinnerlied (Kozma); Adagio and Rondo (Boccherini); Waltz (Schubert). 8.45, Richard Tauber and Lotte Lehmann Song Recital on Gramophone Records: Air from Der Spielmann (Hildach); Es stuess ein Jäger wohl (Römer); Der Trompeter von Säckingen (Nessler); Aria from Martha (Flotow); Song from The Tales of Hoffmann (Offenbach); Song from Rigoletto (Verdi); Plaisir d'amour (Martini); Tom der Reimer (Loewe); An der Weser (Presser); Vorrei morire (Tosti); Der Wanderer (Schubert); O Täger weit, o Höhen (Mendelssohn); Das Wirtshaus (Schubert); Der Lindenbaum (Schubert). 10.0, Concert by the Gyula Csoba (Gigany) Band from the Hotel Britannia. 11.0 (approx.), Close Down.

CASSEL.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW., and KALUNDBORG, 1,153 metres; 7.5 kW.—11.0 a.m. to 1.15 p.m., Concert from the Hotel d'Angleterre. 12.15 to 12.45, Broadcast for Schools. 2.0, Talk for Women. 2.30, Concert from the Wives Restaurant. 4.0, Gramophone Concert: Sigrid Ouegin; Hallelujah from Exultate (Mozart); Francesco Merli and Taverdi Passero; Duet from the First Act of Aida (Verdi); Enrico Caruso; A Vucchella (Tosti); Yehudi Menuhin and Georges Enesco; Second Movement from the Concerto in D Minor for two Violins and Orchestra (Bach); Lucienne Boyer; Sans toi (Scotti); Rudy Vallee; Say it isn't so (Berlin); The Wiggers Quartet; Mitt i mattn (Söderblom). 4.40, Exchange and Market Prices. 4.50, Agricultural Talk. 5.20, Elementary French Lesson. 5.50, Weather Report. 6.0, News Bulletin. 6.15, Time Signal. 6.30, Talk: Great Philosophers. 7.0, Town Hall Chimes. 7.2, Concert of Hungarian Folk Music by the Radio Orchestra, conducted by Launy Gröndahl. Soloists: Per Knudsen (Songs), Paraphrase on Hungarian National Melodies (José Fadouk); Three Pieces for Strings (Josef Bloch): (a) Czinka panna notaja, (b) Biharni kesergöje, (c) Hej, Rakoczy, Bercsenyi; Fantasia on Hungarian Folk Melodies (arr. Akos Laszlo); Six Hungarian Folk Songs; Second Hungarian Rhapsody (Liszt). 8.0, Talk: Denmark and Iceland as Allies. 8.30, Pianoforte Recital: Woodland Sketches, Op. 51 (MacDowell). 8.45, J. P. H. Hartmann Concert—by the Lilly Eriksen Quartet. 9.5, News Bulletin. 9.20, Quintet in B Minor, Op. 115, for Clarinet, two Violins, Viola and Cello (Brahms). 9.50, Dance Music from the Nimb Restaurant. 11.0 (in an interval), Town Hall Chimes. 11.30 (approx.), Close Down.

CORK.—See Dublin.

CRACOW

312.8 metres; 1.5 kW.—3.0 p.m., Popular Music on Gramophone Records. 3.40, Beauty contests. 4.0, Gramophone Records of Light Music. 4.40, See Warsaw. In the interval at 5.5, Programme Notes and Announcements. 6.0, Miscellaneous Items and News. 6.15, Talk. 6.30, See Warsaw. 9.40, Topical Talk. 9.55, See Warsaw. 10.0, Relay of Foreign Stations. 11.0, Bugle Call from the Tower of St. Mary's Church.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN, 413 metres; 1.2 kW.; and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. 6.0, Popular Music on Gramophone Records. 6.15, Programme for Children. 7.0, Light Music on Gramophone Records. 7.20, News Bulletin. 7.30, Time Signal. 7.31, Gaelic Talk. 7.45, German Lesson. 8.0, Concert by the Station Sextet. 8.30, Musical and Dramatic Programme. 9.0, Baritone Solos by Marcus Ruddle. 9.15, Harp Solos by Annie Fagan. 9.35, Song Recital by Mollie Phillips (Soprano). 9.50, A Sketch by K. Plunkett and Company. 10.20, The Station Sextet. 10.30, Time Signal, News, Weather Report and Close Down.

FECAMP

223 metres; 10 kW.—12 Noon, Popular Music on Gramophone Records. 12.30 p.m., News Bulletin. 12.45, Concert of Variety Music. 7.0, Local News. 7.15, Light Music on Gramophone Records. 7.30, Radio Gazette. 8.0, News Bulletin. 8.15, Talk. 8.30, Popular Concert. 9.0, Concert, relayed from Dieppe. 10.0 till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: That's my Desire; You can't stop me from loving you; My Baby said Yes, Yes; You were my Salvation; Cuban Love Song; Just once for all time; The Wedding Party of Mickey Mouse; Life is just a Bowl of Cherries; My Sunshine is you; Put your Loving Arms around me; It's a Girl; Got a Date with an

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—12 Noon, Light Music on Gramophone Records. 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Little Station Orchestra, conducted by P. Leemans: Pasodoble, Viva Palma (Broekler); Overture to an Operetta (Lincke); Intermezzo, Tramonto (Malvezzi); Selection from The Girl in the Taxi (Gilbert); Violin Solo: Liebesfreud (Kreisler); Girl (Poot); Selection from Wonder Bar (Katscher). 5.0, Concert by the Symphony Orchestra, conducted by Arthur Menlemans: The Surprise Symphony (Haydn); Selection from Les Petits Riens (Mozart). 5.30, Programme for Children. 6.0, Talk on Children. 6.15, Selection from Hansel and Gretel (Humperdinck) on Gramophone Records. 6.30, Concert by Willie Lewis, of the Penguin Club. 7.15, Talk for Workers. 7.30, Medical Talk. 8.0, Gramophone Concert: 1929 Festival March (Michael); Selection from Madame Pompadour (Fall); Polka des As (Morceau); En revenant de la Revue (Desormes); Meditation from Thais (Massenet); Selection from Miss Decima (Audran); Mazurka (Migliavacca); Lang, lang ist's her (Dittrich); Mareh (Antonius). 8.45, Talk: Unemployment Relief. 9.0, See Paris (Radio-Paris). In the interval, Le Journal Parlé. 11.0 (approx.), Close Down.

BRUSSELS (No. 2)

I.N.R., 338.2 metres; 15 kW. Programme in Flemish.—12.0 Noon, Concert, conducted by Paul Moreaux, relayed from the Menline Hall, Antwerp. 1.0 p.m., Le Journal Parlé. 1.10, Concert, relayed from Antwerp (contd.). 5.0, Mickey's Club Jazz Attraction. 6.15, Talk. 6.30, Chamber Music: Pieces for Harp, Violin, and Cello (Rameau); Suite (Vincent d'Indy). 7.15, Talk. 7.30, Theatre Review. 8.0, Concert by the Small Station Orchestra, conducted by Paul Leemans: Soloists, M. Wigy (Violin) and M. Donliez (Pianoforte); Overture, La finta giardiniera (Mozart); Melody (Raehmannov); Musical Box and Pinnola (Antiga); Violin Solo: Polonaise (Wieniawsky); Pianoforte Solo: Rhapsody, No. 12 (Liszt); Selection from Sunny (Kern). 8.45, Recitations. 9.0, Music Hall Programme with M. G. Dumont (Humorous Songs). 10.0, Le Journal Parlé. 10.10, Concert by the Max Alexys Orchestra, relayed from the Ancienne Belgique. In the intervals from 9.0 to 11.0, Commentary on the Six Days' Racing.

BUDAPEST

550 metres; 18.5 kW.—Also relayed on 840 metres from 6.45 to 11.0 p.m.—4.0 p.m., Con-

JAN. 25th

WEDNESDAY

continued

Angel; It's Great to be in Love; Lies; They all make love but me; What's going to happen to me. 11.0, Concert by the Novelty Orchestra: The Clock is playing (Blauwe); The Deep Blue Sea (Brewer); A Hornpipe (Ross); The Devil's Dance (Peterson); The Wedding of the Birds (Peterson); Scherzo from Sylvia (Delibes); Liebesfreud (Kreiser); The Cuckoo Waltz (Jonasson). 11.30, Four Songs at the Piano: I hear you calling me (Marshall); Ireland, Mother Ireland (Longborough); Kitty, my love, will you marry me? (arr. Hughes); Little Boy Blue (Nevin). 11.45, Music by an Accordion Band: Selection from (a) Carmen (Bizet), (b) Congress Dances (Heymann). 12 Midnight, Philco Concert: Love you, Funny Thing; Is I in love? I is; Bahama Mama; Mad about the Boy; I got Rhythm; Wherever you are; If you were only mine; The Younger Generation. 12.30 a.m. (Thursday), Music by an Accordion Band: Selection from Faust (Gounod); Mona Lisa (Carter); Whistling Waltz (Reeves); Senorita (Alexander). 1.0, Light Songs: All alone Monday (Walmar); Waiting at the End of the Road (Berlin); Just like in a Story Book (McCarthy); Orchestra: What's next? (arr. Finck); Any Time's the Time to Fall in Love (Janis); Dance away the Night (Thompson); I'm in the Market for you (McCarthy). 1.30, Concert by the Bicolans: Selection from White-Horse Inn (Stolz-Benatzky); Irish Medley (arr. Griffiths); Musical Comedy Switch (arr. Hall); Scotch Medley (arr. Griffiths); Miracle Medleys (arr. Compely). 2.0, Dance Music. 2.57, I.B.C. Goodnight Melody. 3.0 (approx.), Close Down.

FLensburg.—See Hamburg. FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW.; and CASSEL, 245.9 metres.—2.15 to 3.15 p.m., Programme for Young People. 3.50, Exchange Quotations. 4.0, See Langenberg. 5.15, Exchange Quotations. 5.25, Talk: Is Technical Progress Human Progress? 5.50, Topical Programme. 6.15, Time, Programme Announcements, Weather and Exchange. 6.30, Operetta Concert by the Station Orchestra, conducted by Reinhold Merten. Soloist, Lotte Carola (Soprano). Gallop from Der Waldmeister (Joh. Strauss); Overture, Die geschiedene Frau (Fall); Songs: (a) Der Soldat der Marie (Ascher), (b) Song from Madame Pompadour (Fall); Entr'acte from Madame Pompadour (Fall); Entr'acte from The Last Waltz (O. Straus); Three Songs from The Last Waltz (O. Straus); Selection from Jung-Heidelberg (Milliccker); Song from Katja, the Dancer (Gilbert); Waltz from Die Chansonette (Dellinger); Overture, Das Baby (Heuberger); Two Songs from Katharina (Stefan); Selection from The Chocolate Soldier (O. Straus); Waltz, Künstlerleben (Eysler). 8.0, Simplices Simplicissimus—A Radio Arrangement of the Novel by Christoph von Grimmelshausen. 9.15, Time, News, Weather and Sports Notes. 9.45, Dance Music from London. 11.0 (approx.), Close Down.

FREDRIKSTAD.—See Oslo. FREIBURG.—See Stuttgart. GENEVA.—See Radio-Suisse Romande. GENOA.—See Turin. GLEIWITZ.—See Breslau. GÖTEBORG.—See Stockholm. GRAZ.—See Vienna. HAMAR.—See Oslo.

HAMBURG

Call ha (in Morse); 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 227.4 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—3.30 p.m., Concert by the Station Orchestra, conducted by Horst Platen. Soloist, Hubert Barwasser (Flute). Caprice for Flute (Kempfer); Sketches (Grimpe); Turandot March (Busoni); Adagio from the Fifth Symphony for Strings and Harp (Mahler); Nocturne and Scherzo, Op. 30 (Volkmann Andrae). 4.30, Talk: Old North German Libraries. 11: Hamburg. 4.55, Der Meister der süßen Klagweise—Radio Picture of a Nuremberg Musical Academy of 1529, with the Original Words and Melodies of the Old Mastersingers. 5.50, Exchange and Market Prices. 6.0, Talk: The Frontierlands of the Reich. 6.25, Weather. 6.30, Programme of North German Folk Songs in Dialect, with Introductory Talk and Commentary. 7.0, The Pearl Fishers—Opera in a Prelude and Two Acts (Bizet). 9.20, News Bulletin. 9.40, Topical Talk. 9.50, Dance Music from the Hans Siegler. 10.20 (in an interval), Ice Report.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW.; and DANZIG, 453.2 metres.—12.5 p.m., Concert by the Little Orag Orchestra, conducted by Eugen Wilcken: Overture, Die Landstreicher (Zielner); Two Melodies (Benatzky): (a) Mein Liebestied muss ein Walzer sein, (b) Es muss ein Wunderbares sein; Selection from Countess Maritza (Káhnán); Dolce Notte (Leoncavallo); Rondo (Gabriel-Marie); Waltz, Mein Lebenslauf ist Lieb und Lust (Jos. Straus). 12.20 (in an interval), An-

nouncements. 1.30, Sponsored Programme with Gramophone Records. 2.0, Exchange and Market Prices. 2.20, Practical Hints for the Housewife. 2.30, Programme for Children. 3.0, Extracts from the Letters of Famous Germans to their Parents and Sons. 3.30, Concert by the Little Orag Orchestra, conducted by Eugen Wilcken: Overture, Rosamunde (Schubert); Selection from La Favorita (Donizetti); Waltz, Krolls Baklinge (Lambert); Largo from Xerxes (Händel); Serenade (Haydn); Potpourri, Mousseuse (Waldteufel); Overture, Joan of Arc (Verdi). 4.5, Talk: Great Military Figures at the Time of Frederick the Great. 5.15, Market Prices. 5.30, Talk on Public Health: Dwellings, Clothes and Mental Hygiene. 6.0, Bridge Lesson. 6.25, Hans Heyck reads from his own works. 6.50, Weather and News. 7.0, See Berlin (Witzleben). 8.0 (from Danzig), Flotow Concert, by the Danzig Municipal Theatre Orchestra, conducted by Otto Selberg. 9.15, Weather, News and Sports Notes, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

HILVERSUM

Announced HUIZEN; 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.). Programme of the Christian Radio Society (N.C.R.V.). 10.40 a.m., Harmonium Recital. 11.40, Police Notes. 11.55, Trio Concert, conducted by Van der Horst. Soloists: 1. Raveuzwaay-Möllenkamp (Songs). Allegretto from the Fourth Trio (Beethoven); Five Songs; Adagio from the Sixth Symphony (Mozart); Overture, Le Maçon (Aubel); Five Songs; Potpourri of Mozart's Music (Urbach); Selection from Coppélia (Delibes); Songs: (a) On Wings of Song (Mendelssohn), (b) Caro mio ben (Giordano), (c) Plaisir d'amour (Martini), (d) Per la gloria (Biononelli); Selection from Manon (Massenet). 1.40 p.m., Talk on Gardening. 2.25, Programme to be Announced. 2.40, Reading. 3.10, Trio Concert: Trio in E, No. 3, for Violin, Cello, and Piano (Mozart); Cello Solos: (a) Andante (G. Mann), (b) Cortège (H. Bosmans); Piano Solo: (a) Les jeux d'eau (Debussy); Violin Solos: (a) Romance, Op. 30 (Sinding), (b) Spanish Dance (Fallas-Kreiser), (c) Scherzo-Tarantella, Op. 16 (Wieniawsky); First and second Parts of Le Fontaine di Roma (Respighi), on Gramophone Records; Trio (Alex Voormolen). 4.40, Programme for Children. 5.40, Talk: Germany in 1933. 5.55, Talk by Heer Schipper. 6.10, Elementary English Lesson. 6.40, Programme arranged by the Department of Buildings and Roads. 7.10, Police Notes. 7.25, News Bulletin. 7.40, Orchestral Concert, conducted by Piet van den Herk. Addresses in the intervals. 9.30 (in an interval), News Bulletin. 10.25, Gramophone Concert of Variety Music. 11.10 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 1,875 metres; 8.5 kW.—Programme of the Workers' Radio Society (V.A.R.A.).—11.40 a.m., Concert: Motor March (Rosey); Acceleration-Walzer (Strauss); Violetta (Rust); In a Hungarian Tavern (Rinesel); Poupée vaillante (Poldini); Russian Dance (Nakchouman). 12.10 p.m., Popular Music on Gramophone Records. 12.20, Organ Recital by M. C. Steyn. 12.40, Popular Music on Gramophone Records. 12.50, Organ Recital (cont.). 1.25, Interval. 1.40, Talk for Women. 2.40, Programme for Children. 5.10, Recital by J. Jong (Organ), R. Benjink (Xylophone and Vihraphone) and J. Carlquist (Hawaiian Guitar). 5.40, Jewish Programme—Music and Talk. 6.40, Talk. 7.20, Orchestral Music. 7.35, S.O.S. Announcements. 7.40, Talk. 8.0, Flotow Concert, by the Station Orchestra. Soloist: A. de Booy (Songs); Overture, Stradella; Song from Stradella; Song from Martha; Selection from Martha; Two Songs from Martha; Selection from Stradella. 8.40, The Flying Dutchman—Play (Heyerman). 10.40, News. 10.50, Variety Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.0 p.m., Announcements, Theatre Notes, and Light Music on Gramophone Records. 6.10, Talk. 6.30, See Warsaw. 9.20, Popular Music on Gramophone Records. 9.40, See Warsaw. 10.0, The Letter Box, in French.

KIEL.—See Hamburg.

KLACENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres; 40 kW.; and HELSINKI, 368.1 metres.—4.0 p.m., Programme for Children. 4.40, Boy Scouts' Report. 5.15, Estonian Lesson. 5.40, Concert by the

Station Orchestra, conducted by Erkki Linko: Air from Il Trovatore (Verdi); Rusticiana (Cortopassi). 6.0, Talk. 6.25, Recital of Hungarian Songs by Lajos Garam. 6.45, Recitations. 7.5, Concert by the Station Orchestra: Lyric Suite (Grieg); Norwegian Rhapsody, No. 4 (Svendson). 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert conducted by Wolf: Overture, The Hebrides (Mendelssohn); Minnet and Scherzo (Schubert); Spanish Fantasia, A Fête in Aranjuez (Demerssemann); Walter's Prize Song from The Mastersingers (Wagner); Carnival Miniatures (Kaske); Scherzo, The Flight of the Bumble Bee (Rimsky-Korsakov); Tumbler's Dance (Rimsky-Korsakov); Selection from The Bird Fancier (Zeller); Japanese Bell Dance (Yoshitomo). 1.0 p.m. (in an interval), News. 1.30, Sponsored Programme with Gramophone Records. 2.30, Exchange and Time Signal. 2.50, Programme for Children. 3.25, Programme Sponsored by the Post Office. 3.40, Talk: Attempts to discover a Biological Foundation for Education. 4.0, Concert by the Station Orchestra, conducted by Buschkütter. Soloist: Hetty Haelszig (Piano): Symphonic Variations for Piano (Franck); From Finland—Four Symphonic Pictures (Palmgren); Second Symphony in B flat (Schubert). 5.15, Book Review: French Narrative Writers. 5.30, Talk on the Fiftieth Anniversary of the Death of Dore. 5.50, Weather, Time, Exchange, and Sports Notes. 6.0, Talk: The Promotion of Health in the Holidays. 6.20, Health Talk: Why does your Child look Pale? 6.35, Talk on Everyday Legal Matters. 6.55, First General News. 7.0, See Berlin (Witzleben). 8.0, Variety Concert. 9.5, News and Sports Notes. 9.30, Serenade and Dance Music. 11.0 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

369.6 metres; 120 kW.; and DRESDEN, 319 metres.—11.5 a.m., Concert by the Endo Orchestra: Fasching, Op. 75 (Schmalstieg); Zigeunersuehne (Niklass-Kempur); Serenade pittoresque (Graener); Waltz, Sommerabend am Rhein (Zimmer); Romance in D (Grünfeld); Melodius from Ihre Hoheit—die Tänzerin (Goetze); Barcarolle, Moonlight in Venice (Fritz Brase); Waltz in the Old Style (Burmester); A Fête in Aranjuez (Demerssemann); Quintessenzen (Morena); Schümmerlied (Reis); Trot de cavalerie (Rubinstein); Romantic Concert Waltz (Döring). In an interval at 12 Noon, News, Weather, Snow Report and Time. After the Concert, Exchange Quotations. 1.0 p.m., Talk: How to build a Wireless Receiver. 2.35, Exchange and Market Prices. 3.0, Two Musical Plays for Children by Children: (a) Die Reise um die Erde (Wetzig-Popelka); (b) Wackelohr und seine Gesellen (Fritz Teichmann). 4.50, Exchange Quotations, Weather and Time. 5.10, Review of Nature Study Books. 5.35, Italian Lesson. 5.55, Programme to be announced. 6.5, Dialogue: Industry and Education. 6.30, Artists and their Art—A Programme of Letters, Confessions and Treatises from the Goethe Period, arranged by Dr. Herbert Griebitsch. 7.0, See Berlin (Witzleben). 8.0, News Bulletin. 8.10, Auber Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber. Soloists: Hedwig Didam-Borchers (Soprano), Margarete Kramer-Bergan (Contralto), Helmut Köster (Tenor), Ernst Possony (Baritone), and Karl Nagel (Bass). Introductory Talk and Commentary by Paul Heinrich Gehly. Overture, Fra Diavolo; Overture and Two Duets from Le Maçon; Duet, Aria and Ballet Suite from Fra Diavolo; Duet, Serenade and Aria from Fra Diavolo; Overture, Aragonese Song and Duo Gratias from The Black Domino; Overture, The Crown Diamonds. 9.40, News Bulletin. 10.0, An Evening in Esterhaz—Unfamiliar Compositions of Haydn by the Leipzig Symphony Orchestra, conducted by Theodor Blümer. Soloists: Emil Luh (Violin) and Dr. Ernst Latzko (Harpisichord). Introductory Talk and Commentary by Dr. Latzko. Concerto in G for Harpischord and String Orchestra; Symphony in C—the Maria Theresa Symphony; Concerto in F for Harpischord, Violin and String Orchestra. 11.0 (approx.), Close Down.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—4.30 p.m., Reading. 5.0, Quintet Concert. 6.0, Russian Lesson. 6.30, Literary Talk. 7.0, Talk on the History of Slav Music. 7.30, Song Recital. 8.30, Relay from the Zvezda Café. 9.15, Time and News.

LWOW

381 metres; 16 kW.—5.0 p.m., Light Music from the Café Szkoeka. 5.55, Talk: Plastic Art. 6.10, Miscellaneous Items. 6.30, See Warsaw. 11.0 (approx.), Close Down.

LYONS

LA DOUA; 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South-East. 8.30, Concert, conducted by M. Gaston Billet, with Songs by Mme. Clody Lamotte (Soprano), M. Stéphane Bonnard (Tenor), and M. Levrat (Baritone). Part I: Songs and Orchestral Pieces. Part II: Le Toréador—Opéra-Comique, in Two Acts (Adam). After the Concert, News Bulletin.

MADRID

ARANJUEZ (EAO); 30.43 metres; 20 kW.—11.30 p.m., Variety Music. 11.45, Radio Chronicle. 12 Midnight, Popular Music. 12.35 a.m. (Thursday), Talk. 12.40, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO; Call EAU7; 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotations, and Literary Talk: The Life and Work of Martinez de la Rosa, followed by Request Gramophone Records. 7.30, Talk: Practical Bookkeeping. 8.25, News Bulletin. 8.30 to 9.30, Interval. 9.30, Chimes, Time Signal, and a Play submitted in connection with the Radio Play Competition. 11.45, News Bulletin. 12 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—4.10 p.m., Reading. 5.15, Popular Music on Gramophone Records. 5.55, See Prague. 5.25, Orchestral Concert of Light Music. 6.0, See Prague. 6.20, See Bratislava. 7.0, See Brno. 9.0, See Prague. 9.15 (approx.), Close Down.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 560 metres; and Nurnberg, 239 metres.—6.5 p.m., Masurian and East Prussian Folk Songs, with Guitar Accompaniment. 6.25, Der verführte Hof—Folk Play in Three Acts (Hohenstatter). 8.0, Report on Foreign Affairs. 8.20, String Quartet in D Minor, Op. 74 (Reger). 9.20, Time, Weather, News, and Sports Notes. 9.45, Serenade, conducted by Erich Kloss.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredrikstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres; and Rjukan, 447.1 metres.—6.0 p.m., Announcements, Weather and News. 6.30, Educational Talk. 7.0, Time Signal. 7.1, Concert by the Station Orchestra, conducted by Hugo Kramm: Overture, Carnival roman (Berlioz); Suite (Hurum); Lament (Ljadov); Rhapsody No. 1 (Friedmann); First Suite (Tchaikovsky); Dance Suite, Aus der Herren Lander (Mozzkowsky). 8.30, Agricultural Report. 8.40, Weather and News. 9.15, Talk on Bridge, relayed from Aalesund (447.1 metres). 9.45, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tourist Talk, Agricultural Notes, and Giornale Radio. 7.20, Light Music on Gramophone Records. 7.30 (in an interval), Time Signal and Announcements. 7.45, Orchestral and Vocal Concert: Soloists: Pollicino (Tenor) and Hella Helt Di Gregorio (Soprano); Concertogrosso No. 1 (Corelli-Too); Tenor Solos: Airs from: (a) The Huguenots (Meyerbeer). (b) L'Africaine (Meyerbeer) Sonnet for Flute, Oboe, Clarinet, Bassoon, Horn, Violin, Cello, and Double Bass (Sehon); Soprano Solos: (a) Ballgüfister (Meyer-Helmund), (b) Zauberkrieg (Meyer-Helmund); Allegretto (Tchaikovsky); Tenor Solos from: (a) Luisa Miller (Verdi), (b) Il Duca d'Alba (Donizetti); Soprano Solos: (a) Serenade (Mascagni), (b) Gran Lirica (Brog); Scènes napolitaines (Massenet). In an interval, Talk. 9.0, Variety Concert. 9.55, News Bulletin.

PARIS

EIFFEL TOWER; Call FLE, 1,245.7 metres; 13 kW.—Time Signals (on 2,650 metres) at 9.25 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals)—5.45 p.m., Le Journal Parle. 7.20, Weather. 7.30, Poetry Reading. 7.45, Programme for Children. 8.15, Orchestral Concert, conducted by M. Flament: Six Pieces (Bach): (a) March, (b) Minuet, and Trio, (c) Aria, (d) Musette, (e) Adagio, (f) Gigue; Violin Solo by M. Cadrelle; Two Medallions (Flament): (a) Lydie, (b) Thylis; Selection from The Secret Marriage (Cimarosa). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—7.0 p.m., Popular Music on Gramophone Records. 8.0, Tourist Talk. 8.15, Interval. 8.30, Sponsored Concerts. 10.10, Dance Music relayed from the Lido. 11.0, News Bulletin.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture, 7.30, Weather and Physical Culture (contd.), 7.45, Eine kleine Nachtmusik (Mozart), on Gramophone Records. 8.0, Press Review and Weather. 12 Noon, Educational Talk. 12.15 p.m., Suite from Paris-New York—Operetta (Alger-Mouton). 12.30, Organ Recital relayed from Gaimont Palace: Selection from The Drum-Major's Daughter (Offenbach); This must be Love (Waller); Ballet Music from Coppélia (Delibes); Air (Woods); Valse des cigales (Messager); Tapis d'Orient (Burgmeier-Tavan); Cadet Ronnelle (Fourdrain); Overture, I. Lituan (Ponchielli); Rhodope (Ganne-Mouton). In the intervals, at 1.0 p.m., Exchange News and Weather, and at 1.30 and 2.0, Exchange, 3.45, Exchange and Market Prices. 6.10, Talk on Wine. 6.30, Market Prices, Weather, and Agricultural Notes. 6.40, German Lesson. 7.0, Medical Talk. 7.20, Concert by the Station Orchestra: La chanson de la Esmeralda (Mésquita); Flûte de Pan (Mouquet); Suite, Butterflies (Pugne Liffacher). 7.45, Commercial Prices and News. 8.0, Readings from the Works of Anatole France. 8.30, News and Weather. 8.40, Fashion Review. 8.45, Gramophone Records: Scherzo from A Midsummer Night's Dream (Mendelssohn); Waltz from The Sleeping Beauty (Tchaikovsky); Air from the Mother Goose Suite (Ravel). 9.0, Concert of French Music by the Lamoureux Concert Society, relayed from the Salle Gaveau. The Orchestra conducted by Albert Wolff. Soloist: M. Barouk (Cello): Prelude to Pénélope (Fauré); Act Two of Pénélope (Fauré); Cello Concerto in A Minor (Saint-Saëns); Act Two of Ariane et Barbe-Bleue (Dukas). In the interval at 9.15, Press Review and News.

PORSGRUND.—See Oslo.

POZNAN

335 metres; 1.9 kW.—5.0 p.m., Miscellaneous Items and Announcements. 6.28, Time Signal. 6.30, See Warsaw. 7.0, Orchestral and Vocal Concert. 8.30, Pianoforte Recital of Russian Music by Mme. Nadziejka Padlewka. In the interval, News and Announcements. 9.0, See Warsaw. 9.15, Time Signal, Sports and Police Notes. 9.30, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

PRAGUE

486.6 metres; 120 kW.—3.10 p.m., Concert by the Station Orchestra, conducted by Otakar Jeremias. Soloist: Prof. E. Mikleku (Pianoforte). 4.0, Talk: How to Prevent Infectious Illnesses among Children. 4.10, See Moravská-Ostrava. 5.5, Agricultural Talk. 5.15, Talk for Workers. 5.25, German Transmission—News and Talk for Workers. 6.0, News Bulletin. 6.5, Talk. 6.30, See Bratislava. 7.0, See Brno. 9.0, Time, News and Sports Notes. 9.15 (approx.), Close Down.

RABAT

416 metres; 6 kW.—4.0 p.m., Popular Music on Gramophone Records. 5.0 to 7.30, Interval. 7.30, Variety Music on Gramophone Records. 7.45, Weather and News. 8.0, Concert: Overture, Rosamunde (Schubert-Weininger); Légende (Chausson-Chapelier); Passepied du jardinier (Lullu-Letorey); Aria from Hérodiade (Massenet); Paysage (Hahn-Mouton); Selection from Salammbô (Reyer-Tavan); The Pilgrims' Chorus from Tannhäuser (Wagner); Pianoforte Solo (Bach); Suite, Izely (Pierné); Duet from Ma non (Massenet). In the interval, Talk. 9.30, Chamber Music. 10.0, Arab Transmission Concert. 11.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

30TTENS, 403 metres; 25 kW.; LAUSANNE, 680 metres; and GENEVA, 760 metres.—5.0 p.m. (from Leysin), Programme for Children. 6.0 (from Geneva), News Bulletin. 6.30 (from Lausanne), Veterinary Talk. 7.0, Concert by the Radio Orchestra. 8.0 (from Lausanne), Le Quatrième (The Fourth)—One Act Comedy (Martial-Pichand). 9.0, News and Weather. 9.10 (from Lausanne), Dance Music from the Bel-Air Metropole. 10.0 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather Report. 8.40, Musical Programme and Announcements. 9.0, Chimes. 9.2, News Bulletin. 9.30, Reading. 10.0, Violin Recital by Thorarinn Gudmundsson, followed by Arias and Petite Suite (Debussy), on Gramophone Records.

RIGA

625 metres; 15 kW.—5.0 p.m., English Lesson. 5.40, Agricultural Talk. 6.10, Weather. 6.15, Orchestral Concert, conducted by J.

JAN. 25th

WEDNESDAY

continued

Medins: Symphonie Poem, Schcherazade (Rimsky-Karsakoy); Concerto in E flat for Pianoforte (Beethoven); Overture, Egmont (Beethoven); Symphonie Ballad, The Voyage (Tchaikovsky). In the intervals, at 7.0, News Bulletin, and at 8.0, Weather and News. 8.30, Dance Music. 9.30 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call 1RO, 441 metres; 50 kW. Relayd by Naples, 319 metres, and 2RO, 25.4 metres.—7.15 to 7.30 a.m., Giornale Radio and Announcements. 11.30, Weather and Gramophone Records of Variety Music. 12.0 Noon, Time and Announcements. 12.2 to 1.15 p.m., Orchestral Concert. In the interval from 12.30 to 12.45, Giornale Radio and Exchange. 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.30 to 5.15, Vocal and Instrumental Concert: Soloists, Giovanni Licari (Violin), Giacomo Sammino (Pianoforte), Gianna Perea Labia (Soprano), and Luigi Nonnis (Tenor). Part I, Music by Giovanni Licari: Andante, Canzonetta and Scherzando for Violin and Pianoforte; Songs for Soprano: (a) Pagina d'album, (b) Messaggio; Pianoforte Solos: (a) L'insonnia di Bobé, (b) Serenata, (c) Bobé (Follegia). Part II, Songs for Tenor. 6.10 (Naples), Shipping and Sports Notes. 6.15, Agricultural Report, Announcements, and Giornale Radio. 7.0, Time, Announcements, and Gramophone Records of Light Music. 7.15, Medical Talk. 7.30, Sports Note and Tourist Report. 7.45, Relay of an Opera. In the intervals, Talk, Theatre Notes, and News.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY); 379.5 metres; 50 kW. Relayd at intervals by W2XAF on 31.48 metres, and by W2XAD on 19.56 metres.—7.30 to 12.15 a.m. (Thursday), New York Relay. 7.30, Westminster Choir. 8.0, Two Seats in the Balcony. 12 Midnight, G.E. Circle. 12.15 a.m., Stock Reports. 12.30, Ralph Kirby (Baritone). 12.45, The Goldbergs. 1.0, Standard Brands. 1.30, The Shadow. 2.0, Ulica Club Programme. 2.15, Three Shades of Blue. 2.30, Supper Club Orchestra.

SCHWEIZERISCHER LANDESENDER

BEROMUNSTER, 459 metres; 60 kW.; BASEL, 244.1 metres; and BERNE, 245.9 metres.—11.28 a.m., Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40, Concert of Light Music on Gramophone Records. 12.10 p.m., Gramophone Concert of German Music, conducted by Toscanini. 12.35 to 12.45 p.m., Weather and Exchange. 2.30, Instrumental Concert on Gramophone Records. 2.50, Concert of Light Music on Gramophone Records. 3.10, Richard Tauber Song Recital on Gramophone Records. 3.30 (from Berne), Programme for Children. 4.0, Concert of Light Music on Gramophone Records. 4.30 to 4.35, Weather. 5.30 (from Zürich), Talk: Television on Short Waves. 6.0, Time, Weather, and Market Prices. 6.15 (from Zürich), Talk: The Care of the Unemployed in Switzerland at the Present Time. 6.45 (from Zürich), Don Pasquale—Opera in Three Acts (Donizetti) (in Italian), with Introductory Talk. 8.50 (approx.), Weather, News, and Close Down.

SEVILLE

Call EAJ5, 368.1 metres; 1.5 kW.—8.30 to 9.0 a.m., Topical Review. 2.0 to 3.0 p.m., Orchestral Concert: Bolshana (Culla); Overture, Figaro (Mozart); Waltz (Rachmaninov); Fantasia Morisca (Chapf); Dance Music. 9.0, Concert, Part I: Musical Comedy Aires; Two Songs from El huésped del Sevillano (Guerrero); Duet from El asombro de Damasco (Luna); Romance and Duet from Los Flamencos (Vives); Duet from La reina mora (Serrano). Part II: Albéniz Programme: El Corpus en Sevilla; Córdoba; ex El Puerto Granada; Sevilla; Navarra. Part III: Dance Music. In the interval, News, Exchange, Market Prices and Weather. 11.0 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayd by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 270 metres; and Sundsvall, 542 metres.—4.5 p.m., Programme for Children. 4.30, Popular Music on Gramophone Records. 5.30, Variety Programme. 6.15, Weather and News. 6.30 (from Göteborg), Talk: The Psychology of Accidents. 7.0, Symphony No. 4 in E minor (Brahms). 7.50, Reading. 8.15, Song Recital by Karin and Niels Ancl. Part I, Five Negro Spirituals. Part II, Four Songs (Martin Koch). 8.45, Weather and News. 9.0, Dance Music. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Light Music on Gramophone Records. 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Quartet Concert, relayed from Bordeaux-Lafayette. 1.50 to 4.45, Interval. 4.45, Talk in German: The Heating of Offices and Living Rooms by Electricity. 5.0, Dance Music by the Roskam Jazz Band. 6.0, Trio Concert, relayed from Lille (265.4 metres). 7.0, Talk in German: The French Crusades. 7.15, Talk in French: Income Tax. 7.50, Time and News. 7.45, See Paris (Eiffel Tower). 8.15, Lottery Results. 8.30, Brahms Centenary Concert by the Municipal Orchestra, relayed from the Palais des Fêtes, Conductor, M. Münch. Soloists: Annette Brineour (Songs) and Marcel Fraas (Pianoforte); Serenade in D, Op. 11; Songs: (a) Liebestreu, (b) Heinkel, (c) Von ewiger Liebe, (d) Fehleinsamkeit, (e) Auf dem Kirchhof, (f) So willet du des Armen; Concerto in B flat, Op. 83, for Pianoforte and Orchestra. 10.30, Dance Music from the Savoy. 12 Midnight (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 10 kW.; and FREIBURG, 370 metres.—12.30 p.m., Concert from Langenberg. 1.0 to 1.15, Sponsored Music. 1.15 to 1.30 (from Mannheim), Sponsored Programme. 3.0, Programme for Children—A Winter's Tale from the Black Forest. 4.0, See Langenberg. 5.15, Time, Weather, and Market Prices. 5.25, Talk: Swabian Workers in Bessarabia. 5.50, Talk: My Expedition into the Muni-District of Guinea. 6.15, Songs and Arias by Elizabeth Jentsch (Soprano); Russian Folk Song, The Nightingale (Alabiev); Spanish Song, La Fille de Cadix (Delibes); The Nightingale and the Rose from Parysatis (Saint-Saëns); Melody (dell'Aquila); Ariette with Flute obligato from Xaviera (Dubois). 6.40, Reading (Kilian Kerst). 7.0, See Berlin (Witzleben). 8.0, Recital of Central Baden Folk Songs: Brumten auf der grünen Aue; Mutter Gottes ging in garten; Regina wolt in Garten gehn; Ich lag in einer Nacht und schlief; Dort drohen auf jenem Berge; Es fliegt gar manches Vögelin; Mädel, Mädel Hopf in d'Blah; Wärsch, met auf d'stiege; Der Kehrbus, 8.50, Pianoforte Recital: Fury over a lost Groschen (Beethoven); Six Etudes (Chopin); Perpetuum mobile (Weber). 9.0, Time, News, Weather and Programme Announcements. 9.15, Old Dance Music on Gramophone Records. 9.45, See Munich. 11.0 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 4 kW.—6.0 p.m., News Bulletin. 6.15, Songs from Opera: Arias from: (a) La Bauche (Messager), (b) Ma non (Massenet), (c) Thais (Massenet), (d) Rigoletto (Verdi). 6.30, Leonora Overture (Beethoven). 6.45, Variety Music. 7.0, Two Pieces: (a) Humoresque (Dvorak), (b) Hindu Song (Rimsky-Korsakov). 7.15, Racing Results, Market Prices and News. 7.25, Local News. 7.30, Music by a Viennese Orchestra. 8.0, Extracts from Sound Films. 8.15, Orchestral Music. 8.30, Operetta Music. 8.45, Light Orchestral Music. 9.0, Concert by La Toulouseaine Concert Society, conducted by M. Palette. In an interval: Light Music. 9.45 (in an interval), Variety Programme. 10.15, North-African News. 10.30, Concert for Listeners in Morocco: Waltz from The Girl in the Taxi (Gilbert); Ma Normandic; Prelude to Act I of Lohengrin (Wagner); Prologue to I Pagliacci (Leoncavallo); Indian March (Sellenick). 11.0, Cello Solos: (a) Les Cloches (Debussy); Ariquin (Pocper); Minuet (Daubé); Sonata, No. 6 (Boccherini). 11.15, Opera Music: Selection from (a) Faust (Gounod), (b) Aida (Verdi). 11.30, Programme in English by the I.B.C.: Song Recital: Bass Solo: The Diver (Loder); Soprano Solo: Song of Songs (Aloya); Negro Spiritual: Go down Moses (Burleigh); Contralto Solo: A Little Love Nest for Two (Lohr); Baritone Solo: Prologue to I Pagliacci (Leoncavallo); Soprano Solo: Who am I?; Tenor Solo: I know of Two Bright Eyes (Clusann). 12 Midnight, Weather and Announcements. 12.15 a.m. (Thursday), Dance Music. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—4.0 to 6.30 p.m., See Turin. 6.30, Orchestral Concert from the Café Dante. 7.0 till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayd by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—4.0 to 5.0 p.m., Song Recital. 5.35, Giornale Radio, Agricultural Report and Announcements. 6.0, Variety Music on Gramophone Records. 6.25, Tourist Report. 6.30, Time, Announcements and Light Music on Gramophone Records. 7.0, Giornale Radio, Weather, and Light Music on Gramophone Records. 7.15, Medical Talk. 7.30, A Comedy in Three Acts. 9.0 (approx.), Orchestral Concert. 10.0, Giornale Radio

VATICAN CITY

19.84 metres (Morning) and 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

517 metres; 15 kW. Relayd by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218.5 metres.—10.30 a.m., Quartet Concert: Overture, Undine (Lortzing); Selection from Hérodiade (Massenet); Pas de Fleurs (Delibes); Rheinländer, Für die ältere Jugend (Lindemann); Three Roses (Nieli); Dance Intermezzo (Siede); Waltz, Lustiges Wien (Miesel); Potpourri of Viennese Operettas (Robrecht); Souvenir (Drlla); Potpourri of Viennese Songs (Föderl); Tango, Ich möchte gern mit mir durchs Leben gehen (Jascha); Selection from Princess Pauline (Silving); Tango, In the Palm Gardens of Madrid (Piete); March (Köhlblitz). 10.55, Weather Report and Forecast. 11.0, Concert (continued). 11.40, Gramophone Concert. 12 Noon, Time, Weather, and Announcements. 12.10 p.m., Song Recital on Gramophone Records. 2.0, Time and News. 2.20, Concert. Songs: (a) A Swan (Grieg), (b) Elfenlied (Wolf), (c) Morgen, (d) Schlechtes Wetter (R. Strauss); Aria from I Pagliacci (Leoncavallo); Sonata for Viola d'amore and Pianoforte, Op. 25, No. 2 (Hindemith). 2.50, Fairy Tales. 3.15, Talk: Young People and Economic Necessity. 3.40, Talk for Teachers: Intelligence, Education, and Science. 4.0 p.m., Concert of Light Music, by the Rudolf Lederer Orchestra. 5.5, Health Talk: The Physiology and Pathology of Hunger. 5.30, Talk for Workers: Protection from Gas in Industry. 5.55, Talk: The State and Society. 6.20, Time, Weather and Programme Announcements. 6.30, Song Recital by Irene Sentheim: Dole, Scherza (Perti); Luigi da te (Bononcini); Songs (Respighi): (a) Nivicata, (b) Recitative, (c) La mamma è come il pane caldo; Songs (Schubert): (a) Liebesbotschaft, (b) Die Liebe hat gloggen, (c) Das Rosenband; Songs (Brahms): (a) Mädelheulid, (b) Der Tod, das ist die Kühle Nacht, (c) O wüsst' ich doch den Weg zurück. 7.0, See Berlin (Witzleben). 8.0, Witticisms and Sallies—a Variety Programme: Reading by Albert Heine; Two Radio Sketches: (a) Der Friedhofswächter, after a Russian Story by Sidi Förster-Streffler, (b) Ich verlange mein Schulgeld zurück (Fritz Karintny). Music in the intervals. 9.10, News, Weather and Announcements. 9.25, Dance Music by the Adolf Panscher Jazz Band and Viktor Sternan (Songs).

WARSAW

1,411 metres; 120 kW.—11.10 a.m., Light Music on Gramophone Records. 12.20 p.m., Weather Forecast. 12.25 to 2.10, Interval. 2.10, Announcements. 2.15, Economic Report. 2.50, Boy Scouts' Report. 2.55, Programme for Children. 3.0, Popular Music on Gramophone Records. 3.40, Talk in Ukrainian. 4.0, Opera Music on Gramophone Records: Cavatina from The Barber of Seville (Rossini); Selection from Act I of Faust (Gounod); Arias from (a) Mignon (Thomas), (b) André Chénier (Giordano), (c) Romeo and Juliet (Gounod), (d) The Twilight of the Gods (Wagner). In the interval, Announcements. 4.40, Talk for Young Workers. 4.55, Programme Announcements. 5.0, Light Music relayed from the Adria. In the interval, News. 6.0, Miscellaneous Items. 6.20, Agricultural Report. 6.30, Literary Talk. 6.45, Radio Journal. 7.0, Concert of Light Music by the Jean Rozewicz Orchestra. 7.30, Sports Notes. 7.55, Radio Journal. 8.0, Violin Recital by Stefan Frenkel: Petite Suite (Brahm); Three Sketches (Frenkel); Three Mazurkas (Fitzelberg-Frenkel); Pastorale (Handel-Flesch); Boston Intermezzo (Nick); Roxane's Song (Szymanovsky-Kochansky); La capriciosa (Ries); Selection from My Country (Smetana). 9.0, Topical Talk. 9.15, Choral Music on Gramophone Records. 9.40, Talk. 9.55, Weather Forecast and Police Notes. 10.0, Dance Music relayed from the café Ziemianska. 11.0 (approx.), Close Down.

WILNO

563 metres; 16 kW.—4.0 p.m., Pianoforte Recital. 4.25, Songs (on Gramophone Records). 4.40, See Warsaw. 4.55, Programme Announcements. 5.0, See Warsaw. 5.40, Lithuanian Review. 5.55, Miscellaneous Items. 6.0, Reading. 6.10, Miscellaneous Items. 6.50, Talk: Behind the Footlights. 6.30, See Warsaw. 7.0, Request Concert on Gramophone Records. 7.50 to 9.15, See Warsaw. 9.55, Humorous Programme. 9.40, (approx.), Close Down.

ZAGREB

307 metres; 0.75 kW.—4.30 p.m., Trio Concert. 6.15, News Bulletin. 6.25, Nature Study Talk. 7.0, Concert of Chamber Music: Bozidar Vicar (Tenor), Alexander Szegedi (Violin) and Hugo Mihalovich (Pianoforte). 8.30, Light Music. 9.0, News, Weather Forecast and Winter Sports Notes. 9.10, Part Relay of a Sound Film, from the Edison Palace Theatre. 10.0 (approx.), Close Down. ZURICH.—See Schweizerischer Landessender.

ALGIERS

353.3 metres; 13 kW.—7.0 p.m., Financial Notes and Exchange. 7.10, Shipping Report. 7.15, Weather and Agricultural Report. 7.20, Talk. 7.35, Concert: Johann Strauss Potpourri; Melody (Petrie); Gondola of Love (Mordrea); Selection from Les Cloches de Corneville (Planquette); Overture, Morning, Noon and Night (Suppé). 7.55, News. 8.0, Time Signal. 8.2, Readings: Mimi Pinson (de Musset); Les vieilles chansons (Naudaud); Two Poems (Molière); Reading from Tartuffe (Molière). 8.15, Legal Talk. 8.30, News. 8.35, Concert by the Station Orchestra. Soloist: M. Lloret (Songs). Carnival Overture (Dvorák); Song: Cavatina from La Juive (Halévy); Ballet Music from Lakmé (Delibes); Song: L'Anneau d'argent (Chaminade); Suite from La Source (Delibes); Song: Invocation from Robert le Diable (Meyerbeer). In the interval at 9.30, News. 9.45, Dance Music. 9.55, News. 10.0, Concert of Eastern Music. 11.0 (approx.), Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJI, 348.8 metres; 8 kW.—7.0 p.m., Request Gramophone Records. 7.30, Exchange Quotations and Programme for Women. 8.0, Popular Music on Gramophone Records. In the interval, Talk in Catalan. After the Programme, News Bulletin. 9.0, Chimes from the Cathedral, Weather Forecast, Exchange Quotations and Market Prices. 9.5, Part Relay of an Opera from the Gran Teatro del Liceo. 11.0 (in an interval), News Bulletin. 12 Midnight (approx.), Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Report, Tourist Talk, and Announcements. 7.20, Giornale Radio and Press Review. 7.30, Time and Announcements. 7.35 (approx.), Military Band Concert, conducted by Salvatore Rubino: Military March from Il Conte Ory (Rossini); Selection from Nebuchadnezzar (Verdi); Selection from Cavalleria rusticana (Mascagni); Selection from L'Histoire d'un Pierrot (Costa); Prelude to Parsifal (Wagner); Prelude to The Mastersingers (Wagner). In the interval, Film Review and Talk. 9.30, Variety Music on Gramophone Records. 9.55, News.

BASLE.—See Schweizerischer Landessender.

BELGRADE

430.4 metres; 2.8 kW.—11.5 a.m., Concert of Overtures by the Station Orchestra: Medea (Cherubini); William Tell (Rossini); Die schöne Galathee (Suppé); Peter Schmolli (Weber); Nebuchadnezzar (Verdi); Raymond (Thomas); La belle Héloïse (Offenbach). In the interval at 11.35, Exchange. 12.30 p.m., News. 2.0, Variety Music on Gramophone Records. 3.5, Concert by the Station Orchestra: Two Airs (Jenka); (a) Overture, (b) Serbian Potpourri; Potpourri of Russian Melodies (Leopold); Selection from Mamselle Nitouche (Herve); Roumanian Sketch. In the Transylvanian Mountains (Sreyer); The Forge in the Forest (Eilenberg); Hochzeitzeit in Lilliput (Translatour). 4.0, Talk. 5.25, Time and Programme Announcements. 5.30, Dialogue in French. 6.0, Recital of Yugoslav Songs. 6.30, Popular Music on Gramophone Records. 7.0, See Ljubljana. 9.0, News, followed by Light Music from the Ratnicki Dom Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.55 a.m., Nauen Time Signal. 12.35 p.m., News Bulletin. 1.0, Gramophone Concert, relayed from Berlin (Witzleben). 2.0, Musical Programme for Children. 2.30, Weather and Exchange. 2.45, Reading (Paul Ernst). 3.0, Talk for Women: German Women Abroad and Their Callings. 3.30, Concert, relayed from Berlin (Witzleben). 4.10, Wireless Technical Talk. 4.30, Gluck as a Song Composer—Recital by Gerhard Jekelius (Baritone). 5.0, Talk: German Authors in Foreign Countries. 5.25, The Viola in Modern Music, Introductory Talk: Sonata in F Minor for Viola and Pianoforte (Paul Hindemith); Sonata for Viola, Op. 25, No. 1 (Paul Hindemith); Sonata in C for Viola and Pianoforte (Honegger). 5.55, Weather and Announcements. 6.0, German for Germans. 6.30, A Poem. 6.35, Agricultural Talk. 7.0, See Leipzig. 9.0, Weather, News and Sports Notes. 9.45, Weather for Shipping, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—3.30 p.m., Chamber Music: Viennese March (Kreisler); Syncopation (Kreisler); Serenade, Op. 23 (Rotors); Walzerromente (Schütt); Suite in G Minor (Lange); Episode (Steiner); Rondo alla Zingarese from the Pianoforte Quartet in G Minor, Op. 25 (Brahms). 4.30, A Discussion between a Housewife and a Journalist. 4.50, Talk for Young People: I am learning Chinese. 5.10, Pianoforte Recital of his own Music by Serge Borkiewicz; Four Pieces from Op. 48: (a) Melody, (b) Idylle, (c) Orientale, and (d) Consolation. 5.30, Carl von Bremen reads from his own Works. 5.55, The Witzleben Station informs its Listeners. . . . 6.0, Topical Talk. 6.10,

THURSDAY
JANUARY THE TWENTY-SIXTH
PRINCIPAL EVENTS OF THE DAY:
AT HOME
NATIONAL Mr. Desmond McCarthy: "The Art of Reading."
LONDON REGIONAL Concert from the University, Leeds.
MIDLAND REGIONAL Orchestral concert. Military Band programme.
NORTH REGIONAL Violoncello and vocal recital, from the University.
SCOTTISH REGIONAL Mr. Gilbert Pitt: "The Twa Cronies," a descriptive narrative of the Immortal Tam o' Shanter and Souter Johnnie.
BELFAST Light orchestral concert. Light music.
ABROAD
HAMBURG Male Voice Choir, conducted by W. Guericke, with solos for Viol d'Amore and Harpsichord.
HILVERSUM Mozart concert from the Concertgebouw, Amsterdam.
MORAVSKA-OSTRAVA Stravinski symphony concert, conducted by J. Vogel, with the composer as solo pianist.
STRASBOURG Concert of French music, conducted by H. Tomasi.
WARSAW The Station Orchestra, conducted by S. Nawrot.

Orchestral Concert, relayed from the Café Corso. 7.0, Report on Physical Training: Rowing, Boxing, Athletics, and Gymnastics. 8.0, Symphony in D (the Clock) (Haydn), by the Station Orchestra, conducted by Rudolf Schmidtbeck. 8.30, Symphony in E Minor, Op. 95, From the New World (Dvorak), by the Station Orchestra, conducted by Rudolf Peterka. 9.10, Weather, News, and Sports Notes. 9.30 (approx.), Dance Music. 11.0 (also relayed by Zeesen on 31.38 metres), Orchestral concert, relayed from Stettin: Fest and Einzugsmarsch (Fassunge); Overture, William Tell (Rossini); Waltz, Carnivals Bot-schafter (Strauss); Selection from The Gipsy Princess (Kálmán); Luna-Walzer (Lincke).

BERNE.—See Schweizerischer Landessender.

BERGMUNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BRATISLAVA

279 metres; 14 kW.—3.10 p.m., See Brno. 4.50, See Prague. 5.35, Variety Music. 5.50, Talk. 6.0, See Prague. 6.5, Talk on Creative Art. 6.20, See Prague. 7.5, See Moravská-Ostrava. 9.0, See Prague. 10.0 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres; 60 kW.; and GLEIWITZ, 253 metres.—12.10 p.m., Lehar Music by the Small Silesian Philharmonic Orchestra: Signal March, Overture, Gipsy Love; Selection from The Czarevitch. 12.45, Time, Weather, News and Exchange. 1.5, Gramophone Concert: Overture, Si j'étais roi (Adam); An den Frühling (Grieg); Valse triste (Veyssey); The Skaters' Waltz (Waldteufel); Overture, Light Cavalry (Suppé); Küssen ist keine Sünd, from Bruder Straubinger (Eysler); Air from The Bird Fancier (Zeller); Radetzky March (Joh. Strauss, Sen.). 1.45, Sponsored Programme with Gramophone Records. 2.10, Agricultural Prices and Exchange. 2.40, Talk: The Most Important Events in Silesia in February, 1933. 2.50, Review of Books for Children. 3.10, Programme for boys—Building Model Aeroplanes. 3.35, Concert from Heilsberg. 4.30, Agricultural Prices. 4.35, Pianoforte Recital of Music by E. A. MacDowell for the Twenty-fifth Anniversary of his Death. 5.20, Programme to be announced. 5.40, Talk for Women. 6.0, Talk on Animals. 6.25, Weather for Farmers. 6.30, See Hamburg. 7.45, Der Schuss auf der Koppel—Radio Play (Richard Steinolt). 8.10, See Hamburg. 9.10, Time, Weather, News, Sports Notes and Programme Announcements. 9.40,

Flemish.—12 Noon, Concert by the Little Station Orchestra, conducted by P. Leemans. Soloist: Mme. I. Moons-Nagels (Songs). Overture, La Dame Blanche (Boieldieu); Ukrainian Melodies (Akimenko); Selection from The Gipsy Princess (Kálmán); Two Songs: Ox Minuet (Haydn); Selection from The Student Prince (Romberg). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Records: L'apprenti sorcier (Dukas); Concerto for Pianoforte and Orchestra (Liszt); Kaiser marsch (Wagner). 5.0, Concert by the Radio Orchestra, conducted by Charles Walpola March, Sambre et Meuse (Planquette); Overture, Chal Romano (Ketelbey); Intermezzo: In the Harbour of Port Said (Armandola); Ben Akiba (Siede); Waltz, Gold and Silver (Lehar). 5.45, Programme for Children. 6.30, Programme for Young People. 7.15, Talk by M. Rombouts. 7.30, Talk for Women. 8.0, Variety Concert by the Radio Orchestra, conducted by Charles Walpola, the Popen Club and M. Hein Staal (Humorist). In the intervals at 8.45 Talk, at 9.55 Evening Prayer, and at 10.0, Le Journal Parlé. 11.0 (approx.), Close Down.

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on 840 metres from 6.25 to 11.0 p.m.—4.0 p.m., Agricultural Talk. 4.30, Gramophone Concert: Ich weiss nicht zu wem ich gehöre (Holländer); Viennese Song (Fall); Ich möchte heiraten (Krausz); Ein Tag ohne Dieh (Rehner); Es war einmal ein Mädchen ist (Kaper); Die Fenster auf der Lenz ist da (Strauss); Wenn der Mensch verliebt ist (Strauss). 5.0, English Lesson. 5.20, Concert by the Sini Kurina Gigung Band. 6.0, Reading. 6.30, Relay from the Royal Hungarian Opera House. In the interval, Announcements and News. After the Programme, Dance Music with Vocal Refrains, from the Hotel Gellert.

CASSEL.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW., and KALUNDBORG, 1,153 metres; 7.5 kW.—11.0 a.m., Time and Chimes from the Town Hall. 11.5, String Ensemble Concert, conducted by A. Bendix, relayed from the Wivex Restaurant. 1.0 to 2.30, Interval. 2.30, Reading. 3.0, Dance Music. 4.0, Programme for Boys. 4.40, Exchange and Fish Market Prices. 4.50, Talk. 5.20, English Lesson. 5.50, Weather Forecast. 6.0, News. 6.15, Time Signal. 6.16, Religious Address. 6.45, Danish Lesson. 7.10, Sixteenth Concert, relayed from the State Broadcasting Building. The Radio Symphony Orchestra, conducted by Emil Beesen and a Mixed Choir. Soloists: Birgit Engell, Marius Jacobsen and Holger Byrding (Songs), and Fritz Dietzmann (Cello). Part One—Carl Nielsen Programme. Overture, Maskarade; Humoresque for Soloists, Choir and Orchestra; Fynsk Fornar, Music from Aladdin; (a) Oriental March, (b) Morgenstargernes Dans, (c) Negerdans; Ten Minutes Interval. Part Two—Symphonic Poem, La Mer (Debussy); Variations on a Rocco Theme for Cello and Orchestra (Tchaikovsky); Dance from The Three-Cornered Hat (Falha). 9.15, News. 9.30, Dance Music from the Ritz Restaurant. In the interval at 11.0, Time and Chimes from the Town Hall. 11.30 (approx.), Close Down.

CORK.—See Dublin.

CRACOW

312.8 metres; 1.5 kW.—2.50 p.m., Popular Music on Gramophone Records. 3.25, See Warsaw. 4.0, Variety Music on Gramophone Records. 4.40, See Warsaw. In the interval at 4.55, Programme Notes and Announcements. 6.0, The Letter Box. 6.15, Miscellaneous Items and News. 6.30, See Warsaw. 7.0, Concert. 8.30, Music and Announcements from Warsaw. 10.0, Light Music from the Pavilion Restaurant. 11.0, Bugle Call from the Tower of St. Mary's Church.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN, 413 metres; 1.2 kW.; and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. 6.0, Popular Music on Gramophone Records. 6.15, Programme for Children. 7.0, Gramophone Concert of Variety Music. 7.10, Dublin Cattle Market Report. 7.20, News Bulletin. 7.30, Time Signal. 7.31, French Lesson. 7.45, Literary and Dramatic Talk. 8.0, The Station Sextet. 8.30, Talk by C. M. MacDowell with Illustrations by G. Crofts. 9.0, Violin Solos by Patricia Ward. 9.20, The Station Sextet. 9.40, Song Recital by Betty Barria (Soprano). 10.0, Dance Music on Gramophone Records. 10.30, Time Signal, News, Weather Report, and Close Down.

FECAMP

223 metres; 10 kW.—12 Noon, Light Music on Gramophone Records. 12.30 p.m., News Bulletin. 12.45, Programme for Children. 7.0, Local News. 7.15, Popular Music on Gramophone Records. 7.30, Radio Gazette,

Esperanto Lesson. 9.50, Talk: Legends and Customs of the Lower Rhine. 10.10 (approx.), Close Down.

BRNO

342 metres; 35 kW.—3.10 p.m., Orchestral Concert, conducted by Janota. 4.10, News for Young People. 4.20, Musical Programme for Children. 4.50, Esperanto Lesson. 5.0, Literary Review. 5.15, See Prague. 5.25, German Transmission—News Talk on Japan and Talk on Science. 6.0, See Prague. 6.5, Elementary English Lesson. 6.20, See Prague. 7.5, See Moravská-Ostrava. 9.0, See Prague. 10.0 (approx.), Close Down.

BRUSSELS (No. 1)

No. 1, I.N.R., 509 metres; 15 kW.—12 Noon, Acts II and III of Faust (Gounod) on Gramophone Records. 1.0 p.m., Le Journal Parlé. 1.40, Concert by the Small Station Orchestra. The Phantom Brigade (Myddleton); Four Orchestral Pieces (d'Ambrosio); Hungarian Dances Nos. 2 and 8 (Brahms); Chanson d'Arlette (de Tave); Selection from Les cloches de Corneville (Planquette); Le rossignol (Crabbé); Waltz, Dancing with Tears in my eyes (Burke); Pasodoble (Santis). 5.15, Programme for Children—Gramophone Concert. 6.0, Talk: The Protection of Workers in Mines. 6.15, Song and Pianoforte Recital by Mme. J. Pelince and M. Wilmet. Pianoforte Solos (Chopin): (a) Ballad in G Minor, Op. 23, (b) Berceuse, Op. 57, (c) Etude in C Minor, Op. 10, No. 12, (d) Etude in F, Op. 10, No. 8. Songs: (a) Il est doux, il est bon, from Hérodiade (Massenet), (b) Les berceaux (Faure), (c) D'une prison (Hahn); Pianoforte Solos (Chopin): (a) Nocturne in F Sharp, Op. 15, No. 2, (b) Waltz in D Flat, Op. 64, No. 1, (c) Waltz in E Minor. 7.0, Two Movements from the Quartet in E Flat (Mozart) on Gramophone Records. 7.15, Talk: Hygiene in the Belgian Congo. 7.30, Sports Notes. 8.0, Gala Concert by the Station Orchestra, conducted by Pierre Montoux: Symphony (Chausson). 8.40, Commentary on the Six Days' Racing in the Sports Palace. 9.0, Concert (contd.): Overture, Polyete (Dukas); Mother Goose Suite (Ravel); Two Nocturnes (Debussy); Fête Polonoise (Chabrier). 9.50, Commentary on the Six Days' Racing in Sports Palace. 10.0, Le Journal Parlé. 10.10, Gramophone Concert: Fox-trot, I'm bringing a Red, Red Rose (Donaldson); Tango (Muzilli); Fox-trot, Makin' Whoopce (Donaldson); Waltz, Mélanide (Ener); Two Airs from Follow Through (de Sylva); (a) My Lucky Star, (b) Button up your Overcoat; Waltz, We two (Campbell); I'm in the Seventh Heaven (de Sylva); Pasodoble, Lady of Spain (Reeves); Fox-trot, Little Pal (de Sylva). In the intervals, Running Commentary on the Six Days' Racing. 11.0 (approx.), Close Down.

BRUSSELS (No. 2)

I.N.R., 338.2 metres; 15 kW. Programme in

JAN. 26th

THURSDAY

continued

8.0, Light Music on Gramophone Records. 8.15, News Bulletin. 8.20, Concert, relayed from the Town Hall, Rouen. 10.0 till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: I love you so much; The Parade of the Blues; Broken Dreams; A Cottage for Sale; It must be true; Dream Star of Araby; That Tiny Teashop; Dance away the Night; In the Still of the Night; Around the Corner; My Baby just cares for me; Without a Song; Harmony Heaven; Wasn't it nice?; Dream Lover; I lost my Girl again. 11.0, Concert of Light Music: Quintet: Albumblatt (Wagner); Songs: (a) My Old Shako (Trotere), (b) The Vagabond (Vaughan Williams); Quintet: (a) Romance (Saint-Saëns), (b) Träumerei (Schumann); Songs: (a) Mother Town (Squire), (b) If I might only come to you (Squire); Quintet: Minnet from Berenice (Händel). 11.30, The Sentimental Songsters: There's Something in your Eyes; Would you take me back again?; In Sleepy Hollow; Orchestra: The Song is done; Why shouldn't I?; Sweet Kentucky Lou; Indiana Sweetheart; Orchestra: Kiss me again. 12 Midnight, Philco Concert: When the Band goes Marching by; Pagan Moon; I do like to see a game of Football; Speedway Sam; It's that extra little something; Leave the Rest to Old Man Moon; Sing a New Song; Dance of the Cuckoos. 12.30 a.m. (Friday), Old English Melodies: John Peel (Traditional); Sally in our Alley (Carey); Tom Bowling (Dibdin); Pretty Polly Perkins (Traditional); The Crocodile (Traditional); Vikings and his Dinah (Traditional); The Meynel Hunt (Cotton). 1.0, Military Band Concert: March, Waldmere (Losey); Glow-worm Idyll (Lücke); Hungarian Rhapsody No. 2 (Liszt); March, Mons Star (Glover-Bush); Waltz, Jolly Fellows (Vollstedt); Selection from The Vagabond King (Priml); March, Victoria (von Blom). 1.30, Trio Concert: Friend o Mine (Sander-son); Selection from Rigoletto (Verdi); Pizzicato from Sylvia (Delibes); Un peu d'Amour (Silesu); The Broken Melody (van Biehe); Alice, where art thou? (Asher); Love's Old Sweet Song (Molloy); Evenson's (Easthope Martin). 2.0, Dance Music. 2.57, 1.18.4, Goodnight Melody. 3.0 (approx.), Close Down.

FLensburg.—See Hamburg.

Florence.—See Turin.

FRANKFURT

259 metres; 17 kW.; and CASSEL, 245.9 metres.—4.0 p.m., Seventh Academy Concert relayed from the Academy of Music, Darmstadt. Soloist: Willy Hunter (Pianoforte). (Dramatic Fantasia for Orchestra, Op. 9 (Hans Simon); Concerto in A Minor for Pianoforte and Orchestra (Grieg). 5.15, Exchange Quotations. 5.25, Dialogue on Films. 5.50, The Work of the Frankfurt Wages Arbitration Board—a Radio Report. 6.25, Time, Programme Announcements, Weather and Exchange. 6.35, Concert from Stuttgart. 7.0 to 9.5, See Stuttgart. 9.5, People in Need—A Dialogue. 9.25, Time, News, Weather and Sports Notes. 9.30 (approx.), Silent Night.

FREDRIKSSTAD.—See Oslo.

Freiburg.—See Stuttgart.

Geneva.—See Radio-Suisse Romande.

Genoa.—See Turin.

Gleiwitz.—See Breslau.

Göteborg.—See Stockholm.

Graz.—See Vienna.

Hamar.—See Oslo.

HAMBURG

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 227.4 metres; Hanover, 566 metres, and Kiel, 232.2 metres.—6.0 p.m., Health Talk for Schools. 6.25, Weather. 6.30, Concert of Peasant Dances by the Station Chamber Orchestra. Conductor: Fritz Gartz. Ländler from Der Feinschütze (Weber); Bunte Tanz-Suite (Erdlen); Bauerhölzchen (Jessel); Waltz, Im schönen grünen Holsteland (Petras); Polka, Im Dorfkrügel (Siede); March, Wir sind die lustigen Holzbecker-Buam. 7.15 (from Hanover), Concert by a Catholic Male Voice Choir, conducted by Walrad Guericke. Soloist: Hans Geis (Viola d'amore). Choir: Four Songs from the Bergland Cycle, Op. 37 (Pfloner); Sonata for Viola d'amore and Harpsichord (Stamitz); Choir: Sea Pictures (Walrad Guericke). (a) Wiedersehen mit dem Meer. (b) Abend am Meer. (c) Sturm am Meer. (d) Verhangener Meertag. 8.0, Announcements. 8.10, Executions. Old and New—Cabaret Programme (arr. Alice Eckert-Rotholz). 9.10, Time, Weather, Announcements, Sports Notes and Police Report. 9.20, Topical Talk. 9.30, Dance Music by the Norag Chamber Orchestra, conducted by Fritz Gartz. In an interval at 10.20, Ice Report.

Hanover.—See Hamburg.

HEILSBURG

276.5 metres; 66 kW.; and DANZIG, 453.2 metres.—12.5 p.m., Light Music and Opera Music on Gramophone Records. In the interval at 12.20, News. 1.30 to 2.0, Interval. 2.0, Exchange Rates and Market Prices. 2.30, A Review of the Assembly of the Königsberg Women's Association on Jan.

25th. 3.0, Talk for Young People: Experiences in Farthest Asia. 3.30, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Mdaou (Cherubini); Suite mignonne (Sibelius); Waltz, Feuilles du soir (Offenbach); Selection from La Traviata (Verdi); Concert of the Guests into the Wartburg (Wagner). 4.50, Review of Periodicals. 5.15, Agricultural Prices. 5.30, Agricultural Talk. 6.0, Recital of South German Songs by Arno Schellenberg: Geheime (Wetzels); Cophtisches Lied, No. 1 (Wetzels); Songs (Weissmann): (a) Am Heiligenbild, (b) Ritt zum Tajo, (c) Der Hufschmid; Songs (Schmid): (a) Schöne Nacht, (b) So wand' ich in Gedanken, (c) Lied des fahrenden Schilers; Songs (Knab): (a) Heinkelohr, (b) Winterabend, (c) O hell erwaucht, (d) Mieli besingt die Zeit mit Schall. 6.30, English Lesson for Beginners. 6.55, Weather and News. 7.5, Dance Music by the Small Station Orchestra, conducted by Eugen Wilcken, and the Edmur Runde Orchestra. 8.45, Talk: Seven Hundred Years of East Prussia. 9.15, Weather, News, and Sports Notes.

HILVERSUM

Announced HUIZEN, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—1.40 p.m. till Close Down, Programme of the Christian Radio Society (N.C.R.V.). 1.40 p.m., Lesson in Handicrafts. 2.40, Talk for Women. 3.10, Interval. 3.40, Bible Reading and Songs. 4.40, Pianoforte Recital by Mlle. C. Kerper: Prelude, Nun kommt der Heiden Helland (Bach-Busoni); Chromatic Fantasia and Fugue (Bach); Gramophone Record; Der Jongleur (Tsch); Aragon (Lomas); La Fille aux cheveux de lin (Debussy); Minstrels (Debussy); L'Ile Joyeuse (Debussy). 5.25, Handwork for Young People. 5.55, Talk. 6.25, Dress-making Lesson. 6.40, Review of the Week. 7.10, Police Announcements. 7.25, Religious Information. 7.40, Choral Concert and Gramophone Records. 8.40, Talk. 9.10, Organ Recital by Jan Zwart: Overture (Zwart); Two Psalms, Nos. 22 and 116 (A. v. Noort); Allegro in B Flat (Händel); Minuet in C (Händel); Allegro in D (Händel); Two Sacred Songs (Zwart); Allegro vivace (Widor); Scherzo (Vierno); Tocatta (Reinold); Two Evangelical Songs (Zwart). 10.10, News. 10.20, Variety Music on Gramophone Records. 11.10 (approx.), Close Down.

Horby.—See Stockholm.

HUIZEN

Announced HILVERSUM, 1,875 metres; 8.5 kW. Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 11.40 a.m., Time Signal. 11.41, Concert of Light Music. In an interval at 12.25 p.m., Popular Music on Gramophone Records. 1.55, Interval. 2.10, Pianoforte Recital by Egbert Veen, Caprice (Saint-Saëns); Four Songs without Words (Mendelssohn). 2.40, Talk. 3.25, Variety Music on Gramophone Records. 3.40, Programme for Hospitals. 4.0, Song and Pianoforte Recital by Sissy Kalker and Egbert Veen. 4.40, Programme for Children. 5.10, Concert of Light Music. 6.10, Sports Notes. 6.40, Violin and Pianoforte Recital by Boris Linsky and Egbert Veen: Canzonetta (Luigi Boccherini); Rondino (Beethoven-Kreisler); Minuet (Prins); Tre Giorni (Pergolesi); Dance (Ferber); Hopak (Mussorgsky). 7.10, English Lesson. 7.40, Time. 7.41, News. 7.45, Popular Music on Gramophone Records. 7.55, Mozart Concert, relayed from the Concertgebouw, Amsterdam; Conductor, Eduard van Beinum. Soloist, Robert Casadesu (Pianoforte); Overture, Figaro; Pianoforte Concerto in A. 8.55, Mozart Concert by the Station Orchestra; Conductor, Albert van Raalte. Soloists, Willy Domgraf Fas-saender (Baritone) and Hélène-Cals (Soprano); Overture, Don Giovanni; Arias from Don Giovanni; Serenade, Eine kleine Nachtmusik; Aria from Il Seraglio; Arias from Figaro; Gavotte from Idomeneus; Arias from Figaro; Overture, Così fan tutte. 10.10, Popular Music on Gramophone Records. 10.20, Concert by the Station Orchestra, conducted by Albert van Raalte; French Military March (Saint-Saëns); Serenade (Pierné); Künstlerleben (Joh. Strauss); Humoresque (Dvorak); Slav Dance No. 8 (Dvorak). 10.50, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

Innsbruck.—See Vienna.

JUAN LES PINS

249 metres; 0.8 kW.—12.30 p.m., Amusement Guide and Popular Music on Decca Gramophone Records. 1.0, News. 1.15, La Visite de Riquette à son Ami Bouquin—Sketch (René Pottet). 8.0, Amusement Guide, News, Economic Report, Exchange and Racing Results. 8.5, Fashion Review, by Mme. Renée Davis. 8.30, Sponsored Concert. 8.50, Weather and Local News. 9.5, Concert by the Radio Orchestra.

Kalundborg.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.0 p.m., Sports Notes. 6.15, Announcements, Theatre Notes and Light Music on Gramophone Records. 6.25,

Boy Scouts' Report. 6.30, See Warsaw. 7.0, See Berlin (Witzleben). 9.15, See Warsaw. 9.50, Dance Music, relayed from the Hotel Monopole.

Kiel.—See Hamburg.

Klagenfurt.—See Vienna.

Kosice.—See Prague.

LAHTI

1,796 metres; 40 kW.; and HELSINKI, 368.1 metres.—4.0 p.m., Concert by the Station Orchestra, conducted by Erkki Linko: French Military March (Saint-Saëns); Air from Carmen (Bizet); Invitation to the Dance (Weber); Two Songs (Koskinnies); Swedish Rhapsody, Midsommarvaka (Alfven). 5.15, Agricultural Talk. 5.40, Song Recital by Yrjö Ikonen: Prologue to Mephistopheles (Boito); Nebbie (Respighi); Stornellatrice (Respighi); Vittoria (Carissimi); Two Neapolitan Songs: (a) L'ultima canzone, (b) Marcelliana. 6.5, Talk. 6.30, Pianoforte Recital. 6.50, Readings. 7.10, Concert by the Station Orchestra: Selection from The Flower of Hawaii (Kalmán); Selection from The Count of Luxembourg (Lehár); Ballet Music from Coppélia (Delibes). 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

473 metres; 60 kW.—12 Noon, Orchestral Concert of Operetta Music, conducted by Kühn. Soloist: Josef Schömmner (Tenor): Operetten-Spiel-Ouverture (Fall); Song from Das verunschene Schloss (Millöcker); Waltz from Die sieben Schwaben (Millöcker); Song, O Wunder der Liebe, from Cagliostro in Wien (Joh. Strauss); Overture, Cagliostro in Wien (Joh. Strauss); Song 'rom Roses from Florida (Fall-Korngold); Selection from The Rose of Stamboul (Fall); Waltz-Entr'acte from Bidi (O. Strauss). In the interval at 1.0 p.m., News. 1.30, Sponsored Programme with Gramophone Records. 2.30, Economic Notes and Time. 2.50, Cinderella—Fair Play (Niemeyer), by Pupils of the Köln-Ehrenfeld Elementary School. 3.10, Notes on the Broadcasts for Schools. 3.20, Talk for Elementary School Teachers. 4.0, Concert. 5.10, Talk: Instinct and Intellect in History. 5.30, Talk: The History of the German Language. 5.50, Weather, Time, Economic Notes, and Sports Results. 6.0, Book Review. 6.20, Talk: The Centenary of Elizabeth Ney. 6.30, The World on Gramophone Records: Lake Geneva. 6.55, News. 7.0, See Stuttgart. 8.40, Serenade and Dance Music, conducted by Eysoldt. In the interval at 9.5, News and Sports Results. 11.0 (approx.), Close Down.

Lausanne.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW.; and DRESDEN, 319 metres.—11.5 a.m., Gramophone Concert, Part I: Dajos Bela and his Orchestra: Waltz, Je t'aime (Waldteufel); Moss Rose (Bose) Vindoharna (Leopoldi). Part II: The Comedian Harmonists: Der Leuz ist da (Jurmann); Lieblich, mein Herz lässt dich grüssen (Heymann); Heut Nacht hab' ich geträumt von dir (Kalmán). Part III: Dajos Bela and his Orchestra: Waltz from Gipsy Love (Lehár); Wovon man spricht (Bernards); The Wedding of the Rose (Jessel); O Frühling, wie bist du so schön (Lincke); Part IV: The Comedian Harmonists: Anno Dazumal (Morena); Le'gende d'amour (Bece); Ich hab' für dich einen Blumentopf bestellt (Boots). 12 Noon, News, Weather, Snow Report and Time. 12.15 p.m., Gramophone Concert: Canzonetta (d'Ambrosio); La Timide and Tambourin (Rameau); Largo (Händel); Impromptu (Schubert); Aufschwung (Schumann); Sonata in F Sharp Minor (Reger); Nocturne No. 3 (Liszt); Selection from the Sonata in G, Op. 78 (Schubert); Waltz Kuhlau-Burmeister; Mazurka (Wien-iavsky); String Quartet in A, Op. 15, No. 3 (Beethoven). After the Concert, Exchange Quotations. 1.0, Film Review. 1.15, Advice for the Unemployed. 2.0, A Fairy Tale for Children. 2.35, Exchange and Market Prices. 3.0, Concert by the Leipzig Symphony Orchestra, conducted by Willy Stellan, soloists, Max and Karl Krämer (Violin). Overture, Claudin; von Villa Bella (Schubert); Concerto in A Minor, Op. 5, for Two Violins and Orchestra (Marx); Five Minutes (Schubert); Ballet Music from King Manfred (Reincke); Overture, Tantalus-quälen (Suppe); Tarantella, Venezia e Napoli (Liszt); Lyric Vision Masegani; Festival Waltz (Lamp). 4.30, Weather and Time. 4.50, Exchange Quotations. 5.0, Medical Talk. 5.15, Notes for Taxpayers. 5.30, Spanish Lesson. 5.50, Book Review. 6.0, Talk: Unemployment among Young People. 6.25, Gottfried Köhler reads from his own works. 6.45, Introduction to the following Transmission. 7.0, Iphigenia in Aulis—Opera (Gluck). 9.5, News Bulletin, followed by Silent Night.

Linz.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—4.30 p.m., Quintet Concert. 5.30, Italian Lesson. 6.0, Economic Talk. 6.30, Talk on Wireless. 7.0, Songs

from Opera. 7.45, Choral Concert. 8.30, Guitar Recital. 9.0, Time, News, and Light Music.

LWOW

381 metres; 16 kW.—6.30 p.m., See Warsaw. 7.0, See Berlin. 9.0, Comedy, relayed from Wilno (563 metres). 9.45, See Warsaw. 10.0, Dance Music from Katowice (408 metres). 10.30 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South East. 8.30, Instrumental and Vocal Concert. Mlle. Elaine Carrier (Songs), Cécile Des-georges (Harp), Heddyett Blanc Dauphin and M. Badon (Duets), a Women's Choir and an Instrumental Ensemble. After the Concert: News Bulletin.

MADRID

ARANJUEZ (EAQ); 30.43 metres; 20 kW.—11.50 p.m., Variety Music: Pasodoble, Grana de mi arma! Moment musical (Schubert); Turkish March (Mozart). 11.45, Radio Chronicle. 12 Midnight, Molinos de Viento—Musical Comedy (Pascual Frutos and Luna). 12.35 a.m. (Friday), Talk. 12.40, Concert. 1.0 (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotations and Programme for Children, followed by Request Gramophone Records. 8.15, News Bulletin. 8.30 to 9.0, Interval. 9.0, Lingua-phone English Lesson. 9.30, Chimes, Time Signal and Band Concert, conducted by Martin Domingo, relayed from the Hotel Nacional. 11.45, News Bulletin. 12 Midnight, Chimes and Close Down.

Malmo.—See Stockholm.

Milan.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—3.10 p.m., See Brno. 5.0, Talk. 5.15, See Prague. 5.30, German Transmission: Two Talks. 6.0, See Prague. 6.5, See Brno. 6.20, See Prague. 7.5, Igor Stravinsky Symphony Concert, conducted by Jaroslav Vogel, relayed from the National Theatre: Soloist, Igor Stravinsky (Pianoforte); Suite for Small Orchestra from Pulcinella; Caprice from the Concerto for Pianoforte and Orchestra; Psalm Symphony for Choir and Orchestra; Suite from Petruska. 9.0, See Prague. 10.0 (approx.), Close Down.

Motala.—See Stockholm.

Muhlacker.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—4.0 p.m., Concert, conducted by Erich Kloss: Overture, Cagliostro (Adam); Florentine Serenade (Seybold); Chinese Serenade (Seybold); Selection from Faust (Gomodo); Waltz, Winterstürme (Fueick); Item to be announced; Love Song (Bece); Ballet Intermezzo, Pavlova (Meyer-Helmund); Amina (Lücke). 5.15, Report on the Theatre. 5.35, Agricultural Talk. 5.55, Time, Weather and Agricultural Report. 6.5, Talk on Wagner and the Wagnerian Tradition. 6.25 (from Nürnberg), Concert by the Karl König Wind Instrument Orchestra. 7.40, Talk: The Beauties of the German Language. 8.0, Symphony Concert, conducted by Hans Winter. Soloist: Gustav Havemann (Violin). Concerto in D for Violin and Orchestra (Beethoven); Symphony No. 4 in B Flat (Schubert). 9.20, Time, Weather, News and Sports Notes.

Naples.—See Rome.

Notodden.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredriksstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Parsgrund, 453.2 metres; and Rjukan, 447.1 metres.—6.0 p.m., Announcements, Weather, and News. 6.20, Song Recital by Mme. Noni Gjervik (Soprano); Aria from Madame Butterfly (Puccini); Aria from Figaro (Mozart); Lisa's Aria from The Queen of Spades (Tchaikovsky); Elisabeth's Prayer from Tannhäuser (Wagner). 7.0, Time Signal. 7.1, Talk: Agriculture in Switzerland. 7.30, A Childhood Friend—One Act Play (Edmond See). 8.40, Weather and News. 9.0, Topical Talk. 9.15, Relay of European Stations. 11.0 (approx.), Close Down.

Ostersund.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Agricultural Notes and Giornale Radio. 7.20, Light Music on Gramophone Records. 7.30 (in an interval), Time Signal and Announcements. 7.45, Vocal and Orchestral Concert of Light Music. In an interval, Film Notes. 8.20, E' Concella pedette le sua pace—One Act Comedy (Franco Carnè). 9.0, Concert of Songs. 9.55, News Bulletin.

PARIS

Eiffel Tower; Call FLE; 1,445.7 metres;

JAN. 26th

THURSDAY

continued

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. 7.20, Weather 7.30, Gramophone Concert: Overture and Air from Der Freischütz (Weber); Ballet from Le Bourgeois Gentilhomme (Lully); Rigaudon from Dardanus (Rameau); Symphony in D (Beethoven); Waltz, Wiener Bonbons (Johann Strauss); Waltz, Dorfschwalben aus Oesterreich (Joseph Strauss); Melody (Marshall); Song of the Broken Heart (Moya); Serenata (d'Amalfi); Un peu d'amour (Silésu); Selection from François les bas blancs (Messager); March from White Horse Inn (Benatzky); Melody (Myne); Les primes pour tous (Gabaroché); Two Melodies (Heyman). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—7.0 p.m., Programme for Children. 7.30, Sponsored Concerts. 8.15, Interval. 8.30, La Mureche indienne—Play (Franc-Nohain). 10.0, Concert by Alexander Scriabin's Russian Orchestra, relayed from the Berry. 10.30, News Bulletin.

PARIS

RADIO PARIS, Call GFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather Forecast and Physical Culture (contd.). 7.45, Norwegian Dances (Grieg), on Gramophone Records. 8.0, Press Review and Weather. 12 Noon, Protestant Address. 12.30 p.m., Orchestral Concert. Part I—For Young People. Suite, Marionettes (Poldini); Third Nursery Suite (Inghelbrecht). Part II—Travel Sketches. Italy: (a) Canzone Vesuviana (Marquesi), (b) Gondoliers Song (Mezzacapo), (c) Two Italian Songs (Volpatti); Spain: First Spanish Suite, España (Albeniz); Gipsy Music: (a) Gipsy Romance (Boldi), (b) Czardas (Michele); Russia: Ukrainian Sketches (Akimenko); Japan: Kamiki (Gauwin). In the intervals at 1.0 p.m., Exchange, News and Weather, and at 1.30 and 2.0, Exchange. 2.30 (approx.), Running Commentary on the Football Match France vs. Bristol Rovers, relayed from the Parc des Princesses. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Light Music on Gramophone Records. 6.45, Legal Talk. 7.0, See Leipzig. In the intervals at 7.45, Commercial Prices and News, at 8.15, Review by Christophe, and at 8.30, News and Weather. 9.15, Les Ranzan Play (Reckmann-Charliou).

PORSGRUND.—See Oslo.

POZNAN

335 metres; 1.9 kW.—5.50 p.m., Miscellaneous Items and Announcements. 6.10, The Letter Box. 6.28, Time Signal. 6.30, See Warsaw. 7.0, Concert of French Music. Stanislaw Roy (Tenor), Witold Both (Violin) and Franciszek Lukaszewicz (Pianoforte). 8.0, Soprano Song Recital by Aniela Tomkiewicz and Irena Wojciechowska. 8.30, See Warsaw. 9.15, Topical Talk. 9.30, Time Signal, Sports and Police Notes. 9.45 (approx.), Close Down.

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., See Brno. 4.10, Talk on Industry. 4.20, See Brno. 4.50, Light Music on Gramophone Records. 5.5, Talk on Bee-Keeping. 5.15, Talk for Workers. 5.25, German Transmission: News and Agricultural Talk. 6.0, News Bulletin. 6.5, See Brno. 6.20, Talk: Travelling in the East. 6.35, A Comedy (Branslav Music). 6.55, Talk on the following Transmission. 7.5, See Moravská-Ostrava. In the interval at 8.0, Time Signal. 9.0, Time, News, and Sports Notes. 9.15, Dance Music from the Alcron Hotel. 10.0 (approx.), Close Down.

RABAT

PTT, 416 metres, 6 kW.—12.30 to 2.0 p.m., Concert of Light Music: March, Funiculi-Funicula (Gauwin); Waltz from The Merry Widow (Lehar); Melody, Cara Piccina (Lama); Overture, The Thieving Magpie (Rossini); Song from Ciboulette (Hahn); Song, Pitehounette (Massenet-Mouton); Selection from Samson and Delilah (Saint-Saëns); South American Melody, Melancholique (Lucchesi); Violin Solo: Souvenir d'un lieu cher (Tchaikovsky); Song: Mariage moudain (Noël); Orientale (Cui); Suite, Le Bouton d'or (Pierné). News in the interval. 3.30, Talk for Children. 4.0 to 5.0, Gramophone Concert of Variety Music. 7.0, Arab Transmission, News and Andalusian Music on Gramophone Records. 7.45, Weather and News. 8.0, Concert of Light Music: Overture, Die schöne Galathée (Suppé); Love Waltz (Heymann-Salabert); Song, With you (Berlin); Selection from Flossie (Szale); Finale from the Second Act of The Gipsy Baron (Joh. Strauss); Talk by M. Richard. 9.0, Concert of Classical Music, conducted by M. Jean Giardino: Overture, Figaro (Mozart); Song, Der Erlkönig (Schubert); Symphony No. 7 in A (Beethoven). 10.0, Variety Concert on Gramophone Records.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; LAUSANNE, 680 metres, and GENEVA, 760 metres.—5.25 to 7.0 p.m., Programme from Lausanne. 5.45, Italian Lesson. 6.0, News Bulletin. 6.20, Answers to Correspondence. 6.30, Theatre Review. 7.0 to 8.30, Programme from Geneva. 7.0, Comedy Programme. 7.25,

Interlude. 7.35, Municipal Concert by the Radio Orchestra, conducted by Ernst Ansermet: Soloist: Marc Delgay (Cello). In the interval at 8.30, News and Weather. 9.20 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather Report. 8.40, Musical Programme and Announcements. 9.0, Chimes. 9.2, News Bulletin. 9.30, Reading. 10.0, Concert by the Station Quartet, followed by Arias and Popular Music on Gramophone Records.

RIGA

525 metres; 15 kW.—5.30 p.m., English Lesson. 6.0, Weather Report. 6.5, Concert in memory of Zigrifis Meierovics, First Minister for Foreign Affairs in Latvia, relayed from the Officers' Club. Address by M. Zsrins, Minister for Foreign Affairs. Concert of Latvian Music by the Latvian University Students' Choir and Soloists. News and Weather in the intervals. After the Programme, Dance Music. 9.30, (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call IRO, 441 metres; 50 kW. Relayd by Naples, 319 metres, and 2RO, 25.4 metres.—7.15 to 7.30 a.m., Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Orchestral Concert. In the interval from 12.30 to 12.45, Giornale Radio and Exchange. 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.30 to 5.15, Orchestral Concert: Fez (Mascheroni); Hymn to the Sun (Rimsky-Korsakov); The Cuckoo (Benson); Soprano Solo, Stornellata spagnola (Mepides); Selection from The Dollar Princess (Fall); Soprano Solo, Parlez-moi d'amour (Lenoir); Song of the Volga Boatmen (Weninger). 6.10 (Naples), Shipping and Sports Notes. 6.15, Agricultural Notes, Announcements, and Giornale Radio. 7.0, Time and Announcements. 7.15, Light Music on Gramophone Records. 7.20, Talk for the Housewife. 7.30, Sports Notes and Tourist Report. 7.45, Symphony Concert, conducted by Werner Janssen. In the intervals, Talk on Literature and Art, and Reading of Modern Italian Poetry. 9.55, News Bulletin.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY, WCY, 379.5 metres; 50 kW. Relayd at intervals by W2XF on 31.48 metres and by W2XD on 19.56 metres.—12 Midnight, 6-E Circle, from New York. 12.15 a.m. (Friday), Stock Reports. 12.30 till Close Down, New York Relay. 12.30, Barbasol Programme. 12.45, The Goldbergs. 1.0, Fleischmann Hour. 2.0, Captain Henry's Show Boat. 3.0, Lucky Strike Hour. 4.0 (approx.), Close Down.

SCHWEIZERISCHER LANDESENDER

BEROMUNSTER, 459 metres; 60 kW.; BASEL, 244.1 metres; and BERNE, 245.9 metres.—11.28 a.m., Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40, Sound Film Music on Gramophone Records. 12.35 to 12.45 p.m., Weather and Exchange. 2.30 (from Basle), Talk for Women. 3.0, Concert of Operetta Music by the Radio Orchestra. 4.0, Variety Music on Gramophone Records. 4.30 to 4.35, Weather. 5.30 (from Basle), Talk on Stendhal, for the 150th Anniversary of his Birth. 6.0, Time, Weather, and Traffic Report. 6.15 (from Basle), Elementary Italian Lesson. 7.0 (from Zürich), Concert of Swiss Music by the Lucerne Music Society, relayed from Lucerne; The Lucerne Municipal Orchestra and a Choir conducted by Richard Schulz-Reindnik. 9.0 (approx.), Weather and News.

SEVILLE

Call EAJ5, 368.1 metres; 1.5 kW.—8.30 to 9.0 a.m., Topical Review. 2.0 to 3.0 p.m., Orchestral Concert: Que n'as da (Planás); Invitation to the Waltz (Weber); Selection from Los picaros estudiantes (Media Villa); Selection from El mal de amores (Serrano); Flamenco Songs. 9.0, Concert. Part I: Flamenco Song; Alegria Seguidilla gitana; Juan Simón; Malagueña; Fandangos; Milongas; Fandangos; Cartagenas. Part II: Orchestral Music: Prelude to Faust (Gomud); Nocturne, Monastery Bells (Lefebvre); Ballet Music from Coppelia (Delibes); Spanish Serenade (Bizet); Selection from Las Golondrinas (Usandizaga); Wedding March from The Golden Cockerel (Rimsky-Korsakov). Part III: Dance Music. In the interval, News, Exchange, Market Prices and Weather. 11.0 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SABA, 436 metres; 55 kW. Relayd by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—4.5 p.m., Studio Service, relayed from Kalmar, 247.7 metres. 4.30, Programme for Children. 4.45, Orchestral Concert: Waltz, Children of Spring (Waldteufel); Cavatina (Raf); Ballet égyptien (Luizini); Serenade from Les millions d'Arlequin (Drigo); Livet i Dalom (Blom); Tango, Mélodie d'amour (Hylbom); Selection from The Little Dutch Girl (Kalmán). 5.45, Elementary English Lesson. 6.15, Weather and News. 6.30, Duet Recital by Inga Lindholm and Signe Lundborg. 6.45, Talk on Economics, relayed from Malmö, 231 metres. 7.15, Variety Music on Gramophone Records. 8.15, A One-Act Comedy in Verse (Clifford Bax), translated by Nils Bohman. 8.45, Weather and News. 9.0, Variety Programme. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Light Music on Gramophone Records. 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Variety Concert on Gramophone Records. 2.0, Programme for Children. 3.0 to 4.15, Interval. 4.15, French Elocution Lesson. 4.30, Programme for Children, relayed from Bordeaux-Lafayette. 6.0, Talk in German: Through Alsace—the Church at Ottmarstein. 6.15, Talk in French: The Protection of Children from Moral Dangers. 6.30, Variety Music on Gramophone Records. 7.30, Time and News. 7.45, Popular Music on Gramophone Records. 8.25, Lottery Results. 8.30, Symphony Concert of French Music, conducted by Henri Tomasi. Soloist: Jean Doyen (Pianoforte). Selection from Le festin de l'araignée (Roussel); Symphonie Variations for Pianoforte and Orchestra (Franck); Feuilles d'Images (Aubert); Ballad for Pianoforte and Orchestra (Faure); Le tombeau de Couperin (Ravel). 10.30 (approx.), Close Down.

STUTT GART

MUHLACKER, 360.5 metres; 60 kW.; and FREIBURG, 570 metres.—12.30 p.m., Concert from Langenberg. 1.0, Sponsored Concert. 1.30, Spanish Lesson. 2.0, Elementary English Lesson. 2.30, Programme for Young People. 4.0, See Munich. 5.15, Time, Weather, and Market Prices. 5.25 (from Freiburg), Die Havelungen—A Legend of the Upper Rhine. 5.50, Talk on the World Crisis. 6.15, Time and News, followed by Report on the South-West German Agricultural Market from Mannheim. 6.30, Viennese Schrammel Music on Gramophone Records. 7.0, Barbe bleue—Operetta in Three Acts (Offenbach). 8.35, String Quartet in B Flat, Op. 67 (Brahms). 9.5, Time, News, Weather and Programme Announcements.

SUNDSVALL.—See Stockholm.

TALLINN

298.8 metres; 11 kW.—3.45 p.m., Gramophone Records of Variety Music and Announcements. 4.0, Review of the Foreign Press. 4.15, Light Music on Gramophone Records. 4.45, Press Review. 5.0, Advanced English Lesson. 5.30, Talk. 6.0, Weather and Time. 6.5, Concert of Russian and Cigany Music, by the Station Orchestra, A Cigany Chorus and Soloists.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0 p.m., News Bulletin. 6.15, Operetta Music: Selection from (a) Le Grand Mogol (Andran), (b) Veronique (Massager), (c) Suzanne (Paladilhe). 6.30, Programme for Children. 7.0, Cello Solos: (a) Romance without Words (Faure), (b) Sonata Largo (Chopin), (c) Prelude to Hérodias (Massenet), (d) Toccata (Frescobaldi). 7.15, Racing Results, Market Prices, and News. 7.25, Local News. 7.30, Concert of Light Music and Military Music. 8.0, Accordion Music. 8.15, Songs from Opera: (a) The Valkyries (Wagner), (b) Samson and Delilah (Saint-Saëns), (c) Le Cid (Massenet). 8.30, Orchestral Music: Selection from Carmen (Bizet); Selection from La Dame blanche (Boieldieu). 8.45, Variety Music. 9.0, Extracts from Cavalleria rusticana—Opera (Mascagni). 9.30, Music by a Viennese Orchestra. 10.0, Light Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco; Selection from Samson and Delilah (Saint-Saëns); Song from Les Mousquetaires au convent (Varney); Hungarian Dance No. 6 (Brahms); La Légende des Plots bleus (Christiné); Accordion Solo, Siméon (Eblinger); Le Moulin de la Vierge (Blondiaux). 11.0, Variety Music. 11.15, Readings. 11.30, Programme in English by the I.B.C.: Organ Music and Songs: Cuban Love Song (Stothart); The Twilight Waltz (Dubin); Home (Clarkson); You are my Heart's Delight (Lehar); Song of the Dawn (Yellen); Popular Melodies; Serenade (Drigo). 12.0 Midnight, Weather

and Announcements. 12.5 a.m. (Friday) Dance Music. 12.30 (approx.), Close Down

TRIESTE

247.7 metres; 10 kW.—4.10 till Close Down See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayd by Milan 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—4.10 to 5.0 p.m., Orchestral Concert. 5.45, Giornale Radio: Agricultural Report, and Announcements. 6.0, Gramophone Records of Variety Music. 6.25, Tourist Report. 6.30, Time, Announcements, and Gramophone Records of Light Music. 7.0, Giornale Radio and Weather. 7.30, Talk for Housewives, followed by Light Music on Gramophone Records. 8.0, Relay of an Opera. In the intervals, Talk of Music, Literary Notes, and Giornale Radio

VATICAN CITY

19.84 metres (Morning) and 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in French. 7.0 to 7.1 p.m., Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayd by Graz, 352. metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218.5 metres.—4.10 p.m., Dance Music by the Jean Litwin Syncopators Jazz Band and the Los Pamperos Tango Band, relayed from the Café de Paris. 5.0, Talk for Women: Modern Problems. 5.20, Talk: Methods of Obtaining Credit. 5.45, Talk: The Laws of Married Life. 6.15, Time, Weather and Programme Announcements. 6.25, Relay from the Opera House: (a) Cavalleria rusticana—One-Act Opera (Mascagni), (b) I Pagliacci—Opera in Two Acts and a Prologue (Leoncavallo). In an interval at 7.30 (approx.), Weather and Announcements. 9.8, News. 9.5, Snow Report. 9.25, Dance Music by the Karl Machek Jazz Band and Ernst Schön (Songs), relayed from the Café Splendid.

WARSAW

1,411 metres; 120 kW.—11.10 a.m., Popular Music on Gramophone Records. 11.30, Weather Forecast. 11.35, Concert for Schools, relayed from the Philharmonie The Warsaw Philharmonic Orchestra, conducted by E. Wolfstall. Soloists: Mimi Szólamiska (Soprano) and J. Dworakowski (Violin). Overture, The Barber of Seville (Rossini); Soprano Solos: (a) Aria from La Traviata (Verdi), (b) Cavatina from The Barber of Seville (Rossini); Violin Solo: Introduction to Act IV of La Traviata (Verdi); Ballet Music from La Gioconda (Ponchielli); Soprano Solos: Three Popular Songs: Intermezzo from Cavalleria Rusticana (Mascagni); March from Ariadne (Verdi). 1.0 to 2.10, Announcements. 2.25, Light Music on Gramophone Records. 2.35, Review of Periodical for Women. 2.50, Popular Music on Gramophone Records. 3.25, Intermediate Gramophone Lesson. 3.40, Talk. 4.0, Quartet in D Major (Mozart) on Gramophone Records. 4.40, Topical Talk. 4.55, Programme Announcements. 5.0, Light Music, relayed from the Cristal Restaurant. In the interval, Announcements. 6.0, Miscellaneous Items. 6.20, Agricultural Report. 6.30, Reading (Szepegowski). 6.45, Radio Journal. 7.0, Concert by the Station Orchestra, conducted by S. Nawrot. Soloist: Mme. Dobrowolska Pawlowska (Soprano); Carnival Suite (Schmatschich); Three Songs; Polka from Die Fledermaus (Johann Strauss); Stephan Gavotte (Czibulka); Waltz (Lehar); Soprano Solos: Three Songs (Lehar); (a) Air from The Land of Smiles, (b) Waltz from Endlich allein, (c) Air from The Merry Widow Galop (Translatuer); Cracovienne-Fantaisie (Pankiewicz-Lefeld); Waltz, Die Kosende (Lanner); Mazurka (Nanyowski). In the intervals, Sports Notes and Radio Journal. 8.30, Dramatic Programme. 9.15, Cigany Music, relayed from the Fokier Restaurant. 9.55, Announcements. 10.0, Dance Music relayed from Katowice (408 metres).

WILNO

563 metres; 16 kW.—2.50 p.m., Concert of Polish Music on Gramophone Records. 3.25, See Warsaw. 4.0, Wagner Music on Gramophone Records, with Comments. 4.40, See Warsaw. 4.55, Programme Announcements. 5.0, See Warsaw. 6.40, Miscellaneous Items. 5.45, Reading. 6.10, The Letter Box. 6.3, Literary Talk. 6.45, See Warsaw. 9.0, Aurelia, don't do that!—a Comedy (Lopelewski). 9.45, Concert and Announcements from Warsaw. 10.0, Dance Music from Katowice, 408 metres. 10.0, Relay of Foreign Stations. 11.0 (approx.), Close Down.

ZAGREB

307 metres; 0.75 kW.—4.0 p.m., Programme of Balalaika Music. 6.15, News Bulletin. 6.35, Talk: Our Five Senses. 7.0, See Ljubljana. 9.0, News, Weather Forecast and Winter Sports Notes. 9.10, Dance Music. 10.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—7.0 p.m., Request Gramophone Records. 7.30, Exchange and Talk in Catalan. 8.0, Popular Music on Gramophone Records and News Bulletin. 9.0, Chimes from the Cathedral, Weather Forecast, Messages from Seamen, Exchange Quotations and Market Prices. 9.10, Concert by the Station Orchestra: March (Delille); Pavane, Birds and Flowers (Palau); Romanca (Serra); Polonaise in B Flat (Schubert). 9.30, Musical Comedy, relayed from Madrid (EAJ7). 11.0 (in an interval), News Bulletin. 12 Midnight (approx.), Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Report, Tourist Talk, and Announcements. 7.20, Giornale Radio and Press Review. 7.30, Time and Announcements. 7.35 (approx.), Concert of Opera Music. Soloists: Lino d'Angelo (Baritone) and Maria de Santis Bruno (Soprano). Selection from Masanillo (Auber); Soprano Aria from A Masked Ball (Verdi); Selection from Isabeau (Mascagni); Baritone Solos; (a) Aria from Don Carlos (Verdi); (b) Aria from Linda di Chamounix (Donizetti); Selection from I Pagliacci (Leoncavallo); Aria of the Bells, from Lakmé (Delibes); Selection from Norma (Bellini); Soprano Solo from I Puritani (Bellini); Selection from Madame Butterfly (Puccini); Soprano Solo from La Traviata (Verdi); Selection from Rigoletto (Verdi). In the interval, Talk on Sports. 9.30, Concert from the Caffè del Levante. 9.55, News. **BASLE**.—See Schweizerischer Landessender.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 4 kW.—11.55 a.m., Nauen Time Signal. 12.35 p.m., News Bulletin. 1.0, Gramophone Concert, relayed from Berlin (Witzleben). 2.0, Talk for Girls; Brahms, 2.30, Weather and Exchange. 2.45, Reading from the Works of Rilke. 3.0, Talk: The Position of Secondary Schools in the Country. 3.30, See Leipzig. 4.10, Talk on Health: Winter Cures in Germany. 4.30, Talk: Experiences with Anthropomorphisms Apes. 4.55, Violin Sonatas: Sonata in G (Mozart); Sonata in F (Haydn). 5.30, Talk: New Sickness Benefit Regulations. 5.55, Weather and Announcements. 6.0, Talk: Vital Questions of the Day—Questions and Answers. 6.30, A Poem. 6.35, Concert from Leipzig. 7.35, Deutsche ohne Deutschland—A Radio Play (Walter von Molo). 9.0, Weather, News, and Sports Notes. 9.45, Weather Report for Shipping, followed by Variety Programme from Leipzig. 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN; 419.5 metres; 1.5 kW.—3.25 p.m., Orchestral Concert of Scandinavian Music: Zornhaye (Svendsen); Prelude (Järnefeldt); Waltz from Cinderella (Pahngren); Finnish Folk Song for Strings (Knuutila); Symphonic Dances, Op. 64 (Grieg); Symphony No. 7, Op. 105 (Sibelius). 4.25, Talk: Forgotten Books. 4.35, Talk for Young People: The Life and Work of Mozart. 5.0, Talk: New Books. 5.10, One of Eighty Millions. 5.20, Scenes from Father and Son—a Play for Young People (Joachim von der Goltz). 5.55, The Witzleben Station informs its Listeners... 6.0, Topical Talk. 6.10, Choral Concert: Der Bergstrom (Banmann); Rheinglaube (Sommet); In die Ferne (Brückner); Beim Kronenwirt (Schilling). 6.30, Variety Programme. 8.0, Symphony Concert by the Berlin Philharmonic Orchestra, conducted by Richard Lert. Soloists: Stelli Geyer (Violin); Concerto in A, Op. 7, for Violin and Orchestra (Schulthess); Symphonia domestica, Op. 53 (R. Strauss). 9.10, Weather, News, and Sports Notes. 9.30 (approx.), Concert of Light Music from the Central Hotel. 11.0 (approx.), Close Down.

BERNE.—See Schweizerischer Landessender. **BEROMUNSTER**.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BRATISLAVA

279 metres; 14 kW.—3.10 p.m., See Brno. 3.55, Talk for Sportsmen. 4.5, See Prague. 5.5, A Play (d'Arleville). 5.45, Slovak Language Lesson. 6.0, See Prague. 6.5 to 9.0, See Prague. 9.15 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres; 60 kW.; and GLEIWITZ, 253 metres.—12.5 p.m., Weather for Farmers. 12.10, Gramophone Concert: Overture, Der Freischütz (Weber); Waltz from Der Rosenkavalier (R. Strauss); Tom the Rhymer (Loewe); Zug der Zwerge (Grieg); Coronation March from Die Valkyrie (Kretschmer). 12.45, Time, Weather, News and Exchange. 1.5, Gramophone Concert: Overture, Pique Dame (Suppé); Waltz, Du and Du, from Die Fledermaus (Joh. Strauss); Lehar Potpourri (Geiger); Russian Gipsy Dance; Waltz, Donauwellen (Ivanovic); Polka, Leichtes Blut (Joh. Strauss); Eifer Marsch (Reinold). 1.45, Sponsored Programme with Gramophone Records. 2.10, Agricultural Prices and Exchange. 2.40, Talk for Young People: How a Sound Film

FRIDAY

JANUARY THE TWENTY-SEVENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

- NATIONAL** Light classical concert. Mr. St. John Ervine: "The Theatre." Songs from the Shows. Chamber music.
- LONDON REGIONAL** Tango orchestral concert. Royal Philharmonic Society concert, relayed from Queen's Hall, London.
- MIDLAND REGIONAL** Light music. "Rhythm," a gramophone recital.
- NORTH REGIONAL** Organ music. Orchestral programme. "Women's Love and Life," a song cycle by Schumann.
- WEST REGIONAL** "Channel Currents," a review of events in the West Region. "The Play Evolves," a dramatic surmise by Ifan Kyrle Fletcher.
- SCOTTISH REGIONAL** Orchestral concert. Band concert.
- BELFAST** Organ recital. Dance music.
- ABROAD**
- BRUSSELS (No. 2)** Concert by the Algemene Fropharmonie, relayed from Antwerp.
- COPENHAGEN** Choral concert with organ solos from the Cathedral Aarhus.
- LEIPZIG** Organ recital from St. George's Church, Rothera.
- RADIO PARIS** Symphony concert, conducted by Eugene Bigot.
- STUTTART** The Philharmonic Orchestra, conducted by G. Gorchlich.
- WARSAW** Honegger concert by the Philharmonic Orchestra, conducted by the composer.

is made. 3.10, Talk on the German Post Office. 3.25, Concert from Berlin (Witzleben). 4.25, Gramophone Concert of Light Music. 5.0, Talk: Educational Experiences in a Workers' Encampment. 5.30, Talk: How Animals Sleep. 6.0, Wireless Hints. 6.10, Jochem Klepper reads from his own Works. 6.40, Weather for Farmers and Programme to be Announced. 7.0, Concert of Dance Music and Light Music. 9.0, Time, Weather, News, Sports Notes and Programme Announcements. 9.20, Talk: The Racing Car in 1905. 9.40, Concert from Berlin (Witzleben). 11.0 (approx.), Close Down.

BRNO

342 metres; 35 kW.—3.10 p.m., Orchestral Concert, conducted by Bakala: Orchestral Suite (Pierné); Symphonic Poem, La Jennesse d'Heroule (Saint-Saëns); Slav Rhapsody in G Minor, Op. 45 (Dvorák); Moravian Dances (Janacek). 3.55, Theatre Review. 4.5, See Prague. 5.15, Talk for Workers. 5.25, German Transmission—News, Talk on Sport and Talk for Women. 6.0, See Prague. 6.5, Talk: Czech Literature of 1932. 6.20, Talk on the following Transmission. 6.30, The Devil and Kate—a Comic Opera in Three Acts (Dvorák), relayed from the National Theatre. 9.0, See Prague. 9.15 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—12 Noon, Concert by the Small Station Orchestra, conducted by Paul Lecmans; Soloist: M. Derissen (Cello); Overture, Masanillo (Auber); Selection from Gri Gri (Lincke); 'Cello Solo; Habanera (Ravel); Serenade (d'Ambrosio); Dorf-schwalben aus Oesterreich (Jos. Strauss); Plaisirs d'amour (Martini); Venez-y être ma poupée (Marullès); Selection from La-Haut (Yvain); Russian March (Gatone). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Concert: Selection from The Desert Song (Romberg); Chanson bohémienne (Baldl); Minuet (Bolzoni); The Punch and Judy Show (Black); Scandinavian Dance (Rimo); Rose-mousse (Bose); Fantasia on William Tell (Kruger); Selection from Tosca (Puccini); Melody (Gazes); Estrellita (Ponce-Davis); Selection from Der Freischütz (Weber). 2.0, Educational Programme. 5.0, Concert by the Radio Orchestra, conducted by Franz André; Marche française (Saint-Saëns); Andalous (de Taxy); Selection from No, No, Nanette (Yannian); La Paloma (Yradier); Tarentella (Poppert); Somebody loves you (Tobias); Waltz, Roses from the South (Joh. Strauss); Hindu Song (Rimsky-Korsakov); Am I blue (Nussbaum). 6.0, Talk: The Post-War Woman. 6.15, Gramophone Concert: Sonata in B Flat Minor (Chopin); Fantasia for Flute (Hlic); Grande valse brillante (Chopin); Overture, Gwendoline (Chabrier). 7.15, Talk on Wireless: How to

make a Receiver. 7.30, Le Journal Parlé. 8.0, Concert by the Radio Orchestra, conducted by Franz André; Soloists: Mlle. Lautherlin (Songs) and M. Laurent (Tenor); Overture, Zampa (Herold); Waltz, Tu ne sais pas aimer (Zoka); Selection from Show Boat (Kern); Java, Charlot (Closset); Songs: (a) Désir (P. Hans); (b) Le manoir de Rosmonde (Duparc); (c) Spring (Rachmaninov). 8.45, Talk by M. Briehard; Our Marvellous Cruise round the World. 9.0, Orchestral Concert (contd.): March, Carnaval parisien (Popy); The Missouri Waltz (Logan); Foxtrot, Pour un jour d'ennui (Chantrier); Farandole (Dubois); Tenor Solos: (a) Aria from The Queen of Sheba (Gounod); (b) Cavatina from La Reine de Chypre (Halévy); (c) Heulliche Aufforderung (R. Strauss); Tango, Bells in the Moonlight (Nuovo); Conte pastoral and Conte amusant (Godard); Military Marches (Schubert). 10.0, Le Journal Parlé. 10.10, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

BRUSSELS (No. 2)

I.N.R., 338.2 metres; 15 kW.—Programme in Flemish. 12 Noon, Gramophone Concert of Light Music. 1.0 p.m., Le Journal Parlé. 1.10 Concert by the Small Station Orchestra, conducted by P. Lecmans; March, The Liberty Bell (Souza); Waltz, from The Chocolate Soldier (O. Straus); Selection from The Vagabond King (Friml); Selection from The Gipsy Baron (Joh. Strauss); Selection from Frühling in Wienerwald (Ascher); Selection from A Waltz Dream (O. Straus); Waltz, Vibrations (Löhrl); Selection from The Merry Peasant (Fall); Waltz from The Count of Luxembourg (Lehar). 2.0, Educational Programme. 5.0, Gramophone Concert: Overture, Riv Blas (Mendelssohn); Four German Dances (Mozart); Au Muret (Schubert); Symphony No. 40, in C Minor (Mozart). 5.45, Pallieter Programme. 6.30, Concert by the Small Station Orchestra: Overture, Lysistrata (Lincke); Dutch Dances (Siepp); Le Canzon d'Italia (de Michel); Hungarian Dances (Brahms); Le carillonner (Gavin); Selection from Frederica (Lehar); Kleiner Wiener Marsch (Kreisler). 7.12, Announcements. 7.15, Talk: The Task of Flemish Nationalism. 7.30, Natural History Talk. 8.0, Concert by the Symphony Orchestra, conducted by A. Meulemans; Potpourri of Student Songs (Manfred); Waltz, Wienerböhen (J. Strauss); Mazurka (de Boeck); Waltz, Estudiantina (Waldteufel); Marche joyeuse (Chabrier). 8.30, Concert on the Tenth Anniversary of the Algemene Fropharmonie, relayed from the Rubenspaleis, Antwerp. Soloists: Mlle. Mia De Colardere-Monden (Songs); Mme. S. Van Roe-Waroulers (Pianoforte); and M. K. Van Tolluycen (Cello); March (Kreisler); Overture, Cortège aux Haubourgs (P. Gilson); Mixed Chorus: Four Songs; 'Cello Solo; (a) Alle-

gro appassionato (Saint-Saëns), (b) Träumerei (Schumann); Songs: (a) Aria from Der Freischütz (Weber), (b) Zauberberied (Meyer-Hulmnd); Address by Herrmann Van Puymbroek; Fantasia on Themes by Schubert; Gramophone Records: (a) Liebesbotschaft (Schubert-Liszt), (b) Impromptu in B (Schubert); Choir: Four Songs; Laudelikk Leven (Bacins); 10.0, Le Journal Parlé. 10.10, Concert (contd.): Blokjesdans (Van Oost); Songs: (a) Yolande (Wambach), (b) Ode à Part Flolland; 'Cello Solo: Kinderideal (Keurvels); Ballet Music from Milenka (Blockx); Vlaanderen (Veremans); De Vlaamse Leeuw (Veremans). 11.0 (approx.), Close Down.

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on 840 metres from 6.45 to 11.0 p.m. 4.0 p.m., Military Band Concert, relayed from the Café Dumakors; Loreley Paraphrase (Nussadba); Serenade (Amadei); Serenata della Laguna (Becca); Viennese Song (Zakal); Lied (Buday); Waltz (Adler); Kleine Serenade (Grünfeld); Kleiner Wiener Marsch (Kreisler). 6.0, Reading: A Journey on Stephenson's Rocket. 6.30, Review of Foreign Politics. 6.45, Cuno Kiechelberg Memorial Programme, arranged by the Franz Liszt Society, relayed from the Academy of Music; The Budapest Concert Orchestra, conducted by Imre Stefanini and the Choir of St. Stephen's Basilica, conducted by D. Demeny; Ideale for Orchestra (Liszt); Memorial Address by Balfut Homan; Requiem for Choir (Mozart). 8.45, News. 8.50 (approx.), Concert by the Sandor Farkas Gipsy Band, relayed from the Café Bodo; Soloists: Gyula Szanthe (Hungarian Folk Songs). 10.0, Dance Music from the Café Bodo.

CASSEL.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW.; and KALUNDBORG, 1,153 metres; 7.5 kW.—11.0 a.m., Time and Chimes from the Town Hall. 11.5, String Ensemble Concert, conducted by Harald Andersen, relayed from the Bellevue Strandhotel. 1.0 to 2.0, Interval. 2.0, Orchestral Concert, conducted by Launy Gröndahl. Soloist: Ellen Madsen (Songs). Niagara March (Bayer); Overture, Die Jhrfahrt ins Glück (Suppé); Polka, Hilda (Lumbye); Waltz from Der Waldmeister (Joh. Straus); Selection from Der Evangelium (Kienzl); Serenade (Toselli); March, Vater Rhein (Lincke); Songs: (a) Song from Youth and Madness (Dupuy), (b) Song from Ibsen's The Pretenders (Grieg), (c) Litan (Allin), (d) Takots Sang (Rimé), (e) Laerken (Meyer); March, Aller Ehren ist Oesterreich voll (Nowt); Overture, La Lac des Fées (Auber); Polonaise from Faust (Spohr); Military Waltz (Waldteufel); Cavatina from La Juive (Halévy); Lisbeth-Polka (Auge Bruun); Regimental March (Skanska). 4.0, Programme for Children. 4.40, Exchange and Fish Market Prices. 4.50, Talk on Danish Authors—Paul Martin-Moller. 5.20, German Lesson. 5.50, Weather Forecast. 6.0, News and Announcements. 6.15, Time Signal. 6.30, Talk on Tradis for Women—Bookbinding. 7.0, Chimes from the Town Hall. 7.5, Programme by Per Knutzon. 7.10, Choral Concert, with Organ Solos, relayed from the Cathedral, Aarhus. 8.0, The Long Voyage Home—Play in One Act (Eugene O'Neill). 8.30, Violin Recital by Kai Andersen: Adagio in D (Mozart); Rondo in C (Mozart); Perpetuum mobile (Ravel). 8.50, Training—a Sketch (Röscher-Schick). 9.5, News. 9.20, Sound Film songs by the Comedian Harmonists, on Gramophone Records. 9.35, Concert by the Alberta Bracony Mandoline Trio. 10.0, Dance Music from the Lodberg Restaurant. In the interval at 11.0, Time and Chimes from the Town Hall. 11.30 (approx.), Close Down.

CORK.—See Dublin.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN; 413 metres; 1.2 kW.; and CORK, 224.4 metres.—1.30 to 2.30 p.m., Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. 6.0, Popular Music on Gramophone Records. 6.15, Programme for Children. 7.0, Light Music on Gramophone Records. 7.20, News Bulletin. 7.30, Time Signal. 7.31, Talk on Gardening. 7.45, Talk. 8.0, Concert by the Station Sextet. Soloist, Leslie Jones (Baritone). 9.0, Sketch by the Emer Comedy Company. 9.30, Pianoforte Solos by D. French Mullen. 9.50, Variety Items by Jack Macfarlane. 10.10, The Station Sextet. 10.30, Time Signal, News, Weather Report, and Close Down.

FECAMP

223 metres; 10 kW.—12 Noon, Light Music on Gramophone Records. 12.30 p.m., News Bulletin. 12.45, Variety Concert. 7.0, Local News. 7.15, Popular Music on Gramophone Records. 7.30, Radio Gazette. 8.0, News Bulletin and Gramophone Records. 8.15, Agricultural Talk. 8.30, Concert, relayed from Le Havre. 10.0 till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: I'm following you; The Web of Love; I'm still at your Beck and Call; Livin' in the sunlight, lovin' in the Moonlight; Paris;

JAN. 27th

FRIDAY

continued

HEILSBURG

276.5 metres; 60 kW.; and DANZIG, 453.2 metres.—12.5 p.m., Concert by the Small Station Orchestra, conducted by Eugen Willeken: Overture, The Gipsy Baron (Joh. Strauss); Waltz from The Rose of Stamboul (Fall); Du sollst der Kaiser meiner Seele sein (Stolz); Vint dem Lindenbaum (Felix); Selection from The Land of Smiles (Lehar); Waltz, Juristenballklänge (Jos. Strauss); Spanish March (Gyldenmark). In the interval at 12.20 p.m., News. 1.30, Sponsored Programme with Gramophone Records. 2.0, Exchange Rates and Market Prices. 2.30, Programme for Children. 3.0, Talk for Women. 3.30, Concert by the Small Station Orchestra, conducted by Eugen Willeken. Overture, The Force of Destiny (Verdi); Selection from Faust (Gounod). Violin Solo: Romance (Svendsen); Kaiserwalzer (Joh. Strauss); Columbine (Frederiksen). With Fiddle and Clarinet (Frederiksen). Eysler Overture Potpourri (Hrnby); Overture, Edelweiss (Kozmak). 4.45 (from Danzig), Talk on Forestry. 5.15, Agricultural Prices. 5.25, Talk: Contemporary Problems in Modern Drama. 5.50, Talk with Gramophone Illustrations: Haydn's Musical Clock. 6.30 (from Danzig), French Conversation. 6.55, Weather and News. 7.0, Concert by the Königsberg Opera House Orchestra, conducted by Bruno Vondenhoff. Soloist: Nelly Bisehoff (Songs). Introductory Notes, Three Pieces from Wozzeck (Alban Berg); Seven Songs (Alban Berg); Adagio from the Fifth Symphony (Mahler); Six Catalan Songs (Gerhard). 8.0, See Munich. 8.45 (from Danzig), Chopin's Ballads—Recital by Georg von Harten. Ballad in G Minor, Op. 23; Ballad in F, Op. 38; Ballad in A Flat, Op. 47; Ballad in F Minor, Op. 52. 9.30, Weather, News, and Sports Notes.

HILVERSUM

Announced Huizen, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—Programme of the Catholic Radio Society (K.R.O.). 11.55 a.m., Sextet Concert: Scala Erinnerung (Nauemann); Danse des matelots (Ehonet); Tout Paris (Waldteufel); Ruse of Spring (Sinding); Selection from William Tell (Rossini-Rhode); Pasodoble (May); Potpourri, The World in Song (Intrator); Murnuraido (Rachlo); Austrian Peasant Dances (Pacher-negg); Oh! Desdemona (Lacchini); Trara! die Liebe (May). 1.25 p.m., Interval. 1.40, Concert by the Rosendahl Pianoforte Quartet: Sonate a tre (Sammartini); Concerto, Op. 8, No. 5, for Pianoforte, Two Violins, and Cello (Bach). 2.10, Popular Music on Gramophone Records. 3.0, Concert (cont'd.). Sonata da Chiesa, Op. 1, No. 10 (Corelli); Sonate a tre, Op. 1, No. 3 (Sammartini). 3.30, Variety Music on Gramophone Records. 3.50, Recitations. 4.0, Organ Recital by A. Dreissner; Overture, Martha (Flotow); Andantino (Lemare); Serenade (Moszkowsky); Humoresque (Dvorak); Tango (Albeniz); Marigold (Maier). 4.30, Recitations. 4.50, Organ Recital (cont'd.); Nocturne in E Flat (Chopin); Mitternachtslocken (Heiberger); Rippling Rhythms (Velasco); Waltz from Naïla (Delibes); In a Monastery Garden (Ketelbey); Selah Rosmarin (Kreisler). 5.10, Chess Lesson. 5.30, Sonata in G Minor, Op. 33 (Grieg). 5.55, Rhetoric Lesson. 6.25, Sonata in D Minor, Op. 103, No. 1 (Beger). 6.50, Talk. 7.0, Police Announcements. 7.25, Concert by the KRO Boys and M. J. Mossel (Songs). 7.40, Light Music on Gramophone Records. 8.15, Concert (cont'd.). 8.40, News. 8.55, Orchestral Concert, conducted by M. J. Gerritsen: Overture, Patrie (Bizet); Symphonic Poem, La Jeunesse d'Heracle (Saint-Saëns); Three Dances from Nell Gwynn (German); The Guildford Suite (Dunhill); Selection from Madame Butterfly (Puccini). 9.50, Recitations. 10.10, Concert (cont'd.); Overture, Jean de Paris (Boieldieu); Suite de Ballet (Delibes); Serenade (Pierne); Abendlied (Schumann); March from A Midsummer Night's Dream (Mendelssohn). 10.40, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 1,875 metres; 8.5 kW.—11.40 a.m. to 3.40 p.m., Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 11.40, Time Signal. 11.41, Concert of Light Music by the Little Wireless Orchestra, conducted by Nico Treep. Gramophone Records in the intervals. 1.40 p.m., Light Music on Gramophone Records. 2.10, Concert by the Wireless Chamber Orchestra, conducted by Nico Gerharz. 3.40 to 7.40, Programme of the Workers' Radio Society (V.A.R.A.). 3.40, Variety Music on Gramophone Records. 4.30, Programme for Children. 5.10, Concert by De Fliereflueters, conducted by Hugo de Groot. 5.55, A Gramophone Record. 6.0, Song and Organ Recital by J. Hekker v. Eysden and Johan Jong. 6.20 (in the interval), Talk: Soviet Russia. 6.55, Variety Items. 7.5, Concert by De Fliereflueters, conducted by Hugo de Groot. Soloist: Mlle. E. Philippe (Songs). Wien bleibt Wien (Schrammel-Michaelov); A Night in Monte Carlo (Heymann); Wenn der Wind weht (Heymann); Pontenero (Heymann);

What good am I without you?; One little Drink; Falling in love again; Parisienne Doll; With you; The Woman in the Shoe; Steppin' along; I may be wrong; Just an Hour of Adoration; Do Something; I'll be reminded of you. 11.0, Programme of Waltzes by an Orchestra and an Organ; Around the Volga (Borchert); The Skaters' Waltz (Waldteufel); The Kiss (Waltz) (Dubin); Gold and Silver (Lehar); The Love Waltz (Heymann); Tales from the Vienna Woods (Strauss); The Whistling Waltz (Evans). 11.30, Concert by the I.B.C.O. Harmony Four and an Orchestra. L.B.C. (a) Winter is gone, (b) Sweetly blows the Breath of Spring, (c) Now is the Month of May, (d) Ye Banks and Braes o' Bonnie Doon; The Midshipmite; Heather; A Village Dance; Quartet: (a) Who is Sylvia?, (b) Passing by, (c) Where'er you walk; Petronella. 12 Midnight, Philco Concert: You, just you; There's another Trumpet playing in the sky; She was only Somebody's Daughter; Where is this Lady?; Don't say Good-bye; And then we'll have have some more; Marching along together; Tell me To-night. 12.30 a.m. (Saturday), Light Songs: Ain't it great to be home again? (Gilbert); Cheer up and smile (Conrad); I'm feathering a Nest (Milton); Orchestra: Selection from Rio Rita (Tierney); Silvery Moon (de Frank); Here comes Emily Brown (Conrad); This is Heaven (Aksit). Orchestra: Selection from Spring is here (Warren). 1.0, Music by a Mandoline Band: Waltz, The Blue Danube (Strauss); Czardas (Monti); Mandolinata (de Pietro); Tesoro mio (Beucchi). 1.15, Light Songs: Every little Girl he sees (Aksit); Sunshine, won't you shine for me? (Shapiro); Nobody cares if I'm blue (Clarke); When you were my Sweetheart (Gilbert). 1.30, Light Orchestral and Vocal Concert: Down in the Forest (Landon Ronald). Songs from The Toy-maker of Nuremberg (Glas): (a) Tick Tock, (b) The Toy-maker's Song; Two Dances from the Nell Gwynn Suite (German): (a) Country Dance, (b) Merry-maker's Dance. Songs: (a) Ho Jolly Jenkin (Sullivan), (b) A Jovial Monk am I (Andran); Humoresque (Dvorak). 2.0, Dance Music. 2.57, I.B.C. Goodnight Melody. 3.0 (approx.), Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW.; and CASSEL, 245.9 metres.—12.30 p.m., Quartet in B Flat, Op. 130 (Beethoven), on Gramophone Records. 1.0, News Bulletin. 1.10, Sponsored Concert. 2.0, Weather Report. 2.10, Time and Exchange. 3.50, Exchange Quotations. 4.0, See Stuttgart. 5.15, Exchange Quotations. 5.25, Talk: Conflicting Beliefs Concerning the Soul. 5.50, See Stuttgart. 6.15, Time. Programme Announcements, Weather, and Exchange. 6.20, Topical Talk. 6.30, Reading of Peruvian Tales (Ventura Garcia Calderon). 7.0, Mandoline Concert: March, Con grazia (Zikou); Polka, Die schöne Winzerin (Lenov); Waltz, Verschmähte Liebe (Lincke); Serenade for Guitar (Friedemann); Italian Serenade for Guitar, Sizilietta (Blon); Am Lagerfeuer (Siede); March, Die Wachtparade (Blankenburg). 7.30, Datterich und sein Dichter—Radio Sequence (Hans Jochim). 8.30, Symphonic Variations for Full Orchestra, Organ and Boys' Choir on a Catholic Hymn of the Eighth Century, Op. 20 (Alexander Friedrich von Hensen), by the Frankfurt Radio Orchestra, conducted by Hans Rosbald. 9.20, Time, News, Weather, and Sports Notes. 9.45, Dance Music from Stuttgart. 11.0 (approx.), Close Down.

FREDRIKSTAD.—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

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 227.4 metres; Hanover, 566 metres, and Kiel, 232.2 metres.—6.0 p.m., Talk: Occupying Youthful Unemployed in Voluntary Work. 6.25, Weather. 6.30 (from Bremen), Paul Ernst reads from his own works. 7.0 (from Kiel), Concert by the Kiel Orchestral Society, conducted by Hans Döring: Overture, Meerestille und glückliche Fahrt (Mendelssohn); Waltz, Wellen und Wogen (Joh. Strauss); Matrosentanz (Ehonet); Waltz Intermezzo, Wasserspiele (Rusch); Storm Music from the Peer Gynt Suite (Grieg); Piece (Lalo); Waltz, Die Schwimmer (Lammer); Two Pieces (Niemann): (a) Die Werfthammer im Hafen, (b) Abenddämmerung am Meer; March, Flaggengruss (Siede). 8.0, An der Grenze (On the Frontier)—Radio Play (Ludwig Hinrichsen). 9.10, Time, Weather, Announcements, Sports Notes and Police Report. 9.30, Topical Talk. 9.40, Concert, relayed from the Alsterpavillon. 10.20, Ice Report. 10.25, Concert, relayed from the Continental Café.

HANOVER.—See Hamburg.

Wir walzen (Kermbach-Komst); Einmal schaff's jeder (Heymann); Waltz for Accordion (Durand); Fabelluft (Meisel); Ein Freund, ein guter Freund (Heymann). 7.40 to 10.25, Programme of the Liberal Protestant Radio Society (V.P.R.O.). 7.40, Talk. 8.10, Pianoforte and Cello Recital by Mlle. H. Bosmans and N. v. d. Stadt. 8.40 (in the interval), Talk. 9.40, News. 9.55, Talk. 10.25 till Close Down, V.A.R.A. Programme. Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.0 p.m., Talk. 6.15, Announcements, Theatre Notes and Gramophone Records. 6.25, Sports Talk. 6.30, See Warsaw. 10.0, The Letter Box, in French.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres; 40 kW.; and HELSINKI, 368.1 metres.—6.5 p.m. (from Helsinki), Symphony Concert by the Helsinki Municipal Orchestra, conducted by Georg Schmeévoigt. Soloist: Colette Frantz (Violin). 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

473 metres; 40 kW.—12 Noon, Concert conducted by Wolf: Waltz, Schwert und Layer (Jos. Strauss); Overture, Quo Vadis (Scasola); Serenade from Les Millions d'Arlequin (Drigo); Selection from Si j'étais Roi (Adam); Intermezzo, Liebel (Kockert); Tanz der Schmetterlinge (Kockert); Two Alsatian Peasant Dances (Merkling); Selection from Die schöne Galathée (Suppé); Pierrette (Brase); March Potpourri, Vorwärts Kinder (Blankenburg). In the interval at 1.0 p.m., News. 1.30, Sponsored Programme, with Gramophone Records. 2.30, Economic Notes and Time. 2.50, Lesson in Handwork. 3.20, Programme for Young People. 4.0, Orchestral Concert conducted by Eusebius Köckert: Soloist, Josefa Kastert (Violin); Overture, Donna Diana (Reznicek); Violin Concerto (Karlłowicz); Scottish Symphony (Mendelssohn). 5.15, Talk: Education in Eugenics. 5.35, Reading. 6.0, Weather, Time, Economic Notes and Sports Results. 6.10, Talk: The 125th Anniversary of the Birth of D. F. Strauss. 6.30, Talk: Experiences in Voluntary Social Service. 6.55, News. 7.0, Concert at Wattres, conducted by Wolf: Invitation to the Dance (Weber); Marienwalzer (Lanner); Intermezzo from Naïla (Delibes); Mein Lebenslauf ist Lieb und Lust (Strauss); Second Sight—Radio Sequence (Hillegard Schmidt), with extracts from the Works of Annette, Droste-Hulshoff, A. Wibbelt, R. M. Rilke, and others; Waltz (Waldteufel); Wiener Bürger (Ziehrer); Rase mousse (Bose); Blumengeflüster (Blon); Waltz from The Dollar Princess (Fall). 9.5, News and Sports Results. 9.30, Serenade, conducted by Wolf. 11.0 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres, 120 kW.; and DRESDEN, 319 metres.—11.10 a.m., Orchestral Concert: Overture, Jean de Paris (Boieldieu); Styrian Dances (Lanner); Potpourri, Straussfeden (Morena); Snowflakes (Tchaikovsky); Erzherzog Albrecht Marsch (Kozmak); Suite, In Memoriam (Michele); Melodies from Roses from Florida (Fal); Reverie (Königsberger); March, Hamburger Blut (Volktadt); Overture, Berliner Luft (Lincke); Melodies from The Beggar Student (Müllbacher); Waltz, Frauenliebe und -leben (Blon). In the interval at 12 Noon, News, Weather, Snow Report and Time. Exchange Quotations after the Concert. 1.0 p.m., Film Review. 1.30, A Dialogue between the War and the Post-War Generations. 2.15, Agricultural Talk. 2.35, Exchange and Market Prices. 3.0, Talk: Karl Dantheidey, a Pioneer of Photography. 3.30, Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer: Overture, Die Oberpinde (Lortzing); Pictures from the South (Nicoedé); Four Pieces (Debussy); Wedding Waltz (Lanner); Melodies from Clo-Clo (Lehar). 4.30, Review of Books. 4.50, Exchange Quotations, Weather, and Time. 5.0, Radio Report: A Visit to the Rembrandt Room in the Dresden Art Gallery. 5.25, English Lesson. 5.50, Programme to be announced. 6.0, Dialogue on Pornographic Literature. 6.30, Concert by a Military Band, conducted by Max Löhle: Two Marches (Laukien): (a) Freiheit, (b) Durch Nacht zum Licht; Concert Overture, Fridericiana (Zimmer); Johann Strauss Fantasia (arr. Bohne); Frei weg (Pollak); Barbarossa's Awakening (Reckling); Fanfare militaire (Ascher); First Waltz Potpourri (Robrecht); Aufzug der Stadtwahe (Jessel); Potpourri, Schön ist die Jugend (Rhode); Army March. 8.0, Talk on Economic Questions of the Day,

8.10, From my Knapsack—War Reminiscences of Flex, Braun, v.d. Marwitz, Alverdes, and Others (arr. Dr. Hans Richter). 8.30, Organ Recital on the Silbermann Organ in St. George's Church, Röhla; Partita (Böhm); Andante (Mozart); Three Short Pieces (Mozart); Fantasia in F Minor (Mozart); Chaconne in F Minor (Pachelbel). 9.25, News Bulletin. 9.30, Bunte Stunde; Soloists: Käthe Grundmann (Soprano), Lily Krober-Asche (Pianoforte), Toni Scholtz (Contralto), and Alrem Kinkulkin (Cello); Fantasia in C Minor (Mozart); Allegro spiritoso (Senalle); Scherzo (v. Dittersdorf); Variations in D, Op. 76 (Beethoven); Nocturne (Kinkulkin); Memories (Popper); Village Song (Popper); Variations in D (Beethoven). 11.0 (approx.), Close Down.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—4.30 p.m., Quintet Concert. 5.30, History Talk. 6.0, French Lesson. 6.30, Talk for Women. 7.0, Programme relayed from Belgrade (430.4 metres). 9.0, Time, News, and Popular Music on Gramophone Records.

LWOW

381 metres; 16 kW.—6.15 p.m., Miscellaneous Items. 6.30, See Warsaw. 10.30 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres 1.5 kW.—7.30, Radio Gazette for Lyons and the South East. 8.30, Concert, conducted by Jean Witkowski; Mlle. Durancier (Songs), M. Mègret (Violin), M. Zuccone (Violin), and M. Dujols (Viola); Quartet for Strings (Beethoven); Song Cycle—Frauenliebe und -leben (Schumann); Quartet No. 3 (Schumann). After the Concert, News Bulletin.

MADRID

ARANJUEZ, EA0, 30.43 metres; 20 kW.—11.30 p.m., Variety Music. 11.45, Radio Chronicle. 12 Midnight, Concert of Popular Music. 12.35 a.m. (Saturday), Answers to Correspondence. 12.40, Spanish-American Talk. 12.45, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 1 kW.—7.0 p.m., Chimes, Exchange, Medical Talk and Programme of Musical Novelties followed by Variety Items by Ramon Gomez de la Serna. 8.15, News Bulletin. 8.30 to 9.30, Interval. 9.30, Chimes and Time Signal. 9.35, Tristan und Isolde Opera (Wagner)—Concert Version on Gramophone Records. 11.45, News Bulletin and Programme Announcements for Listeners Abroad. 11 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—3.10 p.m., See Brno 3.55, See Prague. 5.5, Talk. 5.15, See Prague. 5.25, See Brno. 6.0, See Prague. 6.5, See Brno. 9.0, See Prague. 9.15 (approx.), Close Down.

MOTALA.—See Stockholm.

MÜHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW.—Relayed by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—4.0 p.m., Concert, conducted by Erich Kloss: Overture, Die Schauspieler (Mozart); Scottish Dances (Beethoven); Scenes from Die Freischütz (Weber); German Dance (Reger); Selection from Samson and Delilah (Saint-Saëns); Waltz Serenade (Reznicek); Selection from Boccaccio (Suppé-Paeppke); March, Der alte Fritz (Blon). 5.15, Talk on Handicrafts. 5.35, Talk on Art: Exhibitions in Berlin and Munich. 5.55, Time, Weather, Agricultural Notes and Snow Report. 6.5, Concert, by the Bura Karol Giganý Band, with Two Interludes. 7.15, Talk: Wagner and the Wagnerian Tradition in Music. 7.35, Concert by the Liederfeierheit Male Voice Choir. 8.0, Die Geschwister—One-Act Play (Goethe-Weichert). 8.45, Bitter Sweet. Humorous Variety Programme; The Raba String Quartet Soloists: Anni Spreckner (Harpischord), Irma Drummer (Contralto), Ernst Conrad Haase (Baritone), and other Soloists. 9.20, Time, Weather, News, Sports Notes, Snow Report and Traffic Bulletin.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredrikstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres; and Rjukan, 447.1 metres.—4.0 p.m., Concert by the Station Orchestra. 5.0, Elementary French Lesson. 5.30, Accordion and Banjo Recital. 6.0, Announcement, Weather and News. 6.30, English Lesson. 7.0, Time Signal. 7.1, Symphony Concert by the Philharmonic Orchestra, relayed from the Logen Hall. Conductor: Odd Grønne Hegge; Overture, Coriolanus (Beethoven);

JAN. 27th

FRIDAY

continued

Symphony in F, No. 8 (Beethoven); Variations on a Theme by Tchaikovsky (Arensky); Night on the Bare Mountain (Mussorgsky); The Nutcracker Suite (Tchaikovsky). 8.30, Agricultural Report. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Piano Recital by Fritz Hans Rebholdt; Impromptu in F Sharp (Chopin); Berceuse (Chopin); Barcarolle (Chopin); Au bord d'une source (Liszt); Polonaise in E (Liszt). 9.45 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. 7.20, Light Music on Gramophone Records. 7.30 (in an interval), Time Signal and Announcements. 7.45, Concert of Symphony Music on Gramophone Records: Fantasia and Fugue in C Minor (Bach-Elgar); The Pathetic Symphony (Tchaikovsky); Rhapsody No. 1 in F (Liszt); Tamara (Balakirev); Chanson de Nuit (Elgar); Waltz (Strauss); Venetian Scenes (Mancinelli); Finlandia (Sibelius); Italian Caprice (Tchaikovsky); Selection from Die Fledermaus (Johann Strauss); Scherzo and March from The Love for the Three Oranges (Prokofiev); Symphonie Classique in Three Movements (Prokofiev); Military March (Schubert). In an interval: Talk on Sicilian Music. 9.0, Song Recital. 9.55 (approx.), Close Down.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW.—Time Signal (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. 7.20, Weather. 7.30, Orchestral Concert, conducted by E. Flament; Les Eolides (César Franck); The Legend of St. Christopher (Vincent d'Indy); Sonata for Violin and Piano (Lucien Chevayllier); Interlude from Polyphème (Jean Cras); Bourrée fantasque (Chabrier). 8.15, News Bulletin. 8.20, Literary and Musical Programme for Young People. 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—7.0 p.m., Popular Music on Gramophone Records. 7.30, Topical Talk. 8.0, Talk on Music. 8.15, Interval. 8.30, Poets and Musicians—Concert by the Station Symphony Orchestra. 10.30, News Bulletin.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather Forecast and Physical Culture (cont'd). 7.45, Gramophone Records: Souvenirs de Bayreuth (Fauré-Messager); Danse des petits Nègres (Caplet); Romanian Dance (Bartok). 8.0, Press Review and Weather. 12 Noon, Jewish Address. 12.30 p.m., Concert by the Kretzky Orchestra: Sonata for Two Violins and Double Bass (Handel); Piano Solo: St. François de Paul (Liszt); Cantilène from a Concerto (Goldtman); Am Springbrunnen (Davidoff); Selection from Les Petits Riens (Mozart); Clarinet Solo: Larghetto from a Quintet (Mozart); Adagio from the Pathetic Sonata (Beethoven); Three Preludes (Chopin-Bousquet); Moment musical (Schubert); Andante and Finale from the First Trio (Saint-Saëns); Cantabile and Pastoral (Franck). In the intervals at 1.0, Exchange, News and Weather, and at 1.30 and 2.0, Exchange. 3.45, Exchange and Market Prices. 4.30, Elementary English Lesson. 6.10, Agricultural Talk. 6.30, Book Review. 6.50, Talk on Social Insurance. 7.0, A Dialogue. 7.20, Concert by the Kretzky Orchestra: Waltz, Blues et Compagnons (Waldteufel); Sérénade (Volpatti); Ronde de Lutins (Razigade); Aubade Sentimentale (Gammé); Czardas (Michiels). 7.45, Commercial Prices and News. 8.0, Symphony Concert, conducted by Eugene Bigot: Symphony No. 3 (Schumann); Variations on a Rocco Theme for Cello and Orchestra (Tchaikovsky); Suite from Nanouma (Lalo); Suite, Le Tombeau de Comperin (Ravel); Spanish Suite (Albeniz). In the intervals at 8.30, News and Weather; at 8.40, Gastronomic Review; and at 9.15, Press Review and News.

PORSGRUND.—See Oslo.

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., See Brno. 3.55, Talk: Young People and Initiative. 4.5, Beethoven Violin Sonatas by Stanislav Novak (Violin) and Karle Solo (Pianoforte); Sonata in F, Op. 24; Sonata in A, Op. 30, No. 1. 5.5, Agricultural Report. 5.15, Talk for Workers. 5.25, German Transmission: News and Two Talks. 6.0, News. 6.5, See Brno. In the interval at 8.0, Time Signal. 9.0, Time, News, and Sports Notes. 9.15 (approx.), Close

RADIO-SUISSE ROMANDE

SOTTENS; 403 metres; 25 kW.; LAUSANNE, 680 metres; and GENEVA, 760 metres.—5.30 p.m. (from Lausanne), Talk: The Acts of the Apostles, and their Value as Religious History. 6.0 (from Geneva), News Bulletin. 6.30 (from Lausanne), Lesson for Printing Apprentices. 7.0 (from Lausanne), Baude-laire—Lecture Recital by Mlle. Anne-Marie Redard, with the Collaboration of Margue-

rire Rosset (Songs). 7.30, Concert by the Radio Orchestra. 8.30 (from Lausanne), Concert of Chamber Music by the Hertel Quartet. 9.0, News and Weather. 9.15 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather Report. 8.40, Musical Programme and Announcements. 9.0, Chimes. 9.2, News Bulletin. 9.30, By the Fireside.

RIGA

525 metres; 15 kW.—6.5 p.m., Stravinsky Concert by the Radio Orchestra and the National Opera House Orchestra, conducted by the Composer, relayed from the National Opera House; Ballet Suite, Apollon-Musagete; Ballet Suite, Fairy's Kiss; Ballet Suite from Petrushka. News in the interval and after the Programme. 8.0, Weather and Light Music. 9.0 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call IR.0, 441 metres; 20 kW. Relayed by Naples, 319 metres, and 2R.0, 25.4 metres.—7.15 to 7.30 a.m., Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Orchestral Concert. In the interval from 12.30 to 12.45, Giornale Radio and Exchange. 3.0, Concert of Chamber Music, by Ernst Bloch, relayed from the Royal Academy of Saint Cecilia. 6.10 (Naples), Shipping and Sports Notes. 6.15, Agricultural Report, Announcements and Giornale Radio. 7.0, Time and Announcements. 7.5, Report of the International Institute of Agriculture (in Italian, French, English, German and Spanish). 7.30, Talk on Sport, Sports Notes and Tourist Report. 7.45, Variety Concert, Soloist: Germano Analdie (Pianoforte); Maria Serra-Massara (Soprano), Vincenzo Tanlongo (Bass) and Luigi Silva (Cello); Overture to and Triumphal March from Cleopatra (Mancinelli); Pianoforte Solos: (a) Marionettes (Goossens), (b) The Musical Box (de Sève), (c) Ronde d'Arion (Plek Mangiaicalli); Fedora's Arioso from the First Act of Fedora (Giordano); Intermezzo and Love Scene for Soprano and Tenor from Fedora (Giordano). 8.30, The Generalissimo—Comedy in One Act (Ferruc Molnar). 9.0, Concert (cont'd): Cello Solos: (a) Aria italiana (Pizzetti), (b) Movimento di danza (Pizzetti), (c) Concert Polonaise (Popper). The Fourth Act of La Wally (Catalani). 9.55, News Bulletin.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY); 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. to 12 Midnight, New York Relay. 7.30 p.m., Three Shades of Blue. 7.45, Muted Strings. 8.0, Echoes of Erin. 8.15, Famous Loves. 12 Midnight, Stock Reports. 12.30 a.m. (Saturday) till Close Down. New York Relay. 12.30, Soloist. 12.45, The Goldbergs. 1.0, Cities Service Concert. 1.30, WGY Farm Forum. 2.0, Clicquot Club Eskimos. 2.30, Point's Programme.

SCHWEIZERISCHER LANDESENDER

BEROMUNSTER, 459 metres; 60 kW.; BASEL, 244.1 metres; and BERNE, 245.9 metres.—9.20 a.m. (from Basle), Broadcast for Schools; Scenes from William Tell (Schiller). 9.50 to 11.28, Interval. 11.28, Time Signal from Neuhätel Observatory. 11.30, Weather and News. 11.40, Concert by the Little Radio Orchestra. 12.35 to 12.45 p.m., Weather and Exchange. 2.30 (from Basle), Concert by the Radio Quartet. 3.30 (from Basle), Programme for Children. 4.0 (from Basle), Talk: Lighting in Houses and Workshops. 4.30 to 4.35, Weather. 5.30 (from Berne), Talk: A Seventeen-year-old talks to his Contemporaries. 6.0, Time, Weather, Market Prices, Tourist Report, and Sports Notes. 6.20 (from Berne), Talk: The German Carnival Play. 6.50 (from Berne), Two Carnival Plays (Hans Sachs). In the intervals, Tenor Solos by Ernst Märki, with Music by the Radio Orchestra). 7.55 (from Berne), Concert of Light Music by the Berne Mandoline Orchestra, conducted by Richard Amon. 8.30, Weather and News. 8.40 (from Berne), Cabaret Programme. 9.15 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—4.5 p.m., Boy Scout Report. 4.30, The Practical Corner. 4.45 (from Sundsvall), Military Band Concert: March (Björkqvist); Valse romantique (Heinecke); Selection from Boccacio (Suppé); Melody (Körling); Suite, National

Sonks (Tchaikovsky); You Are My Heart's Delight, from The Land of Smiles (Lehar); Potpourri of Swedish Folk Melodies (arr. Löfgren); March (Blankenburg). 5.45, Talk, relayed from Malmö, 231 metres. 6.15, Weather and News. 6.30, Concert by the Stockholm Students' Choral Society, conducted by Sven Appelqvist. 7.0, A Political Discussion. In an interval at 8.45, Weather and News. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Gramophone Concert of Classical Music. 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Variety Music on Gramophone Records. 2.0 to 4.45, Interval. 4.45, Talk in French: The Theatrical World in Past Times. 5.0, Dance Music by the Roskam Jazz Band. 6.0, Topical Talk in German. 6.15, Talk in French: Recent Activities of the French Schools of Archaeology in the Near and Far East. 6.30, Concert of Music by Henri Tomasi. Soloists: The Composer (Pianoforte), Grégoire (Violin), and Roskam (Cello); Pianoforte Solos: (a) Et s'il revenait un jour, (b) Minuet, (c) Le Lied que chante mon cœur, (d) Parade, (e) Air à danser, (f) Espérgleries; Poème for Pianoforte and Violin; Popular Corsican Melodies: (a) Ninina, (b) Vocero, (c) O ciaciarella, (d) Lamento, (e) Zilibrina; Symphonic Poem, Obsession, for Cello and Pianoforte; Paysages for Pianoforte: a) Marine, (b) Clairière, (c) Forêt; Hebrew Song for Pianoforte and Violin. 7.30, Time and News. 7.45, Orchestral Concert, conducted by Maurice de Villers: March, Yo-Yo (Monton); Die Spieluhr des Pompadours (Noack); Waltz, Forest Murmurs (Zimne); Romantic Overture (Keler-Belá); Selection from The Bird Faucier (Zeller); March, The Honeymoon (Rosey). 8.25, Lottery Results. 8.30, Chamber Music Concert by the Zimmer Quartet: Louis Baroen (Viola) and Marcel Bassart (Cello); Quintet in G Minor, No. 516, for Two Violins, Two Violas, and Cello (Mozart); Quintet in C, Op. 163, for Two Violins, Viola and Two Cellos (Schubert); Sextet in G, Op. 36, for Two Violins, Two Violas, and Two Cellos (Brahm). 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and FREIBURG, 570 metres.—12.30 p.m., The Dumpy Trio (Dvorák), on Gramophone Records. 1.0, Sponsored Concert on Gramophone Records. 1.30 to 2.0, Advanced English Lesson. 4.0, Orchestral Concert, conducted by Gustav Görlich. Soloist: Karl Haas (Vibraphone); Die Spieluhr des Pompadours (Noack); Romance for Vibraphone and Orchestra (Löhr); Spielmusik for Vibraphone (König); Schmetterling - Intermezzo (Schleul); Waltz, Ballstrenen (Lehar). 5.15, Time, Weather and Market Prices. 5.25, Talk on David Friedrich Strauss, on the 125th Anniversary of his Birth. 5.50 (from Freiburg), Talk: Rickets, a Winter Disease. 6.15, Talk on Rambling. 6.25, Time and News. 6.30, Concert by the Stuttgart Philharmonic Orchestra, conducted by Gustav Görlich. Soloists: Lisa Bettmann (Soprano) and Max Raymer (Baritone); Overture, Die Matrosen (Plotow); Aria from Hans Heiling (Marschner); Selection from The Queen of Spades (Tchaikovsky); The Mirror Aria from The Tales of Hoffman (Offenbach); Dolce Noite (Leoncavallo); Drinking Song from Hamlet (Thomas); Overture, Pique Dame (Suppé); Goldfish Song from The Geisha (Jong); Song from Die geschiedene Frau (Fall); Waltz, Gold and Silver (Lehar); Song from Gipsy Love (Lehar); Song from Die officielle Fran (Winterberg). 7.45, The Springs of Industry—II: Coal—Programme of Readings from Jack London, Marchurtza, Heinrich Hauser and Others, arranged by Jos. Eberle and Karl Köstlin. 8.40 (approx.). See Leipzig. 9.15, Time, News, Weather, Snow Report and Programme Announcements. 9.30, Dance Music by the Dance Ensemble of the Stuttgart Philharmonic Orchestra. 11.0 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.1 p.m., News Bulletin. 6.15, Sound Film Music. 6.30, Symphony Music: Les Précludes—Symphonic Poem (Liszt). 6.45, Accordion Music. 7.0, Tourist Talk. 7.15, Racing Results, Market Prices and News. 7.25, Local News. 7.30, Spanish Songs. 7.45, Opera Music: (a) Overture, The Barber of Seville (Rossini), (b) Prelude to Cavalleria rusticana (Mascagni), (c) Minuet from Manon (Massenet). 8.0, Extracts from Opera: Aria from Mephistopheles (Boito); Cavatine from Norma (Bellini). 8.15, Military Music. 8.30, Melodies from Sound Films. 8.45, Variety Music: The Mill in the Forest (Eilenberg); The Wedding of the Rose (Jessel); Waltz, Beautiful Spring (Lincke). 9.0, Violin Concerto in A (Mozart). 9.30, Light Music. 9.45, Concert by a Viennese Orchestra. 10.15, North African News. 10.30, Concert for Listeners

in Morocco: Overture, Don Giovanni (Mozart); Air from Rigoletto (Verdi); Violin Solo: Rondino (Beethoven); España (Chabrier); Tyrolenne printanière (Saint-Servan); Casnet Dance from Goyescas (Granados). 11.0, Opera Music: Two Arias from Manon (Massenet); Duet from Werther (Massenet). 11.15, Violin Solos, 11.30, Programme in English by the I.B.C.—Concert of Viennese Music: Orchestra: Vienna, Vienna; Octet: Winerblut; Orchestra: Old Vienna Moon; Tenor Solo: Vienna, City of my Dreams; Choir: You will remember Vienna; Orchestra: Selection from Good-night, Vienna. 12.0 Midnight, Weather and Announcements. 12.5 a.m. (Saturday), Symphony Music: Selection from The Secret Marriage (Cimarosa); Waltz, Sphärenklänge (Strauss). 12.15, Chansonettes. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—6.0 to 6.30 p.m., See Turin. 6.30, Orchestral Concert from the Café Dante. 7.0 till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayed by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—6.0 p.m., Variety Music on Gramophone Records. 6.30, Time, Announcements and Light Music on Gramophone Records. 7.0, Giornale Radio, Weather and Gramophone Records of Variety Music. 7.30, Talk on Sport, followed by Gramophone Records. 8.0, Symphony Concert, conducted by Sergio Falloni: Symphony, From the New World (Dvorák); Symphonic Variations on Don Quixote (R. Strauss); Leonora Overture No. 3 (Beethoven). Talk in the interval. 10.0, Giornale Radio.

VATICAN CITY

19.84 metres (Morning) and 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

517 metres; 15 kW. Relayed by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218.5 metres.—4.0 p.m., Song and Piano Recital by Malva Sztrenyeli and Edith Vogel. 4.40, Choral Concert by the New Vienna Madrigal Society. Conductor, Dr. Hans Pless. Mein Freund allein (Isaack); Das Geläut zu Speyer (Senfl); Hans und Grete (Reccard); Songs (Hassler); (a) Scheiden und Leiden, (b) Feinschick, Komm süsser Tod (Bach); Adoramus te (Mozart); Gott meine Zuversicht (Schubert); Meerfey (Schumann); Songs (Brahms); (a) O schöne Nacht, (b) Spätherbst, (c) Abendlied, (d) Warum? 5.25, Tourist Report. 5.40, Talk: Gliding in Austria. 5.55, Talk on Physical Culture. 6.5, Programme to be Announced. 6.50, Time, Weather, and Programme Announcements. 7.0, Mozart Concert for the Composer's Birthday, by the Salzburg Mozart Orchestra and Choir, relayed from the Hall of the Mozart House in Salzburg. Conductor, Dr. Bernhard Paumgartner. Soloists: Magda Baillon (Flute), Ilse Zamara-Charlemont (Harp), and Josef Schrocknadel (Violin). Concerto in D for Violin and Orchestra; Talk on Mozart by Dr. Bernhard Paumgartner; Symphony in C; Concerto in C for Flute and Harp; Motet, Ave verum corpus. 8.30, Music from Paper. 9.0, News, Weather, Traffic Report and Announcements. 9.15, Dance Music by the Charly Gaudria Jazz Band, relayed from Hubner's Kursalon.

WARSAW

1,411 metres; 120 kW.—11.10 a.m., Light Music on Gramophone Records. 12.20 p.m., Weather Forecast. 12.25 to 2.10, Interval. 2.10, Announcements. 2.15, Economic Report. 2.25, Aviation and Anti-Gas Report. 2.30, Maritime and Colonial Report. 2.35, Linguaphone English Lesson. 2.50, Popular Music on Gramophone Records. 3.25, Review of Periodicals. 3.40, Talk: Contemporary Philosophers—Bertrand Russell, relayed from Lwow (381 metres). 4.0, Concert by a Police Band: Overture, Zampa (Hérold); Waltz, The Blue Danube (Johann Strauss); Entrance from La Vie Parisienne (Offenbach); Selection from Rigoletto (Verdi); Japanese Serenade (Nehd); Mazurka (Lewandowski); Nibelungenmarsch (Walter). In the interval, Announcements. 4.55, Programme Announcements. 5.0, Concert of Georgian Music by the Station Orchestra, conducted by J. Dziminski and Soloists. In the interval, News. 5.50, Winter Sports Report, relayed from Cracow (312.8 metres). 6.0, Miscellaneous Items. 6.20, Press Review, relayed from Wilno (563 metres). 6.30, Talk. 6.45, Radio Journal. 7.0, Talk on Music: Arthur Honegger. 7.15, Honegger Concert by the Warsaw Philharmonic Orchestra, conducted by the Composer. Soloists: J. Hirt (Pianoforte) and C. Wilkomirski (Cello); Le Chant de Nigamon; Suite from Phédre; Cello Concerto; Concertino for Pianoforte and Orchestra; Symphony; Rugby. In the interval, Literary Talk. 9.40, Sports Notes. 9.45, Radio Journal. 9.55, Weather Forecast and Police Notes. 10.0, Dance Music.

ZURICH.—See Schweizerischer Landeseender.

SATURDAY

JANUARY THE TWENTY-EIGHTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

- NATIONAL** Mr. T. Simpson: "Golf Architecture." Mr. S. P. B. Mais: "Water Power." Gramophone records. "The Mill Girl," a burlesque. Orchestral concert. Mr. S. P. B. Mais: "The Week-end." Orchestral concert. "Ceilidh," a Scottish feature programme. Light music. The Roosters' Concert Party. Speeches on the occasion of the annual dinner of the Birmingham Jewellers' and Silversmiths' Association from the Grand Hotel, Birmingham. Nine-thirty Novelties. Running commentary on the Rugby League match, Hull v. Huddersfield. Orchestral concert. Excerpt from "Humpty Dumpty," relayed from the Theatre Royal, Leeds.
- LONDON REGIONAL** Mrs. L. B. Griffiths: "Bath, the City of Fashion." Orchestral concert from the National Museum of Wales. Welsh interlude.
- MIDLAND REGIONAL** Eye-witness account of the Scottish Association football match, Aberdeen v. Partick Thistle. Choral and orchestral concert. "Good Maister William Elphinstone," by G. Rowntree Harvey. An Edinburgh Ceilidh, being a gathering of Highland singers and story-tellers.
- NORTH REGIONAL** Alexander Riddell: "Ulster Regiments—The Inniskillings." Orchestral concert, from the Wellington Hall. Vaudeville programme.
- WEST REGIONAL**
- SCOTTISH REGIONAL**
- BELFAST**
- BRUSSELS (No. 2)**
- LANGENBERG**
- WARSAW**

ABROAD

- BRUSSELS (No. 2)** The Symphony Orchestra, conducted by A. Meulemans.
- LANGENBERG** Variety programme, relayed from the Saalbau, Essen.
- WARSAW** The Station Orchestra, conducted by S. Nawrot.

BRNO

342 metres; 35 kW.—3.17 p.m., See Bratislava. 4.10, Fairy Tales. 4.29, See Prague. 4.50, Talk on Education and Sport. 5.0, Topical Talk. 5.15, See Prague. 5.35, German Transmission—News and Brahms Piano-forte Recital. 6.0, See Prague. 7.0, See Bratislava. 9.0, See Prague. 9.15, See Moravská-Ostrava. 10.30 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—12 Noon, Concert, conducted by André Felleman, relayed from the Grand Hotel, Antwerp; March (Lincke); Viennese Potpourri No. 2 (Silvius); Fleurs et feuilles (Razigade); Foxtrot, Hallo Romania (Michaelov); Romance for Violin (d'Ambrosio); Delibes Potpourri (Lehar); Kermesse Paysanne (Zwysen). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Concert: March, Brillants chasseurs (Courtade); Bonjour, Madame la Lune (Marinier); Xylophonia (Green); Extase (Ganne); Selection from Les Montaignettes au Couvent (Varney); Lieders der Liebessnacht (Lincke); La debutante (Las-Douque); Wedding Waltz (Lincke); Au pays d'annonette (Cuvillier); Tango (Grothe); La Grace supreme (Lenormand); Melody (Bernberg); Selection from The Czarevitch (Lehar). 5.0, Dance Music, relayed from the St. Sauveur Palais de Danse. 6.0, Talk: The Protection of Workers in Mines. 6.15, Song Recital by Jeanne Thys. 6.45, Nudism—Radio Sketch (Marcel Lefevre). 7.0, Hot Jazz, with Commentary by André Asshe. 7.15, Talk: Georges Minne, a Belgian Sculptor. 7.30, Review of International Events. 8.0, Gramophone Records: Prelude and Toccata (Debussy); Theme and Variations (Technikovsky). 8.15, The Midnight Sun—Radio Play (T. Fleischmann), with Music by Marcel Poot. 9.30, Request Gramophone Records: Symphonic Pagan, Don Juan (R. Strauss) and Pini di Roma (Respighi). 10.0, Le Journal Parlé. 10.10, Concert by the Max Aloys Orchestra. 12 Midnight (approx.), Close Down.

BRUSSELS (No. 2)

I.N.R., 338.2 metres; 15 kW.—Programme in Flemish. 12 Noon, Gramophone Concert: Overture, Le Carnaval (Thomas); La voliere (Donard); Pastorale and Bourrée (Billaud); Serenade—Berceuse (Luciani); Sixth Barcarolle (Faure); First Waltz (Durand-Mouton); Overture, The Grand Duchess of Gerolstein (Offenbach); Reginella (Lama); Gollwog's Cake Walk (Debussy-Choinet); Norwegian Bridal Procession (Grieg); Messager Potpourri (Messager-Berly); Soirées de Vienne (Schubert-Liszt); Selection from The Mastersingers (Wagner). 1.0 p.m., Le

ALGIERS

353.3 metres; 13 kW.—7.0 p.m., Financial Report and Exchange. 7.10, Shipping Report. 7.15, Weather and Agricultural Report. 7.20, Dance Music. 7.55, News. 8.0, Time Signal. 8.2, Request Gramophone Records. 8.30, News. 8.35, Songs from Sound Films. 9.0, Orchestral Concert: "A kommt ein Vogel geflogen (Oehs); Selection from Les Vingt-huit Jours de Clairette (Roger); Morelli Potpourri (Salabert); Spring Song (Meidelssohn). 9.30, News. 9.35, Songs: Suzanne's Song from Figaro (Mozart); Cavatina from William Tell (Rossini); Il mio tesoro intanto from Don Giovanni (Mozart); Un'aura amorosa from Così fan tutte (Mozart). 9.50, News.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—7.0 p.m., Request Gramophone Records. 7.30, Exchange Quotations and Catalan Grammar Lesson. 8.0, Popular Music on Gramophone Records and News Bulletin. 9.0, Chimes from the Cathedral. Weather Forecast, Exchange Quotations, and Market Prices. 9.5, Concert by the Station Orchestra: March, Colonel Bogey (Alford); Selection from Henry VIII (Saint-Saëns); Waltz, Künstlerleben (Joh. Strauss); Serenata Andara (Margutti); Minuet (Bolzoni); Hungarian Dance, No. 7 (Brahms). 10.0, Astronomical Talk. 10.15, Concert by a Mandolin Orchestra, conducted by Felix de Sontos: Sebastian; Träumerei (Schumann); Minuet (Godard); Military March (Schubert); Intermezzo and Fandango, from L'Arlesienne (Bizet); Piece romantique (Chaminade); En Badinant (d'Ambrosio); Ave Maria (Gounod); Pastoral (Garretti). 11.0 (in an interval), News. After the Concert, Light Music on Gramophone Records. 12 Midnight (approx.), Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Report. Tourist Talk and Announcements. 7.20, Giornale Radio, Sports Notes and Press Review. 7.30, Time and Announcements. 7.35, Relay of an Opera from the Petruzzelli Theatre. In the intervals, Talk and Theatre Notes. News after the Programme.

BASLE.—See Schweizerischer Landessender.

BELGRADE

430.4 metres; 2.8 kW.—3.30 p.m., Concert by the Station Orchestra: Overture, Le Maçon (Auber); Selection from The Count of Luxembourg (Lehar); Ballet égyptien (Luigini); Waltz Intermezzo, Le pas des fleurs from Nida (Delibes). 5.55, Time and Programme Announcements. 6.0, Talk on Wireless. 6.30, Popular Music on Gramophone Records. 6.50, Introduction to the following Relay. 7.0, Relay of an Opera from Zagreb (307 metres). In an interval at 8.30 (approx.), News. After the Opera, Light Music from the Balkan Hotel.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.55 a.m., Nauen Time Signal. 12.35 p.m., News Bulletin. 1.0, Gramophone Concert, relayed from Berlin (Witzleben). 2.0, Programme for Children. 2.30, Weather and Exchange. 2.45, Reading: The Bridge in the Jungle (Traven). 3.0, Talk: Workers' Settlements as Centres of Education. 3.30, See Hamburg. 4.10, Review of the Week. 4.55, Schubert Songs, sung by Agnes Lenbach (Contralto); Der Fischer; Der Wanderer; An den Mond; Im Frühling; Der Tod und das Mädchen; An Sylvia. 5.30, Talk: The Rhythm of Life. 5.55, Weather and Announcements. 6.0, Talk: Religion and Life. 6.30, A Poem. 6.35, Sonata in A Minor, op. 42 for Piano-forte (Schubert). 7.0, Programme to be announced. 7.30, See Leipzig. 9.0, Weather, News and Sports Notes. 9.45, Weather Report for Shipping, followed by Dance Music from Berlin (Witzleben). 11.30 (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—3.5 p.m., Orchestral Concert, conducted by Hanns Steinkopf; Overture, Donna Diana (Reznicek); The Nutcracker Suite (Tchaikovsky); Intermezzo from Amore medico (Wolf-Ferrari); Selection from the Cinderella Suite (d'Albert); Festmarsch (R. Strauss); Overture, Der Waldmeister (Joh. Strauss); Suite from Der böse Peter (Steinkopf); Suite, At Carnival Time (Schumann); Selection from The Czarevitch (Lehar); Waltz, Wo die Zitronen blühen (Joh. Strauss). 5.0, Talk on Horsemanship. 5.20, Sonata in F Minor, Op. 5 for Piano-forte (Brahms). 5.55, The Witzleben Station informs its Listeners. . . . 6.0, Topical Talk. 6.10 A Discussion between a Stage Manager and a Critic: The Art of Opera. 6.30, Concert by the Berlin Station Orchestra conducted by Bruno Seidler-Winkler: Soloists: Hans Reimnar (Bariitone), Hildegard Roscher (Harp), Maria Busca (Contralto), and Louis Graveure (Tenor); Overture, The Flying Dutchman (Wagner); Songs (Wagner): (a) Blick' ich umher from Tannhäuser, (b) Abendlich strahlt der Sonne Auge from Das Rheingold; Contralto Solos: (a) Der Preis (H. Wolf), (b) Rheingoldchen (Mahler); Fantasia for Orchestra and Harp, Op. 74, Vincent (Poentiz); Tenor Solos (R. Strauss): (a)

Morgen, (b) Traum durch die Dämmerung, (c) Cécile; Neapolitanisches Volksleben from Aus Italien, Op. 16 (R. Strauss). 7.40, The Feeling of a Swan—Sketch (Pix). 8.0, Concert (cont'd.). Overture, Mignon (Thomas); Baritone Solos: (a) Credo from Otello (Verdi), (b) Song from A Masked Ball (Verdi); Intermezzo from L'Amico Fritz (Mascagni); Contralto Solo from Cavalleria rusticana (Mascagni); Tenor Solo from The Pearl Fishers (Bizet); Toréador et Andalouse, Op. 163 (Rubinstein); Contralto and Tenor Duet from Act Four of Carmen (Bizet); Carnival Overture, Op. 92 (Dvorak). 9.0, Weather, News and Sports Notes. 9.15 (approx.), Dance Music from the Eden Pavilion. 11.30 (approx.), Close Down.

BERNE.—See Schweizerischer Landessender.

BEROMUNSTER. — See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BRATISLAVA

279 metres; 11 kW.—3.10 p.m., Concert of European Dances by the Station Orchestra, conducted by Josef Odchazel: German Dances (Schubert); Norwegian Dances (Grieg); Spanish Dances (Mozzkowsky); Polish Dances (Scharwenka); Serbian Dances (Sistek); Czech Dances (Smetana). 4.10, See Prague. 4.20, Variety Music on Gramophone Records. 5.5, See Prague. 5.25, Popular Music on Gramophone Records. 5.45, Talk for Housewives. 6.0, See Prague. 7.0, Like Time—Operetta in Three Acts (Schubert). 9.0, See Prague. 9.15, See Moravská-Ostrava. 10.30 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres; 60 kW; and GLEIWITZ, 253 metres.—12.5 p.m., Weather for Farmers. 12.10, Gramophone Concert of Light Music. 12.45, Time, Weather, News and Exchange. 1.5, Variety Music on Gramophone Records. 1.45, Sponsored Programme with Gramophone Records. 2.10, Agricultural Prices and Exchange. 2.40, Film Review. 3.0, Review of Geographical Books. 3.15, Talk: Adventures with Common Advers. 3.30, Concert from Berlin (Witzleben). 5.0, Talk: What Attitude should we take towards Animals? 5.30, Light Music on Gramophone Records. 6.30, Weather for Farmers, followed by Programme to be Announced. 7.0, Variety Programme by the Station Orchestra, a Ladies' Quartet, Joseph Schmidt (Tenor), Dr. Otto Friederich (Musical Saw), and Paul Heinke (Recitations). 9.0, Time, Weather, News, Sports Notes and Programme Announcements. 9.30, Dance Music from the Silesian Press Association's Festival in the Concert House. 11.30 (approx.), Close Down.

Journal Parlé. 1.10, Concert, relayed from the Grand Hotel, Antwerp: Conductor: André Felleman; Potpourri, Contrasts (Morina); Russian Melody and Dance, Masha (Zwysen); Caprice viennois for John (Krisler); Ballet Music from Faust (Gounod). 5.0, Concert by the Cecilia Trio: Trio Variations on a Popular Theme (Beethoven); Prelude, Choral and fugue (F'anc); Trio No. 2 in C Minor (Mendelssohn). 6.0, First and Second Movements from the Symphony for Orchestra and Piano-forte (V. d'Indy). 6.15, Talk on Books. 6.30, Gramophone Concert: Selection from The Blue Mazurka (Lehar); Waltz, My Sonority Sweetheart (Sherman); Saxophone Solo: Berceuse from Jocelyn (Donard); Waltz, You're always in my Arms (McCarthy); Tango, Princessita (Padilla); Selection from The Tales of Hoffmann (Offenbach); Russian song, Troika; Serenade (Toselli); Minuet, Op. 14, No. 1 (Ludewski); Sizzietta (Bion); Waltz, Späherklänge (Joh. Strauss). 7.15, Talk: Films in the Future. 7.30, Agricultural and Horticultural Talk. 8.0, Concert by the Symphony Orchestra, conducted by A. Meulemans. Soloists: M. Colbert (Songs) and Rossini (Violin); Concerto for Violin and Orchestra (Glazunov); Ballet Suite (Glazunov). 8.45, Recitations. 9.0, Orchestral Concert (cont'd.): Overture, The Thieving Magpie (Rossini); Le Camp de Wallenstein (d'Indy); Flemish Songs; Romanian Rhapsody (Enescu); Flemish Songs; Festklänge (Verheyden). 10.0, Le Journal Parlé. 10.10, Gramophone Concert: Romance in F (Beethoven); Valse caprice (Rubinstein); Tango (Ravel); Mors et Vita from Julek (Gounod); Badinerie (Ganne); Military Waltz, La Hussarde (Ganne); Xylophonia (Whitlock); Offenbach Operetta Potpourri (Offenbach); Siciliano (Jessel); Selection from Les mousquetaires au Couvent (Varney). 11.0, Dance Music from the St. Sauveur Palais de Danse. 12 Midnight (approx.), Close Down.

BUDAPEST

550 metres; 18.5 kW. Programme also relayed on 840 metres from 6.45 to 11.0 p.m.—4.0 p.m., Concert by the Eugen Bertis Cigány Band. 5.0, Talk. 5.30, Recital by Moesanyi and Lakos (Piano-forte Hummelists). 6.15, The Letter Box. 6.45, The Lady in Red—Play (Aladar Schöppfin). 8.30, News. 8.45, Concert by the Opera House Orchestra, conducted by Friedl: Overture, Ika (Doppler); Suite, Jeux d'enfants (Bizet); Dance Scene (Glazunov); Selection from The Swiftherd and the Princess (Poldini); Waltz, Tales from the Vienna Woods (Joh. Strauss); Zigeunerfest (Lehar). 9.15, Weather. 9.20, Dance Music from the Royal Hotel.

CASSEL.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW.; and KALUNDBORG, 1,153 metres; 7.5 kW.—11.0 a.m., Time and Chimes from the Town Hall. 11.5, String Ensemble Concert, conducted by A. Bendix, relayed from the Wivex Restaurant. 1.0 to 1.30, Interval. 1.30, Gramophone Concert: Herbert Ernst Groh and Gerhard H. Esch; Duet from The Force of Destiny (Verdi); Stuart Robertson: (a) There is a Lady (Ford), (b) Bring us in Good Ale (Voodgate). Marion Anderson; Tramping, Tito Schipa; Cuban Song (Schipa). Alndi Memhin and Georges Euesco; Allegro from the Concerto in D Minor for Two Violins and Orchestra (Bach). Ernst Schön; Lieders du bist mein Fall (Schwabach). Alex T. ylor; Underneath the Arches (Flanagan). Erik Källquist; Almbäckshambo (Boigström). The Pickens Sisters; Sweet Georgia Brown (Casey). 2.0, Programme for Children 2.30, Concert by the Radio Orchestra, conducted by Emil Reesen. Soloist: Palle Andersen (Piano-forte); Overture, Romeo and Juliet (Bellini); Waltz, Frühlingstimmen (Joh. Strauss); Selection from Rigoletto (Verdi); March and Cortège from The Queen of Sheba (Gounod); Polka, Les Venardis (Borodin-Sokolov-Lindov); Spanish Comedy Overture (Kéler-Béla). Piano-forte solos: (a) Variations brillantes, Op. 12 (Chopin), (b) Aufschwung, (c) Des Absents, and (d) Grillen (Schumann); Helmsman's Song and Sailors' Chorus from The Flying Dutchman (Wagner); Waltz from Frau Luna (Lincke); Berceuse for Strings (Glasoun); Selection from Manon (Massenet); Badinage (Herbert); Torch Dance of the Brides of Kashmir, from Feramos (Rubinstein). 4.40, Exchange and Fish Market Prices. 4.50, Talk by Ole Nygaard. 5.20, French Lesson for Beginners. 5.50, Weather Forecast. 6.0, News Bulletin. 6.15, Time Signal. 6.30 (from the Danish Studio), Talk: Youth and Gymnastics. 7.0, Chimes from the Town Hall. 7.5, Historical Personages in Literature and Music. The Station Orchestra, conducted by many Grandahl. Talk: Prelude to King and Marshal (Heise); Scenes from King and Marshal. 8.0 to 11.0, A Radio Ball for the Older Generation. 8.0, Orchestral Music. 8.35, Ritzau Song Recital. 8.50, Old Dance Music for Violin, Viola, Clarinet, and Double Bass; Vesten om (Jensen); Tyrolere Waltz (Simonsen); Polka (Christensen); Bodil Vals (Madsen); Tyrolerhopsa (Iversen); Waltz, Parla (Arditi); Mazurka, Dithyrambe (Jos. Strauss); Jockey Gallop (Eriksen). 9.20, Songs. 9.35, Orchestral Music: Military

JAN. 28th

SATURDAY

continued

March (Möller); Amelie-Vals (Lumbye); Polka, Philip (Jensen); Mazurka (Klink-wort); Les Lanciers (Mikel); Mirella (Munch Lassen). 10.5, News. 10.20, Light Music. 11.0, Time and Chimes from the Town Hall.

CORK.—See Dublin.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN, 413 metres; 1.2 kW.; and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. 7.20, News Bulletin. 7.30, Time Signal. 7.31, Talk. 7.45, Gaelic Talk. 8.0, The Tales of Hoffmann—Opera-Comique (Offenbach); The Augmented Station Orchestra, a Choir and Soloists; Conductor: Dr. Vincent O'Brien. 10.30, Time Signal, News, Weather Report, and Close Down.

FECAMP

223 metres; 10 kW.—12 Noon, Popular Music on Gramophone Records. 12.30 p.m., News Bulletin. 12.45, Variety Concert. 7.0, Local News. 7.15, Light Music on Gramophone Records. 7.30, Radio Gazette. 8.0, Variety Music on Gramophone Records. 8.15, News Bulletin. 8.30, Concert of Variety Music. 10.0, Café Concert. 11.0 till Close Down, Programme in English by the I.B.C. 11.0, International Broadcasting Club Concert: Part I—Songs by a Vocal Quartet: Nancy Lee; My Bonnie; Sailing, Sailing; Three for Jack; Lassie o' Mine; Sweet Genevieve; Part II—Orchestral Music: Serenade (Heyken); Ideale (Tosti); Stephanie Gavotte (Czibulka); Vienna, City of my Dreams (arr. Reeve). 12 Midnight, Philco Slumber Hour; Was that the Human Thing to do? Underneath the Arches; The Old Man of the Mountains; The Turning of the Tide; She didn't say Yes; The Clouds will soon roll by; Let's put out the Lights and go to sleep; Day by Day; Somebody loves you; I love a Parade; Say it isn't so; Love me to-night. 1.0 a.m., Variety Programme: Organ Solo: Overture, The Turkish Patrol; Songs with Guitar Accompaniment: (a) Frankie and Johnny, (b) Everybody does it in Hawaii; Soprano Solos: (a) The Dubarry, (b) I give my Heart; Duets: (a) It was bound to happen, (b) Old King Cole; Organ Solo: Melody in F (Rubinstein); Songs: (a) Tell me To-night, (b) La Danza; Guitar Duets: (a) Hawaiian Medley, (b) Hawaiian Waltzes; Songs: (a) Leania, (b) Hoelin; Organ Solo: Finale, The American Patrol. 2.0, Dance Music: I don't want to go to Bed; Open up dem Pearly Gates; Rock your Cares away; The London Fire Brigade; Wanderer; Sailin' in the Robert E. Lee; Nightfall; A Bedtime Story; Three's a Crowd; A Waltz of Long Ago; How deep is the Ocean; Sweethearts for ever; Where is this Lady? Just because you're you. 2.57, I.B.C. Good-night Melody. 3.0 (approx.), Close Down.

FLensburg.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW.; and CASSEL, 245.9 metres.—2.30 p.m., Programme for Young People. 3.50, Exchange Quotations. 4.0, See Munich. 5.15, Exchange Quotations. 5.25, Talk: See Stuttgart. 5.50, Talk: German Wine and its Markets. 6.15, Time, Programme Announcements, Weather and Exchange. 6.30, Topical Programme. 7.0, See Langenberg. 9.30, Time, News, Weather and Sports Notes. 9.45, Dance Music. 10.30, Dance Music relayed from London. 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

Call ha (in Morse), 372 metres; 1.5 kW. Relayd by Bremen, 270 metres; Flensburg, 227.4 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—3.30 p.m., Concert by the Station Orchestra, conducted by José Eibenschütz: Overture, Martha (Flotow); Entr'acte Gavotte from Mignon (Thomas); Selection from Carmen (Bizet); The Emperor Waltz (Joh. Strauss); Ballet Suite from Coppélia (Delibes). 4.30, Talk: Theatre Playbills throughout the Ages. 4.55, Cookery Talk for Women. 6.5, Das bunte Programm. 6.0, Talk: Experiences of a German Worker in Australia. 6.25, Weather. 6.30, Mandoline Concert: The Tyrol in Song and Dance (Fetras); Waltz, Träumerei (Sartori); Intermezzo, Apfelblüte (Siede); March, Die Bismarcken kommen (Wagner). 7.0, See Langenberg. 9.30, Time, Weather, Announcements, Sports Notes, and Police Report. 9.50, Topical Talk. 10.0, Dance Music relayed from the Haas Siegler. In an interval at 10.20, Ice Report.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW.; and DANZIG, 453.2 metres.—10.30 a.m., Concert by the Königsberg Opera House Orchestra, conducted by Ludwig Leschetzky: Overture, Rühbezah (Weber); Klänge Lust-spiel-Suite, Op. 37 (Wünsch); Mazurka Fantasia, Op. 13 (Hans von Bülow-Liszt); Selection from Manon Lescaut (Puccini); Russian Folk Melody from the Fourth Symphony in F Minor (Tchaikovsky); Polovtsian Dances from Prince Igor (Borodin); Turkish March (Beethoven). 12.5 p.m., Light Music on Gramophone Records. In the interval at 12.20, News. 1.30, Sponsored Programme with Gramophone Records. 2.0, Exchange Rates and Market Prices. 2.30 (from Danzig), Handwork for Children. 3.5, Concert from Berlin (Witzleben). In the interval, Book Review. 5.0, Programme Announcements. 5.10, Programme Announcements in Esperanto. 5.15, Agricultural Prices. 5.30, World Market Prices. 5.40, Talk: Private Settlements on the Outskirts of Königsberg. 6.10 (from Danzig), Discussion: With Sven Hedin's Expedition in Asia. 6.40, Humorous Topical Review. 6.50, Weather and News. 7.0, See Langenberg. 9.30, Weather, News and Sports Results, followed by Dance Music from Berlin (Witzleben). 11.30 (approx.), Close Down.

HILVERSUM

Announced HUIZEN, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—Programme of the Catholic Radio Society (K.R.O.). 11.55 a.m., Concert. 1.25 p.m., Interval. 1.40, Programme for Young People. 2.10, Programme for Children. 3.40, Popular Music on Gramophone Records. 4.55, News in Esperanto. 5.10, Orchestral Concert: March from The Queen of Sheba (Gounod); Overture, The Golden Cross (Brüll); March and Waltz from The Golden Cross (Brüll). 5.30, M. J. Briuk in his Repertoire. 5.50, Concert (contd.): Selection from Carmen (Bizet); Malaguena (Moszkowsky); Washington Post March (Souza); Die Schmelde im Walde (Michaelis); La zingara (Gautie); Algerian Scene (Kettelbey); Selection from The Love Parade (Schertzinger). In the interval at 6.0, Press Review. 6.50, Talk. 7.10, Police Announcements. 7.25, Sports Talk. 7.40, Concert by the K.R.O. Boys, Soloists: Mile. Eyy Armont and M. J. Mossel (Songs). 8.10, Address by Dr. Roozon. 8.25, Concert (contd.). 8.55, Police Announcements. 9.10, Concert (contd.). In the interval, M. L. Coutran and his Repertoire. 10.25, Orchestral Concert, relayed from the Europe Hotel, Amsterdam. 11.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 1,875 metres; 8.5 kW.—11.40 a.m. till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). 11.40 a.m., Concert by the Small V.A.R.A. Orchestra, conducted by P. Duchant: March (Souza); Selection from Die Meistersinger von Berlin (Lincke); Selection from The Vagabond King (Friml); Light Music on Gramophone Records; Selection from The Merry Peasant (Fall); Wenn die Fischen sich heben (Gilbert); Potpourri (Morena); Fortissimo (Kalm); Aziyade (Ryussen); Fortissimo (Kalm). 1.40 to 1.55, Interval. 1.55, Popular Music on Gramophone Records. 2.30, Address by M. P. Mikksenaar. 2.40, Concert by the V.A.R.A. Children's Choir, conducted by Mile. Hulscher. 2.50, Music by a Plucked String Orchestra, conducted by M. Kok. 3.0, Choral Concert (contd.). 3.10, Plucked String Orchestra (contd.). 3.20, Choral Concert (contd.). 3.30, Talk on Music. 4.10, Talk on Disarmament. 4.30, Concert by the Flueifluters, conducted by H. de Groot; Es wird schon wieder besser (Jürmann); Es muss was wunderbares sein (Bonatzky); Der schönste Gedanke (Abraham); Melody (Hoffmann); Holidays in Cuba (Sprigato); Crazy People (Monaco); Rosita (Dupont); Marimba and Vibraphone: Bye Bye Blues; American Suite (Poret); A Bungalow, a Pierola and you (David); Lights of Paris (Evans). 5.20, Literary Talk. 5.40, Groningen Programme. Recitations by J. v. Kragt and H. Poort. 7.10, Violin and Organ Recital by M. B. Bleekrode and M. C. Steyn; Andante cantabile (Tchaikovsky-Kreisler); Mitternacht-sloeken (Heuberger-Kreisler); Vorrei ridere (Tosti); Good-bye (Tosti); Spanish Dance (Granados-Kreisler); Minuet (Vieuxtemps). 7.35, S.O.S. Messages. 7.40, The Village Barber. 7.55, Popular Music on Gramophone Records. 8.10, Concert by a Children's Choir, relayed from the Concertgebouw, Amsterdam. 8.55, Address by M. A. de Vries. 9.10, Concert by the V.A.R.A. Orchestra, conducted by H. de Groot; Our Orchestra—a Medley; L. Davids in his Repertoire; Five Pieces (W. Aldente); (a) Vive la valse, (b) Tri-tone, (c) Ever so never, (d) Souveraine, (e) Oiseau; L. Davids in his Repertoire. 10.40, News Bulletin. 10.50, Concert (contd.); Overture, Maritana (Kolko); Selection from Der Juchaner (Kolko); La Paloma (Yradier); Heinzelmännchens

Wachparade (Noack); Waltz from The Dollar Princess (Fall); Glow-worm Idyll (Lincke); Potpourri of Marches; Internationale (Geyster). 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.0 p.m., Talk. 6.15, Announcements, Theatre Notes, and Light Music on Gramophone Records. 6.30, See Warsaw. 10.0, Dance Music.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres; 40 kW.; and HELSINKI, 368.1 metres.—5.15 p.m., Concert by the Station Orchestra, conducted by Erkki Lintok: Sotilaspolka (Pacius); Finnish Rhapsody (Kajanus); Evening Paigron; Three Melodies (Klami); Largo misterioso and V. vance giocosa (Merikanto). 6.0, Talk. 6.25, Songs by the Station Quartet. 6.45, Humorous Talk. 7.0, Dance Music by the Ballap Band. 7.45, News in Finnish. 8.0, News in Swedish. 8.15, Dance Music, relayed from the Pärssi Restaurant. 10.0 (approx.), Close Down.

LANGENBERG

473 metres; 60 kW.—12 noon, Concert conducted by Wolf; Hoch und Deutschmeister-marsch (Ertl); The Skaters' Waltz (Wahlteufel) Overture, Vivat Academia (Zimmer); Liebesleid (Kreisler); Schön Rosmarin (Kreisler); Ballet Suite from The Queen of Sheba (Gounod); Potpourri, Major and Minor (Schreiner); Overture, Hokuspokus (Leinselner); Joh. Strauss, Milhölcker and Suppe Potpourri (Ziehrer). In the interval at 1.0 News. 1.35, Popular Music on Gramophone Records. 2.30, Economic Notes and Time. 2.50, Musical Programme for Children. 3.10, Talk: German Provinces on the Baltic. 3.50, Reading in English. 4.0, Concert by the Rhineland Branch of the German Workers' Mandoline Society; Soloists Franz Otto (Mandoline) and Marga Bäumi (Guitar); Waltz, Vior Trentino (Sartori); In a Persian Market (Kettelbey); Concerto for Mandoline and Guitar (Munier); March, In Trene fest (Teike). 4.35, Gilbert Concert: The West German Chamber Orchestra, conducted by Spitz. Soloists: Josef Witt (Tenor) and Martha Kleinberger (Soprano); Commentary by P. H. Cehly. 5.20, Talk: House Rent. 5.40, Weather, Time, Economic Notes and Sports Results. 5.50, Talk for Women. 6.10, Talk on Handicrafts. 6.35, Reading. 6.55, News. 7.0, Variety Programme in Aid of the West German Winter Relief Fund, relayed from the Saalbau, Essen. 9.30, News and Sports Results. 9.45, Serenade conducted by Wolf. 11.0, Gramophone Dance Music. 12 midnight, Close Down.

LAUSANNE.—See Radio-Suisse Romands.

LEIPZIG

389.6 metres; 120 kW.; and DRESDEN, 319 metres.—11.0 a.m., Richard Strauss Concert on Gramophone Records: Suite, Le Bourgeois Gentilhomme; Songs: (a) Freundliche Vision, (b) Morgen, (c) Traum durch die Dämmerung; Breakfast Scene and Finale from Der Rosenkavalier; Songs with Orchestral Accompaniment: (a) Heimliche Auf-forderung, (b) Zueignung; Love Scene from Die Feuersnot. 12.0 Noon, News, Weather, Snow Report, and Time. 12.15 p.m., Gramophone Concert: Overture, Nakhiris Hoelzelt (Lincke); Potpourri of Student songs (Winkler-Wengraf); Waltz, Nachtschwärmer (Ziehrer); Hast du mich lieb (Bohm); Gute Nacht, on mein herziges Kind (Franz Abt); Ritter-und Recken-Marsch (Rathke); Waltz, Freut euch des Lebens (Joh. Strauss); Träume der Nacht (Schmalstieg); Finale from the First Act of The Bayadère (Kilmán); Duet from The Count of Luxembourg (Lehar); Erzhovoz Albrecht Marsch (Komzak); Exchange Quotations after the Concert. 1.0 p.m., Wireless Hints. 1.30, Programme for Children. 2.15, Chess Lesson. 2.45, Exchange Quotations. 3.0, Talk on Music. 3.30, Concert from Berlin (Witzleben). 5.0, Legal Talk. 5.30, German for Germans. 5.50, A Modern Dictionary. 6.0, Talk: Marine Research. 6.30, Gramophone Concert of Classical Music. 7.0, Roguish Franks of the Past—Till Eupenspiegel and his Follows—A Radio Sequence (Dr. Kurt Berend and Sybil Morel). 7.30, Bunter Abend in Aid of the Winter Relief Fund, relayed from Weimar; Overture, Donna Diana (Reentzke); Aria from Euryanthe (Weber); Allegro from Concerto for Flute, Harp and Orchestra (Mozart); Recitations; Variations (Adam); Hans Sachs's Epilogue and Final Chorus from The Mastersingers (Wagner); Kaiser-Walzer (Joh. Strauss); Der Tod des Verräters—Trio for Baritone, Tenor and Bass (Cornelius); Recitations; Duet from The Cousin from Nowhere (Kün-

neke); Waltz, Wine, Woman and Song (Joh. Strauss). 9.5, News Bulletin. 9.15 (approx.), Dance Music. 11.0 (approx.), Close Down.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—4.30 p.m., Quintet Concert. 5.30, English Lesson. 6.0, Talk on Sociology. 6.30, Talk on Philosophy. 7.0, An Opera, relayed from Zagreb (307 metres). 9.30, Time and News.

LWOW

381 metres; 16 kW.—6.30 p.m., See Warsaw. 7.0, Concert by the Synagogue Choir; Soloist, M. Bornstein. 8.0 to 11.0, Programme from Warsaw. 11.0 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South East. 8.30, Concert, relayed from the Salle Raemau. After the Concert, News Bulletin.

MADRID

ARANJUEZ (EAQ), 30.43 metres; 20 kW. Programme for Listeners in the Canary Islands, Guinea, and America.—6.0 p.m., Concert of Spanish Music. 7.20, Talk. 8.30, Light Music. 8.0 to 11.30, Interval. 11.30, Variety Music. 11.45, Radio Chronicle. 12.0 Midnight, Popular Concert. 12.35 a.m. (Sunday), Talk. 12.40, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotations and Request Gramophone Records. 8.15, News Bulletin. 8.30 to 9.0, Interval. 9.0, Linguaphone English Lesson. 9.30, Chimes, Time Signal and a Musical Comedy. 11.45, News Bulletin. 12 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—3.10 p.m., See Bratislava. 4.10, See Prague. 4.50, Popular Music on Gramophone Records. 5.0, Talk. 5.15, See Prague. 5.25, Song Recital by M. Zapletalova with Introductory Talk. Songs by Haydn, Mozart, Schubert, Beethoven, Loeue, Mendelssohn and Schumann. 6.0, See Prague. 7.0, See Bratislava. 9.0, See Prague. 9.15, A Radio Film. 10.30 (approx.), Close Down.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayd by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—4.0 p.m., Concert, conducted by Erich Kloss; Soloist: Ingo Reker (Violin); Overture, Il Guarany (Gomis); Serenade (Tareughi); Song Still wie die Nacht (Bohm); Suite, from Southern Spheres (Fresco); Selection from A Waltz Dream (O. Strauss); Violin Solo: Mazurka (Zarzycki); Fliegermarsch (Dostal). 5.0, Programme for Young People. 5.45, Wireless Hints. 6.0, The Regensburg Barsone Organ—Concert, relayed from the School for Church Music, Regensburg. The Choir of the School for Church Music, Organist: Otto Dunkelberg. Introductory Talk by Dr. Carl Thiel: Theme and Variations (Musat); Choral Interludes from Landes festiva (Reiser); Prelude in D Minor from the Second Organ Suite (Reuner). 6.40, Talk: Must People get Angry? 7.0, Wireless Hints. 7.15, Böhmische Musikanten (Bohemian Musicians)—Musical Play in Three Acts (B. Grün). 9.20, Time, Weather News and Sports Notes. 9.45, Concert from Langenberg. 11.0 (approx.), Close Down.

NAPLES.—See Roma.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayd by Fredriksstad, 367.6 metres; Hamar, 550 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres; and Rjukan, 447.1 metres.—3.30 p.m., Light Concert on Gramophone Records. 4.15, Programme for Children. 5.15, Old Norwegian Folk Dances on Popular Instruments. 5.45, Talk on Economics. 6.0, Announcements, Weather and News. 6.30, Talk: Alcohol in the Household. 7.0, Time Signal. 7.1, Variety Programme Music by the Station Orchestra, Recitations and a Sketch. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Vaudeville. 9.45, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tourist Talk, Agricultural Notes and Giornale Radio. 7.20, Popular Music on Gramophone Records. In the intervals at

7.25, Sports Bulletin and at 7.30, Time Signal and Announcements. 8.0, Relay from the Teatro Massimo Vittorio Emanuele. In the intervals: Book Review, Miscellaneous Announcements and News Bulletin.

PARIS

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PORSGRUND.—See Oslo.

POZNAN

335 metres; 1.9 kW.—6.0 p.m., Miscellaneous Items and Announcements. 6.28, Time Signal. 6.30, Literary Talk. 6.45, See Warsaw. In an interval, News and Announcements. 8.0, Time Signal and Sports and Police Notes. 9.5, See Warsaw. 9.40, Announcements. 9.50, Dance Music relayed from the Café Polonia.

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., See Bratislava. 4.10, Talk on Industry. 4.20, Czech Lesson for Germans and German Lesson for Czechs. 4.50, Gramophone Records of Variety Music. 5.5, Agricultural Talk. 5.15, Talk for Workers. 5.25, German Transmission: News, followed by Reading of Poems and Dialogues. 6.0, News Bulletin. 6.5, Uecla Kropal makes arrangements for a Ball—Humorous Sketch. 7.0, See Bratislava. 9.0, Time, News and Sports Notes. 9.15, See Moravská-Ostrava. 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

508 metres; 403 metres; 25 kW.—LAUSANNE, 600 metres; and GENEVA, 760 metres.—5.30 p.m. (from Geneva), Review of New Books. 6.0 (from Lausanne), News Bulletin. 6.15 (from Lausanne), Talk: Artificial Skating Rinks. 6.30 (from Lausanne), Film Review. 7.0 (from Geneva), Talk: An Englishman in Switzerland in the Eighteenth Century. 7.20, Talk on the following Transmission. 7.30 (from Geneva), Symphony Concert by the Radio Orchestra, conducted by Ernest Ansermet, Soloist: Mme. Hona Durigo (Songs). In the interval at 8.30, News and Weather. 9.20 (from Geneva), Dance Music by the Broadcasting Serenaders. 9.30 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather Report. 8.40, Musical Programme and Announcements. 9.0, Times and News Bulletin. 9.30, Reading. 10.0, Concert by the Station Quartet, followed by Choral Music on Gramophone Records. After the Programme, Dance Music. 12 Midnight (approx.), Close Down.

RIGA

525 metres; 15 kW.—6.3 p.m., Popular Song Recital. 6.30, Dramatic Programme. In the interval at 7.0, News. 8.0, Weather and News.

JAN. 28th

SATURDAY

continued

8.30, Dance Music. 10.0 (approx.), Close Down.

RUJIKAN.—See Oslo.

ROME

Call 190, 441 metres; 50 kW. Relay by Naples, 319 metres; and 290, 25.4 metres.—7.15 to 7.20 a.m., Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Orchestral Concert. In the interval from 12.30 to 12.45, Giornale Radio and Exchange. 3.45, Children's Radio Review and Talk for Young People. 4.0, Exchange, Report of the Royal Geographical Society and Giornale Radio. 4.15, Reading. 4.30 to 5.15, Orchestral Concert: Illy (Carabella); Parlami d'Amore Mariti (Bivino); Selection from I Pagliacci (Leoncavallo); Violin Solo, Notturno adriatico (Castellonovo-Tedesco); Selection from St. Massaggi; Amore sognato (Barbi); Allò (Varinca). 6.10 (Naples), Shipping and Sports Notes. 6.15, Atmospheric Signals, Agricultural Report and Giornale Radio. 7.0, Time, Announcements and Light Music on Gramophone Records. 7.30, Sports Notes and Tourist Report. 7.45, Relay of an Opera. In the intervals: Reading of Poems, and News.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY); 379.5 metres; 50 kW. Relay at intervals by W2XAF on 31.48 metres, and by W2XAD on 19.56 metres.—12 Midnight, G.E. Circle from New York. 12.15 a.m. (Sunday), Stock Reports. 12.30, Hotel New Yorker Orchestra from New York. 12.45, The World Today, by James G. Macdonald, from New York. 1.0, Lady Fingers (Pianists). 1.15, Bernard Silberg (Cellist). 1.30 till Close Down, New York Relay. 1.30, National Advisory Council. 2.0, Frank Black's Orchestra. 2.30, Oldsmobile Programme. 3.0, Luck Strike Hour. 4.0 (approx.), Close Down.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER; 459 metres; 60 kW. BASEL; 244.1 metres; and BERNE; 245.9 metres.—11.28 a.m., Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40, Light Music on Gramophone Records. 12.35 p.m., Weather and Exchange. 12.45 (from Zurich), Answers to Correspondents. 1.0 (from Zurich), Review of New Books. 1.30 (from Zurich), Songs and Music by Schoolchildren. 2.0 (from Zurich), Workers' Lyrics. 3.0 (from Zurich), Concert by the Chromatic Accordion Club of Zurich. 3.40 (from Zurich), Reading of Calendar Motets. 4.0, Variety Music on Gramophone Records. 4.30 to 4.35, Weather. 5.30 (from Basle), Talk: Salzburg—a Town of Contrasts. 6.0 (from Zurich), Chimes from Zurich Churches, followed by Time, Weather and Market Prices. 6.15 (from Basle), Astronomical Talk: The Earth. 6.45, String Quartet in D, Op. 76, No. 5 (Haydn), on Gramophone Records by the Leuer Quartet. 7.15 (from Basle), Heinrich Wolfgang Seidel talks about his Father, Heinrich Seidel, and reads from his Works. 7.45, Lichen at Fritzen-Alsdtian Musical Play in One Act (Offenbach). 8.30, Weather and News. 8.40, Gramophone Records of Old and New Dance Music. 10.0 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relay by Edden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 642 metres.—3.0 p.m., Orchestral Concert: March (Fucik); Overture, Banditenstreiche (Suppé); Waltz, Sommerlust (Lehar); Paraphrase on O sole mio (Oscheit); Indian War Dance (Lambert); Melody (Mahy); Song Waltz, Mary (Egen); Selection from The Gipsy Baron (Joh. Strauss). 4.5, Programme for Children. 4.30, The Inquisitive Microphone. 4.45, Popular Music on Gramophone Records. 5.45, Review of Social Legislation. 6.15, Weather and News. 6.30, Variety Programme. 7.30, Old Dance Music. 8.45, Weather and News. 9.0, Dance Music from the Eden Hotel, Berlin, and by Welde's Orchestra. 11.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Orchestral Concert, conducted by Maurice de Villers. Soloists: M. Roskam (Cello) and M. Grégoire (Violin); Overture, Une fête à Aranjuez (Demersmann); Selection from Il Trovatore (Verdi); Second Peer Gynt Suite (Grieg); Cello Solo: Le cygne (Saint-Saëns); Ballet Music from Patrie (Paladino); Violin Solo: Czardas (Monty); March, Sabre and Lance (Starks). 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Quintet Concert, relayed from Bordeaux-Lafayette. 1.50, Popular Music on Gramophone Records. 2.0, Talk in German: Gold. 2.15, Dance Music on Gramophone Records. 3.45, Talk on Music: Chopin. 4.0, Dance Music on Gramophone Records. 4.45, Legal Talk in German: The Acceptance and Refusal of an Inheritance. 5.0, Pasdouloup Concert, relayed from the Théâtre des Champs-Élysées, Paris. 7.0, Talk in German: Indoor Plants. 7.15, Variety Music on Gramophone Records. 7.30, News. 7.45, Popular Music on Gramophone Records. 8.25, Lottery Results. 8.30, Les Dragons de Villars—Opéra-bouffe in Three Acts (Maillart), relayed from Paris (Ecof's Supérieure), 447.1 metres. 11.0, Quintet Concert, relayed from Radio Coloniale (Paris), 25.63 metres: Selection from Nabuccadnezzar (Verdi); Selection from Pelléas et Melisande (Mauro); Mairons de l'Éternité (Bloch); Selection from Manon (Massenet); Twilight in May (Lergier); Minuet (Auber); Selection from No. 30, Nanette (Vonmann). 12.0 Midnight (approx.), Close Down.

phone Records. 2.0, Talk in German: Gold. 2.15, Dance Music on Gramophone Records. 3.45, Talk on Music: Chopin. 4.0, Dance Music on Gramophone Records. 4.45, Legal Talk in German: The Acceptance and Refusal of an Inheritance. 5.0, Pasdouloup Concert, relayed from the Théâtre des Champs-Élysées, Paris. 7.0, Talk in German: Indoor Plants. 7.15, Variety Music on Gramophone Records. 7.30, News. 7.45, Popular Music on Gramophone Records. 8.25, Lottery Results. 8.30, Les Dragons de Villars—Opéra-bouffe in Three Acts (Maillart), relayed from Paris (Ecof's Supérieure), 447.1 metres. 11.0, Quintet Concert, relayed from Radio Coloniale (Paris), 25.63 metres: Selection from Nabuccadnezzar (Verdi); Selection from Pelléas et Melisande (Mauro); Mairons de l'Éternité (Bloch); Selection from Manon (Massenet); Twilight in May (Lergier); Minuet (Auber); Selection from No. 30, Nanette (Vonmann). 12.0 Midnight (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW; and FREIBURG, 570 metres.—12.30 p.m., Concert by the Station Orchestra, conducted by Gustav Gährlich, Soloist: Max von Wistinghausen (Baritone); Overture, Der Erlkönig (Kuhlan); Song from Figaro (Mozart); Oxyen Minuet (Haydn); Pantomime (Mozart); Overture, Nabuccadnezzar (Verdi); Monologue from Rigoletto (Verdi); Prelude to La Traviata (Verdi); Song from Il Trovatore (Verdi). 1.30, Time, News, Weather and Programme Announcements. 1.40, Song Recital by Bruno Müller; Songs (Lüttgers): (a) Lied des Wanderers, (b) Das Schwerste, (c) Das Hässliche, (d) Stimmfabrik, Songs (Schilling); (e) Wiegeli, (f) Verschunden verfunken, (g) Mit einer Wasserleibe, 2.5, Concert of Folk Music, relayed from Mannheim Bundes-Festmarsch (Kiehl); Romantische Ouvertüre (Spiegelberg); Zug der Waldkuren (Spiegelberg); Waltz, Am Lammstrand (Smotak); Mit Lust und Schmeiß (Diller). 2.30, See Frankfurt. 3.30, Dance Music on Gramophone Records. 4.0, Choral Concert: Ein Stundlein wohl vor Tag (Mollenhauer); Folk Song, Das stille Tal (Nagel); Folk Song, Echo (Nagel); Folk Song, Wie die wilde Rose im Wald blüht; In tiefstem Wald (Speidel); Auf der Ländchen Heide (Kiehl); Brückenroll (Kiehl); Folk Song, Die Gedanken sind frei (Keldorfer); Folk Song, Ade (Keldorfer); Föhler alton Gipfel ist Ruh (Kuhlan); Requiem (Bottlich); Frisch gesungen (Sicher); Bin iuet a Bursche (Sicher); Die Spröde (Rein); Im Gaden (Laugs); Mahnung (Birly). 5.15, Time and Sports Notes. 5.25, Talk: Fifty Years of Electro-Technics at Darmstadt Technical Academy. 5.50, Talk: The Choice of a Career in the Crisis. 6.15, Time, News, Weather and Snow Report. 6.30, Flute and Pianoforte Recital, relayed from Karlsruhe: Suite in Old Style, Op. 81 (Kronke); Fantasia for Flute, Op. 198, L.H. Simon (Ells-tend). 7.0, See Langenberg. 9.30, Time, News, Weather, Snow Report and Programme Announcements. 9.50, Sound Film Music on Gramophone Records. 10.30, Dance Music, relayed from London. 12 Midnight, Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 335 metres; 8 kW.—6.0 p.m., News Bulletin. 6.15, Military Music. 6.30, Opera Music: Aria from Der Freischütz (Weber); Selection from La Favorita (Donizetti). 6.42, Le Compiement de la Mine du Peuple (Charpentier). 7.0, Songs from Sound Films. 7.15, Racing Results, Market Prices and News. 7.25, Local News. 7.30, Music by an Argentine Orchestra. 7.45, Extracts from Operettas: (a) La belle Hélène (Offenbach), (b) Rip Van Winkle (Planquette), (c) Tip Top (Gerswhin). 8.0, Orchestral Music: Selection from Tosca (Puccini); Extracts from Act II, Lakmé (Delibes); Overture, Man in Massenet). 8.15, Accordion Music. 8.30, Songs by a Choir. 8.45, Popular Melodies. 9.0, Extracts from Siegfried-Opera (Wagner), followed by Viennese Music. 10.0, Airs from Opera: (a) Le Roi de Lahore (Massenet), (b) Sappho (Massenet), (c) Rigoletto (Verdi). 10.15, North African News. 10.30, Concert for Listeners in Morocco: Triumphant March from Aïa (Verdi); Air from Les Mousquetaires au Couvent (Carvey); Potpourri (Lehar); Mobydy (Maillart); Accordion Solo; Bourgeoisie (Mareau). 11.0, Popular Music. 11.30, Programme in English by the I.B.C.: Dance Music: Love made a Gipsy out of Me; The Sun is at my Window; With You; What have I Done; Far Away; Dust; Nobody's using it Now; Adeline. 12 Midnight, Weather and Announcements. 12.5 a.m. (Sunday), Hawaiian Guitar Music. 12.15, Programme of Tango Songs. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—4.10 to 6.30 p.m., See Turin. 6.30, Concert of Modern Music, with Commentary: Suite, Le Bestaire—for Voice and Pianoforte (François Poulenc); Due

sonetti del Berni—for Voice and Pianoforte (Francesco Malpiero). 7.0 till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relay by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—4.10 to 5.0 p.m., Dance Music from the Savoia Dance Hall. 5.35, Giornale Radio, Agricultural Report and Announcements. 6.0, Variety Music on Gramophone Records. 6.25, Tourist Report. 6.30, Time, Announcements and Light Music on Gramophone Records. 7.0, Giornale Radio, Weather and Gramophone Records of Variety Music. 7.30, Talk: Events and Problems. 7.45, A Radio Review. 8.45, Review of Books. 9.0, Variety Programme. 10.0, Giornale Radio

VATICAN CITY

19.84 metres (Morning) and 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Announcements in Different Languages. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relay by Graz, 352.1 metres; Innsbruck, 243 metres; Klagenfurt, 453.2 metres; Linz, 285.9 metres; and Salzburg, 218.5 metres.—2.50 p.m., Choral Concert of Brahms' Songs, conducted by Kurt Pahlen; Dein Herzlein mild; Erlaubt mir, freies Mädchen; Des Abends; Da um in im Tale; Es tönt ein voller Haufenklang; Song from Shakespeare; Gesang auf Fingal; Vineta; Schmitter Tod; Abschiedslied; In der Nacht; Fahr wohl Beherzigung. 3.25, Talk in English: An Englishman's Impression of Vienna. 3.55, Guessing Competition. 4.25, Variety: A Gramophone Cabaret. 5.20, Typical Talk. 5.50, Theresien Messe (Haydn), by the Hofmusik Kapelle, conducted by Luze. 6.50, Time, Weather, Sports Notes and Programme Announcements. 7.0, Faust a Poem (Léonard), arranged for Radio by Friedrich Schreyvogel. 8.0, News, Weather and Announcements. 9.15, Dance Music by the Frank Fox Jazz Band; Soloist: Emil Petrov (Songs); Foxtrot, Oh! Mahal! (Weems); Foxtrot, Immer nur du (Sunder); Ballo, heut' tanzen wir Kumba (Orin); Tango, Die grosse Liebe gibt es längst nicht mehr (Goldberg); Tango, Cikanka (Veeck); Foxtrot, Wonderful you (Katscher); Waltz, Musik macht mich schwach (Rith-Schu); Ringelspiel (Lopoldi); Slow Foxtrot, Wüstling in der Dork (Suess); Foxtrot, Yo-Yo (Ascher); Slow Foxtrot, Ihre Augen Saphire (Griesskamm); Tango, Signora Neid erberger; Tango, Homo (Roman); Foxtrot, I found You (Noble); Foxtrot, Karolin (Weiss-Mann); Lawd you made the Night too Long (Sylvia); Foxtrot, Maurice; Slow Foxtrot, Just like in a story book (Brown); Foxtrot, Liselott (Engel-Berger-Kühn); Slow Foxtrot, Auf Wiederseh'n (Hohmann-Ager).

WARSAW

1,411 metres; 120 kW.—11.10 a.m., Light Music on Gramophone Records. 12.10 p.m., Weather Forecast. 12.15, Educational Programme, relayed from Lwow, 381 metres. 1.0, Military Programme. 1.40 to 2.0, Answers to Correspondence on Military Questions. 2.35, Programme for Children. Light Music on Gramophone Records. 3.40, Talk on Skiing. 4.0, Programme for Invalids, relayed from Lwow. 4.30, Announcements. 4.40, Typical Talk. 4.55, Programme Announcements. 5.0, Light Music, relayed from the Cristal-Restaurant. In the interval, News. 6.0, Miscellaneous Items. 6.20, Talk on Gardening. 6.30, Typical Talk. 6.45, Radio Journal. 7.0, Concert by the Station Orchestra, conducted by S. Nawrot, soloists: T. Fabiszewski (Songs) and S. Snickowski (Oboe); Spanish March (Gybnauk); Waltz (Jacobi); Overture, Queen for a Day (Adam); Songs; Oboe Solo; Fantasia on William Tell (Kleinke); Quadrille from Die Fledermaus (Johann Strauss); Gavotte (Mnichotti); Polka (Fucik); Songs; Oboe Solo; Song without Words (Methersell); Waltz, Golden Rain (Waldteufel); Cracovienne (Leopold); Lehar Potpourri (Geizer); Two Mazurkas (Wronski). In the interval, Sports Notes and Radio Journal. 9.5, Chopin Pianoforte Recital, by A. Hermelin; Bolero; Two Mazurkas; (a) in B Flat, Op. 7; (b) in F Sharp Minor, Op. 59; Waltz in E Flat; Ecossaises; Scherzo in B Minor. 9.40, Reading. 9.55, Announcements. 10.0, Dance Music, relayed from the Bodega, in the interval, News for Members of the Polish Polar Expedition, relayed from Dacow, 312.8 metres.

ZAGREB

307 metres; 0.75 kW.—4.0 p.m., Concert by the Station Orchestra. 5.30 to 6.0, Interval. 6.0, Talk: The Nobel Prize and the Nobel Academy in Stockholm. 6.15, Swedish Music on Gramophone Records. 6.30, News Bulletin. 6.50, Introductory Talk to the following Transmission. 7.0, An Opera, relayed from the National Theatre. In the intervals: News, Weather, and Winter Sports Notes. 10.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landesender.

NEWS of the WEEK

Egypt Calling

CAIRO is to have a 20-kW. broadcasting station under the control of the Posts and Telegraphs Department. The station should be ready for testing in the autumn.

Laughing Intervals

OUT of an assortment of variously intelligent suggestions *Poste Parisien* has selected a new interval signal, namely, the sound of a coach horn.

Among the ideas submitted were the cooing of a dove and a burst of feminine laughter.

No Broadcast Apologies

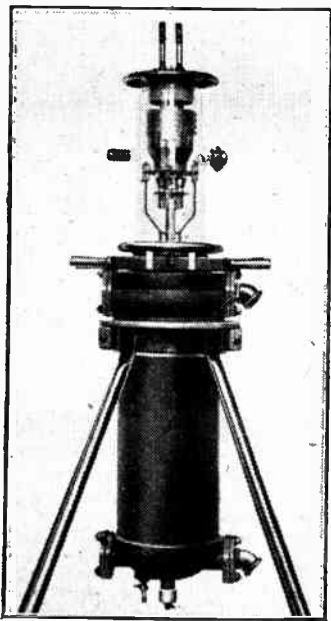
LISTENERS all the world over will sigh with relief at the findings of a Vienna court in a recent slander case. The plaintiff had demanded that the defendant should broadcast his apologies for the offensive remarks, but the Court ruled that the Press was an adequate medium.

Spain is Up to Date

SPAIN is determined that school children shall not be victimised by inferior radio reception. The Minister of Education has ordered 400 sets of an approved pattern for installation in village schools, and a project is under discussion for equipping all educational establishments with first-class receivers.

German Licence Increase

GERMAN licensed listeners on January 1st numbered 4,307,722, an increase of 326,870 over the figure for twelve months earlier. It should be noted, however, that free licences issued to the unemployed amounted to 512,149, as compared with 283,960 on January 1st, 1932, leaving a net increase in paid up licences of only 98,689.



FOR DROITWICH.—One of the new Marconi C.A.T. 14 super-power transmitting valves for use at the new long-wave station. It stands over 4 ft. high.

Current Events in Brief Review

'Phones in the Dormitory

"WIRELESS is wholly a good thing. At my own school every boy has earphones by his bedside, and can listen-in to news, good music, and the programmes of foreign countries."

—Mr. J. Howard Whitehouse, Warden of Bembridge School, in an address at University College, London.

Birth of Public Radio Telephony

SUNDAY last, January 15th, was the tenth anniversary of the first official radiotelephony conversation transmitted from Rocky Point, America, to New Southgate, London. It was following the success of these tests that the British Post Office decided to open a commercial service with the United States.

Encouraging the Home Constructor

IRISH listeners are rejoicing over the new era of cheaper wireless sets consequent upon the reduction in import duties. Complete transmitters and receivers are now admitted into the Irish Free State on payment of a 50 per cent. *ad valorem* duty. On loud speakers and component parts the duty is 25 per cent.

Radio Paris as State Station?

AFTER several weeks of rumour it now appears fairly certain that the French Government will agree to purchase *Radio Paris*, the famous French broadcasting station at Essarts-le-Roy. According to our contemporary, *Le Petit Radio*, the offer has been made by the owners of the station, the Compagnie Française de Radiophonie, in consequence of the voting of the necessary sums for the erection of a 100-120 kW. station on the outskirts of Paris to replace the Eiffel Tower station.

The indications are, therefore, that the French Government may adapt *Radio Paris* to transmit on the higher power, that the proposed new station may be indefinitely shelved, and that Eiffel Tower may cease to function as a broadcasting centre.

Gangsters Only

THE popular American pastime of listening-in on the police wavelengths received a serious threat the other day when a Bill was introduced into Congress seeking to forbid wholesale listening on these short waves. However, listeners breathed a sigh of relief when they examined the phraseology of the Bill, which ran: "It shall be illegal to pick up police signals to evade the law."

In other words, gangsters fleeing from justice are forbidden to tune in the police messages. This will be a sore handicap.

The Bells of Europe

BELLS and carillon peals are usually a success on the ether. The German broadcasting authorities are now suggesting a special Easter feature in which each European country would broadcast the sound of its most famous bells for the rest of the Continent to hear. Thus Germany might be represented by the bells of Cologne Cathedral, France by Notre Dame, Britain by York Minster, and so on.

Lectures on A.C.

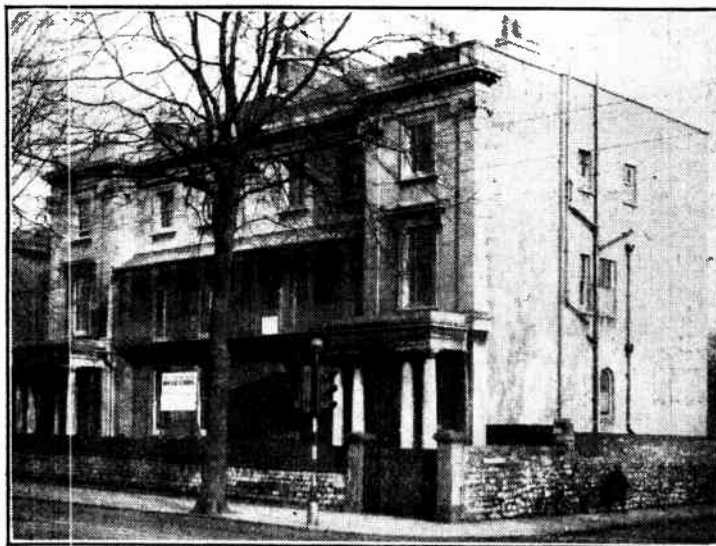
A COURSE of ten lectures, with demonstrations, on "Alter-

New B.B.C. Transmitter

THE B.B.C. has placed an order with the Marconi Company for a 100-kW. broadcasting transmitter to be installed at the new long-wave station at Droitwich, replacing Daventry National.

The transmitter will incorporate "series modulation" and three new Marconi high-power valves, each capable of dealing with a telephony input of 150 kW.

In series modulation, which considerably simplifies high-power station design, the modulator and the modulated power stage are placed in series across a constant voltage supply. The resistance of the modulator is so adjusted by means of grid potential that the total voltage is divided between



WESTERN REGIONAL. Two houses in Whiteladies Road, Bristol, which the B.B.C. will convert into a "Broadcasting House" serving the West region. We hope that Mr. Ashbridge has observed the traffic signal and is making suitable arrangements to cope with the radiations therefrom!

nating Currents and Electrical Oscillations" is to be given by Mr. D. Owen, B.A., D.Sc., F.Inst.P., at the Sir John Cass Technical Institute, Jewry Street, Aldgate, London, E.C.3, commencing on Tuesday, January 31st.

Life-saving at 7,000 Miles

FICTION is outdone in a tale, the truth of which is vouched for by the American Radio Relay League. A New Zealand amateur was recently picking up a Morse message transmitted on a mobile short-wave station, K7UT, operated 7,000 miles away by Clyde De Vinna, cinematographer on a film expedition to the far North.

After a time De Vinna's Morse grew halting and incoherent, and finally stopped. The New Zealand amateur, guessing that something was amiss, got in touch with an Alaskan amateur, who notified the authorities at Teller, near the cinema camp. Within twenty minutes De Vinna was located; he was found in his hut lying unconscious from the effects of carbon monoxide gas generated by a coke fire. The rescue party had arrived just in time.

the two units. The modulated amplifier can be considered as a constant resistance, whereas the modulator represents a resistance variable by the variation of its grid potential. A change in the modulator resistance, therefore, will cause the voltage across the modulated amplifier to vary in a manner directly proportional to the variations in the grid circuit of the modulator.

As this method of modulating the plate voltage of the radio frequency valve dispenses with any iron core choke or transformer it can be applied to a transmitter with valves of considerable power, while maintaining a high degree of linearity and wide range of frequency response. By this means the stages of modulated amplification required can be reduced to only one, with a consequent reduction in harmonic distortion.

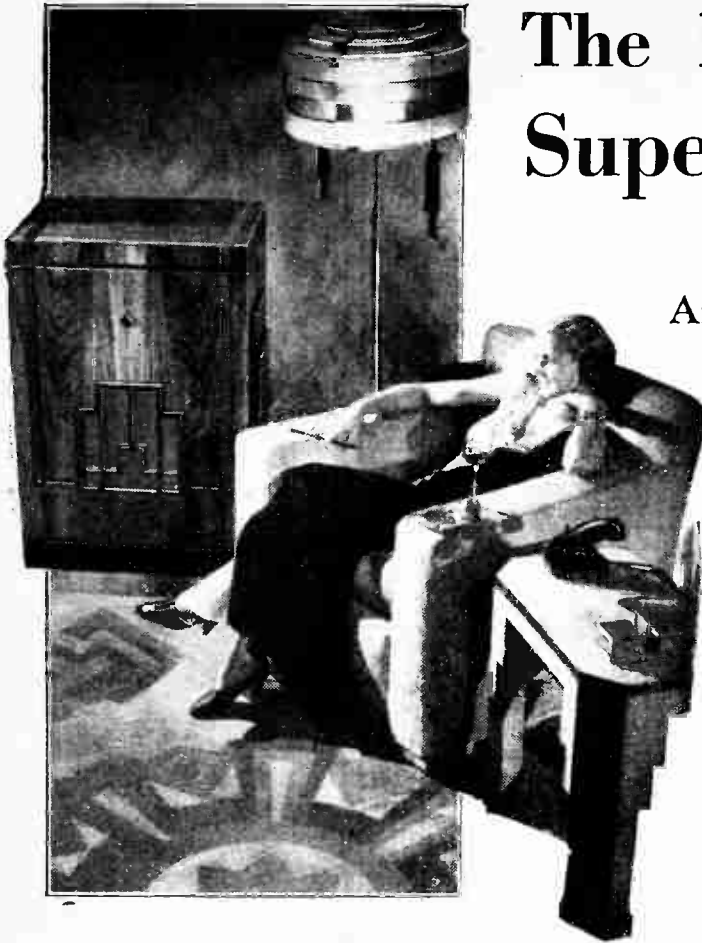
Cutting Off "The Juice"

MAINS sets will never be universally popular in France while small municipalities like Fleury-les-Aubrais (Loire Department) cut off the current between 10 a.m. and mid-day in order to attend to the generating plant.

The H.M.V. Superhet Autoradiogram

MODEL 532

An A.C. Mains Radio-Gramophone



THE radio-gramophone can no longer consist of a receiver to which has been added a gramophone pick-up and turntable; it must now be a complete whole, in which each component part has been designed specifically for the particular purpose which it is called upon to perform. The latest and most ambitious product of the Gramophone Company fulfils in every way this definition; and although it is at first glance similar to their earlier model, closer examination reveals numerous changes which have been made in accordance with recent developments.

Four-Unit Assembly

A unit construction has been adopted, and these units are assembled into the cabinet, which thus becomes rather more than a mere container. They are four in number, and comprise the receiver chassis, the power chassis, the loud speaker, and the automatic record changer assembly.

The receiver chassis contains six valves arranged to function as an H.F. stage, first detector, oscillator, two I.F. stages, and an anode bend second detector. The amplifying valves are all of the variable-mu type, and the radio volume control operates by varying their bias voltages. The H.F. valve is preceded by a two-stage band-pass filter of the inductively coupled type, and it is transformer-coupled to the first detector; there is thus a total of three tuned pre-selector circuits. As a result, the receiver is exceptionally free from undesired responses, and even on the local station second-channel interference is

practically negligible. The ganging of the oscillator circuit is arranged with the aid of a condenser having specially shaped plates, so avoiding complex padding systems, and since the coils are unscreened the coupling between the oscillator and first detector circuits is obtained by the simple expedient of placing the H.F. transformer and the oscillator coils in their correct relative positions. The first I.F. transformer is connected in the anode circuit of the

first detector; it is of the band-pass type, and a switch is arranged so that resistances can be connected to both primary and secondary circuits when it is desired to reduce the amplification and broaden the response curve for local reception. The two variable-mu I.F. stages are each coupled by similar transformers, so that there is a total of six tuned I.F. circuits. With the three pre-selector circuits, therefore, the signal must pass through nine circuits on its way to the second detector, and in consequence the adjacent channel selectivity is of an exceedingly high order.

The second detector is of an unusual type, since a very low resistance valve, actually an ML4, is used in the self-biased condition to act as an anode bend detector. A most complex filter is connected in its anode circuit in order to prevent any leakage of I.F. currents which might introduce instability and cause undesired responses on the long waveband.

The output of the detector is taken to the power chassis, in which the first valve is a low-frequency amplifier, and is employed on both radio and gramophone. The coupling between the detector and the I.F. stage is by resistance-capacity, and on gramophone the valve is fed from the pick-up through a potentiometer connected to act as the volume control. This valve is resistance-transformer coupled to

FEATURES

Circuit.—Ten-valve superheterodyne with three tuned pre-selector circuits and six I.F. circuits. Preliminary variable-mu H.F. stage and two variable-mu I.F. stages, with a two-valve frequency changer. Push-pull output to the energised moving-coil loud speaker. All A.C. operation.

General.—Automatic record changer in the gramophone equipment, and sound-proof lid to the cabinet. Provision for the use of an external speaker with or without the built-in model. Floating chassis construction.

Controls.—(1) Single tuning control with calibrated and illuminated dial. (2) Volume control operative on both radio and gramophone. (3) Combined on-off, radio-gramophone, and wave-change switch. (4) Local-distance switch. (5) Tone control. (6) Gramophone motor switch. (7) Record changer switch. (8) Record rejector button.

Price.—80 guineas in standard cabinet; 95 guineas in special modern style cabinet, illustrated on this page.

Makers.—The Gramophone Co., Ltd., 263-267, Oxford Street, London, W.1.

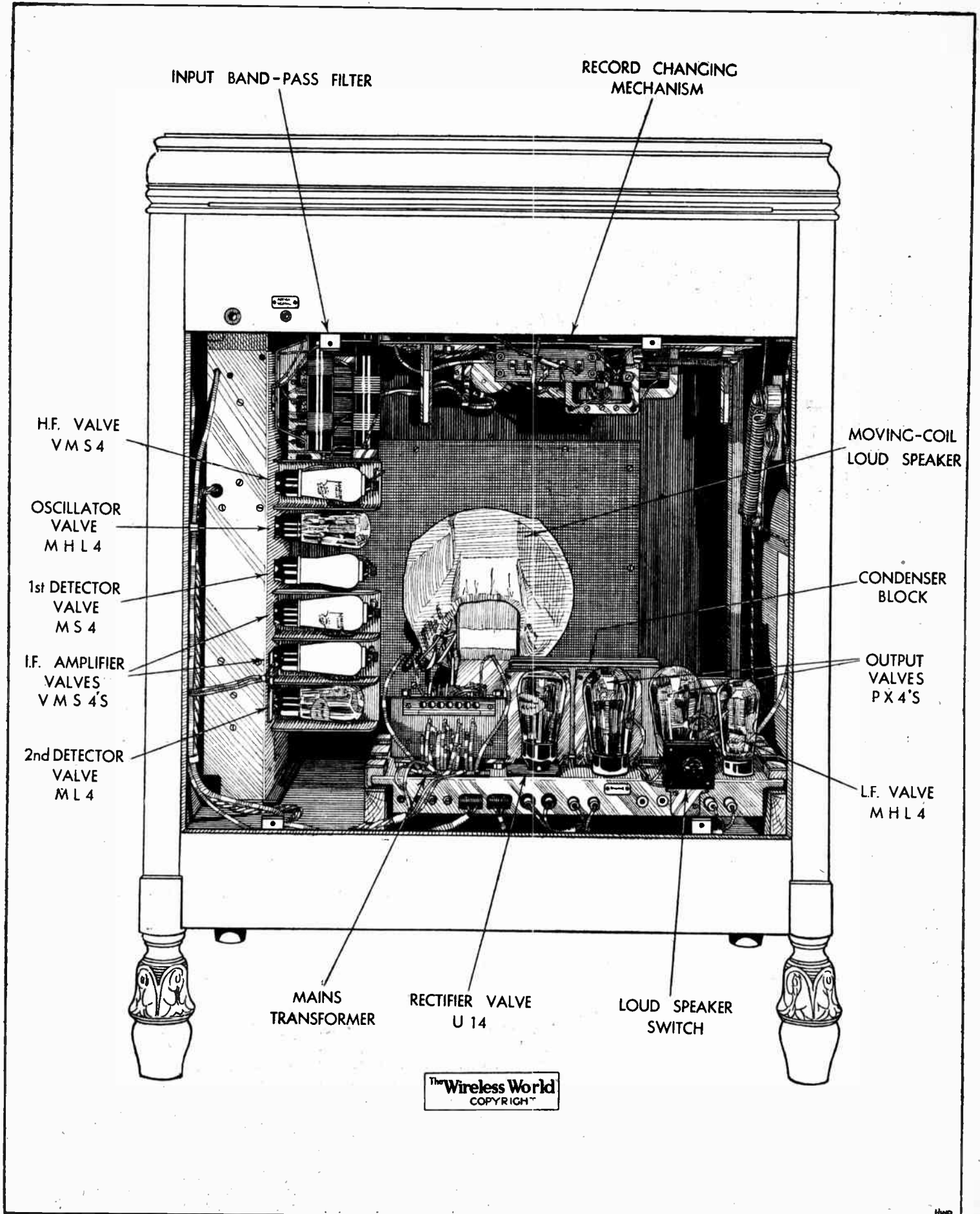
the output stage, which consists of two PX4 valves in push-pull, and it is interesting to note that independent biasing is used for these. The moving-coil speaker is, of course, fed through a transformer.

The smoothing equipment is exceptionally generous, and the mains transformer itself is of unusually large dimensions. The output of the valve rectifier is taken through a tapped choke, connected in a special hum neutralising circuit, to the



View of the motor board showing the automatic record changer.

A Highly Developed Radio-gramophone

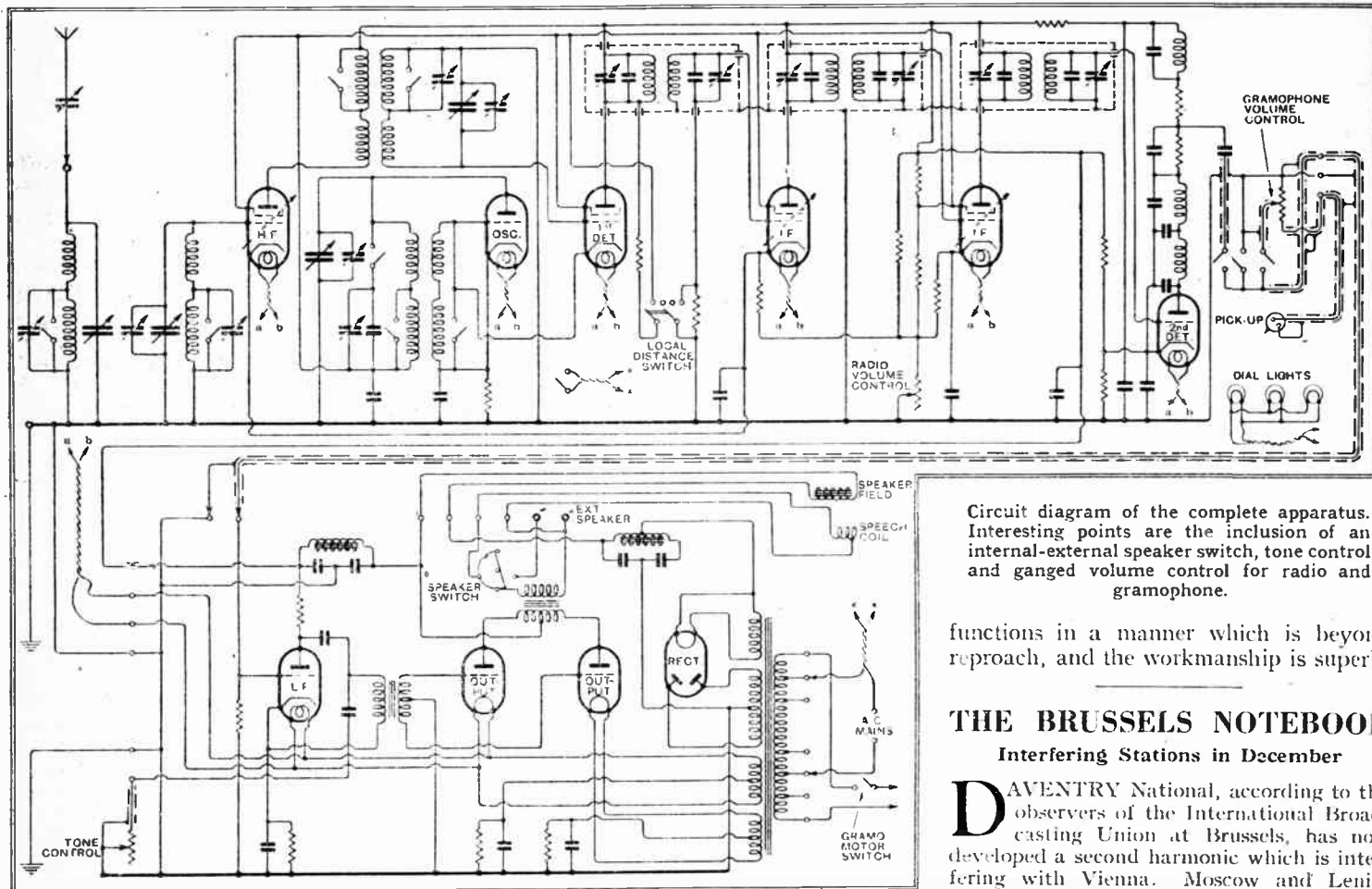


Showing the rubber-suspended chassis of the H.M.V. Superhet Autoradiogram.

The H.M.V. Superhet Autoradiogram— field winding of the moving-coil loud speaker, where, in providing the necessary energisation, the current is still further smoothed. The current for the output stage is then tapped off, but that for the earlier valves passes through another choke; there are thus three

At the rear of the set provision is made for the connection of an external loud speaker, and a three-position switch permits this to be used alone or in conjunction with the internal speaker; alternatively, the latter may be used alone. When installing the set, no adjustments are required by the user beyond a single

on absorbent rubber bushes to prevent acoustic feed-back effects. The moving-coil loud speaker is of large dimensions and is provided with a baffle board of acoustically dead material. In fact, in every particular the set shows the care which has been put into its design and construction; electrically, the receiver



Circuit diagram of the complete apparatus. Interesting points are the inclusion of an internal-external speaker switch, tone control and ganged volume control for radio and gramophone.

functions in a manner which is beyond reproach, and the workmanship is superb.

THE BRUSSELS NOTEBOOK

Interfering Stations in December

DAVENTRY National, according to the observers of the International Broadcasting Union at Brussels, has now developed a second harmonic which is interfering with Vienna. Moscow and Leningrad, too, are producing harmonics; Söttens and Vienna are also offending, the latter clashing with Frankfurt. Bucharest continues to suffer at the hands of an unknown station.

The medium-wave Leningrad station, RV70, has made its first appearance, and is operating on the same frequency as that of Barcelona, namely, 434.8 metres.

At least one station has "vanished"; this is the Latvia relay at Madona, which has not been heard since December 12th. Nyiregyhaza, one of the new Hungarian relays, seems to be having a wobble competition with Bremen, which is still unable to keep steady. Pecz, the other new Hungarian relay station, has been looking for a wave between 1,420 and 1,445 kcs.

Cardiff is still interfered with by an unknown station, and Radio Vitus continues its St. Vitus' dance around 307 metres.

Telegraphy stations have been interfering on the long waves, particularly around that of Lahti, while an unknown Russian telegraphy station continues to work between Zeesen and Radio Paris, and there is still an interloper within a few kilocycles of 5XX.

Luxembourg has been continuing tests on 252 kilocycles and Vienna on 240 kilocycles. Budapest No. 2 has settled down to 355 kilocycles. Brussels No. 1 is now sharing its wavelength with the Estonian station Tartu, as well as Astrakhan. To complete the tale, Palermo continues to interfere with Munich even on local reception.

smoothing chokes, and, as might be expected, the hum level in the output is inaudible.

The automatic record changer is of the usual H.M.V. pattern and is extremely simple to operate. When loaded to full capacity it is capable of playing eight 10 or 12in. records consecutively. The different sizes must not be mixed, of course, and only one side of each can be played. A push button on the front of the cabinet allows any unwanted record to be rejected, and the volume control is also conveniently mounted outside the cabinet. The lid is fitted with an automatic closing device, and it is well packed with felt to make it soundproof and to prevent any pick-up chatter from being audible.

Excellent Performance

The tuning controls are all mounted on the gramophone board, and the tuning scale is set at a convenient angle. It is calibrated and illuminated by a series of concealed lamps; these lamps are interconnected with the combined wave-range, radio-gramophone, and on-off switch, so that the appropriate scale is illuminated. In addition to these, there are the tone control and the local-distance switch.

trimmer in the aerial circuit. The care and attention to detail which have been put into the design of this receiver are shown up by the inclusion of a special insulated screwdriver for making this solitary adjustment.

The performance of the set leaves little to be desired, and the quality of reproduction sets a very high standard. The bass is well reproduced, without any trace of box resonance, and quality on gramophone is exceptionally fine. The general tone on radio is slightly lower, but with the local-distance switch set for local reception there is abundant evidence that the higher frequencies are being reproduced. The general effect is of well-balanced tone, and, even at large volume, harmonic distortion is commendably low.

The sensitivity, of course, is adequate for any ordinary purpose, and the set will rarely have to be worked all out. The selectivity, too, is of a very high order, and probably reaches the maximum useful value. Undesired responses are negligible, and the volume control has a wide range, while the waverange switch is now silent in operation.

The walnut cabinet is extremely solid, and its lines are dignified and pleasing. The chassis are of steel and are mounted

BROADCAST BREVITIES

By Our Special Correspondent.

What Does the Diary Say?

SIR JOHN REITH, in an article in *The Wireless World* some twelve months ago, referred to the diary in which he records his personal impressions of the world and affairs. If the diary is still kept—a fairly safe assumption—I can imagine a delightful entry for Tuesday of last week, the day on which Sir John betook himself to the Polish Embassy and laid before His Excellency the Ambassador a note of contrition for the *faux pas* on New Year's Eve.

Retribution

The note, I understand, left certain points to the Polish imagination; for example, it stated that "internal administrative action" had been taken in the matter. One can almost hear the groans of the offender and the clank of the chains.

Another Offender

It may console Sir John Reith to reflect that his is not the only broadcasting organisation to invoke the Polish wrath. A Berlin friend tells me that the Königsberg station has just had a sharp rap over the knuckles by the Polish Ambassador in Berlin for remarks passed about the "Polish Corridor" during a programme on December 28th.

Co-opting M.P.s

The Polish affair has, of course, raised anew the question of whether the B.B.C. should come under direct Parliamentary control. From what I can gather, however, no one really wants such a state of affairs. Personally, I shrink from the idea; the mere notion of members of Parliament contributing more than they do at present to the gaiety of nations suggests sweated industry.

Sad Sequel

Not that the B.B.C. itself has fought shy of the idea. On September 26th last the Corporation with the approval of the Prime Minister courteously invited "the co-operation of a small Parliamentary committee composed of members of both Houses, for the purpose of advising the Corporation on matters connected with political talks."

Alas, no one accepted the invitation!

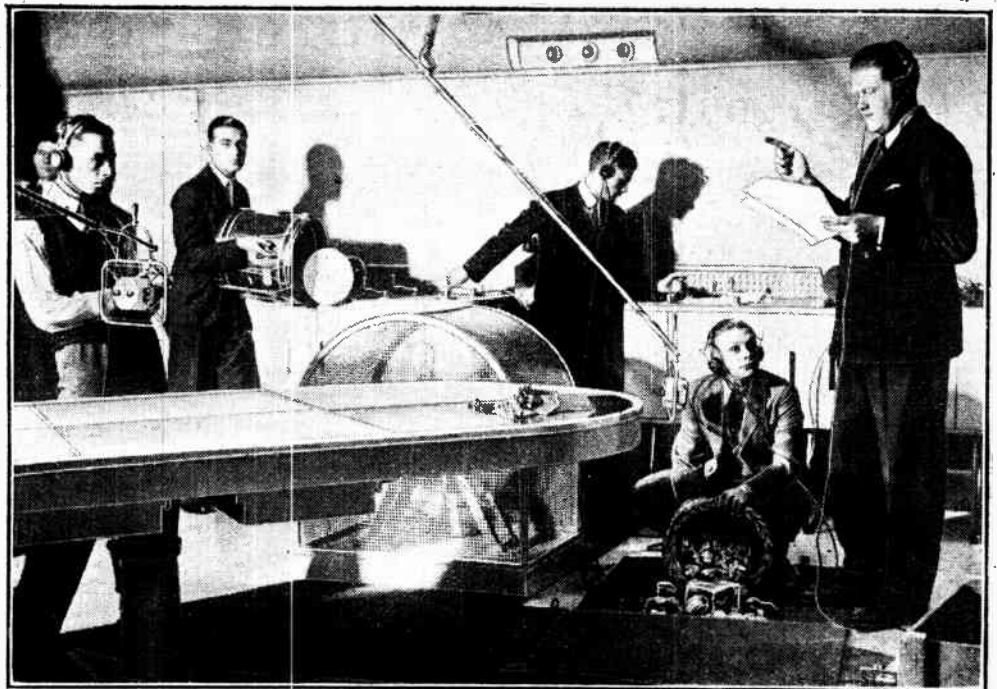
Prospecting in Belfast

BELFAST readers should look out for the B.B.C. mobile transmitter which, I am credibly informed, will soon be exploring the neighbourhood in search of a suitable site for the new high-power transmitter.

The B.B.C. are likely to be attracted by the Divis Hill, which overlooks the city from the west, but they have no special preferences at the moment.

The End in Sight?

The Belfast and Droitwich transmitters may quite possibly be ready at the same time, i.e., the end of next year. The Regional and Long-wave Broadcasting Schemes will then be complete, unless the B.B.C. ventures on a new northerly station on the long-wave band.



NOISE-MAKING AS A PROFESSION. A photograph taken recently in the "effects" department at Broadcasting House during the performance of a radio drama. The man on the left is producing the impression of splintering wood by crushing a match-box close to the microphone. A drum held against a revolving disc simulates an aeroplane propeller, while rushing wind is suggested by the wind machine in the cage. Falling buildings are also represented.

I understand that although the order has been placed for the new "series modulation" transmitter at Droitwich, work may not be started there for some time.

An Awkward Clause

AN unusual dilemma has confronted the B.B.C. in regard to the new headquarters at Leeds. Some perspicacious individual discovered a clause in the deeds of the building to the effect that it must never be used as a place of entertainment, the explanation being that the future broadcasting headquarters is a converted Friends Meeting House.

Happily, the lawyers have pointed out that all will be well if no charge is made for admission! So the new Broadcasting House will open in a few weeks' time.

How We Help

EVERY British wireless licence holder can now clap his hand to his heart and say: "I help to cheer the Empire and especially South Africa!" For while the Empire programmes (paid for by British listeners) are floating on the four winds of heaven, South Africa now has the special privilege of picking them up and relaying them from Cape Town and Johannesburg without giving prior notice to the B.B.C.

Reciprocal Programmes?

In time, no doubt, the other Dominions and Colonies will follow suit, and perhaps the day will come when they will reciprocate. A sound picture or running commentary dealing with gold mining in the Rand would cheer us not a little.

Cyril Maude to Broadcast

WHEN that classic among comedies in the English language, "The School for Scandal," is broadcast on January 23rd and 24th, the part of Sir Peter Teazle will be played by the well-known actor Cyril Maude. The late William Archer, one of the most eminent critics of all time, described Mr.

Maude's Sir Peter, when the play was produced at the Haymarket many years ago, as the best he had even seen.

Left-handed Quartet Leader

ONE of the several quartets who will broadcast during the Chamber Concert season in the Concert Hall, Broadcasting House, is the Kolisch. They will arrive in England next month and are to play every day for a fortnight, the dates of their broadcasts being February 13th and 25th. The leader of the Kolisch Quartet is left-handed—the result of an accident in childhood.

Hotter and Hotter

HENRY HALL is getting hotter and hotter. Who would have guessed twelve months ago that the modest conductor of the Gleneagles Hotel dance combination would have the first call in this country on the hot jazz numbers of Duke Ellington and Louis Armstrong?

The contract has just been signed with these, the two hottest of America's jazz monarchs.

Say It with Dancing

By the way, Henry Hall has received some really enthusiastic tributes from the Continent—Germany especially—as a result of the recent European relays by the B.B.C. Dance Band. A German youth of 17 to whose letter of appreciation Henry Hall sent a reply has responded with the noble remark: "Englishmen are gentlemen."

Another Feat

I must also chronicle the fact that the B.B.C.'s Dance Band conductor has earned the distinction of being the first man to smash a microphone beyond repair. It happened a few days ago when he was showing Irving Berlin around Broadcasting House. They had reached the Television studio in the basement when Henry, dazzled by the glare from one of the Baird "searchlights," collided with a microphone stand. If the stand had been stronger . . .

LABORATORY TESTS

CLIX INSULATED SOCKET

THE latest type of insulated socket developed by Lectro Linx, Ltd., 254, Vauxhall Bridge Road, S.W.1, for mounting on metal chassis is now provided with a small terminal in place of the usual soldering tag.



It is felt that this will appeal to those home constructors who prefer the nut and screw method of connection to soldering, especially on small parts that could be damaged unless special care is exercised when using the soldering iron.

The new socket, which costs 2½d., can be used either with a solid plug or with one of the divided prong type, such as the Clix

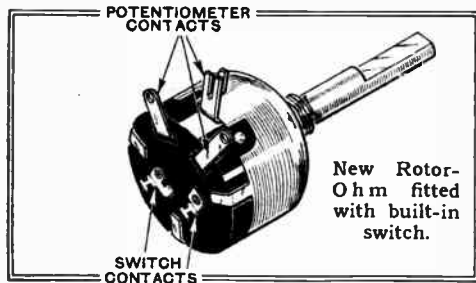
Clix new insulated socket fitted with a small screw terminal.

master plug. It is made in two colours, namely, red and black, and is available with the usual range of markings.

ROTOR-OHM VOLUME CONTROL WITH SWITCH

ROTOR ELECTRIC, LTD., Spencer House, South Place, Moorgate, London, E.C.2, are now manufacturing wire-wound Rotor-Ohms in this country, production being well in hand of all values up to 50,000 ohms. All models can be supplied with or without a switch, and provision is now made for ganging. Thus the new models meet every present-day requirement, but they possess the added advantage of compactness, for the specimen tested, which is fitted with a switch, measures only 1½in. in diameter and 1in. deep. The switch is embodied in the design and is not an appendage.

The resistance element is mounted so that the contact arm reaches the end of the track before the switch lever is moved, and there is then no further change in the resistance during the final rotation of the spindle.



New Rotor-Ohm fitted with built-in switch.

The price is 3s. 6d. each up to 25,000 ohms and 4s. each for all values up to 50,000 ohms. If fitted with a switch the price is raised by 1s. in all cases, while provision for ganging costs an additional 9d.

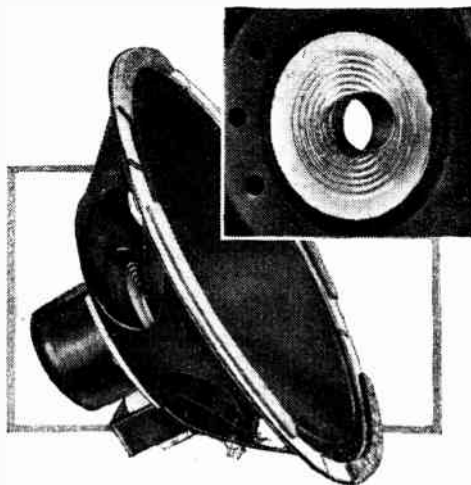
SONOCHORDE LOUD SPEAKERS

FROM the point of view of mechanical design probably the most interesting feature of the Sonochorde loud speakers is the method of centring the moving coil. Instead of the customary radial spider, a concentrically corrugated disc is employed which gives enormous lateral rigidity without appreciably af-

NEW RADIO PRODUCTS REVIEWED

fecting the normal movement of the speech coil. Examination reveals that the periphery of the one-piece diaphragm does, in fact, provide a greater control than the sub-diaphragm. There can be no doubt that this form of construction gives greater immunity from damage and is conducive to permanence of the response characteristic.

Three models were submitted for test—the Standard P.M. and D.C. and the Senior D.C. The first two are fitted with 7in. diaphragms, and the performance as regards frequency response is similar, though, as might be expected, the sensitivity of the mains-energised model is the better of the two. The bass resonance occurs at about 110 cycles, and the lower cut-off is at about 75 cycles. The magnitude of the bass resonance is just sufficient to give adequate body to music without introducing colouration to speech. Ascending the frequency scale, there is a shallow trough in the region of 250-350 cycles, after which the output regains the normal level and maintains it up to 2,000 cycles. Following a resonance between 2,500 and 3,000 cycles, the output continues to 8,000 cycles at a level which is much higher than the average.



Sonochorde Senior D.C. moving-coil loud speaker and (inset) enlarged view of corrugated centring diaphragm.

The Senior D.C. model, which is fitted with an 11in. cone, is in every way a first-class reproducer. The bass response is full down to 60 cycles, and a careful exploration failed to reveal any prominent resonances in the response up to 7,000 cycles, which marks the commencement of the high-frequency cut-off. Further, from the point of view of efficiency and sensitivity this model is equal to anything we have so far tested, regardless of price.

All Sonochorde models are provided with output transformers with alternative ratios for low impedance power valves or pentodes. The makers are Sonochorde Reproducers, Ltd., 1, Willesden Lane, London, N.W.6, and the prices of the models tested are as follows: Standard D.C., 25s.; Standard P.M., 32s. 6d.; Senior D.C., 42s. 6d.

PARAFEEED COUPLING UNIT

THE Parafeed L.F. transformer which was introduced in the spring of 1931, having been designed especially for use with the parallel-feed L.F. coupling system, re-

quired the addition of a resistance and a condenser to complete the coupling link. Radio Instruments, Ltd., Purley Way, Croydon, Surrey, have now embodied the three essential components in one compact unit, which, in addition to considerably cheapening the cost of the complete coupling, has led to a marked reduction in the

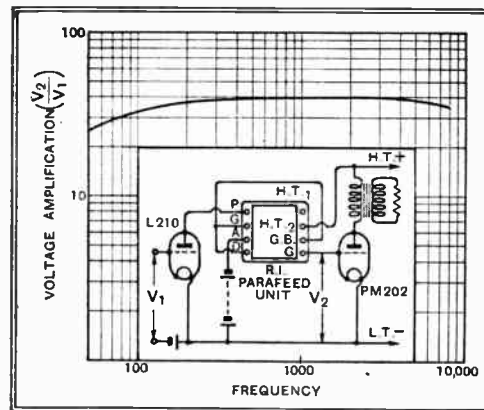
total base-board space required, for the new Parafeed unit in its latest form measures but 2½in. x 2¼in. x 2⅜in. high.



R.I. Parafeed coupling unit.

The internal resistance and condenser are completely isolated from the transformer, so that all the advantages of the original Parafeed transformer are retained, and the unit can be connected to give transformer ratios of 1:2, 1:3 or 1:4, in addition to various other arrangements. The instructional leaflet shows ten different combinations, including one push-pull amplification, but for this purpose an additional Parafeed transformer is required. The resistance included in the unit is provided with a tapping, so that a part of it can be used for decoupling the anode circuit if required.

For the purpose of our tests the unit was connected to give a 1:4 step-up ratio; two-volt battery valves were used, and the whole of the resistance included in the anode circuit of the first stage. Over the major part of the frequency range an amplification of forty times was obtained. Although there is a slight falling off in voltage amplification below 100 cycles, it will not have a noticeable effect on the reproduction, as the acoustic output will be sufficient to preserve a satisfactory balance. Indeed, the response at 100 cycles is only 1.5 decibels below that at 1,000 cycles, while even at 50 cycles the reduction is not more than 4 decibels.



Frequency-amplification curve of R.I. Parafeed coupling unit.

The unit is mounted in a neat moulded bakelite case, having an internal metal screen, and provision is made for earthing this *via* the fixing screws. The price of the coupling unit is 11s. 9d.

UNBIASED

A Tale of a Tick

I HAVE just paid a second visit to the two listening halls in Broadcasting House which I mentioned a week or two ago. My object was to enjoy a peaceful musical evening of the kind which has been practically impossible at home during the past few days owing to an avalanche of aunts and sisters-in-law who have descended on my humble abode and at present show no sign of moving.

I made myself comfortable in one of the armchairs provided by the thoughtful B.B.C. and closed my eyes, partly to increase my enjoyment of the music and partly to veil from sight the hideous futuristic-looking furniture. I had not been listening long, however, when I became conscious of irritation. In spite of all my efforts to concentrate, my enjoyment was quite spoilt by the distracting click of the wretched electric slave clock which ticked every half-minute. Since its wiring was buried in the wall, I was completely baffled in attempts to



One man's meat . . .

disconnect it. As it was, I found I could stand the noise no longer, and was compelled to leave the building in a thoroughly disgruntled mood.

I don't think I have met a clock of this type with a louder or more exasperating click, but the really nerve-racking part was waiting for it. Surely somebody has blundered very badly in not foreseeing this trouble, for here, if anywhere, the use of a tickless clock is justified. I am not, of course, referring to electrical interference produced in the loud speaker, for the clock was quite silent in this respect.

Psychological Moments

THERE seems to be no end to the practical applications of the principles of radio. The latest is intended to lessen the terrors which the dental chair has for children and even adults. A despoiler of good teeth with whom I am acquainted is the individual who has devised this latest adjunct to his fee-

snatching business. His first experiment was to provide his juvenile victims with a pair of headphones connected up to a wireless set, but he speedily found that such items as fat-stock prices and talks on psycho-analysis failed to hold the

By FREE GRID

children's attention against the counter-irritation provided by drills and forceps.

He has now solved the problem in a very ingenious manner. The headphones are connected to a gramophone pick-up in an adjoining room wherein sits a psychological expert with a peephole through which he is able to observe the patient. According to his judgment of the child's psychological make-up, the expert switches on different types of gramophone record and even, in desperate cases, introduces a microphone and puts over a "bed-time" story himself. My friend is now extending the system to his adult patients, but his tame psychologist is finding the task of selecting suitable items much more difficult, and has found out the fundamental truth of the old saying that what is one man's meat is another man's poison.

Surely this idea gives a golden opportunity to the B.B.C. for making their audition tests really helpful. All they have to do is to put would-be comedians in front of the dentist's microphone and watch the effect on the victims. If any aspirants to studio honours could get a laugh out of a man in the execution chair he would be good enough for a long contract with the B.B.C. Similarly, loud speakers might be erected at the receipt of custom in a Scottish income-tax collector's office; the raising of a laugh from



. . . is another man's poison.

a thrifty Scot when paying over the bawbees would surely be the hall-mark of the born comedian.

A Mystery Box

MY attention was arrested the other day by an article in a foreign wireless journal giving "full technical details of the system employed by the

British Post Office engineers to detect unlicensed receivers." Naturally, I seized upon the opportunity of improving my knowledge upon this matter, losing no time in arming myself with a ponderous dictionary and commencing the painful work of translation. I was bitterly disappointed, however, to find that at the end of my labours I was no nearer the truth than before.

After giving a very ordinary description of a sensitive multi-valve receiver employing a frame aerial, the article finished up by stating that everything really depended upon a secret device housed in



Could assist the Post Office authorities.

a steel cylinder. It further explained that this device made use of "an entirely new principle of radio."

The most remarkable thing about the whole report, however, was a statement at the end to the effect that these secret devices, all ready to connect up, would shortly be supplied to all licence holders in England so that they could assist the Post Office authorities in tracking down unlicensed listeners. To crown all, it was alleged that the instrument would be supplied to each licence holder in a sealed box so that he would be unable to wrest from it the marvellous "secret circuit."

Criticism of Hospitals

AS the result of my recent note regarding hospital sets I regret to say that my post-bag has been filled with moans from patients and ex-patients.

Complaints are not confined to small provincial hospitals, nor yet to the larger ones, but come even from some of the greatest of the metropolitan establishments which I thought were above suspicion. In practically every case the barbarous practice of switching off at a ridiculously early hour of the evening is in vogue, the hospital authorities being so much beyond the æsthetic pale that they cut the set off even in the middle of a musical item.

As for man-made static, this appears to be intolerable, although caused in many cases—and this is the ludicrous part of it—by electrical apparatus under the control of the hospital authorities themselves! Lifts, X-ray apparatus, and therapeutic apparatus, generally, are particular offenders.

The Valve Filament

Part II.—The Coating and the Part it Plays

By R. T. BEATTY, M.A., B.E., D.Sc.

IN the previous instalment it was pointed out that in a cold filament the electrons dash about with an average speed of 58 miles per second but that at this speed they could only pass across a retarding potential difference of 1/40th of a volt, while in order to escape from the surface they must surmount a barrier of 4.5 volts.

Table A gives the average speed corresponding to certain temperatures and also the voltage barrier which can be overcome, and it appears that in a filament at 15 deg. C. only those electrons which have $791/58=14$ times the average speed can escape from the surface.

Now and again an electron *does* attain this critical speed. There is a remote chance that a number of lucky collisions may boost it to 14 times the average speed, but the fantastic slenderness of the chance is shown by the curve of Fig. 3, which has been worked out from the well-known laws of probability.

The vertical scale gives the chance that an electron should have a speed in excess of the figure given by the horizontal scale, and the diagram may be regarded as a ladder in which each rung represents a chance of a millionth of that at the rung immediately above. The top rung is the chance that the speed should exceed zero, and is, of course, a certainty.

At the next rung below, corresponding to speeds exceeding 3.8 times the average value, the chance is one in a million (10^{-6}), while for speeds exceeding 5.5 times the average the chance is one in a million million (10^{-12}), and so on, till at 14 times the average speed the chance falls to 10^{-72} . To write this at full length we should put down a decimal point, follow it with 71 zeros, and finish off with the figure "one."

As illustrations of the extreme improbability represented by this figure we may say that it is the chance that heads should turn up 240 times running, or that a man should predict correctly the order of finishing of a field of 54 horses in the Grand National, or that the purchaser of 11 tickets out of 4 million sold in a sweepstake should draw the first 11 prizes. To put it

shortly, *unaided escape of an electron from a cold filament is impossible.*

But suppose the filament raised to a white heat. The table shows that the average speed of an electron is now 166 miles per second, and any electron which has 4.76 times this speed attains the

LONG before the days of broadcasting it was found that if a small piece of sealing wax were fused to a platinum filament in a soft valve a copious flow of electrons could be detected. Year after year this device has been developed until to-day we have the coated filament which emits its electrons at such a low temperature that we are constrained to ask "How far off is the cold valve?"

critical speed of 791 miles per second, which enables it to emerge. Fig. 3 shows that the chance of exceeding this speed is 10^{-10} or one in ten thousand million, and, though this is a poor chance for any single electron, we must remember that a cubic millimetre of tungsten contains 10^{20} free electrons, so that 10^{10} of these are capable of escape if they happen to lie close to the surface. It is from this small high-speed fraction of the total population of electrons that we obtain the filament emission required to operate a valve.

Life of 1,000 hours

The emission in amps. per square centimetre of a tungsten filament at various temperatures is shown by the right-hand curve of Fig. 4. At 2,100 deg. C., the temperature at which a filament is usually operated, the emission amounts to about 0.1 amp. per sq. cm. of surface, and this temperature is so far below the melting point (3,270 deg. C.) that a life of a thousand hours is usual before the filament fails owing to volatilisation of the metal.

No other pure metal is as emissive as tungsten, for no other metal can be kept

at such a high temperature without rapid wasting due to volatilisation. But in 1914 it was accidentally discovered that a small percentage of thorium, which exists as an impurity in tungsten ores, enhances the emission considerably. The thorium atoms diffuse outwards to the surface of the hot filament, where they form a layer one atom in thickness, and, although this layer keeps on evaporating, it is replaced by the outwardly diffusing atoms which underlie it and can be maintained for a thousand hours of use. The effect of this layer is to reduce the potential barrier at the surface from 4.5 volts (its value for

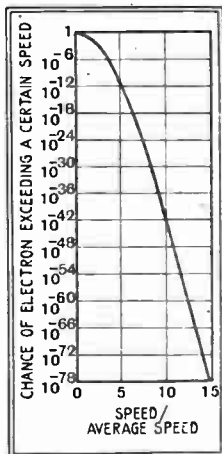


Fig. 3.—A few electrons in a metal have 5 or 10 times the average speed; the curve shows how very small is the chance that this should occur

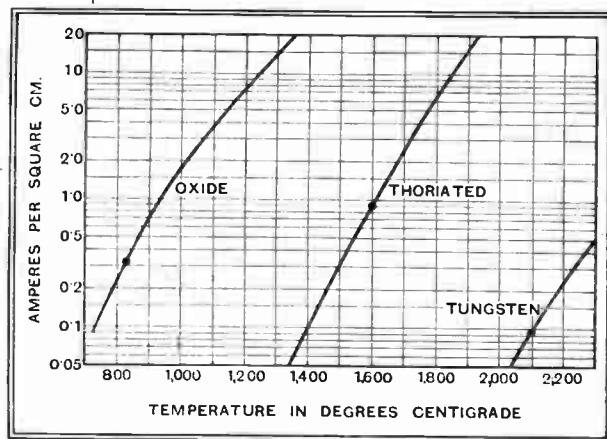


Fig. 4.—The emission from three types of filament plotted against temperature. The dots indicate the usual operating temperatures.

tungsten) to 3.15 volts, with the result that the emission would increase a thousandfold if the temperature were maintained at 2,100 deg. C. Actually the thoriated filament is only heated to 1,600 deg. C. to prevent undue evaporation of thorium, and, as Fig. 4 shows, the emission is 10 times that of pure tungsten when each filament is kept at its correct temperature.

The comparison between the two types of filament is most simply made on a basis of emission per watt of heating power drawn from the L.T. battery. For tungsten the figure is 2 milliamps. per watt, and for thoriated tungsten 40 milliamps. per watt; so that, for equal emissions, the latter filament requires only 1/20th as much battery current. The advent of this filament made it possible for the first time to use dry cells for L.T. supply.

Considerable liberties can be taken with thoriated filaments, for if the thin layer of thorium is completely volatilised, due to excessive heating, as when, for example, the H.T. battery is accidentally applied for a moment to the filament terminals, it is only necessary to run the filament a little above its usual temperature for about an

TABLE A.

Temperature in degrees Centigrade.	Speed in miles/sec.	Volts.
15 (ordinary temp.)	58	0.0243
2,100 (white heat)	166	0.200
47,500 (hottest known star)	791	4.52

The Valve Filament—

hour (with the H.T. reduced to about quarter-value), whereupon a new layer will diffuse to the surface and the emission will be as good as ever.

But the thoriated filament is now, in its turn, heading for limbo in face of the powerful competition of the coated filament. Long before the days of broadcasting it was known that a speck of sealing wax burnt on to a platinum filament gave rise to a stream of electrons so dense that, in a soft valve containing a trace of air, a luminous streak could be seen. This primitive device has been gradually developed into its modern form in which a core of tungsten wire is provided with a nickel covering to give a surface to which the oxide coating adheres strongly; the oxides of barium and strontium are then deposited on the nickel, and by glowing the filament a thin layer of barium and strontium separates out on the surface, as shown in Fig. 5.

The presence of this layer reduces the potential barrier to one volt, and, consequently, the electron emission is enormously increased (Fig. 4, left-hand curve) so that the operating temperature can be reduced to 830 deg. C.—a barely visible dull red glow. The emission efficiency is 100 milliamps. per watt, so that in a 2-volt filament one-fifth of the filament current actually escapes as electronic emission.

Indirectly Heated Cathode

The great efficiency of coated filaments has made it possible to employ indirect heating by making the emitting surface or cathode in the form of an oxide-coated cylinder entirely disconnected from and enveloping the heating wire; sufficient emission is obtained when 4 watts are consumed by the heater, whereas with a pure tungsten cathode 200 watts would be called for on account of the much higher temperature required, and a receiving valve of ordinary dimensions would be quite unable to dissipate this power without serious overheating. Another advantage of low-temperature cathodes is that the distortion on heating is so slight that the grid can be brought very close, with consequent greater controlling power, as in the "Micromesh" output valve, where a change of 1 volt on the grid changes the plate current by 12 mA.

We have seen that progress in filament construction has been largely due to methods of diminishing the magnitude of the voltage barrier which exists at the surface, of all conductors. Already with coated filaments one-fifth of the current

from the L.T. battery escapes from the surface, and it may be that science will discover how to lower the barrier still further. After all, if the barrier could be reduced to half a volt the emission from a cold filament would be as great as we now get from a hot one, and L.T. batteries would become superfluous. So that we should not despair of the eventual appearance of the cold valve.

It is sometimes suggested that since electrons are emitted from alkali metal surfaces under the influence of light we

might design a valve to work with a cold cathode sensitive to light. At present, however, it is much more economical to heat the filament directly than to use power to operate the source of light. In fact, if all the light from a lamp of one candle-power is concentrated on the cathode of the most sensitive photo-cell known the emission is ½ milliamp., and since ½ watt is required to operate the lamp the efficiency is only 1 milliamp. per watt, as against the much higher emission of the coated filament.

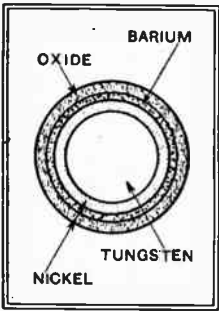
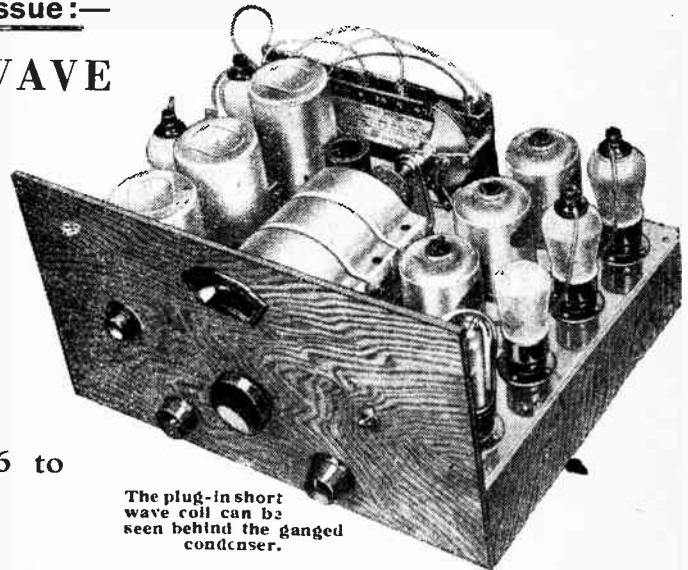


Fig. 5.—Cross-section of coated filament. A nickelled-tungsten wire carries a thin layer of metallic barium reduced from barium oxide.

In Next Week's Issue:—

The ALL-WAVE MONODIAL SUPER
A Highly Sensitive and Selective Battery Superheterodyne.
Tuning from 12.26 to 2,000 Metres



The plug-in short wave coil can be seen behind the ganged condenser.

A SINGLE-CONTROL superheterodyne covering the range of 12.26-98 metres, in addition to the two normal broadcast bands. Built-in coils with waveband switching are provided for the latter two, and another switch permits any one of the four short-wave bands to be selected at will. Single-dial tuning is operative on all wavelengths, and an unusually high degree of adjacent channel selectivity is maintained on the shortest wavelength. In spite of, or rather because of, the use of seven valves, the current drain upon the H.T. battery is unusually low and totals no more than 13 mA. at 100 volts. The quality of reproduction reaches a high standard, and the sensitivity is adequate for the reception of the weakest stations under even poor conditions.

LIST OF PARTS REQUIRED

After the particular make of component used in the original model, suitable alternative products are given in some instances.

- 1 Three-gang Superhet condenser, 0.0005 mfd. Polar "Star"
- 1 Short-wave variable condenser, 0.00016 mfd. Eddystone No. 922
- 1 Slow-motion dial Eddystone No. 933
- 1 Insulated coupling (Ormond) Cydon
- 1 Compression type condenser, 0.002 mfd. (Formo, R.I.) Polar "Preset"
- 1 Set of Superhet coils Telsen
- 1 Set of short-wave coils comprising 1 L.B., 1 Y., 1 R. and 1 2BB Eddystone No. 932
- 3 I.F. transformers, 110 k.c. Varley BP21 (Colvern, Wearite)
- 1 H.F. choke Eddystone No. 505
- 1 Screened H.F. choke, Superhet type (Wearite) Bulgin H.F.10
- 1 Special switch assembly Wearite
- 1 Single-pole switch Q.M.B. (Claude Lyons) Bulgin S.80
- 1 Two-pole switch Q.M.B. (Claude Lyons) Bulgin S.88
- 1 Potentiometer, 25,000 ohms (Colvern, Watmel) Igranic No. 2235/7

- 1 Resistance, 160 ohms, 1 watt Claude Lyons
- 1 Resistance, 1,000 ohms, 1 watt Claude Lyons
- 1 Resistance, 2,000 ohms, 1 watt Claude Lyons
- 2 Resistances, 5,000 ohms, 1 watt Claude Lyons
- 1 Resistance, 10,000 ohms, 1 watt Claude Lyons
- 1 Resistance, 25,000 ohms, 1 watt Claude Lyons
- 1 Resistance, 250,000 ohms, 1 watt (Dubilier, Erie) Claude Lyons
- 1 Fixed condenser, 0.01 mfd. mica T.C.C. No. 34
- 3 Fixed condensers, 0.001 mfd. mica T.C.C. No. 34
- 1 Fixed condenser, 0.001 mfd. mica T.C.C. type "M"
- 2 Fixed condensers, 0.0001 mfd. mica T.C.C. No. 34
- 7 Fixed condensers, 0.1 mfd. non-inductive 400 v. D.C. test T.C.C. No. 50
- 2 Fixed condensers, 1 mfd. non-inductive 400 v. D.C. test T.C.C. No. 50
- 1 Fixed condenser, 2 mfd. non-inductive 400 v. D.C. test (Dubilier, Telsen) T.C.C. No. 10
- 1 Coupling unit (Benjamin, Bulgin) R.I. "Parafed"
- 8 Valve holders, 5-pin Clix, chassis-mounting type (British Radiophone, Bulgin, Burton, Eddystone, W.B.)
- 1 Battery cable, 5-way, 30in., with wander plugs marked GB-1, GB-2, GB-3, GB-4. (Bulg. Concord, Goltone, Harbros, Leweos) Belling-Lee
- 1 Battery cable, 5-way, 54in., with spade ends marked L.T., L.T.— and wander plugs marked HT-1, HT-2. (Bulg. Concord, Goltone, Harbros, Leweos) Belling-Lee
- 1 Connector, 5-way Wilburn
- 1 Grid-bias battery, 10½ volts
- 1 pair G.B. battery clips (Bulg. Burton, Ormond) Cripso
- 4 Ebonite shrouded terminals, aerial, earth, L.S., L.S.— Igranic "Indigraph" (Belling-Lee, Burton, Clix, Edelex)
- 2 lengths Screened sleeving Goltone (Concord, Harbros, Leweos)
- Plymax baseboard, 12in. x 16in. x ½in. Peto-Scott
- Panel, oak-faced ply, 9in. x 16in. Peto-Scott
- Plywood, ½in., 12 length Systoflex, 2ozs. No. 20 tinned copper wire, etc.
- Wood screws, 39 ½in. No. 4 R/hd., 14 ½in. No. 4 R/hd., 19 ½in. No. 4 R/hd., 22 ½in. No. 4 R/hd., 6 ½in. No. 4 C/sk.
- Metal screws, 4 ½in. No. 4 B.A. with nuts and washers, 5 ½in. No. 5 B.A. with nuts and washers.
- 1 H.T. battery, 105 volts Ever Ready Popular Power type
- Valves, 3 Cossor 220 VS4 or Marconi or Osram VS2, 1 Cossor 215 S4 or Marconi or Osram S21, 2 Cossor 210 HF or Marconi or Osram H12, 1 Mazda Pen. 220A.

READERS' PROBLEMS

A Defective Oscillator Coil?

AFTER having carried out a preliminary test, a reader has come to the conclusion that the oscillator coil of his "Baby Superhet" has become defective, and asks whether a more conclusive test can be made with the help of a voltmeter.

Properly applied, a high-resistance voltmeter should give a practically certain indication as to whether everything is in order. The meter should be joined between the chassis and terminal No. 6 of the oscillator coil; the negative terminal of the meter being, of course, connected to the metal work. A short-circuit should then be made between terminals Nos. 4 and 6, when a reading of some 25 volts should be shown, the exact voltage depending upon the voltmeter resistance. With the short-circuit removed, a slight fall in voltage should take place. The tuning condenser should then be rotated, and if at any point within the tuning range the voltage falls to zero, or even reverses its polarity, a definite fault is indicated. It is just possible that this fault might be in the combined detector-oscillator valve, or in the voltage supply to its priming grid, and not in the coil.

Bias-limiting Resistance

IT would appear that the purpose of the resistor R_5 in the "Straight Three" (*The Wireless World*, December 16th, 1932) is not clear to a number of readers. The resistor in question is connected in series with the volume-control potentiometer.

This component may best be described as a "bias limiter"; its purpose is to avoid the possibility of operating the H.F. valve with a zero grid, even with the control potentiometer slider at the "maximum" position. By observing this precaution anode current is conserved, and the risk of selectivity being impaired by the flow of grid current is avoided.

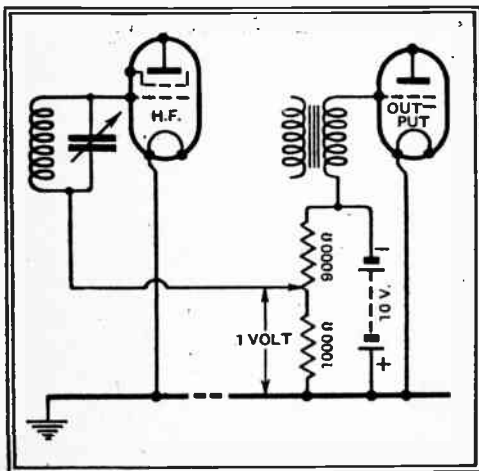


Fig. 1.—Explaining the function of a bias-limiting resistance. A similar result might be brought about by restricting mechanically the rotation of the potentiometer slider.

The functioning of the resistance will be made clear by the simplified circuit diagram given in Fig. 1, where arbitrary values are used in order better to illustrate the point at issue.

Assuming that a potentiometer of 9,000 ohms and a fixed resistor of 1,000 ohms be connected in series across a 10-volt bias battery the voltage developed across the

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.

first component will amount to 9 volts, and across the second to 1 volt. Taking these values, grid bias for the H.F. valve may be varied between 1 volt negative and 10 volts negative by rotation of the potentiometer slider. Due to the interposition of the 1,000-ohm fixed resistance the grid cannot be operated with a less negative bias than 1 volt, which, in practice, will be about right. From this explanation it will be fairly evident that the relative values of limiting resistance and potentiometer are determined by simple proportion; a fixed resistance and potentiometer of respectively 10,000 ohms and 90,000 ohms might be used, for example, in place of the values given.

Voltage Measurements with a Milliammeter.

A READER who has just constructed a high-power A.C. set wishes to check the various anode voltages of his receiver. Maximum voltage is in the order of 400 volts, and the only measuring instrument in his possession is a multi-range milliammeter of which the lowest scale reading is 0.5 milliamps.

A voltmeter is, after all, nothing but a milliammeter fitted with a suitable value of series resistance, and then calibrated in volts. Our querist should be able to obtain voltage readings which are accurate enough for most practical purposes by using his milliammeter (on the lowest range) in series with a suitable resistance. Ignoring the internal resistance of the instrument, which we may legitimately do, a value of 100,000 ohms will do well, and the meter will then measure voltages up to 500. By multiplying the reading in milliamps by 100, the dial indications may be readily converted into voltages; 2 milliamps will correspond to 200 volts, 3 milliamps to 300 volts, and so on.

We should not conclude this reply without the usual warning that, as always, voltage readings will be reasonably accurate only when the value of the external series resistance is low compared with that of the meter resistance. For example, it is not possible by ordinary means to measure the precise voltage applied through a potentiometer to an H.F. valve screening grid.

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, Tudor Street, E.C.4, 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.

Whistle Suppression and Push-pull

ALTHOUGH the Whistle Suppressor (*The Wireless World*, October 28th, 1932) will in most cases work most satisfactorily when connected across an L.F. intervalve coupling device, it is often much more convenient to apply it to the output circuit—loud speaker or output transformer, etc.

To a reader who wishes to add the Whistle Suppressor to a set with push-pull amplification, and who is unwilling to disturb internal wiring, we suggest that the terminals of the suppressor should be joined between the anodes of the output valves, as shown in Fig. 2. This will probably be found satisfactory, but another reader who

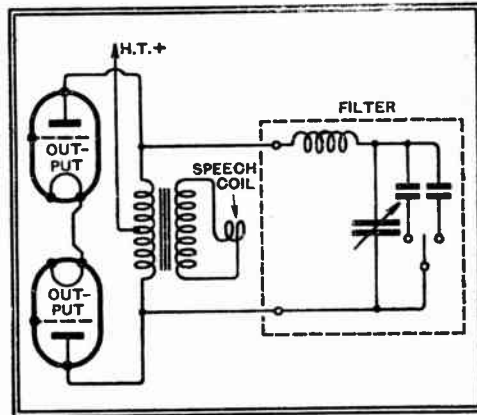


Fig. 2.—The Whistle Suppressor connected across a push-pull output transformer.

uses pentodes in push-pull, with tone compensation in the output circuit, will probably find that this plan is unworkable. This is because the impedance of the output circuit, at high frequencies, will be seriously reduced by the presence of the corrector.

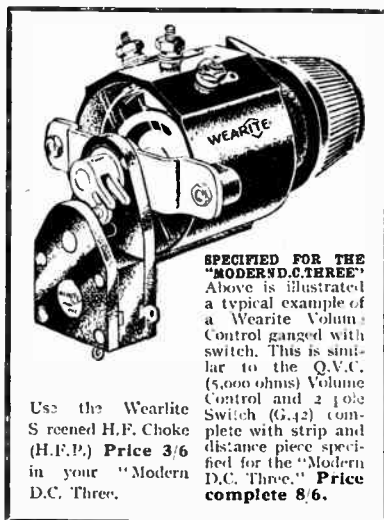
The Wrong Beat

MOST users of superheterodyne receivers are aware that a given station can be received at two distinct settings of the oscillator tuning condenser, but since ganged tuning control has become almost universal, this fact does not usually become evident. As a rule, when initial adjustments of modern sets are made in the manner advocated, there is little risk of working on the wrong beat; with a ganged superheterodyne, it is always intended that the higher of the two beats (in terms of frequency) should be employed.

A correspondent who has built the "Baby Super" has noticed a somewhat serious falling off in sensitivity at the lower end of the wavelength scale, and goes on to describe symptoms which lead us to suspect that the circuits are adjusted in such a way that the wrong beat is being employed. An indication that this is happening is often afforded by the fact that the trimmer of the oscillator circuit is set at nearly full capacity; normally its control should be almost fully unscrewed.

To make sure, we advise that our reader should make another adjustment of ganging at about 300 metres, on which wavelength it is almost impossible to set the oscillator for the wrong beat. The next step would be to make a further rough ganging adjustment at about 250 metres, and finally to set all the trimmers at a still lower wavelength.

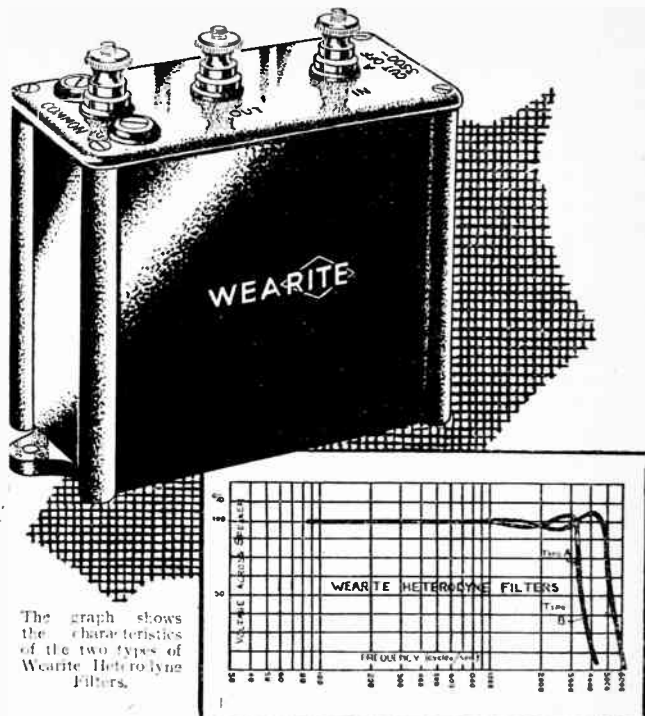
CUT OUT HETERODYNE WHISTLE with a WEARITE HETERODYNE WHISTLE FILTER UNIT



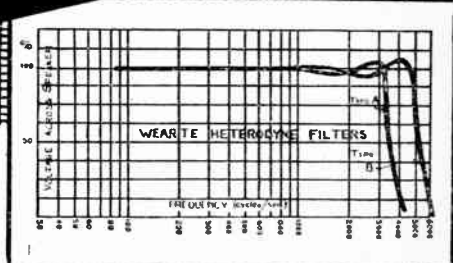
SPECIFIED FOR THE "MODERN D.C. THREE"
Above is illustrated a typical example of a Wearite Volume Control ganged with switch. This is similar to the Q.V.C. (5,000 ohms) Volume Control and 2 pole Switch (G.42) complete with strip and distance piece specified for the "Modern D.C. Three." Price complete 8/6.

Use the Wearite Screened H.F. Choke (H.F.P.) Price 3/6 in your "Modern D.C. Three."

WHY let monotonous heterodyning or "mush," etc., spoil your reception? And the more sensitive your set, greater is the need for this Wearite Heterodyne Filter. This Unit (made in two types) effectively cuts out such interference—it forms a definite barrier to heterodyne whistle. Type "A" cuts off at 3,500 cycles (for normal use) and "B" cuts off at 5,000 cycles (for the music critic). It fits any set. Write for special leaflet. Price for both types - - **10/6**



The graph shows the characteristics of the two types of Wearite Heterodyne Filters.



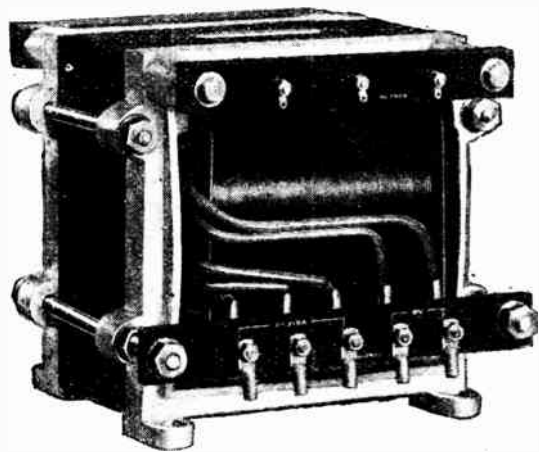
WEARITE

WRIGHT & WEAIRE Ltd.,
740, HIGH ROAD, TOTTENHAM, N.17

Tel.: Tottenham 384718/9.

2170

PARMEKO



TYPE KMT.

MAINS TRANSFORMERS

"PARMEKO" Transformers set a high standard both in design and manufacture. Throughout the range of types, which is extremely wide, will be noticed that robustness and finish which is characteristic of all our apparatus. As a Transformer is connected directly across the supply mains it must be a thoroughly sound electrical job or it will be a source of danger, special care is therefore taken with the insulation to ensure safety. The illustration shows a type KMT which has the following outputs:— 550-0-550 volts at 250 m.a., 4 volts C.T. 6 amps, 4 volts C.T. 2 amps, 4 volts C.T. 3 amps, 6 volts C.T. 4 amps, and 6 volts C.T. 4 amps.

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These speakers incorporate all the patented features which have made E.A.R.L. famous.

Set manufacturers and others who are interested are invited to write to us for further information.

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Load impedances to suit any of the following values:—
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Output Transformer with high permeability core and absolutely correct matching to valves.

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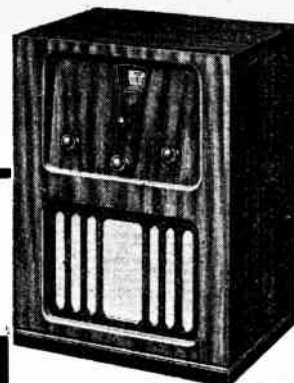
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carry a heavy moving
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RADIO RICHARDSON

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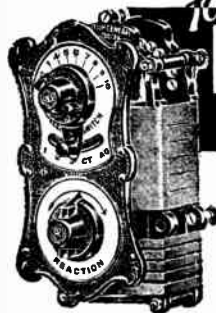
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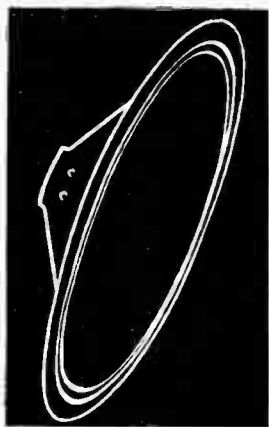
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THE IMPORTANCE OF CONE DESIGN



TECHNICAL TOPICS No. 1

THE material from which loud-speaker cones are made has a profound effect upon reproduction. Various grades of material are used in the production of moving-coil units ranging from that resembling very stiff cartridge paper to material which has a consistency like that of blotting paper. Speakers with a very stiff diaphragm usually have a marked resonance in the upper register resulting in a shrill response. To overcome this shrillness it has often been the practice to use the softer materials. But this, while removing the peak, has the effect of removing a good deal of the upper register also. The result is a somewhat "woolly" output. In the past, receiving sets have, themselves, compensated in a measure for this "woolliness" by reason of a relatively strong upper register. But even this compensation did not entirely remedy the defect. The cones used in Goodman speakers are moulded from a special composition which, while preserving the upper notes, considerably reduces the peak. The steps taken to clean up the remainder of the peak will be described in a later talk. The result is a response between 60 and 5000 cycles on which the fluctuation is so small as to be inaudible.

THIS talk is the first of a series on speaker technicalities and you are advised to cut each one out as it appears.

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- "RENOWN" Cabinet Speaker (Real walnut cabinet)... **42/-**

Modern receivers demand a speaker of the calibre of Goodman's in order to give of their very best.



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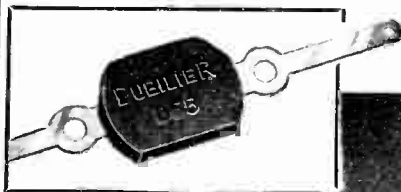
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"QUIESCENT" PUSH-PULL TWO

Yet another triumph for Dubilier! The "Wireless World" have chosen exclusively four Dubilier Resistances and three Dubilier Fixed Condensers for their latest circuit—the Quiescent Push Pull Two. Here is remarkable testimony to the overwhelming superiority of Dubilier Products. The reason for this unbiased choice is obvious—"The Wireless World" *knows* the merit of Dubilier, and knows that the quality of the Condensers and Resistances is indisputable. *Whenever* components of the highest efficiency are required—then Dubilier is the only choice.



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UNWANTED Present—Pye M.M. A.C. 3-valve; cost 17 guineas, genuine bargain, £7/10, complete.—23, Holborn St., Rochdale. [1535]

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PYE Twintriple 4-valve All-electric Portable; cost 28 guineas December, accept 14 guineas, 158, Broad Oak Rd., St. Helens. [1571]

QUIESCENT Push-pull; see particulars of our conversion kit, page 14.—Woods Radio, Holcombe Brook, near Bury, Lancs. [1570]

DEMONSTRATION Sets, speakers, etc., perfect condition, Marconi 5v. portable, 55, £5 10; Marconi 2v. all-electric, D.C., £4/10, complete; many others, list.—Wycombe Electrical Supplies, Ltd., 51, Oxford St., High Wycombe. [1533]

PHILIPS Super 5, all-mains, 23-guinea model, hardly used, perfect; £17/10.—D., 18, Gosselin Rd., Bognor, Herts. [1597]

MAJESTIC 7-valve Superhet.; cost £29, like £15.—27, Cawdor Crescent, Hanwell. [1596]

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TANTALUM for A.C. Chargers, H.T. and L.T.—Blackwell's Metallurgical Works, Ltd., Garston, Liverpool. [5346]

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VORTEXION Only Use Sankey Laminations, British Insulated Cables wire, and non-hygroscopic paper interlarding for 100% reliability and excellent regulation.

VORTEXION—30h, 50 m.a. chokes, 5/6; 20h, 120 m.a., 8/6; 15h, 350 m.a., excellent for rough D.C. shrouded; 15/-.
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VORTEXION—Transformers made to your specification.

VORTEXION—Brown and Salter, 182, The Broadway, Wimbledon. Tel.: Liberty 2814. [1321]

QUIESCENT Push-pull Two.

USE Seradex alternatives and save money.

SERADEN Meters, type N.F.1, 0.10 m.a., 5/11; type N.F.2, larger dial, 0.10 m.a., 7/11; postage 6d.; lists for stamp.

SERADEN Resistors, type M150, 1 meg., 5,000 ohms, £ 20,000 ohms, 75,000 ohms, 150,000 ohms, as specified; 8/- each; set post free.

SERADEN Non-inductive Condensers for Your Band 3 Pass Unit, 400v. D.C. working, 0.01, 0.04, 0.05 mfd. are stock sizes; others to order; 8d. each; postage 2d.

SERADEN Radio Equipment is Entirely British Made; lists for stamp.—Pepper, 48, Wake Green Rd., Birmingham. [1597]

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Chargers and Eliminators.—Contd.

LEADS Readers May Obtain all Bryce Transformers and Peak Condensers from R. W. Money; "Wireless World" sets constructed, overhauled, ganged, and hotted up; see window display.—23, Wade Lane, Leeds. Tel.: 23537.

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RADIO Cabinets Made to Your Own Design; estimates free.—Crabtree, "Pistis" Hill, Kirkheaton, Huddersfield. [1439]

CABINETS for Radiograms, mains or battery sets, loud speakers, gramophones, etc., endless variety, lowest prices (no catalogues).

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RADIOGRAM Cabinet, seasoned oak, cost £7/10, unmarked, nearly new; bargain, £2.—Lomax, Alford, Lincs. [1553]

DIRECT Reading Station Finder.—Get the Myers-Hunt Precision cabinet as specified; price 7/6, carriage paid, cash or c.o.d.—Only obtainable from Myers-Hunt Cabinet Co., 7, Austin St., London, E.2. [1558]

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50 Dual Range Coils, panel fixing, with switch, guaranteed; 4/3, post free, with circuits.—Decas, 12, Highland Rd., S.E.19. [1581]

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BAYLISS B Converter, 220 D.C., 230 A.C., 50 cycles, auto transformer, new; nearest £7/10.—1,388, Coventry Rd., Yardley, Birmingham. [1526]

A MATEUR Giving Up.—500-watt converter, 220v. D.C. to 50 cyc. A.C. £5 10; M-L generator, 600v. and 10v. 120 watts, £3 10; M-L anode converter, 6v. to 150v., 25/-; Silvertown Morse recorder and high speed relay unit, £2/15; Everett Edgcombe portable potentiometer (cost £40), £6/10; Elliot galvanometer, 12/6; B.T.H. milliammeter, 0.50, 10/-; Lewcos 3-valve chassis, 17/6.—H. H. S. Harris, 80, Wardour St., W.1. Gerrard 2504. [1562]

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HIGH Quality Studio Microphone and Transformer, home recording, public address; demonstration offered.—Box 5790, c/o The Wireless World. [1495]

GARRARD D.S. motor, complete B.T.H. pick-up, Senior, perfect; 25/-.—Levett, 22, Park Ave., Worthing. [1580]

NOVOTONE Compensator, £5 model; 30/- for quick sale.—Coombes, Wayside, East Budleigh, Devon. [1547]

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B.T.H. R.K. Moving Coil Speakers, guaranteed new, unused, manufacturers' surplus, original price 6 guineas.

HIGHLY Sensitive and Wonderful Tone Response; will handle up to 10 watts output; available for 6v., 100v., 200v., 30/-; also A.C. models, £2/10.

CARRIAGE Paid, c.o.d., or cash with order; send for list of other unused bargains.—Seekamp, 46, Farringdon St., London, E.C.4. [1425]

30/-!!—B.T.H. R.K. moving coil speakers, 6in. cone, new and unused, guaranteed; these speakers are type as used in cinema sound equipment; weight 30lb., and are vastly superior to cheap speakers now on the market, 100 volts, 150 volts, and 200 volts D.C.

27/6!!—6v. D.C. speaker, as above; £2/7/6, speaker as above, for 100-250 A.C.

£2/5!!—Unused Primustatic, £3/3 model, with Ferranti choke; 16/5, Ekco pick-ups, complete with volume control and recording attachment, brand new and perfect; carriage paid, cash with order, or c.o.d.—Ward, 12, Tredegar Rd., Bow, E.3. [1600]

GENUINE Bargains in 1933 Speakers, manufacturers' forced sale.—D.C. speakers, 2,000, 2,500, 6,500 ohms, listed 25/-, our price 16/5; matched pairs, 34/-; chrome P.M.s., listed 32/6, 22/-; matched, 26/-; large Darwin Cobalt Magnet speaker, high flux density, 7,400 lines per square cent, listed 39/6, 27/6; matched, 57/6; P.M.s. matched with mains energised; all matched pairs mounted and wired; speakers are complete with output transformers, power pentode, or push-pull; state requirements; e.w.o., carriage free, c.o.d. 1/- extra.—Castle Radio, 14, Castle Rd., London, N.W.1. [1595]

M.C. Fields Supplied and Rewound, all voltages; 7/6.—Platt, 10a, Canonbury Park North, N.5. [1582]

FERRANTI M1, latest, £4/10; offers.—128, Cannon Hill Lane, Merton Park, S.W. [1590]

PERMANENT Magnet Lamphorn 7in. Moving Coil Speakers, complete with multi ratio transformer, power or pentode, unused and perfect; 19/6, carriage paid; 3 days' trial against cash.—Glover, Ltd., 68, Victoria St., S.W.1. [1577]

WHARFEDALE Moving Coil Speakers (P.M.), unequaled for natural reproduction; now ready: P.P. Bronze Wharfedale, for quickest push-pull, 35/- complete, or 39/6 in Rexine cabinet, very sensitive, yet will take up to 4.5 watts; immediate delivery, 3 days' approval; 12 months' guarantee. Wharfedale Wireless Works, 92-96, Leeds Rd., Bradford. [1565]

B.T.H. Senior R.K. Moving Coil Speaker, mounted special solid oak case, 100-200-volt A.C., complete with valve rectifier, condenser smoothed; £5/10.—Box 5843, c/o The Wireless World. [1549]

SIX Epoch Super Cinema Moving Coil Loud Speakers, 200v. D.C. field, new condition; £5/5 each.

VOIGHT Cinema Loud Speaker, 200v. D.C. field, less horn; £3/10.—H. Franks, 42a, St. George's St., Shadwell, London, E.1. Phone: Royal 8546. [1559]

PICTURE RECEIVER APPARATUS.

TELEVISOR, Baird, complete parts, mounted for use, 240 A.C.; £5, or offer.—Phone: Perivale 1956; or King, 13, Park Drive, Acton, W.3. [1575]

FOR EVERY SET—there's a PILOT AUTHOR KIT CASH—C.O.D.—or H.P.

QUIESCENT PUSH PULL TWO KIT "A"

Author's Kit of specified parts, including Ready drilled Panel and assembled Baseboard, but less valves, cabinet, meter and speaker.

CASH or C.O.D. Carriage Paid. £3 - 9 - 0 or 12 monthly payments of 6/4

- 1 PETO-SCOTT Polished Oak Plywood Panel, ready drilled 2 6
1 PETO-SCOTT Baseboard, ready assembled, with battens 1 8
1 FORMO Slow-motion Variable Condenser, .0005 mfd., Type 100 6 0
1 SOUND-SALES Intervalve L.F. Transformer 9:1 15 0
1 COLVERN Dualrange Coil RM2S 8 6
1 BENJAMIN On-Off Switch, with clips (Type B) 1 0
3 JUNIT 5 pin Valveholders 2 6
1 ROTOROM Potentiometer, 25,000 ohms 3 6
1 GRIPSO G.B. Battery Clips 3 9
1 TELSEN 2-point Switch 1 3
1 MICHAEL Bincular Junior H.F. Choke 4 0
1 POLAR "Compaq" Reaction Condenser, .0003 mfd. 2 6
2 BELLING-LEE Twin marked socket strips 1 8
1 DUBILIER Grid Leak, 1 megohm 1 0
4 DUBILIER Metallised resistances; 1 each, 5,000 ohms, 20,000 ohms, 75,000 ohms and 150,000 ohms 4 0
3 DUBILIER Condensers 1.005 (Type 670), 1.0001 and 1.0003 (Type 665) 2 6
2 PEAK Condensers 1 1 mfd., 1 2 mfd., 250 V.D.C. working 5 9
3 BELLING-LEE Bowspring marked Wander Plugs 4 1
1 BELLING-LEE 30 in. 6-way battery cable 2 6
Tinned Copper Wire, screws, flex, etc. 2 6

KIT "A," CASH or C.O.D. £3 9 0 ACCESSORIES.

- 1 Sifam Moving Iron Milliammeter, E.66 - 10 0
1 Celestion Q.P.T. 19A Loudspeaker with Transformer £2 10 0

SPECIFY IF PANEL IS REQUIRED DRILLED TO TAKE METER WHEN ORDERING.

KIT "B" As Kit "A," but with Valves less Cabinet, Meter and Speaker. CASH or C.O.D. Carriage Paid. £5 - 11 - 0 or 12 monthly payments of 10/3

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MODERN D.C. 3 KIT "A" Author's Complete Kit of specified components with Ready Drilled and Assembled Plymax Baseboard, but excluding Valves and Cabinet. CASH or C.O.D. Carriage Paid. £9-15-0 or 12 monthly payments of 18/-

D.C. MONODIAL KIT "A" Author's Kit includes all components for Set only, as specified, with Ready Drilled polished Oak Panel Ready Assembled and Drilled Set Chassis, screws, wire, sleeving, but EXCLUDING Eliminator Components, Valves and Cabinet. CASH or C.O.D. Carriage Paid. £9-13-9 or 12 monthly payments of 17/9

To PETO-SCOTT CO. LTD. 77 City Road, E.C.1. Dear Sirs: Please send me by return CASH/C.O.D./H.P.

Name Address W.W. 20, 1, 33. For which I enclose £. West End Showrooms: 62, High Holborn, W.C.1.

VALVES.

GUARANTEED Valves, as new, all latest types; Mullard P.M.1 H.F.6, Mazda H.L.210s, H.L.2 metallised, Osram H.L.2s, 3/9; Mullard P.M.20s, P.M.2A, Coesor 215Ps, Osram L.P.2s, Mazda P.200s, 4/9. MULLARD S4V.B. metallised, 8/9; P.M.24s, 104Vs, 7/6; 354Vs, 484Vs, 7/-; Osram M.S.4Bs, D.S.Bs, 10/-; V.M.S.4 12/-; M.H.4, 7/-; D.H.s, 7/-. MAZDA A.C./H.L.s, A.C./2H.L.s, D.C./3H.L.s, 7/-; A.C./P.E.N.s, 11/6; A.C./Ps, 7/6; U.U.60/250s, 8/3; A.C./S2s, 8/9. COSSOR M.S.G./H.A.s, 8/-; M.V.S.G.s, 12/-; 41M.H.L.s, 6/9; 620Ts, 17/6; 660Ts, 55/-; 680Ts, 12/6; 660S.U., 33/-. OSRAM D.O.60s, 60/-; other types in stock; emission of all valves guaranteed. ALL Valves Boxed, not wrapped.—R. Newman (First Floor), 309, Roman Rd., E.3. [1295]

THE Following Valves are Guaranteed as New, and any valve differing from the makers' characteristics will be exchanged; all latest types.

A.C./Pens., A.C.S.1 V.M.s, M.P.T.4s, D.C.2/Pens., D.C.2S.G./V.M.s, 11/-; M.S.4s, M.S.4B.s, A.C.S.G.s, S.4V.A.s, D.S.B.s, A.C.S./2s, 9/6. M.L.4s, A.C.P.s, 41M.P.s, P.M.24s, 8/-; A.C.H.L.s, A.C.2/H.L.s, 354V.s, 41M.H.L.s, U.10s, U.U.60/250s, M.H.4s, 7/6; P.T.2s, V.S.2s, 215S.G.s, 9/-; D.C.3H.L.s, 8/-.

ALL Types of Brand New American Valves in Stock: 247s, 235s, 224s, 236s, 237s, 12/-; 227s, 226s, 280s, 245s, 232s, 10/6.

U.X.250s, 7 watts output, 16/-; 282M. mercury vapour rectifiers, 11/-; carriage paid, cash with order or c.o.d.

FOR Quickest Delivery Send Telegraph Money Order.—Ward, 12, Tredegar Rd., Bow, E.3. [1601]

VALVES, as new, emission guaranteed.—Mazda A.C./Pen., 12/-; A.C./S.G., 9/6; A.C./H.L., 8/-; U.U.120/350, 9/-; Mullard P.M.1H.L., P.M.1H.F., P.M.20X, P.M.1H.F., P.M.1A., 5/-; P.M.2A., 5/6.—J. F. Anderson, 35, Lansdowne Rd., Walthamstow, E.17. [1578]

COMPONENTS, ETC., FOR SALE.

WESTON Moving Coil Milliammeters (301), 0.15 up-wards, 22/6; Turner ditto, 17/6; Turner thermo couple ammeters, 0-1.5, 25/-; 3-range moving coil meters, 0-3 m.a., 6 and 120 volts, 22/6; electrostatic and moving coil voltmeters, 0-2,000, 32/6; moving coil milliammeters, 0-10 upwards, 10/6; alterations and repairs of every description.—The Victoria Electrical Co., 47, High St., Battersea, S.W.11. [0355]

D.C. PEN, 10/-; D.C./H.L. 6/-; D.S., new, 13/-; Pye 32h., 7/-; 2 Hydra, 2 mfd., 2,000v., 15/-.—Martin, Popes Lane, Colchester. [1537]

KILBURN SURPLUS STORES Offer Wireless Bargains, manufacturers' stock.—Ekco pick-ups, with volume control; 16/6.

AMPLION Moving Coil Speakers, 100-250 D.C., not resistance 2,000 ohms, with speech transformer; 14/-.

MAINS Transformers, 200-250 input, outputs 250-0-250 60 m.a., 4 volt 3 amp., 4 volt 1 amp., 11/-; brand new 5-valve portables, complete, 55/-.

PHILIPS 2-valve All-electric; list £12/10, 79/6, as new.

ALL Types Mains Valves in Stock; number P.M. moving coil speakers, all makes, at surplus prices; special bargains to callers; call or write.—Kilburn Surplus Stores, 19, High Rd., Kilburn, N.W.6. Phone: Maida Vale 2436. [1538]

FORMO Triple Gang Band Pass Unit, as new; 35/-.—Capt. Hughes, Royal Signals, Tidworth. [1539]

FERRANTI O.P.M.1, 10/6; Ferranti A.F.5, 12/6; Marconiophone eliminator, with new valve, 200v. at 50 m.a., 4v. up to 5 amps., 6v. at 1/2 amp., and 0.8 35/-; another, but 200v. 50 m.a., only 30/-.—Wreford, Harold Wood, Essex, Ingrebourne 10. [1540]

TRANSFORMER, 4 volts, 3 amps., 4/-; T.C.C. electrolytic, 2,000 mfd. condenser, 6/6; valves, in good condition, A.C./2S, 8/-, A.C./H.L. 6/-, A.C./2H.L. 6/6, P.P.5/400 12/-.—Tomlinson, Deansgrove, Haslingden, Lancs. [1585]

FERRANTI Components.—Milliammeters 0-5, 0-50, 25/- each; trickle charger, T.C.1. 35/-; safety box, 12/6; R.F.1, R.F.2, and secret, 10/-; A.F.7, 15/-; O.P.3 (C), 12/6; Regentone A.C. eliminator, W.L.C., 37/6; Orgola coils, screen, and 2-gang condenser, 15/-; list of valves and other components on application.—Hornie, 2, Campden Hill Gardens, W.8. [1579]

EXIDE H.T. I.T. Charger, 200-240v. A.C., £2; Exide 180v. W.H. accumulators, 30/-; P.M.22, 7/6; Marconi universal output transformer, 10/-.—Potts, Ebbesley Mount, Albert Rd., Hyde, Cheshire. [1574]

MAGNAVON Compensated Speakers, 48/-; 500-0-500, 150 m.a., 5 L.T. windings, screened primary, 30/-; filament transformers, 7/-; U.U. 120-500, 11/6; Parafelis, 4/-; all perfect; approval.—Oglesby, Excise, Nottingham. [1564]

MULLARD Mains Unit, 210v., 25/-; Celestion speaker, £20; both perfect.—Browning, "Hemingford," London Rd., Cheam. [1557]

SIX Mihalay Pullthrough Soundheads, complete with lenses, prism, etc.; £3/10 each.

SIX G.E.C. Smoothing Equipments, containing 20H, 180 m.a. and 50H, 35 m.a. chokes, four 3 mfd. and two 1 mfd. condensers, tested 1,500v.; 27/6 each.

TWO Marconi P.A.11 Valve D.C. Amplifiers, £5 each; Weston 0-21, ampimeters, model 301, 15/- each; ditto, 0-20 amps, model 506, 10/- each.

THREE Igranite Output Amplifiers, all mains A.C.; breaking up price, £3 each.

TO Callers.—Large quantity of amplifying and dismantled talkie gear to be cleared at knock-out prices.

TWO Traveltone Double Push-pull A.C. Power Amplifiers, 110v. A.C. output, 10 watts, undistorted, with eight new R.C.A. valves; £10 each.

H. FRANKS, 42a, St. George's St., Shadwell, London, E.1. Phone: Royal 8546. [1560]



SUITABLE FOR BATTERY OR A.C. RECEIVERS!

By means of an alternative output switch, two H.T. outputs are obtainable with the Heayberd MW.1 Mains Unit. With switch at minimum, 30 ma. at 150v. is obtained—suitable for Battery sets. The maximum position gives 50 ma. at 200v. for A.C. sets. In addition a L.T. supply of 4v. 5 amps. A.C. is provided. Thus you may use this Mains Unit to run your present battery receiver. When you desire to convert your set to All Mains, you have sufficient H.T. and L.T. for a receiver using up to five A.C. valves. Points from the Heayberd MW.1 specification:

1. Heayberd Transformer and Double Chokes.
2. Heayberd 16 mf. Block Condenser (300v. Test).
3. Westinghouse Metal Rectifier.
4. S.G. Tapping continuously variable, using a wire-wound potentiometer.
5. Safety fuse beneath unit—can be withdrawn without removing the case.
6. Insulated screw-on terminals.
7. Supplied, with flex and adapter, complete in neat metal case. Recessed Control Panel. Guaranteed Three Years.

Tappings: 40/120v. VAR.S.G., 175 and 200v. Fixed (Max.).

Price .. 127/6 .. Complete.

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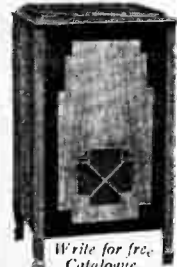
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Model No. 12. Modern design Radio Gram Cabinet. Finished beautifully figured walnut, 38 in. high, 21 in. wide, 17 in. deep. Height between top of board and baseboard 12 in. Height for pickup 14 in. Opening at back. Top panel above fret cut to your specification—inner pattern must be forwarded. Handle included. Hand polished. Takes any type of gramophone motor, electric or spring model. Accommodates baseboard 18 in. x 11 in. or smaller. Hole in back cut to your specification.

Write for free Catalogue.

PRICE £3.10.0

STENIBAC LTD., Dep. W.W. 203, Essex Rd., Islington London, N.1. Phone: Clissold 8056.



EVERY FRIDAY FOURPENCE

W.W.

Components, etc., for Sale.—Contd.

PREMIER SUPPLY STORES Offer the Following Brand New Goods at a Fraction of the Original Price; all goods guaranteed perfect; carriage paid over 5/-, under 5/- postage 6d. extra. (Ireland carriage forward.)

PREMIER.—Mains transformers, all guaranteed, terminal connections, 200-250 input 40-100 cycles, output 135 volts at 80 m.a. for voltage doubling, 8/6; 4 volts 4 amps. C.T. low tension, 2/- extra; Westinghouse rectifier not above, 8/6.

MAINS Transformers, primary 200-240 volts, secondary 350-0 350 volts at 90 milliamps, 4 volts at 3 amps. (C.T.), 4 volts at 2 amps. (C.T.), 12/6.

AMPLION Transformers, input 100-250 volts, output 350+350 volts, 120 milliamps, 4 volts at 5 amps, 4 volts at 2 amps, 6 volts at 1 amp., all centre tapped; 17/6.

MAINS Transformers, 12 volts, 1 amp., 7/6; 9 volts 1 amp., 7/6; 4 volts 4 amps., and 4 volts 2 amps., 8/6; 14 volts 1 amp., 12/6; 4 volts 3 amps., 7/6; 4 volts 5 amps., 8/6; 6 volts 2 amps., 7/6; 7½ volts 2½ amps., 7/6; 10 volts 3 amps., 10/-.

H.T. Transformer, 230 volts 200 milliamps, with 4 volts 4 amps. (C.T.) winding; 17/6 (with screened primary).

H.T. Transformer, 10/-; with 4 volts 3.5 amps. low tension C.T., 15/-; complete with Westinghouse H.F. rectifier and L.T. winding, 27/6 (with screened primary).

MAINS Transformers, output 250-0-250 volts at 60 milliamps, 4 volts at 1 amp., 4 volts at 2 amps., 4 volts 3-4 amps., all centre tapped; 15/- (with screened primary).

MULTI-RATIO Output Transformers, 15 different ratios; 7/6.

PREMIER Chokes, 40 milliamps, 25 henries, 4/-; 65 milliamps, 30 henries, 6/-; 150 milliamps 30 henries, 13/6; Pentode output chokes, tapped, 7/6.

PYE Chokes, 110 henries, 4/-; 20 and 32 henries, 4/6

SMOOTHING Chokes for Series Connected Filaments from D.C. mains, carry 1 amp.; 7/6.

KOLSTER-BRANDES 80 milliamps, 30-henry Chokes, tapped, 1/3 and 2/3; rds., 7/6; McMichael Binocular H.F. chokes, 2/-.

T.C.C. Condensers 2 mfd., 750 volts working, 4/-; 4 mfd., 750 volts working, 6/-; 4 mfd., 400 volts working, 4/-; 4 mfd., Electrolytic, 440 volts working, 4/-; 8 mfd., 4/6.

T.C.C. Block Condensers, 250 volts working, 3+2+2+1 +1 mfd., 5/6; 375 volts working, 1+1+0.1-0.1+0.1-0.1+0.1 mfd., 2/-; 375 volts working, 6-4+2+2-2 mfd., 10/-; 250 volts working, 2+2+2+2+1 mfd., 5/6.

WESTERN ELECTRIC, 0.01+0.01 mfd., 400 volts working, 1/-; blocks 4+2+2+2+1+0.09 mfd., 400 volts working, 6/-; 10 mfd., 400 volts working, 5/-.

FERRANTI Condenser Blocks, 300 volts working, 4+4+2+2 mfd., 10/-; T.C.C. 0.1 mfd. non-inductive condensers, 9d.

VARIABLE Condensers, Polar 3-gang tube type, fully screened, split end vanes and disc drive, 0.0005, 12/6.

ORNUD All-brass 2-gang Condensers, semi shielded, 0.0005, 5/-; Ornuud or Polar all-brass 0.0005 slow-motion condensers, with knob and dial, 3/6; Polar 0.0005 and 0.00035 Bakelite Dielectric condensers, with knob, 1/-.

PREMIER Eliminators, input 200-250 A.C., 40-100 cycles, output 250 volts at 60 milliamps, 80 volt and 120 volt taps, incorporating Westinghouse rectifier, 42/6; with 4 volts 4 amps. L.T., 7/6 extra.

PREMIER Eliminators, input 200-250 A.C., output 80, 100, and 120 volts at 20 milliamps, incorporating Westinghouse rectifier, 27/6; with L.T. charger incorporated, 35/-.

D.C. Eliminators, output 60, 90 and 120 volts, at 120 milliamps, 15/-; larger model, output 80, 120 and 200 volts, at 50 milliamps, 25/-.

ACCUMULATOR Chargers for A.C. Mains, input 100-250 volts, 1-2 amp., 17/6; 1 amp., 22/6.

PREMIER Eliminators, input 200-250 A.C., output 150 volts at 30 milliamps, 2 lower taps, incorporating Westinghouse rectifier, 37/6, with 4-volt 3-4 amp. L.T.

AMPLION Moving Coil Speakers, type F.M. 644, dual fields, 2,500 and 5,000 ohms (100 or 200 volts), with multi-ratio output transformer; 15/-.

B.T.H., R.K. Minor, moving coil speaker, 2,500 ohm field; 15/-, with multi-ratio transformer.

KOLSTER-BRANDES Moving Coil, 4-6 volt field, with multi-ratio output transformer; 10/-.

R. Auditorium Speaker, 6 volt model, 25/-; A.C. model, 42, with output transformers.

S. G. BROWN Permanent Magnet Speakers, giant 43, model, 12in. cone, high resistance speech coil; listed 43, our price 42.

AMPLION Permanent Magnet Moving Coil Speakers, 30 type M.C.22, complete with multi-ratio transformer; 30/-.

SINCLAIR Permanent Magnet Moving Coil Speaker, with multi-ratio transformer; 18/6.

15,000 Ohm Wire Wound Potentiometers, 1/6; Central potentiometer volume controls, 50,000 ohms, 2/-; Colvestals, logarithmically wound, potentiometers, 6,000 ohms, 1/9.

WIRE Wound Resistances, any value, carry 20 m.a., 2/-; 40 m.a., 3/-; 60 m.a., 4/-.

WIRE Wound 5-watt Resistances, 3,500, 4,000, 7,500, 8,500, 9,000, and 10,000 ohms; 1/- each.

EDISON BELL Wire Wound Clip-in Resistances, 10,000, 60,000, 70,000, 80,000, and 90,000 ohms; 1/3 each.

CHAROSTAT Wire Wound Potentiometers, 50,000 ohms; 2/6.

HEAVY Duty Variable Resistances (slider type), wound on porcelain, 200 ohms, 1 amp., 2/6; 350 ohms 1 amp., 2/6; 2,000 ohms ½ amp., 5/-; 500 ohms ½ amp., 5/-; 50 ohms 2 amps., 2/6; B.T.H. electric gramophone motors, induction type, 100-250 volts A.C., 30/- complete; double spring gramophone motors, complete 15/-, single spring 9/-.

(This advertisement continued on next page.)

BURTON FOUR POSITION ROTARY SWITCH

(Patents pending.)



A component which meets most switching requirements of modern Receivers. Will short three coils for long or short waves, operate gram pick-up, and 'On' and 'Off' at mains voltage. Maintains firm uniform pressure between surfaces. Ask your dealer for it.

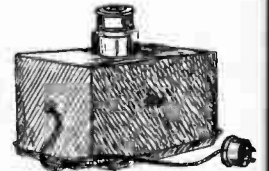
6/- EACH

C. F. & H. BURTON
PROGRESS WORKS, WALSALL, ENG.

TRIX Noise Reducer

Made to C.P.O. Recommendations and containing a properly designed H.F. choke and condenser filter. Can be used on A.C. or D.C. mains.

- Type A. Connects between mains and set - - - 25/-
 - Type B. Connects to mains house circuit (2 amp) - 25/-
 - Type C. Ditto (15 amp) - - - 35/-
- Full details on request.



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Insulated Socket with Terminal 2d.
"Master" Plug 1d.
COMPLETE 4d

CLIX Chassis Mounting VALVEHOLDER

Sturdily built. Turned Resilient sockets guarantee full-surface contact without fear of collapse with any valve pin—solid or otherwise. Standardised by 90% British Set manufacturers.

4-pin Model 8d. 5-pin Model 9d.



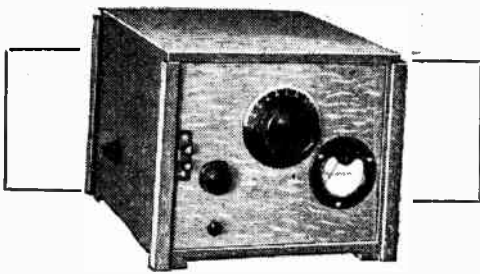
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CHEAPEST PERFECT CONTACT

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WE SATISFY —
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THEY SPECIFY —
This "Clarion" Cabinet



The Cabinet for your
"QUIESCENT PUSH-PULL TWO"

Oak Cabinet complete with built up baseboard and Oak panel ready drilled to specification.

PRICE 12/6 Carriage Paid, or C.O.D.

Have you had our 1933 Catalogue "W"? 16 Pages. Fully illustrated. FREE.

CLARION
RADIO FURNITURE
28-38, MANSFORD ST., LONDON, E.2

Components, etc., for Sale.—Contd.

(This advertisement continued from previous page.)

WESTINGHOUSE Rectifiers, 120 volts at 20 m.a., 6/6; 180 volts at 30 m.a., 8/6; 8 volts at 0.5 amp., 6/6.

AMPLION Pick-up, with arm and volume control; 18/6.

B.T.H. Gramophone Motors, Universal A.C. and D.C.; 55/-.

ALL the Following Lines 6d. Each, or 5/- dozen assorted: Trimming condensers: Mullard half-watt resistances, 60,000 and 16,000 ohms; vacuum resistances, 15,000 and 10,000 ohms; shielded S.G. or Pentode leads; Dubilier 0.01 condensers; 2 meg., 1 meg., 1/4 meg. metalised resistances; 2ft. lengths of screened wire; 5-pin valve holders; 4-pin valve holders; any size grid leaks and condensers; fuse bulb with holder; Crabtree stunk 5-amp. switches.

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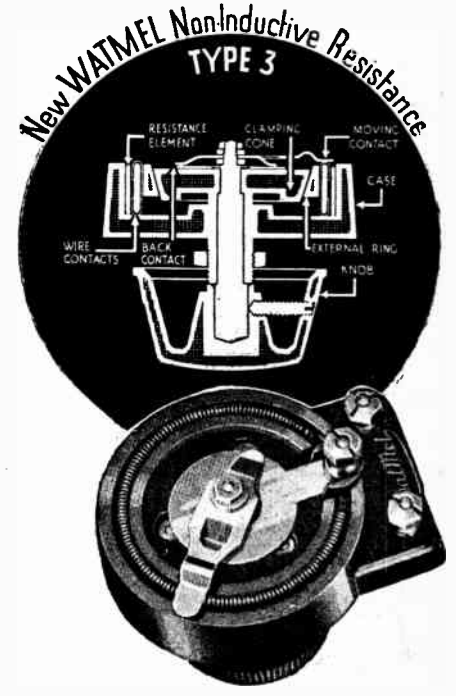
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FERRANTI Three Range 0-10, 0-50, 0-250 Voltmeter, 0-1.5, 0-5, 0-50 milliammeter; 28/- each.—51, Colindale Lane, N.W.9. [1555]

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IGRANIC Mains Transformers, 110/250v. input, 250v. 75 m.a., 4v. 1 amp., 12/-; 460v. 2 amp., 7.5. 8v., 15v.; to clear at 17/6.

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R. [1569]

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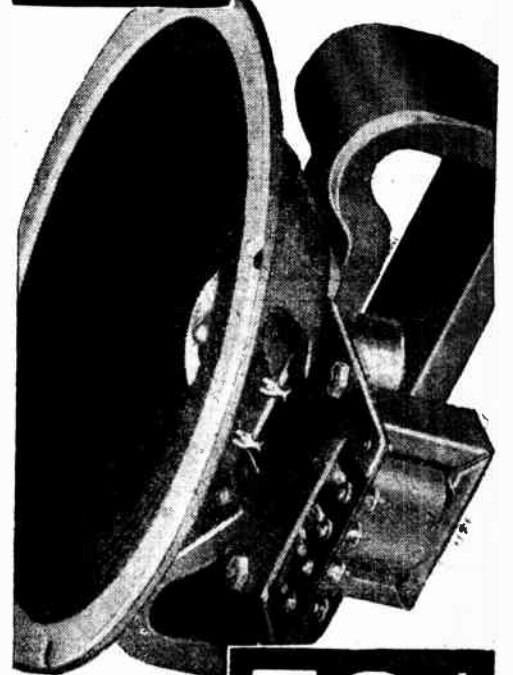
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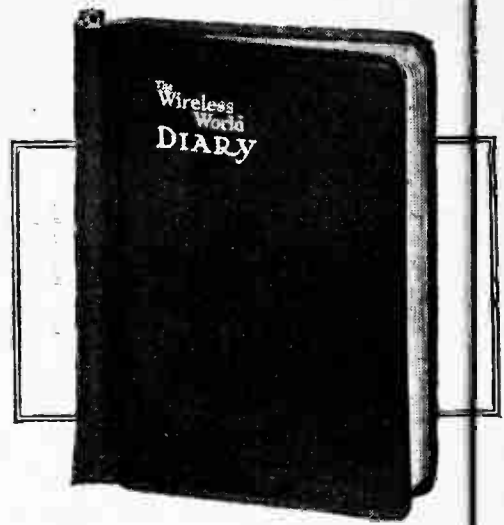
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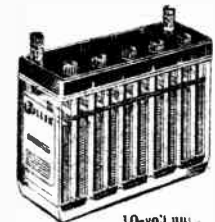
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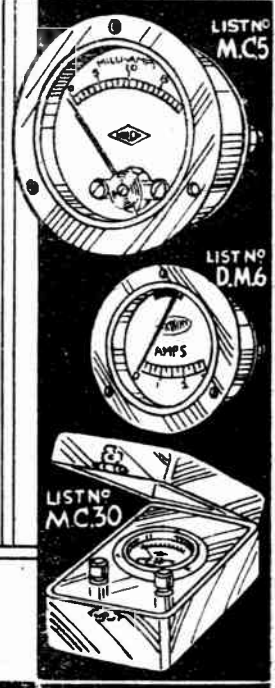
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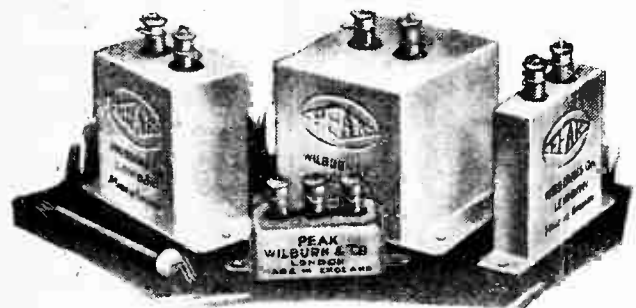
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1 "	2 8	4 "	12 6
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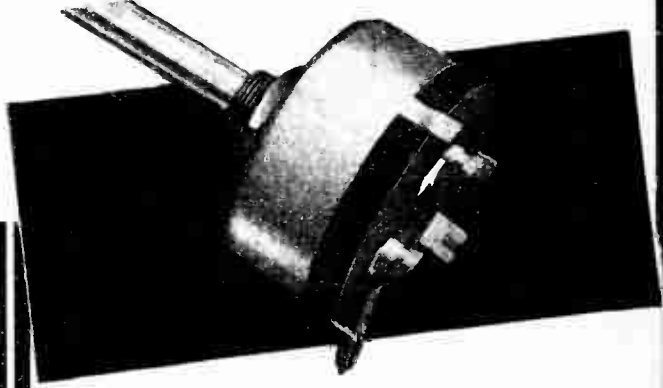
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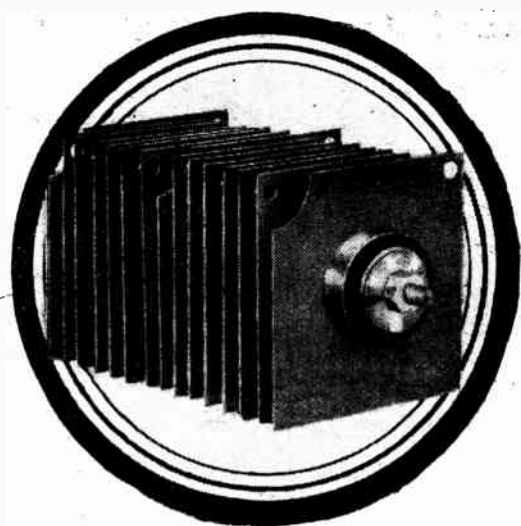
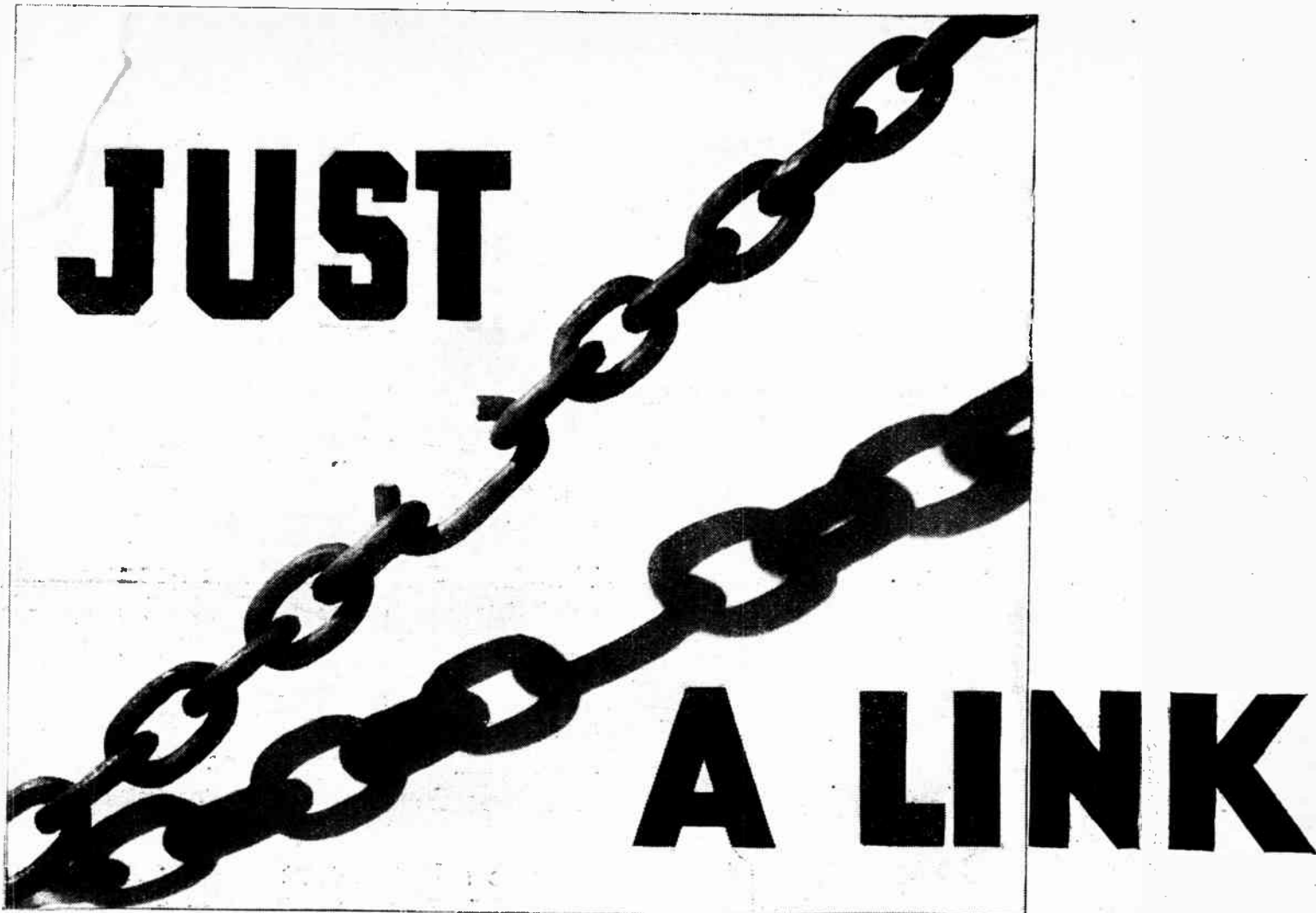


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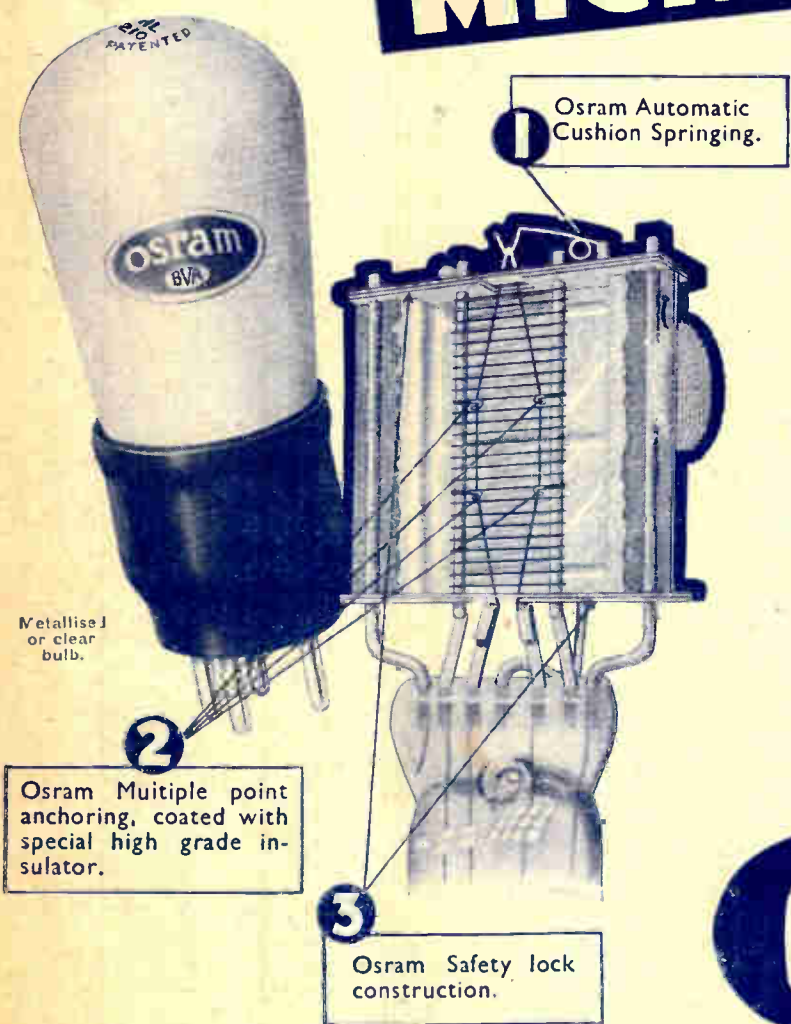
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Filament volts 2.0.
 Filament current 0.1 amp.
 Amplification Factor 24.
 Impedance 20,000 ohms.
 Mutual Conductance 1.2 ma/volt.
 Anode volts 150 max.
 Price 7/-

Osram

2 VOLT BATTERY

Valves

MADE IN ENGLAND
 SOLD BY ALL WIRELESS DEALERS

FOR EXTRA QUALITY
 WITHOUT EXTRA COST

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The Wireless World

THE PRACTICAL RADIO JOURNAL
with

Complete Foreign Programmes

Friday, January 27th, 1933.

FOR ALL-MAINS RECEIVERS COLVERN



STRIP RESISTANCE
WIRE WOUND

Compact wire-wound resistances, rating 5 watts, meeting all the requirements of modern all-mains receivers. Resistances up to 50,000 ohms.

Prices from 1/9 to 2/3 each.

COLVERN LIMITED, MAWNEYS ROAD, ROMFORD.

All your

H.T. during
1933
for

1/-

Running costs of the average 3-valve set are 1/- annually when it is operated by an Ekco Radio Power Unit. Write for full details.

E. K. Cole, Ltd., Dept. W., Ekco Works, Southend-on-Sea.



POWER UNITS

**A TUNED
INDUCTANCE NEEDS A**



**A GOOD
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WILKINS & WRIGHT Ltd., UTILITY WORKS, HOLYHEAD RD., BIRMINGHAM

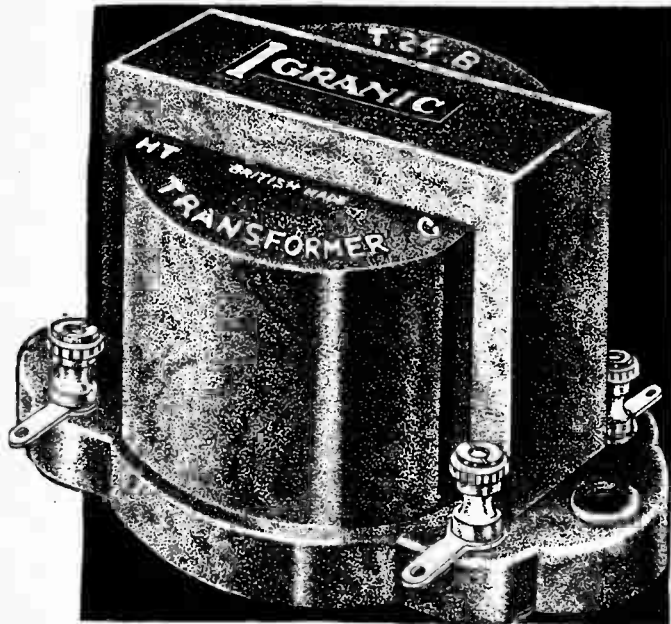
WHEN YOU BUY YOUR PARTS
for the
ALL-WAVE MONODIAL
—here are the SPECIFIED Condensers

1	Fixed Condenser 0.01 mfd. mica T.C.C. No. 34	s. d.	3 0
3	Fixed Condensers 0.001 mfd. mica T.C.C. No. 34	each	1 10
1	Fixed Condenser 0.001 mfd. mica T.C.C. Type "M"	each	1 4
2	Fixed Condensers 0.0001 mfd. mica T.C.C. No. 34	each	1 6
7	Fixed Condensers 0.1 mfd. non-inductive 400 v. D.C. test T.C.C. No. 50	each	1 9
2	Fixed Condensers 1 mfd. non-inductive 400 v. D.C. test T.C.C. No. 50	each	2 10
1	Fixed Condenser 2 mfd. non-inductive 400 v. D.C. test T.C.C. No. 59	each	3 10

● Hand your
dealer this
List

T.C.C.
ALL-BRITISH
CONDENSERS

2242



"I do not know what the life of a transformer is supposed to be, but this one has been in constant use for 7 years and has given about 10,000 hours' actual performance and is still going strong."
 J. A. L., Liverpool. Extract from letter.

T24B TRANSFORMER

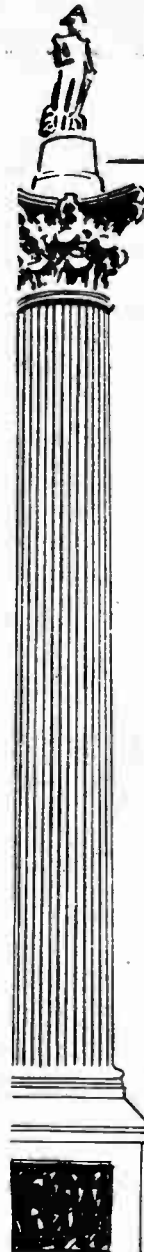
Igranic, with their long experience of wireless construction, have perfected a general purpose transformer at a reasonable price — you can be certain that it is the best of its kind. The Igranic T24B Transformer reproduces over the whole scale of musical frequencies. Ratios 3 — 1 and 5 — 1. Price 5/6.

Write to-day for fully illustrated Catalogue No. U345 of complete new range of Igranic Quality Components.

Igranic Electric Co. Ltd.,
 149, Queen Victoria Street, London, E.C.4.

IGRANIC COMPONENTS WILL BE THE MAKING OF YOUR SET

CVS—50



1805 A.D.

"England expects every man *this* day . . . !"

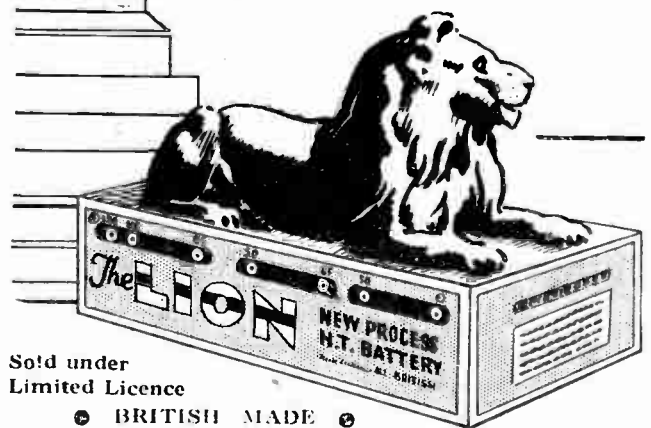
1933

You can expect
 The **LION**
 H·T·BATTERY
 to do its duty
every day

and besides giving you efficient service, and giving your Set greater and more lasting power, the Lion H.T. Battery COSTS LESS! It is made in one of the largest factories in Gr. Britain devoted exclusively to battery manufacture. It is made by men who know what you want, and who know how to produce it at the price you want to pay. It is the Battery with the lowest internal resistance.

● LOOK AT THE PRICES!

60v. H.T. 4/6 100v. H.T. 7/-
 120v. H.T. 9/- 9v. G.B. 10d.
 4½v. Pocket Lamp Battery 4½d.



Sold under Limited Licence

● BRITISH MADE ●

YOUR DEALER CAN SUPPLY

Advt. of VINCES DRY BATTERIES Ltd. Lion Works
 Garford Street, London, E.14. Phone EAST 1902.



Before choosing your Components write for the new series of leaflets (Ref. B.), describing the Lewcos world-famous Radio Components. They are indispensable to all constructors aiming at the most advanced radio practice.

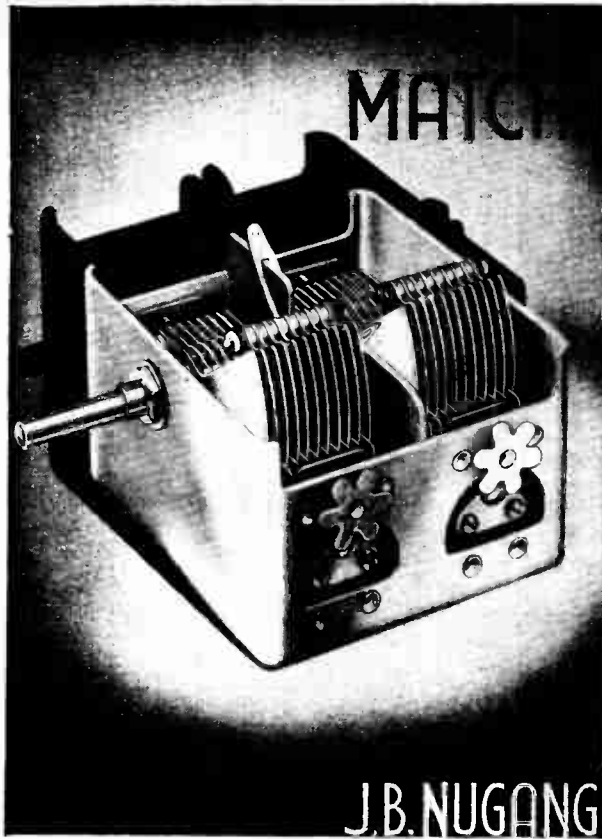
The two Lewcos Units illustrated above are the Band Pass Filter (Price 12/-) and the Dual Range Screened Coil (Prices 8/6 and 9/6) and are typical examples of the high quality of all Lewcos Products.



RADIO COMPONENTS

THE LONDON ELECTRIC WIRE COMPANY AND SMITHS, LIMITED, CHURCH ROAD, LEYTON, LONDON, E.10

Advertisements for "The Wireless World" are only accepted from firms we believe to be thoroughly reliable.



**MATCHED TO WITHIN 1/2 of 1%
+ HALF A MICRO-MICROFARAD**

A rigid chassis that is all one piece—not merely a framework bolted together. A one-piece chassis so strong that there can never be the slightest distortion in use . . . this is the chassis of the J. B. NUGANG.

Trimmers to each stage inside the chassis are operated by external starwheels. Vanes wide spaced and of heavy gauge. Special rotor bearings ensure permanent accuracy and give remarkably free movement. Capacity 0005.

Supplied semi-screened as illustrated or fully screened with lid.

Capacity without trimmers: Minimum 20 m.m.f. Maximum 520 m.m.f. Capacity of trimmers: 70 m.m.f.

NUGANG

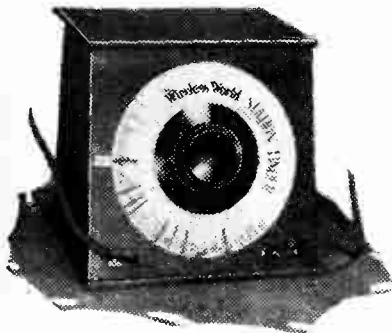
	Semi-screened	Fully Screened
2-gang	14/-	16/-
3-gang	21/-	23/6
4-gang	28/-	31/-



PRECISION INSTRUMENTS

Advertisement of Jackson Bros. (London), Ltd., 72, St. Thomas' Street, London, S.E.1.

Telephone: Hop 1837.

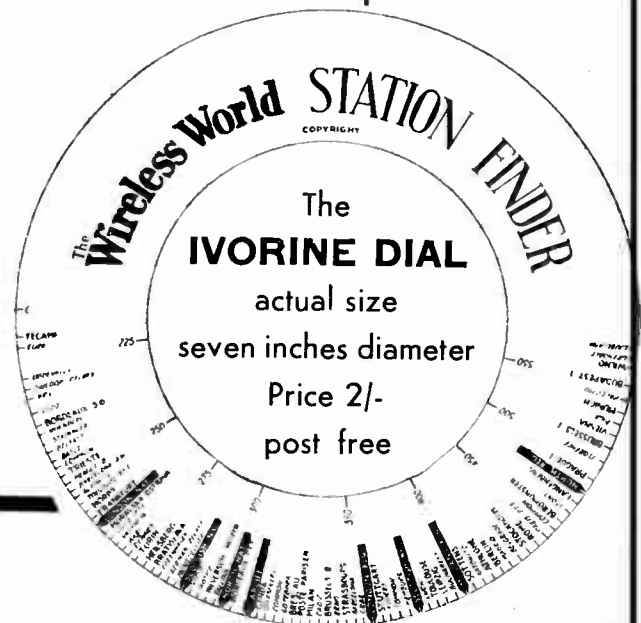


The Complete Station Finder showing the Ivorine Dial.

**Are you building
"The Wireless World" Station Finder?**

This handy accessory, which positively identifies Stations, was described for constructors in "The Wireless World" of January 13th.

FOR the benefit of constructors wishing to add to the efficiency, the appearance, and the durability of the "Station Finder," an attractive Ivorine Dial (shown in a reduced size in the illustration on the right) has been manufactured for the Proprietors of "The Wireless World." This Dial is obtainable direct from the Publishers of "The Wireless World," Dorset House, Tudor Street, London, E.C.4.



Mention of "The Wireless World," when writing to advertisers, will ensure prompt attention.



GRAHAM FARISH SAYS:—

Listen to my Broadcast from Radio Paris Sunday next, 6.30 p.m.

**I AM
GOING TO
GIVE AWAY
A
FORD CAR**

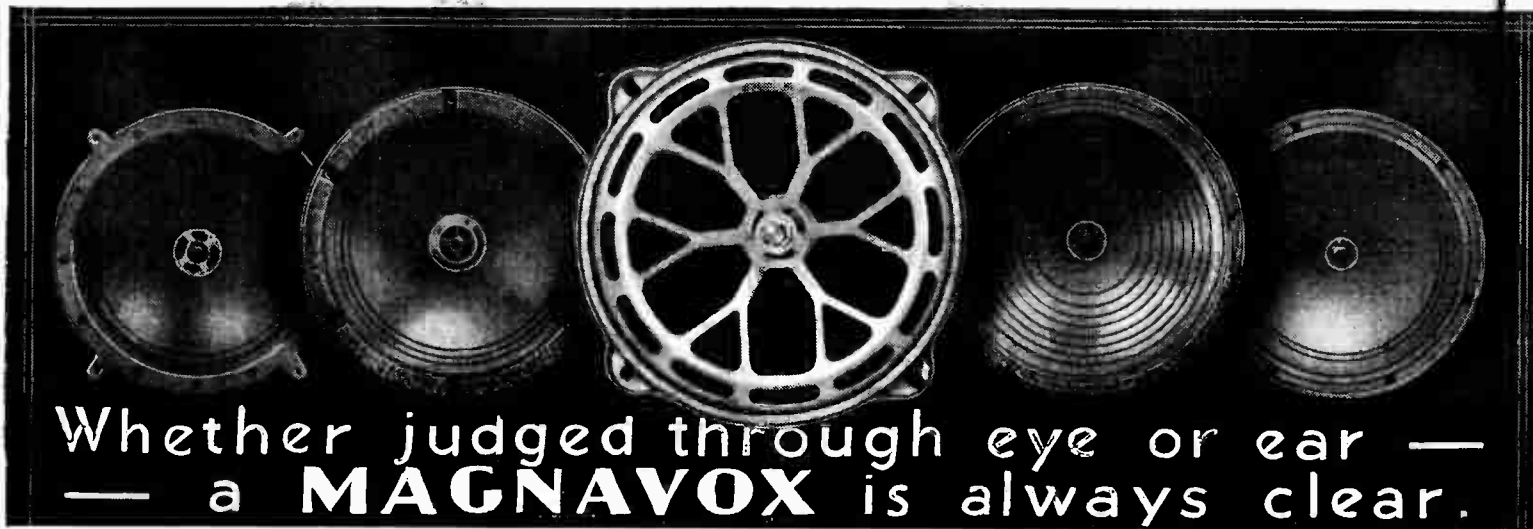
I have arranged what I believe is an excellent programme to be broadcast from Radio Paris next Sunday at 6.30 p.m. I would like your opinion on this programme and suggestions for further programmes which I have booked. I am giving a brand new FORD car FREE to the listener whose suggestion is considered to be the best. Any radio dealer will give you a Selection Form with full details. Don't miss the programme—*and don't miss the bus.*

Remember—6.30 p.m. on Sunday.

GRAHAM FARISH COMPONENTS

GRAHAM FARISH LTD., MASONS HILL, BROMLEY, KENT





Whether judged through eye or ear —
— a **MAGNAVOX** is always clear.

Specified for the "W.W." All-Wave
"MONODIAL SUPER"

PARAFEED

COUPLING UNIT



"Parafeed" is specified to contribute the quality and reality for which the "Monodial Super" was designed.

No other type can promote such increased bass and high note response — or is so immune from breakdown.

The R.I. original complete "Parafeed" system is embodied within the Coupling Unit, and is metal screened within the bakelite case with provision for earthing. Ten different couplings

may be effected by means of the external terminals in the base. List No. D.Y.32 **11/9**

"PARAFEED" L.F. TRANSFORMER is available separately for connection with externally used condensers and resistances. List No. D.Y. 28. Inductance 100 henries. Ratio 1:2, 1:3, 1:4 **8/6** (auto connection)...

Write for the instructive brochure the "Parafeed Way to Better Amplification."



Advt. of Radio Instruments Ltd., Croydon, Surrey.

Phone: Thornton Heath 3211

SOVEREIGN

L.F. TRANSFORMER

"Well above average"

SAYS "THE WIRELESS WORLD"

Writing of the Sovereign L.F. Transformer, "The Wireless World" state in their issue of January 13th, 1933 —

"Although the price of the Sovereign L.F. transformer is but 5/6, its performance is well above the average for its class, for tests made with a 1 : 3 ratio specimen show that the amplification is maintained at a satisfactory high level up to well above 8,000 cycles... even at 100 cycles the amplification is sufficient to ensure a reasonably good balance..."

This is typical of Sovereign quality. The transformer referred to is totally enclosed in bakelite with fixing holes and terminals on slanting bases.



In ratios of
1 to 3 or **5/6**
1 to 5

We also manufacture Multi-ratio Output Transformers (9- and 8-) and L.F. Chokes (20, 30, 40, 50 and 100 henries) at 5/6 each. All are totally enclosed in bakelite mouldings with conveniently placed terminals at base.



Send for free copy of the Sovereign Radio Components Catalogue showing the whole range of Sovereign Products — designed for efficiency and economy. Write to Dept. W.W.

SOVEREIGN PRODUCTS Ltd. Sovereign House, ROSEBERY AVENUE, E.C.1

Telephone: Clerkenwell 2788 9.

SHEER RELIABILITY AND EFFICIENT PERFORMANCE DURING LONG PERIODS OF SERVICE HAS MADE

Electro Dynamic ROTARY CONVERTERS



THE LEADING MACHINES ON THE MARKET

FREE FROM INTERFERENCE. SUBSTANTIALLY mounted in sound-proof cabinet and equipped with highly efficient filter unit, the Electro Dynamic Converter enables any A.C. Receiver or Radiogram to be run off D.C. with Guaranteed Reliable Service.

ELECTRO DYNAMIC CONSTRUCTION CO. LTD. DEVONSHIRE GROVE, LONDON, S.E.15. Telephone: NEW Cross 4972 (4 lines.)

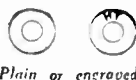
WRITE for fully illustrated leaflets.

THE UP-TO-DATE CONNECTION



Lisenin Positive Grip Plugs and Sockets are rapidly replacing the old style screw down terminal. They are many times more efficient and much neater. The special Banana Plug ensures smooth clean contact. The special cone grip holds the lead like a vice and positively protects it from accidental pulling; it cannot work loose. Use Lisenin Plugs and Sockets and you will ensure perfect contacts at all times.

Red, Green or Black.
PRICE 4d. EACH



Plain or engraved.

LISENIN

WIRELESS COMPANY
66, Newman Street, London, W.1.

Mention of "The Wireless World," when writing to advertisers, will ensure prompt attention.

Q.P.P. and ordinary push pull circuits can now incorporate **TRUE TONE CONTROL**

Two-way Tone Control, which is progressive variation from all bass no treble to all treble no bass, is of utmost importance in Q.P.P. circuits. On account of large outputs available with Q.P.P. all defects and objectionable resonances in speakers, pickups, and other components are clearly brought out with unpleasant effect.

THE NEW MULTITONE PUCO 1-8 CENTRE-TAPPED TONE CONTROL INPUT TRANSFORMER IN CONJUNCTION WITH CONTROLLING POTENTIOMETER ENABLES SELECTION OF THE BEST TONAL BALANCE TO BE OBTAINED IN WIDELY VARYING OPERATING CONDITIONS.

In addition two other centre-tapped Input Transformers without Tone Control are introduced.

PUCO 1-8.

Ratio 1-8; primary inductance with no D.C., 45 henries—with 2 milliamps. 30 henries.

PRICE **17'6**

MULTITONE graded controlling potentiometer.

PRICE **3'6**

PU 1-8.

Ratio 1-8; primary inductance values same as for PUCO 1-8.

PRICE **15'-**

D.4. (SPECIFIED IN W.W. QUIESCENT PUSH PULL TWO.)

Ratio 1-9; primary inductance with no D.C., 60 henries—with 2 milliamps. 40 henries.

PRICE **17'6**

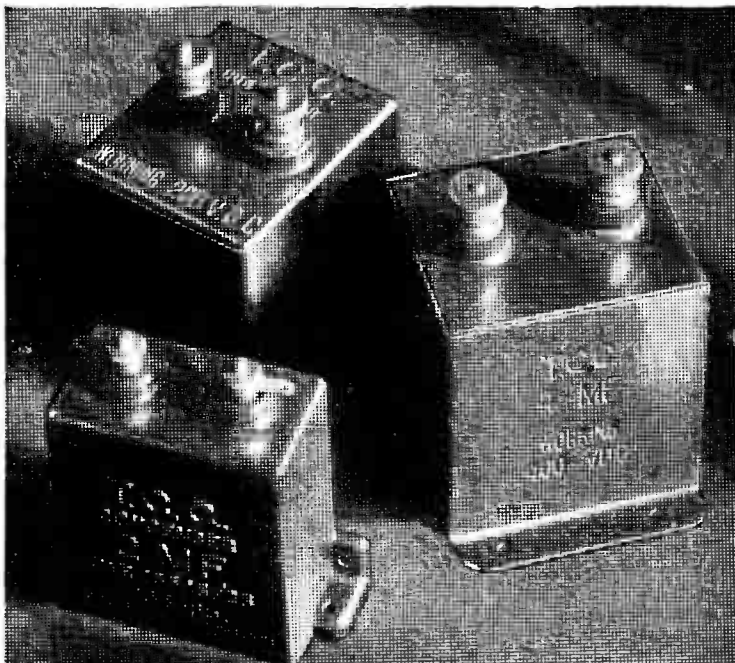
All the three models are essentially suitable for Q.P.P. circuits on account of their high ratio and satisfactory PRIMARY INDUCTANCE with 2 milliamps., which is the working condition with most battery detector valves.

Write for further technical information and particulars.

MULTITONE TONE CONTROL L.F. TRANSFORMER

MULTITONE ELECTRIC CO., LTD., 95 98, White Lion Street, London, N.1.

Telephone: North 5063



For the
ALL-WAVE MONODIAL
 unquestioned reliability
 was demanded.....
T.C.C. CONDENSERS
 are specified.....

A "super" set—the "All-Wave Monodial"—a set in which every component must pull its weight and above all must be of unquestioned reliability. That is why the designer specifies T.C.C. Backed by over a quarter of a century of specialised experience T.C.C. condensers have attained a wide world reputation for living "up to specification—always." Make certain with your "Monodial"—do as the designer did—use T.C.C.

THE T.C.C. CONDENSERS SPECIFIED

					s.	d.
1	Fixed Condenser	0.01 mfd. mica	T.C.C. No. 34		3	0
3	" Condensers	0.001 " "	" No. 34		1	10 each
1	" Condenser	0.001 " "	" Type "M"		1	4
2	" Condensers	0.0001 " "	" No. 34		1	6 each
7	" "	0.1 " non-inductive	400 v.			
		D.C. test T.C.C. No. 50			1	9 each
2	" "	1 mfd. non-inductive	400 v. D.C.			
		test T.C.C. No. 50			2	10 each
1	" Condenser	2 mfd. non-inductive	400 v. D.C.			
		test T.C.C. No. 50			3	10

T.C.C. ALL-BRITISH CONDENSERS

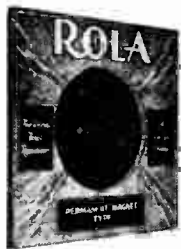
The Telegraph Condenser Co. Ltd., Wales Farm Road, North Acton, London, W.3.

2318

ROLA

the World's Finest Reproducers

The large majority of British Radio manufacturers and the designers of the finest "home constructor" sets have alike paid tribute to the supremacy of Rola reproduction by using and specifying Rola Speakers. Ask your dealer to demonstrate Rola realism or write to-day for illustrated folder.



MODEL F6-PM (7 3/4" Dia.)

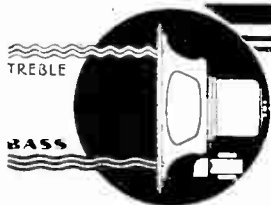
49/6

Complete with transformer for either pentode or power valves. Push-pull or Universal tapped for 120 or 150 v. m.e.s. supplied if required.

IMMEDIATE DELIVERY

ROLA SPEAKERS

for better Radio Reception



THE BRITISH ROLA CO., LTD.,

Brondesbury Works,

179, High Rd., Kilburn, N.W.6.

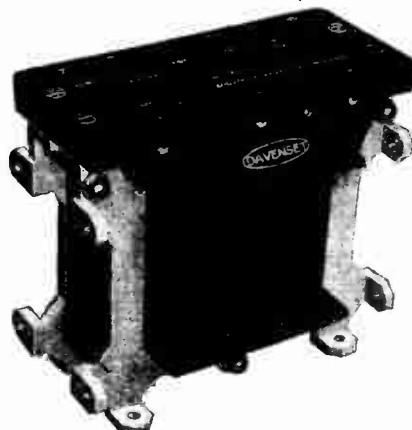
Telephone: Maida Vale. 5017-8-9.

Wireless World Independent Investigation, reports that—

DAVENSET

Transformers "...are well above the average."

(Vide "Wireless World," Nov. 11, 1932)



The "Wireless World" Laboratory has tested DAVENSET Transformers and finds them "well above the average in performance and exceptionally well made." Such unbiased judgment is the best guarantee to home set constructors, and others, that DAVENSET Transformers will make a material contribution to the success of their sets.

Davenset Transformers are manufactured to your own individual requirements, whilst our Technical Department is at your service to advise and suggest the simplest and yet most practical schemes for overcoming your Transformer or Rectification problem.

Illustration shows the DAVENSET Shell-Type Transformer

WRITE FOR a copy of "Mains Transformers and Power Smoothing Chokes for Radio and Industrial Purposes."

PARTRIDGE, WILSON & CO.

Dept. 29, Davenset Works, Leicester.

Scottish Branch: 200, St. Vincent Street, Glasgow, C.2.



BURNE-JONES "STENODE"

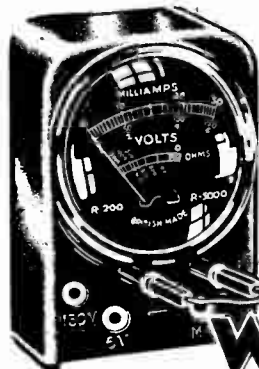
These high quality instruments are now available as Radiogramophones and Radio Receivers.

A fully descriptive brochure is now ready and free on application.

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WATES UNIVERSAL METER

Every listener needs..

The ONLY popular priced instrument testing resistances, as well as voltage of H.T. and L.T. batteries, valves, transformers, coils, condensers, short circuits, distortion, etc. **NO SKILL REQUIRED** to see what's wrong, yet nearly all the experts use it. **FOUR** readings on one dial, (1) 0-150 v. for H.T. (2) 0-6 v. for L.T. (3) 0-30 milliamps. (4) resistance test 0-2,000 ohms. Of all Wireless Dealers, Ironmongers, etc., including 4-page instruction leaflet

12/6

BRITISH MADE BY EMICOL LONDON.

Also the famous 3-IN-1 POCKET METER, L.T. (0-6 v.), H.T. (0-150 v.), 0-30 milliamps **8/6**

Pocket case for same 1/3.

Explanatory Leaflets Post Free from

WATES RADIO LTD.,

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Big Success of WIRELESS WORLD'S "Station Finder"

Tunewell Coil Assembly specified exclusively

Already we have received excellent reports on the ingenious "Station Finder," many hundreds of which have been constructed up to date. Extreme accuracy was essential to its success, and the all-important Coil Assembly is made by Tunewell (specified exclusively). This is further proof of the quality and accuracy of Tunewell Super-Radio Components, which are designed for the expert but are the cheapest good components available to-day. Use them always for super results.

Write for illustrated "Guide to Super - Radio" which includes **8 FREE BLUE PRINTS** (S.G.3 All mains Band Pass 3, etc.)

Tunewell Radio Ltd. (Dept. W), 54, Station Road, New Southgate, London, N. 1

TUNEWELL Super-Radio Components



Specified and Recommended for the ALL-WAVE MONODIAL

YET again Wearite's reputation as the leading switch designers is productive of another "specialised job." The designer of this modern set specifies Wearite for a switch combination having a special function. A reliable H.F. choke was demanded—and Wearite was recommended. Again, for those important components—the I.F. transformers—the Wearite W.W.I.F. Type are found to conform to designer's specification, and recommended. Insist on components with a backing—insist on Wearite!

★YOUR SHOPPING LIST INCLUDES

THE WEARITE SCREENED H.F. CHOKE Type H.F.P.

An efficiently designed choke suitable for operation on 15 to 3,500 metres. Resistance 300 ohms. Inductance 255,000 M.H. Price 3/6

THREE WEARITE I.F. TRANSFORMERS

Designed to "peak" at 110 K.C. Primary and secondary can be separately tuned and coupling adjusted to vary selectivity. Type W.W.I.F. Price 12/6 each

SPECIAL WEARITE SWITCH ASSEMBLY

Specified exclusively for this Receiver and consists of two 1.32's and one 1.31 mounted on special bracket ... Price 10/6

Registered Trade Mark

WEARITE

WRIGHT & WEAIRE LTD.
740, HIGH ROAD, TOTTENHAM, N.17.

Tel.: Tottenham 3517 8 9.

GET A COPY OF THIS BOOKLET—S.30—FIRST!

A good start is half the battle. With a copy of the S.30 by you you have available full details of a range of components with a reputation second to none. Chokes, Resistances, Transformers, Volume Controls, etc. etc. are fully described, get your copy now!

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T. W. THOMPSON & Co.

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14/17, STRUTTON GROUND, WESTMINSTER, S.W.1

Nearest Station. St. James Park (Underground).

Telephone: Franklin 6355. Open every day until 7.30 p.m. (Sundays excepted).

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THE ABOVE FIRM HAS NOW BEEN REORGANISED AND ALL ORDERS WILL BE PROMPTLY DEALT WITH.

ALL GOODS ON THREE DAYS APPROVAL AGAINST CASH OR C.O.D (I.F.S. excepted).

MARVELLOUS BARGAIN CLEARANCE

ELECTRIC LIGHT CHECK METERS.—200/250 volts, 50 periods, A.C., highly suitable for checking other consumers' use of current, etc. Cost 6/9. To clear, 5/- each, post 1/3.

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HIGHLY SENSITIVE MICROPHONE BUTTONS.—Suitable for all experimenters, 9d. each, post 3d.

MAGNETIC RELAYS.—Useful to all experimenters, containing three-quarters of a lb. of silk-covered wire, ball bearings, solenoid and other useful parts. Cost 83/17s. (ridiculous clearance price, 1/9, post 9d. Makers, Amplicon.

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HEAVY BAFFLE BOARDS.—With cut fret for moving coil speaker, etc. 7 ply, 2ft. x 2ft., 1/11, post 6d.; 18in. x 18in., 1/9, post 6d.

THE LAST LOT OF TUNGAR CHARGERS.—The famous B.T.H. brand, new and complete with valve (please state mains voltage with order), charging 2, 4 and 6 volt accumulators at 3 amp. Price, 12/6, post 1/-.

THE LAST OF THE SLIDING RESISTANCES.—For cutting down mains voltages, 2,000 ohms, calibrated scale from 0-250 volts calibrations, 60, 100, 110, 150, 210, 220, 230, 240, 250. All perfect. Very low price to clear, 2/6, post 6d.

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MAGNAVOX MAGNAVOX MAGNAVOX.—We have managed to obtain another batch of these well-known speakers, latest type moving coil, 200/250 volts A.C., metal rectification, complete with matching transformer, brand new 42/6. High-class walnut fireproof baffles to suit, price 20/-, as previously advertised. T.W.T. Moving Coil Speakers, perfect results, 200/250 volts A.C., Westinghouse rectification, 32/6. For D.C. mains, 200/250 volts, 19/6. The New R.C. Show Model moving coil speakers, 200/250 volts A.C. mains, Westinghouse rectification, with matching transformer, 38/6. Postage on speakers, 1/- extra.

CONDENSERS.—2 m.f., 1,000 volts A.C. test, 2/-; 500 volt test, A.C., 1/9; 4 m.f., 1,000 volt test, 4/-; 500 volt test, 3/-; 1 m.f., 1,000 volt test, 1/6; 500 volt test, 1/4; electrolytic, 2,000 and 2,000 m.f., max. working voltage 12, price 6/- each.

CENTRALAB VOLUME CONTROLS.—Suitable for radio grams, etc. List 9/-. To clear, brand new, 1/9, post 3d.

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The Wireless World

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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

Foreign Station Listening

A "Huge Misunderstanding"?

IN a letter contributed to the Correspondence columns of this issue a reader makes the suggestion that there exists "a huge misunderstanding in receiver design." Our correspondent proceeds in his letter to explain this statement and makes a number of observations which cannot fail, we think, to interest our readers and to promote discussion, for the reason that many of the statements or implications contained in the letter are highly controversial.

The main burden of the letter is the suggestion that the public are prepared to pay the price of a selective long-distance receiver but that, in point of fact, this receiver is not likely to be used for serious listening on any but the local home station, except for a few spasmodic twirls of the dial indulged in occasionally for the satisfaction of demonstrating the capabilities of the set. It is suggested, further, that designers and manufacturers are devoting untold efforts towards satisfying the public demand for a set with maximum capabilities, whereas, in point of fact, there is no genuine demand on the part of the public for any such performance.

If these suggestions in favour of listening exclusively to the local station had been put forward a year or two ago they would, we think, have been received more sympathetically, but for such an attack to be launched now, at a time when the transmissions from abroad have gained so much in reliability, strength and quality of programmes, will come as a complete surprise to many readers, more especially to those many listeners who regard overseas stations as their local transmitters.

We shall, no doubt, be represented as taking sides in this contro-

versy. But a little bias in favour of alternative programmes to listen to must be excused us, for the reason that we have already shown our belief in the interest of the public in these transmissions by including details of the foreign programmes week by week. In this step which we have taken we already have ample evidence to refute any suggestions that foreign listening is not popular, but then the contributor to our Correspondence columns appears to be openly arguing that we are all mad and that it is time we awoke to a realisation of the fact! Let us hear what other readers have to say about this "huge misunderstanding."

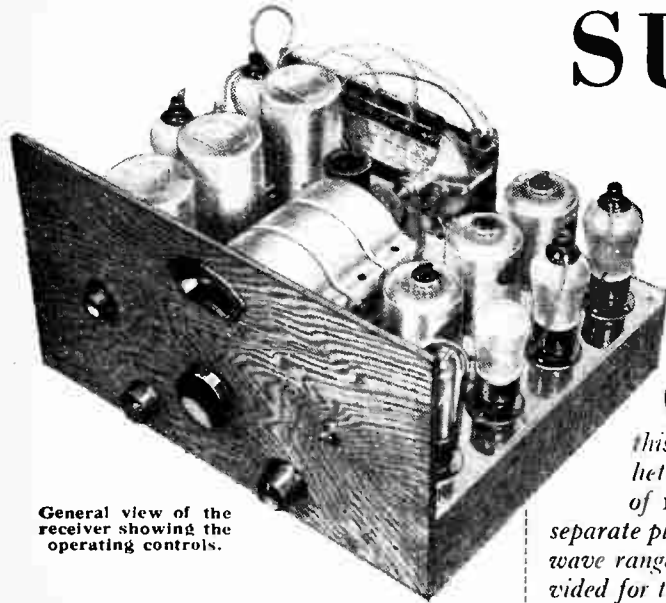
The All-Wave Monodial

A Short-wave Superhet

THE WIRELESS WORLD Monodial Superheterodyne, which was first described for A.C. and has since been designed for D.C. operation, has proved an outstanding success, and its reputation is enhanced with every additional set constructed. It is not surprising, therefore, that we have for some months past been receiving frequent requests for a battery version of this receiver to incorporate short waves. This demand we are meeting with a description of such a receiver in this issue. Many of the requests for this set have come from readers overseas whose interest in short-wave reception has increased with the introduction of the Empire broadcasting station.

The reason for adopting a battery design in this instance is first that we have not yet given one in the Monodial superhet range, and, secondly, because for use especially overseas, where mains supply is available, there is a wide difference in frequencies and voltages, and it would not be possible to cover all requirements economically in one mains design.

The ALL-WAVE MONODIAL SUPER



General view of the receiver showing the operating controls.

An Ultra-selective and Sensitive Battery Set, Tuning from 12.26 to 2,000 Metres

By W. T. COCKING

CONSTRUCTIONAL details are given in this article for a battery superheterodyne covering the range of 12.26-2,000 metres. Four separate plug-in coils cover the short-wave ranges; built-in coils are provided for the medium and long wavebands, and a switch allows of any one short-wave range to be selected at will. Thus, three ranges are always available without coil changing, giving a maximum of operating convenience.

BROADCASTING to-day is conducted chiefly on wavelengths lying within the limits of 200 metres and 2,000 metres, but there is a number of stations employing considerably shorter wavelengths, and these stations are becoming of increasing importance. The band of 13-100 metres contains numerous broadcasting stations situated in all parts of the world, and phenomenal results are at times obtainable in the way of distant reception.

The results are very largely dependent upon atmospheric conditions, however, so that short-wave reception cannot be said to be reliable when compared with medium-wave broadcasting. Nevertheless, there is an increasing interest being taken in these wavelengths, and for listeners in outlying parts of the Empire they often form the sole wireless link with the outer world.

The design of a receiver including the short, medium and long wavebands within its tuning range is a matter containing problems peculiar to itself. It may be said at once that, in the case of a highly selective and sensitive set, the superheterodyne is the only practical solution. On the medium and long wavebands the use of screened coils is imperative, and these do not lend themselves well to a plug-in arrangement. On the short wavelengths screened coils are unnecessary, extensive switching may lead to inefficiency, and ordinary type variable condensers have too high a minimum capacity to be useful. The best practical solution, therefore, is to employ normal-type coils and condensers for the normal wavebands, and to use a simple switch to change over to plug-in coils and a special condenser for the short wavebands.

Owing to the congestion on the wavelengths between 200 metres and 2,000 metres, a very high degree of selectivity becomes a matter of the first importance, while first-class quality of reproduction, good sensitivity, a low level of background hiss, and a sufficient volume output are also demanded. On the short wavelengths, however, sensitivity becomes the most important factor, with selectivity taking second place, and high

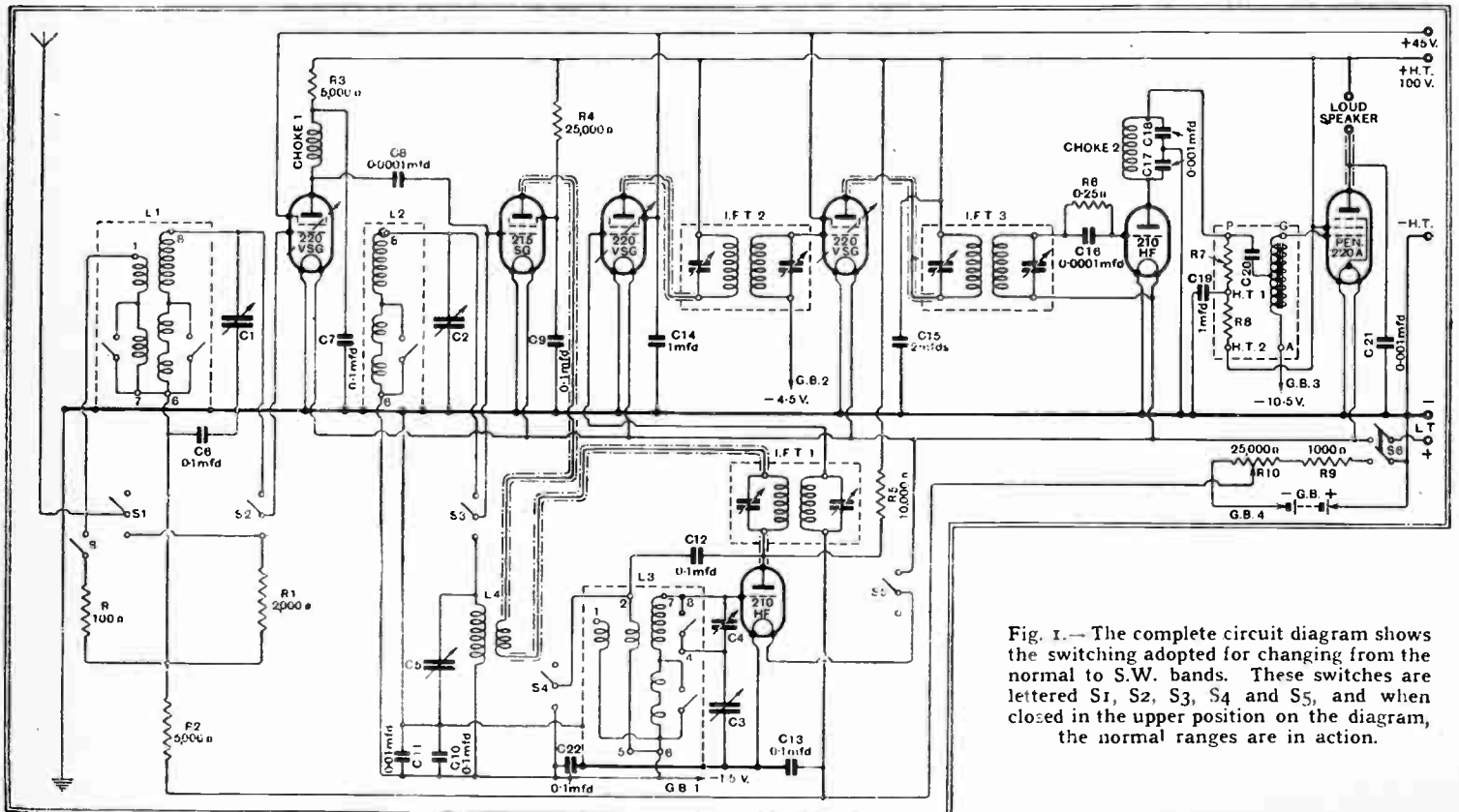


Fig. 1.— The complete circuit diagram shows the switching adopted for changing from the normal to S.W. bands. These switches are lettered S1, S2, S3, S4 and S5, and when closed in the upper position on the diagram, the normal ranges are in action.

The All-wave Monodial Super—

quality becomes less important than a low background level, since the incoming signals themselves may often be distorted. Furthermore, on all wavebands the set must be economical in its demands upon the H.T. battery.

Amplification v. Anode Current

The avoidance of cross-modulation and the attainment of a distortionless volume control necessitate the use of the variable-mu type of valve. To obtain the required amplification with the minimum number of valves, the applied voltages will have to be the optimum rated values. Under these conditions the average battery variable-mu valve takes some 9 mA. total anode and screen currents, and at least two stages are necessary. It would appear, therefore, that the current consumption of the early stages alone would be unlikely to be less than 18 mA. at 150 volts, or a power of 2.7 watts, and this is obviously excessive for a dry battery.

It is a little known property of the variable-mu valve, however, that a reduction in its anode current, by reducing the screen and anode voltages, does not result in a proportionate decrease in amplification. The current decreases more rapidly than the amplification. Within limits, therefore, it is to be expected that the more valves that are used to obtain a given degree of amplification, the smaller will be their total anode current consumption. It has been found in practice that three variable-mu stages, taking a total of 3.65 mA. at 100 volts, will give more amplification than two stages taking 18 mA. The figure of 3.65 mA. represents the total anode and screen currents of three variable-mu valves, and as the power consumption is now only 0.365 watt, there is a very considerable saving.

Full use has been made of this principle in the receiver described in this article, therefore, and the result is a seven-valve superheterodyne with a total anode current consumption of less than 13 mA. at 100 volts. The increase in the number of valves, of course, means a bigger drain on the L.T. accumulator, and the total current is 1.15 amperes at 2 volts. Since an accumulator can be recharged, however, this is usually of little moment.

The Circuit

The complete circuit diagram is shown in Fig. 1, and it will be seen that, for the normal broadcast bands, the valves are arranged as an H.F. stage, first detector with separate oscillator, two I.F. stages, second detector, and output pentode. The oscillator is not used on the short wavelengths, and its filament circuit is then opened by the change-over switch, the first detector functioning as an autodyne frequency changer.

The operation will perhaps be best understood if we go over the circuit point by point. The switches S1, S2, S3, S4 and S5 are all linked together and serve to change over from the normal

wavebands (200/550 metres and 1,000/2,000 metres) to the short wavelengths. With the switch contacts closed in the upper position on the circuit, the normal bands are in circuit; and the choice between the medium and long ranges is effected by the separate set of switches built into the screened coils.

It will be seen that the variable-mu H.F. valve, a Cossor 220 VSG, is preceded on the broadcast bands by a single-tuned circuit L1, tuned by one section C1 of the three-gang condenser.

The aerial is coupled to this circuit, and a local-distance switch S permits a 100 ohms resistance R to be effectively connected between the aerial and earth terminals in order to avoid overloading on a strong local station. The bias on this first valve is controlled by the volume control potentiometer R10, and the grid circuit is decoupled by the 0.1 mfd. condenser C6 and the 5,000 ohms resistance R2. The screen is fed directly from the 45 volts tapping on the H.T. battery, and a 1 mfd. condenser C16 is shunted to earth.

FEATURES

A single-control all-wave superheterodyne for high quality reproduction. Although seven valves are included the H.T. consumption at 100 volts is under 13 mA. and the maximum sensitivity and selectivity are obtained. A variable-mu H.F. stage is employed on all wavebands with a two-valve frequency changer for the medium and long wave-ranges. The autodyne system is used for the short waves.

Aperiodic Aerial Coupling

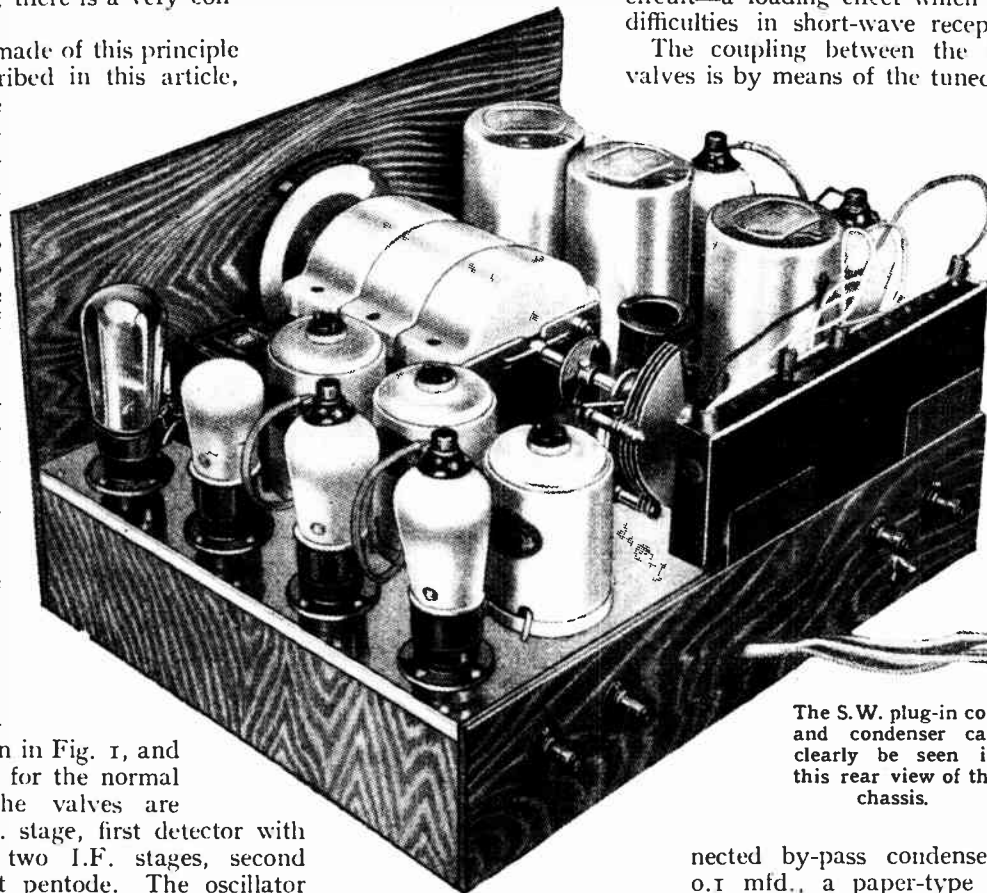
On the short wavelengths little useful purpose is served by tuning the aerial circuit; and, consequently, an aperiodic coupling leads to a considerable simplification. Actually, the grid circuit of the first valve consists of the aerial winding of the broadcast band coil, shunted by a 2,000 ohms resistance R1. The H.F. stage, as one might suppose, contributes little amplification under these conditions, and its chief purpose is to isolate the oscillating circuit of the frequency changer from the aerial. This has the twofold advantage of preventing radiation and of removing the loading effect of the aerial from the tuned circuit—a loading effect which is responsible for many difficulties in short-wave reception.

The coupling between the H.F. and first detector valves is by means of the tuned grid circuit; the choke

Ch1 is designed to operate over the whole range of 12-2,000 metres, and on the broadcast ranges a single tuned circuit L2 forms the input circuit of the 215SG first detector, the coupling to the previous stage being through the 0.0001 mfd. condenser C8. The first detector screen is fed from the 100-volts line through the 25,000 ohms resistance R4, with the 0.1 mfd. by-pass condenser C9 shunted to earth.

The grid-return lead is taken directly to the 1.5 volts negative tapping on the bias battery, but there are two parallel-con-

nected by-pass condensers. These are C10 of 0.1 mfd., a paper-type condenser, and C11, a mica type having a capacity of 0.01 mfd. It is particularly important that this arrangement be employed, for, in spite of the paper condenser being nominally non-inductive, it has too high an internal impedance to be satisfactory at this point in the short wave-ranges; the smaller-capacity mica condenser has actually a lower impedance at the high frequencies involved. On the higher wavelengths, however, the mica



The S.W. plug-in coil and condenser can clearly be seen in this rear view of the chassis.

¹ See "H.T. Battery Economy," *The Wireless World*, October 28th, 1932.

The All-wave Monodial Super—

condenser alone would have too great a reactance. The combination, however, proves entirely satisfactory at all wave-lengths.

The Frequency Changer

The tuned circuit of the first detector comprises L2 and C2 for the medium and long wave-ranges, and L4 and C5 for the short wavelengths. The condenser C5 is

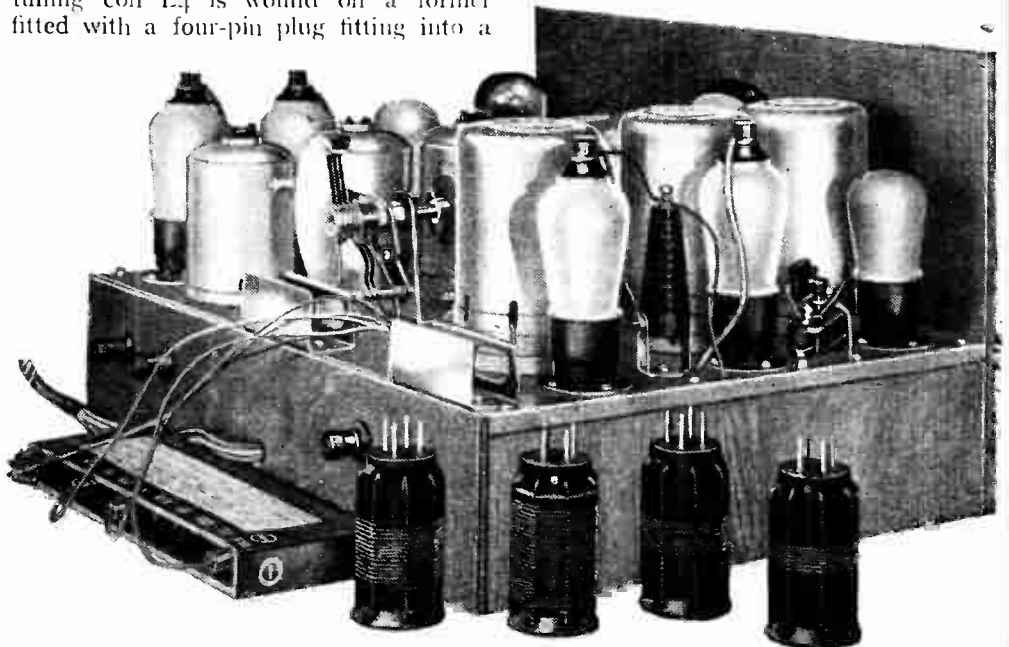
LIST OF PARTS REQUIRED

After the particular make of component used in the original model, suitable alternative products are given in some instances.

- 1 Three-gang Superhet condenser, 0.0005 mfd. Polar "Star"
 - 1 Short-wave variable condenser, 0.00016 mfd., C5 Eddystone No. 922
 - 1 Special bracket for short-wave condenser Peto-Scott
 - 1 Slow-motion dial Eddystone No. 933
 - 1 Insulated coupling Cyldon (Ormond)
 - 1 Compression type condenser, 0.002 mfd., C4 Polar "Preset" (Formo, R.I.)
 - 1 Set of Superhet coils Telsers S330
 - 1 Set of short-wave coils comprising 1 L.B., 1 V., 1 R. and 1 2BB Eddystone No. 932
 - 3 I.F. transformers, 110 kc. Varley BP21 (Colvern, Wearite)
 - 1 H.F. choke, Ch1 Eddystone No. 505
 - 1 Screened H.F. choke, Superhet type, Ch2 Bulgin H.F.10 (Wearite)
 - 1 Switch, ganged, on special brackets, S1, S2, S3, S4, S5 Wearite 132 132 132
 - 1 Single-pole switch Q.M.B., S (Claude Lyons) Bulgin S.89
 - 1 Two-pole switch Q.M.B., S6 (Claude Lyons) Bulgin S.88
 - 1 Potentiometer, 25,000 ohms, R10 Igranic No. 2235 7 (Colvern, Watford)
 - 1 Resistance, 100 ohms, 1 watt, R Claude Lyons
 - 1 Resistance, 1,000 ohms, 1 watt, R9 Claude Lyons
 - 1 Resistance, 2,000 ohms, 1 watt, R1 Claude Lyons
 - 2 Resistances, 5,000 ohms, 1 watt, R2, R3 Claude Lyons
 - 1 Resistance, 10,000 ohms, 1 watt, R5 Claude Lyons
 - 1 Resistance, 25,000 ohms, 1 watt, R4 Claude Lyons
 - 1 Resistance, 250,000 ohms, 1 watt, R6 Claude Lyons (Dubilier, Erie)
 - 1 Fixed condenser, 0.01 mfd. mica, C11 T.C.C. No. 34
 - 3 Fixed condensers, 0.001 mfd. mica, C17, C18, C21 T.C.C. No. 34
 - 1 Fixed condenser, 0.001 mfd. mica, C4 T.C.C. type "M"
 - 2 Fixed condensers, 0.0001 mfd. mica, C8, C16 T.C.C. No. 34
 - 7 Fixed condensers, 0.1 mfd. non-inductive 400 v. D.C. test, C6, C7, C9, C10, C12, C13, C22 T.C.C. No. 50
 - 2 Fixed condensers, 1 mfd. non-inductive 400 v. D.C. test, C14, C19 T.C.C. No. 50
 - 1 Fixed condenser, 2 mfd. non-inductive 400 v. D.C. test, C15 T.C.C. No. 50 (Dubilier, Tolson)
 - 1 Coupling unit R.I. "Parafeed" (Benjamin, Bulgin)
 - 8 Valve holders, 5 pin Clif, chassis-mounting type (Bulgin, Burton, Eddystone, W.B.)
 - 1 Battery cable, 5-way, 30in., with wandler plugs marked GB-1, GB-2, GB-3, GB-4. Belling-Lee (Bulgin, Concord, Goltone, Harbros, Lewcos)
 - 1 Battery cable, 5-way, 5in., with spade ends marked LT-1, LT-2 and wandler plugs marked HT-1, HT-2. Belling-Lee (Bulgin, Concord, Goltone, Harbros, Lewcos)
 - 1 Connector, 5-way Wilburn
 - 1 Grid-bias battery, 10½ volts
 - 1 pair C.B. battery clips Crispo (Bulgin, Burton, Ormond)
 - 4 Ebonite shrouded terminals, aerial, earth, L.S.F., L.S.— Igranic "Indigraph" (Belling-Lee, Burton, Clif, Eclax)
 - 2 lengths Screened sleeving Goltone (Concord, Harbros, Lewcos)
 - Plymax baseboard, 12in. x 16in. x ½in. Peto-Scott
 - Panel, oak-faced ply, 9in. x 16in. Peto-Scott
 - Plywood, ½in., 12 length Systolox, 2ozs. No. 20 tinned copper wire, etc.
 - Wood screws, 3½ ½in. No. 4 R./hd., 14 ½in. No. 4 R./hd., 19 ½in. No. 4 R./hd., 22 ½in. No. 4 R./hd., 6 ½in. No. 4 C./sk.
 - Metal screws, 4 ½in. No. 4 B.A. with nuts and washers, 5 ½in. No. 5 B.A. with nuts and washers.
 - 1 H.T. battery, 105 volts
- Ever Ready Popular Power type**
- Valves, 3 Cosor 220 VSG or Marconi or Osram VS2, 1 Cosor 215 SG or Marconi or Osram S21, 2 Cosor 210 HF or Marconi or Osram H12, 1 Mazda Pen, 220A.

a special short-wave type having a maximum capacity of 0.00016 mfd. and a low minimum; it is mounted directly behind the three-gang condenser and ganged to it, so that a single control knob on the panel serves for all wave-ranges. The tuning coil L4 is wound on a former fitted with a four-pin plug fitting into a

the first detector anode circuit. The oscillator, therefore, is coupled to the anode circuit of the first detector, and this has been found to be the only entirely satisfactory method with battery-type valves. In consequence of this arrange-



The all-wave H.F. choke for the tuned-grid coupling is mounted between the H.F. and 1st detector valves. In the foreground are seen the short-wave plug-in coils.

valveholder, so that it may readily be changed; four coils are used to cover the range of 12.26-99.25 metres.

As the first detector is worked in an oscillating condition on the short wavebands, a reaction coil is included in its anode circuit, and is actually carried by the same former as the tuned-grid winding. This coil is left in circuit on all wavelengths, in order to avoid additional switching, but, of course, it serves no useful purpose on the broadcast bands. It introduces no undesirable effects, however.

The oscillator valve is a triode of the 210HF type, and it is associated with the coil assembly L3. The grid circuit is tuned by the condenser C3, a section of the gang condenser having plates so shaped that ganging is maintained on the medium waveband without padding condensers. The reaction coil is shunted from the anode circuit by the 0.1 mfd. condenser C12 and the 10,000 ohms resistance R5, and the valve is biased negatively by 1.5 volts. It should be noted that the coil assembly contains a winding that is not used in this receiver, for the coils are of a universal type. Ganging on the long waveband is maintained with the aid of the padding condenser C4, which comprises a fixed and a variable condenser connected in parallel, and which is short-circuited on the medium waveband by a switch built into the coil base.

In addition to the short-wave reaction coil already referred to, the first detector anode circuit includes the primary of the first intermediate-frequency transformer. One end of this is joined directly to the oscillator anode, so that the oscillator reaction coil and C12 are effectively in

ment, the first detector need be given a grid bias no greater than would be used for amplifying, and there is a complete absence of interaction between the signal frequency and oscillator trimmers, so that ganging does not become difficult. Since it is not permissible for the oscillator reaction coil to remain in circuit on the short wavelengths, it is fitted with a short-circuiting switch S4.

The I.F. Amplifier

The I.F. amplifier is entirely straightforward, and two variable- μ valves are employed. Their anodes are fed directly from the 100-volts line with a by-pass condenser C15 of 2 mfd., and the screen grids are connected to the 45-volts tapping on the H.T. battery. All the couplings are identical, and there is a total of three I.F. transformers, each containing two tuned circuits of the band-pass type resonating at 110 kc. The bias on the first I.F. valve is controlled from the volume-control potentiometer R10, in common with the H.F. valve, but the second I.F. valve is not controlled and is worked with a fixed bias of 4.5 volts. This is in order to avoid the distortion which sometimes occurs when too great a range of control is attempted.

The bias potentiometer has a resistance of 25,000 ohms, and a fixed resistance R9, of 1,000 ohms, is included in series with it in order to give a fixed minimum bias. This is set at such a value that, with the control very nearly at maximum, the I.F. stages begin to oscillate through the inherent stray couplings. The set, therefore, is not quite stable at the maximum setting of the volume control, and this is definitely a desirable feature in a short-

The All-wave Monodial Super

wave set, since it renders searching much easier. When searching, the set is used in the oscillating condition, and whenever a station is passed over the familiar whistle can be heard; the station can then be tuned in accurately, and the volume-control setting reduced until stability is reached. For reception of continuous-wave telegraphy it is essential to use the set in the oscillating condition.

The Second Detector

Grid rectification is used for the second detector, and the valve is a triode of the 2T0 HF type; the usual I.F. filter, comprising the choke Ch2 and the two 0.001 mfd. condensers C17 and C18, is fitted in the anode circuit. The coupling to the output pentode is by means of a 4-1-ratio auto-transformer, and the component actually employed is a coupling unit containing the transformer, the coupling condenser C20, and the two resistances R7 and R8. The values of these are marked on the circuit in case it is desired to make use of an existing transformer, with which separate components would be needed.

The output valve is a Mazda Pen 220A, worked with 100 volts for the anode and screen supplies, and some 9 to 10½ volts grid bias. With the higher bias voltage the anode and screen currents total only 4 mA., but a surprisingly large volume of sound is obtainable when a correctly matched and sensitive speaker is used. A load impedance of 8,000 ohms is required, so that the ordinary pentode transformer is satisfactory. No pentode compensator is necessary, for the high-frequency-accentuation of the pentode is employed to correct for the sideband cutting of the I.F. circuits, thus giving automatic tone correction. A 0.001 mfd. condenser is connected between the pentode anode and earth to by-pass any stray H.F. currents which might find their way into this circuit.

(To be concluded in the issue dated February 10th.)

In Next Week's Issue:—

AMPLIFIER DESIGNS

Two Units for the Home Constructor

FULL constructional details of two small amplifiers designed especially for gramophone reproduction will be included in next week's issue. There is much in favour of using a separate unit for this purpose, although many modern receivers offer similar facilities, but often they are not very conveniently placed, since of necessity the receiver must be reasonably close to the aerial lead-in and an earth connection.

In the one case the amplifier is operated entirely from the D.C. mains and, of course, includes the latest types of indirectly heated D.C. valves. It is a two-stage amplifier and will deliver a comparatively large power output.

The other model is a battery unit, and employs for the output stage two small pentodes working in quiescent push-pull. The remarkable results now obtainable with this system enable those who are dependent upon batteries to enjoy reproduction comparable in quality and volume to that of a well-designed mains-operated amplifier.

LISTS OF PARTS.

After the particular make of component used in the original model, suitable alternative products are given in some instances.

D.C. GRAMO-AMPLIFIER

- 3 5-pin Valve holders, chassis mounting type **Bulgin VH7** (Clix, Eddystone, W.B.)
- 2 Chokes, 15 henrys, 100 millamps **Bulgin LF21** (Ferranti B1, Igranic C80, R.I. 28/14 henrys)
- 1 Mains resistance **Bulgin MR5**
- 1 Volume control, 50,000 ohms **Colvern type ST10** (Igranic, Leweos, Rotorohm, Varley, Watmel, Wearite)

- 5 Fixed condensers, 1 mfd., 250 v, D.C. working **T.C.C. type 65**
- 3 Fixed condensers, 2 mfd., 250 v, D.C. working **T.C.C. type 65**
- 1 Fixed condenser, 4 mfd., 250 v, D.C. working (Dubilier type BB, Goltone, Wego) **T.C.C. type 65**
- 1 L.F. coupling unit (Bulgin "Transcoupler") **R.I. "Parafeed"**
- 1 2-pole mains switch **Bulgin S88** (Claude Lyons)
- 2 Metallised resistances, 100 ohms, 1 watt **Dubilier**
- 2 Metallised resistances, 250 ohms, 1 watt **Dubilier**
- 1 Metallised resistance, 1,000 ohms, 1 watt **Dubilier**
- 2 Metallised resistances, 5,000 ohms, 1 watt **Dubilier**
- 1 Metallised resistance, 50,000 ohms, 1 watt **Dubilier**
- 1 Metallised resistance, 100,000 ohms, 1 watt **Dubilier** (Eric, Claude Lyons)
- 1 Twin safety fuseholder with 1 amp. fuses **Belling-Lee No. 1033** (Bulgin F11)
- 4 Ebonite shrouded terminals **Belling-Lee type "B"** (Burton, Clix, Ealex, Igranic)
- 1 Adaptor **Goltone R80 90**
- Wood, Systoflex, small quantity 20 tinned copper wire, flex, etc. Wood baseboard, 11½ x 9½ x ½ in.
- Screws: 26 ½ in. No. 4 R/hd.; 10 ½ in. No. 4 R/hd.; 2 ½ in. No. 4 R/hd.
- Valves: 1 D11, 2 DPT **Marconi** (Ostram)

Q.P.P. GRAMO-AMPLIFIER

- 3 5-pin Valve holders **W.B. type "A.C."** (Benjamin, Ferranti, Junit, Lotus, Wearite)
- 1 Push-pull L.F. transformer, 1:7 **Ferranti AF60** (Multitone 1:9 ratio, R.I. model DY34, Sound Sales 1:3 ratio, Varley)
- 1 Resistance, 10,000 ohms, 1 watt **Eric**
- 1 Resistance, 20,000 ohms, 1 watt **Eric**
- 1 Resistance, 50,000 ohms, 1 watt **Eric**
- 1 Resistance, 150,000 ohms, 1 watt **Eric** (Dubilier, Claude Lyons)
- 1 Fixed condenser, 0.01 mfd. mica **Graham Farish** (Dubilier, T.C.C., Telsen)
- 1 Fixed condenser, 2 mfd., 700 v, D.C. test **Wego**
- 1 Volume control, 25,000 ohms **Igranic No. 2135/7**
- 1 Volume control, 50,000 ohms **Igranic No. 2235/8** (Colvern, Leweos, Rotorohm, Varley, Watmel, Wearite)
- 1 3-point Switch **Goltone R26/745** (Junit, Telsen, W.B.)
- 2 Grid bias batteries, 9 volt **Bulgin No. 7**
- 1 pair Grid bias battery clips **Bulgin No. 7**
- 2 Insulated terminals **Clix "All-in"** (Belling-Lee, Burton, Ealex, Igranic)
- 1 6-way Battery cable, 30in. **Goltone "Court" R40/16** (Belling-Lee, Bulgin, Harbros, Leweos)
- 5 Wander plugs **Clix "Master" type "B"** (Belling-Lee, Ealex)
- Wood, Systoflex, small quantity 20 tinned copper wire, etc. Wood baseboard, 7½ x 8 x ½ in.
- Screws: 5 ½ in. No. 4 R/hd.; 4 ½ in. No. 6 R/hd.; 6 ½ in. No. 4 R/hd.; 5 ½ in. No. 4 C/sk.
- Valves: 2 Mazda Pen 220A, 1 Cosor 210 HF, or Mazda H1210, or Marconi H12 or Ostram H12, or Mullard PM11L.

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BOOKS RECEIVED

Accumulator Charging, Maintenance, and Repair, by W. S. Ibbetson, B.Sc., A.M.I.E.E., M.I.Mar.E. 3rd Edition, enlarged and brought up to date to meet the requirements of portable wireless receivers, motor vehicles, emergency batteries in cinemas, theatres, and hospitals, with a chapter on alkaline cells. Pp. 128+12, with 36 illustrations and diagrams. Published by Sir Isaac Pitman & Sons, Ltd., London. Price 3s. 6d.

Report of the Radio Research Board for the Year 1931.—A review of Investigations on the Propagation of Waves, Directional Wireless, Atmospherics, Aerials, Ultra-short Waves, Standards, Measurements, etc. Pp. 123+iv. Published by H.M. Stationery Office. Price 2s.

Rundfunk Jahrbuch, 1933.—Giving a general résumé of the progress of Broadcasting in Germany, and the principal events of interest during the past year. Pp. 167, with many illustrations. Published by the Reichs-Rundfunk, Gesellschaft, Berlin.



AT THE CENTRE OF AFFAIRS. All programme efforts in the studios, as well as all outside broadcasts, find their way to the control room at Broadcasting House, seen in the photograph. The engineer is seated at one of the S.B. desks.

The Choice of L.F. Couplings

Why the Parallel-fed Transformer is Popular

By M. G. SCROGGIE, B.Sc., A.M.I.E.E.

THERE are certain things about broadcast reception that have not changed very much for a long time. Long, that is to say, in a history which is compressed into ten years. Therefore these things are usually "taken as read," and published articles forge ahead with more recent events. That is all very well for those who have followed the art from the beginning, but excessively perplexing to those who have not. They are faced with all manner of practices for which no explanation is given, save that "it was done of old time."

It is fairly easy to grasp, for example, the fact that valves are capable of amplifying weak impulses almost without limit, so that the feeble waves received from distant transmitting stations can be magnified to an extent which may verge on a menace to the neighbouring civilisation. It is less clear why the valves should be interspersed with other parts, which though diverse in character appear to accomplish much the same result; such items as intervalve transformers, chokes, resistors and condensers, varied in these latter days by devices with names based

relatively small impulse to release a much larger amount of power. One tiny "automatic" fires a diminutive bullet at the trigger of an elephant gun, which in turn touches off something really violent that makes a noise like a loud speaker in

full cry. But such a system would be found to be rather crude owing to the unsuitable method of applying the weaker power to the controlling trigger of the larger.

In the same way the direct connection of one valve to the next would fail, because the power released from the one is not in a form which is

available for driving its successor. A stream of water merely flowing along is quite useless for driving machinery; it has to be made to exert a pressure by impinging on the blades of a wheel or otherwise.

Just so the current impulses from one valve, say the detector, which are themselves seldom powerful enough to work a loud speaker, are made to meet some sort of obstruction, and the pressure (or voltage as it is called in electrical circles) which it is thus obliged to exert is passed on to the next valve. An intervalve

coupling, then, comprises two things: something to obstruct electric currents of the type emerging from the outlet or anode of the detector valve, and something to pass them on to the trigger or grid of the next valve, usually the last in a set. The part that does the passing on must also abstain from upsetting the working condition of the valves, which require a constant

positive voltage on the anode, and negative on the grid.

The obstruction may take the form of a resistor, which develops across its ends a voltage which is proportional to the current flowing through it, irrespective of whether the current is steady, such as the

constant feed which is necessary for the valve to work at all, or varying in the manner necessary to convey an imitation of talking or playing.

Therefore the passing-on must be accomplished by some device which presents the talking, etc., effects to the grid of the next valve, but acts as a complete stoppage to the unvarying voltage caused by the feed current. Such discriminating abilities are possessed by the appliance known as the condenser, which is accordingly used to connect anode to succeeding grid. All that remains to be done is to ensure that the grid is connected also with its supply of steady negative voltage, and for this purpose one uses a resistor so high in obstructing power or resistance that it

"WHICH is the best L.F. coupling to use?" is a question often asked, but not always easily answered. So many conflicting requirements are at stake, and the would-be adviser now has so many methods from which to choose. To resistance, choke and ordinary transformer coupling we must now add parallel-feed and auto-coupling to complicate the choice. This article furnishes a simple explanation of the systems and enumerates the relative advantages of each.

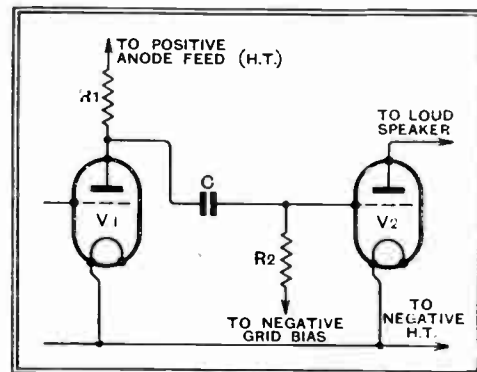


Fig. 1.—Resistance coupling was in common use ten years ago and still finds considerable application.

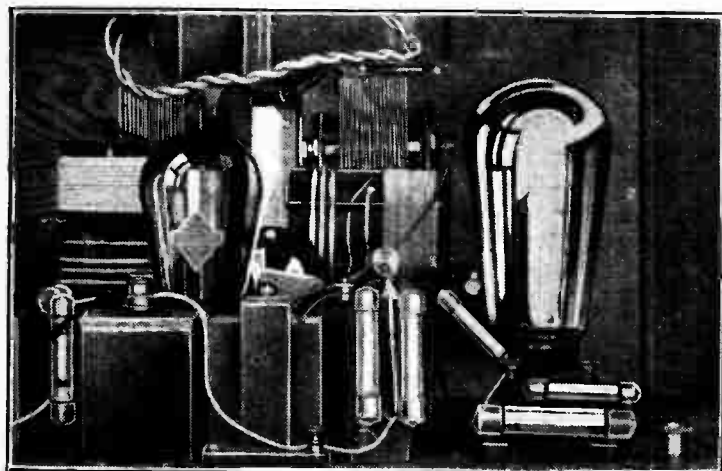
prevents serious leakage of the "signal" voltages. So we arrive at the circuit of Fig. 1, in which V1 is the first valve, V2 the second, R1 the anode resistor, C the condenser, and R2 the grid resistor or "leak" (although in this particular case it is intended to make the leakage as small as possible).

A Compromise

This system—resistance coupling—is in common use to-day, and was so ten years ago and more. It has certain disadvantages, nevertheless.

The valve itself, V1, offers some resistance, so that part of the possible output is withheld and absorbed internally, and thereby lost. When R1 is made very large—in resistance, that is to say, not in actual size—the valve resistance is a relatively small part of the total, and the lost amplification therefore small. But a large R1 necessitates extra battery volts to preserve the flow of feed current undiminished, otherwise the amplification slumps through valve starvation.

Beyond a certain point the amplification thus salvaged does not justify the expenditure on batteries or power



A resistance-coupled stage of *The Wireless World* "Power Radiogram."

on every possible combination of the words "parallel," "feed," and "transformer." Why not simply connect one valve to the next, or, if extra gear really is necessary, why not settle on the best method and stick to it?

Like firearms, valves depend on a

The Choice of L.F. Couplings—

equipment. So the amplification is always rather less than the figure that the valve manufacturers give on their leaflets and catalogues. Moreover, the go-between condenser does not help to make up for such losses by giving the signal voltages a boost before passing them on; in fact, if it is not made sufficiently large it holds back a bit on its own. Worse still, it holds back the low tones more than the high, and thus upsets the balance of tone. But this effect can be made negligible by using a suitable condenser.

The leak R2 likewise reserves a bit to itself, but not enough to matter if its resistance is large enough.

The beauty of the method is the equality with which R1 treats all that it handles; there is no prejudice in favour of high, low, or middle notes. And, in spite of the necessity for three items, it is quite cheap.

The next method, choke coupling, was devised to overcome the first drawback. A choke is the opposite to a condenser, in that it freely passes an unvarying current but obstructs the varying ones which represent the broadcast we desire to hear. It therefore seems ideal, for no extra battery volts are required. Unfortunately, it distinguishes not only between fixed and varying currents, but between currents varying at different rates, so that to the fast-moving or soprano currents it acts as a very efficient barrier, extracting almost the whole of the amplification from the valve, while the bass notes, which vibrate so slowly as to seem more like the steadily flowing battery current, are permitted to pass without delivering up all of which they are capable.

The only way to prevent this inequality from becoming noticeable as shrillness of reproduction is to design the choke so as to be an almost complete obstruction to even the lowest notes. Suppose it is then 90 per cent. effective; the highest note

wire on a substantial core of rather special iron, and by the time that has been done the choke costs more than all the three pieces needed for resistance coupling. And the other two must still be retained for choke coupling. So the little extra amplification is paid for rather dearly, and these times of financial stress have proved too severe for the method to find really considerable application.

The circuit diagram is the same as Fig. 1 except that R1 is a choke instead of a resistor. R2 can also be replaced by a choke, but there is no particular advantage in doing so, unless the two chokes are wound closely together on one iron core. Then it is found that the voltage developed across one is mysteriously reproduced across the other without any need for the condenser link. More than that, if, for every turn of wire on the first winding, several are put on the second, the voltage applied to the grid is several times as great as that reaped from the first valve. This very useful double choke, which is generally known as a transformer, can be made to give a four-, five-, or even eight- or nine-fold step-up, which means that quite a modest detector valve can be made to run a large power valve on full throttle. A still greater multiplying power leads to difficulties in design and construction.

Why Parallel-feed ?

It is true that the transformer does not deal quite so faithfully with music as does a resistance coupling, but only the very cheap sorts announce their imperfection unmistakably. Moreover, one valve with a transformer can be made to do what might require two valves with resistance couplings, so a very good and expensive transformer may actually prove an economy. Such transformers used to be rather bulky, but by using a special alloy of iron and nickel, which had been invented for something else, it was found possible to make a transformer small, good, and cheap—all at once. It need hardly be pointed out that this miracle was not accomplished without introducing a brand-new disadvantage; namely, that when the valve No. 1 is fed with enough steady current to ensure satisfactory nourishment as a detector the transformer forthwith becomes just an ordinary bad one, for what is one valve's meat is another transformer's poison.

This set-back, after a moment's quick thought, resulted in a combination of resistance and transformer coupling, generally known as parallel-feed.

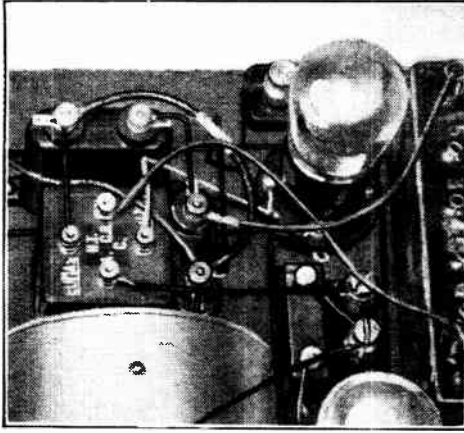
This is shown in Fig. 2, in which it will be seen that it starts off in true resistance fashion, going even so far as the condenser; but instead of the leak, for which the most that can be said is that it does not waste much of the signal voltage entrusted to it, there is the transformer with the nickel-iron core, and as the condenser is there to protect it from the paralyzing influence of the non-

varying battery current to valve V1 it works under ideal conditions, and yields a dividend of several hundred per cent. in the form of increased output to valve V2.

Fig. 3 shows a still better idea, for it pays not only this very satisfactory rate of interest, but throws in the principal as well, so that if the transformer is normally a 1-to-3 step-up this connection gives 1 to 4.

Compared with resistance coupling, parallel feed retains the disadvantage of loss of amplification (or need for high battery voltage), and costs more by the difference between a transformer and a grid leak, and, theoretically, the quality is not quite so good; but the loss of amplification is more than reimbursed by the step-up of the transformer, to such an extent that the cost of a whole valve may be saved, thus more than paying for the transformer, and the latter is working under such splendid conditions that any audible difference in quality as compared with resistance coupling may, in most cases, be held due to a vivid imagination.

Whether parallel feed has any advantage over straight transformer coupling



In *The Wireless World* "Battery V-M Three," a section of which is illustrated, "straight" transformer coupling was used.

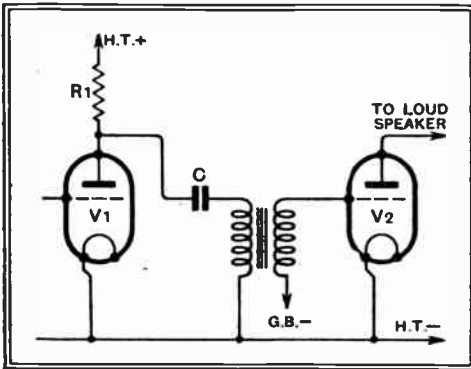


Fig. 2.—The parallel-fed transformer is really resistance coupling in which a step-up transformer replaces the grid leak.

in the musical scale cannot be amplified more than, or even quite as much as, 100 per cent.; and the difference in amplification between these two extremes of frequency is therefore too small to be appreciable.

To fulfil this requirement the choke must have a very large inductance, which means a very large number of turns of

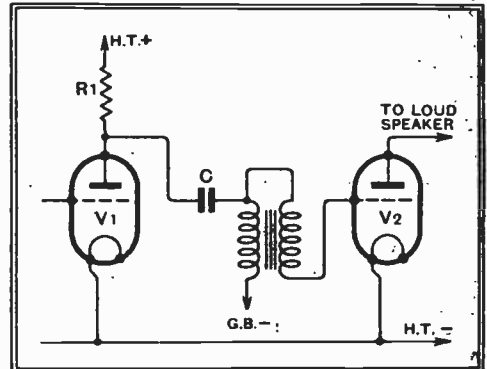


Fig. 3.—A parallel-fed transformer can give more than the nominal step-up ratio if it is auto-coupled.

is mainly a question of cold finance. Choke coupling is hardly in the running at all, being handicapped by most of the disadvantages, and with only one minor advantage as compensation. Plain resistance coupling is all right if the amplification of one valve is enough. If valves improve much more it may become universal.



Gas Manager's Troubles—II

THE desperate dilemma of my friend the gas manager, which I related in the January 6th issue of this journal, has been solved in a completely satisfactory and somewhat unexpected manner. His release from his trouble is due to the kindness of a reader living at Welling, in Kent, who suggested that he might find his salvation in quiescent push-pull. At first I could not quite see what was meant until it suddenly dawned on me that the idea was for my friend to turn honest and really install a battery-driven receiver capable of giving practically the same output as his concealed mains receiver.

I quickly conveyed this suggestion to him, and although at first he basely accused me of being a dog fancier he agreed to try it. Our efforts were at first unsuccessful, and my friend rather bitterly remarked that the word "quiescent" was a singularly apt one to be applied to the receiver. Fortunately I soon found a rather foolish error which he had made in wiring up, and the final results are best described by saying that he has now dismantled his mains set and is fearlessly dishing out the circuit to all enquirers.

Tit for Tat

I WAS interested in the proposal, recently put forward by the French Motor Manufacturers' Association, that heavy lorries should be fitted at the back with a microphone coupled *via* an amplifier to a loud speaker mounted close to the driver's ear, so that he could hear the horns of vehicles desiring to overtake.



Tit for tat.

I fear, however, that the device would be the inevitable instrument for the conveyance of abusive language. In common fairness to the driver, I think he should be supplied with a microphone

coupled to a loud speaker at the rear, so that he could retaliate. It would, at any rate, add to the gaiety of motoring even if it did nothing else.

An Electric Clock

HARDLY had the ink dried on the heart-rending appeal which I issued on January 6th for an A.C.-mains clock fitted with a synthetic tick than the required instrument came along from the Synchronome Company. Not only does it possess a stately tick worthy of a grandfather clock, but the large centre seconds hand advances in the time-honoured way from second to second, completely banishing the ghostly effect of which I complained. Moreover, the whole mechanism is electrically driven, no "clockwork" being employed to produce this effect.

It is very gratifying indeed to have to place on record an outstanding example of enterprise and initiative of this sort, more especially when it concerns one of our own manufacturers. Even among foreigners, however, the spirit of enterprise has not been lacking, and two Chicagoans—one of them a famous amateur brass pounder—have spared time from their orgy of slaughter to offer me their services in this matter.

There is still one omission, however, which prevents the word perfection being applied even to this clock, and, curiously enough, it is a very "glaring" one of which all the makers of these devices seem to be guilty. Not one of them has, so far, seen fit to employ a translucent face with a small electric light behind it, as in the case of a tuning dial.

A small one-watt lamp would provide ample illumination at a cost of only a penny per week, even at lighting rates. I wonder what manufacturer will be the first to fulfil this need. I trust that no attempt will be made to fob us off with the usual phosphorescent arrangement, but that a proper miniature Big Ben will be produced.

A Burning Question

YOU will rejoice with me that I succeeded in cutting short a threatened attack of 'flu the other day by taking to my bed at the first premonitory symptoms. Feeling the need of extra heat I thought I would try the effect of an electric

blanket, and duly dispatched Mrs. Free Grid to get one. Within five minutes of its arrival I was enjoying the cosy comfort of its warmth and preparing to fall asleep.

I had scarcely closed my eyes, however, before I was informed that loud cracklings were occurring in the wireless set every time I flicked an eyelid. This I found was the case. Appreciable noises coincided with the rhythmic rise and fall of my midriff, and every turn of the body produced a deafening series of crashes like the breaking of ten thousand cups. Loose connections was the obvious diagnosis, and swift work with a magnifying glass quickly confirmed it. It was indeed a mercy that I was not burnt alive in my bed.

The trouble was due, as I might have expected, to the failure of Mrs. Free Grid to realise the truth of the old saying that all that glitters is not gold. Instead of carrying out my carefully worded instructions concerning the type and make of blanket she was to buy she had been led astray by a "glowing" account she had read of a cheap and nasty device of foreign origin. I may say that the article has since been changed for another one made by a well-known firm, and all inter-



Swift work.

ference with wireless has ceased. I am now wondering how much of the man-made static with which we are troubled is due to the use of cheap and nasty bed warmers.

Ether Shocks

WHILE I can hardly be accused of narrowmindedness in a Chadbadian sense I really do think that there is a limit to which Continental stations may be permitted to go in broadcasts intended for English ears, particularly those of juveniles. I make this protest as a direct result of a programme recently broadcast in which attention was directed to the lofty moral standards now being adopted by the youth of a certain Continental country.

It so happened that when this particular broadcast came on the air I was reading and unfortunately misunderstood the facial contortions which Mrs. Free Grid directed towards me. She was, as I found out later, endeavouring to indicate that the programme should be changed before certain of the little Grid Leaks became too interested in its subject matter. Unfortunately, I interpreted her signals as a demand for more volume and consequently precipitated a minor domestic disturbance.

Keyboard and Loud Speaker

How the "Neo-Bechstein" Piano Works

By R. RAVEN-HART

DURING a recent visit to Berlin the writer enjoyed the opportunity of hearing the "Neo-Bechstein" piano specially demonstrated and also of examining and playing it himself. The instrument looks like a small grand piano, with absolutely normal keyboard and touch, together with a separate loud speaker.

Nothing could be more simple in its essentials: a steel string is struck as in the case of a normal piano, and vibrates within the field of an electro-magnet (one such taking care of five notes). The resulting electrical impulses in the coils of this are then amplified and fed to the loud speaker, the degree of amplification being controlled by the left pedal.

Normal Piano Technique

The refinements are, in fact, chiefly mechanical. First, the string need vibrate only to a very small extent, since it has to produce very little energy; hence it can be shorter, lighter, and less tensioned than the normal. Double strings are used only in part of the middle register, triple ones

not at all. This, of course, implies a lighter framework, also a lighter hammer. In order, however, not to change the normal piano technique, hammers of the usual weight are used, but these do not hit the string directly, but a bar nearby, and this impact drives a tiny hammer, perhaps one-twentieth the weight of a normal one, up to hit the string itself. Incidentally, the tone is purer owing to the reduced amplitude of the vibrations.

Again, as the strings are giving off practically no energy, their damping is greatly reduced; a bass string will vibrate for something like a minute after striking. This, together with the fact that the sound after striking can be increased or decreased by the use of the pedal, opens up new possibilities of an organ-like nature. (One of the weak points of the instrument—

perhaps the only serious one—is that these prolonged notes are only fully available in the bass, the treble strings coming to rest almost too soon; consequently, sustained chords lack brilliancy.

THE "Neo-Bechstein" electrical pianoforte, which may shortly make its appearance on the British market, is here described by a correspondent who has both heard and played the instrument in Germany. Of special interest is the wide variation in apparent tone colour, ranging from spinet effects to those of the organ, saxophone and banjo.

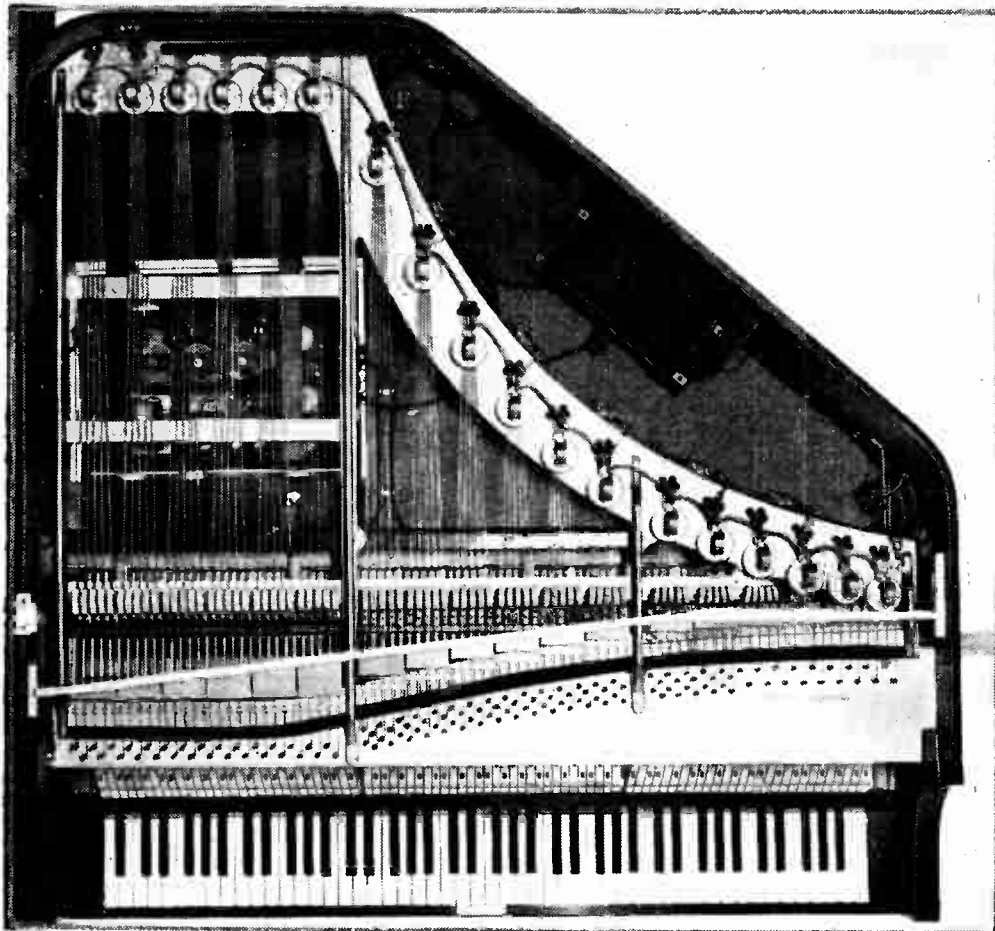
Double control of damping is fitted. First, there is the usual right pedal which, when released, causes immediate damping, and, when depressed, allows the string to vibrate naturally till it comes to rest; and, secondly, there is a special damper acting on all the strings, which, when "off," allows the vibration to continue to its maximum (over a minute in the bass, as already mentioned), and when "on" reduces it to a period comparable to that of a normal piano—in order that existing piano music may be readily available for the new instrument.

As already stated, the left pedal controls the degree of amplification. When it is released, the loud speaker is out of action, and the instrument becomes the most charming spinet-harpsichord imaginable. When it is fully depressed, the volume is overwhelming, but here again there is a double control, an auxiliary knob reducing the maximum volume available to suit the room in which the instrument is to be used. This control is, of course, never changed except with a transfer to other surroundings, the pedal doing all the controlling during playing.

It may be added that the instrument also contains a complete wireless receiver and an electrical gramophone, and costs just a trifle less than the cheapest Bechstein grand. It works from the A.C. mains.

Apparent Tone Variations

What was particularly interesting to the writer was to hear how much variation in the apparent tone-colour could be produced by combinations of touch and pedalling. The demonstrator was, of course, not only a first-class pianist, but had also specialised in the new instrument. He produced (in playing a set of very jolly variations written by himself) a series of effects ranging from the spinet through the piano to the organ, and thence to an excellent bassoon, trumpet, saxophone, and banjo, which would have appeared quite impossible with such limited means. It must be emphasised that no true tone-colour control exists, as, for example, in the case of the Trautonium.



The "Neo-Bechstein," seen from above. Note the array of small electro-magnets, each taking charge of five notes. The vibrations set up in the strings are transferred through the magnets to the amplifier, seen beneath the bass strings, and thence to a loud speaker.

NEWS of the WEEK

German Radio Census

GERMAN postmen engaged in collecting quarterly wireless licence fees on January 1st were instructed to question listeners concerning the type of set in use.

No More Park Wireless

NEWPORT Town Council has decided not to replace or maintain existing wireless sets in the three local parks. The cost for the ensuing year was estimated at £400.

Zagreb Joins the Movement

THE latest recruit to the higher power movement is Zagreb, Yugo-Slavia, which will install a 15-kW. transmitter this year to replace the existing 0.75-kW. equipment.

Roumanian Radio Ban

"HASTEN your Roumanian radio deliveries" is good advice to the British manufacturer in view of the latest list of goods which the Government in Bucharest intends to place under a quota. Telephone and wireless accessories figure prominently.

Mutual Interference?

THE path of true love, or peace, is not running smooth in the case of the new League of Nations transmitter at Prangins. According to Japanese testimony the very first messages intended to cultivate world-wide friendship were deliberately jammed by the Chinese station at Anching-fu. On the other hand, certain Chinese journals accuse the Japanese of "organised interference" with the transmission. The Heaviside Layer is considered to be above suspicion.

The Ascending Curve

ON December 31st 5,262,953 licences had been issued by the Post Office, an increase of 140,000 over the previous month. During November 381 persons were prosecuted for not having licences—an easy record.

Another Means Test?

IT VENTURE to suggest that wireless licences should be purchased by getting 6d. or 1s. stamps at the Post Office until the ten shillings has been paid, the owner being allowed to operate his set on the first payment.—Correspondent in the *Birmingham Evening Despatch*.

Anything but That

A DISTINGUISHED-LOOKING gentleman walked into a Paris radio shop the other day and asked to be supplied with "a sensitive, pure, and selective receiver giving good loud-speaker reception from all European stations."

The dealer recommended the latest model of the X . . . Establishment.

"Not that," whispered the customer with a furtive glance round, "I am the manager of that concern."

J'Accuse . . .

SO many complaints of man-made static have been received by the Danish Post Office since the Anti-Interference Act became law last year that the authorities have issued a new decree stipulating that the names and addresses of suspects must each be accompanied by a deposit of ten crowns. The sum is returnable if the complaint is justified.

Two thousand prosecutions have already been instituted, but

Current Events in Brief Review

How Quartz Vibrates

AT a meeting of the Wireless Section of the Institution of Electrical Engineers on Wednesday next, February 1st, at 6 p.m., Mr. E. H. Rayner, M.A., Sc.D., will lecture on "The Researches of the late Dr. D. W. Dye on the Vibrations of Quartz."

A Royal Record

MANY listeners at home and abroad who heard, or failed to hear, the Christmas Day broadcast by H.M. The King will be interested in the permanent memento which has been prepared by "His Master's Voice" in the form of a gramophone record. All profits from the sale of the record, which is numbered R.B.S.4359, are being devoted to the British "Wireless for the Blind" Fund.

Radio-operated Clocks

A SYSTEM of operating clocks by radio waves broadcast from a central station has been patented by Clyde F. McCann, of San Francisco, to whom the U.S. Patent Office has issued Letters Patent No. 1,881,818. It is claimed that this system, utilising Hertzian waves transmitted from a central station having a master control clock, can hold all other clocks adequately equipped within its reception range.

Really Loud Speakers

THE twelve loud speakers now in use at the White City Stadium greyhound racing track are built behind an unusual flare which is designed so that the sound, after it has travelled a certain distance, is controlled and focused into a beam, with the result that the sound is kept at practically constant strength.

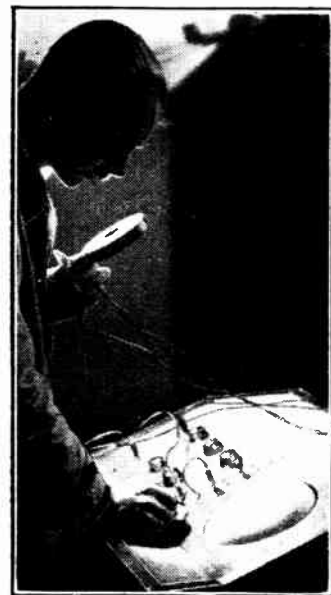
Amphonic Reproducers, Ltd., the builders of the amplifier, claim that a most perfect "straight-line" amplification is possible over a range between 32 and 5,000 cycles. The anode voltage of the valves is 1,500, and they are biased with 60 volts. The set has an undistorted output of 500 watts.

Luxembourg at Last?

SO much has been written and talked about *Radio Luxembourg* that one hesitates to accept the report that at last the station is to begin regular transmissions, that a studio is being erected in the Villa Louvigny, and that an orchestra of thirty musicians has been engaged. M. Jehan Marcin, runs the report, is the new station director. *Radio Luxembourg* has an aerial power of 200 kW₂.

Sunspot Minimum Now

SIX amateur transmitters, comprising the experimental Group 10A of the R.S.G.B., have just been successful in receiving American amateur signals on the 1,750-k.c. band—the lowest frequency



COLOURED TELEVISION. The Loewe Company has produced a cathode-ray tube, the "flat" portion of which is seen in the panel, for two independent rays. By its use coloured television is possible.

channel assigned to amateurs. Convinced that, with the approach of the sunspot minimum, conditions would show a remarkable improvement on this frequency band, they maintained watch in the early hours of the morning for ten days, and were rewarded by hearing three U.S. stations as far west as Pennsylvania. One transmitter at Cape Cod came over with remarkable consistency, and, when his confirmation was received, the British participants learned with great astonishment that the operator was using two aerials, each 28ft. long and running at right angles. The input used was 200 watts.

Finding the Best "Earth"

INVESTIGATIONS on the electrical properties of soil carried out at the National Physical Laboratory on behalf of the Radio Research Board were described in a paper read before the Royal Society on Thursday, January 19th, by Dr. R. L. Smith-Rose.

The experiments consisted in measuring the electrical resistance of samples of soil from different sites under conditions corresponding with those met with in radio communication. The results of the experiments showed that, while dry soil is a poor conductor, the conducting power is increased more than one thousand times when water is added to bring its moisture content up to the value commonly met with in gardens.



UNEMPLOYED AS SET BUILDERS. The local workless at Eastbourne can now attend wireless construction classes specially organised for their benefit. The photograph shows a group of men eagerly following the directions of their instructor.

Reunion of R.F.C. Radio Operators

THE fourth Annual General Meeting of R.F.C./R.A.F. Wireless Operators' Old Comrades' Association is to be held on February 14th next. Full particulars are obtainable from the Hon. Sec., Mr. R. McHugo, 16, Glennie Road, West Norwood, London, S.E.27.

the new decree seems to have stemmed the flood. Persons harbouring grudges against neighbours must now adopt other means of annoyance.

A Gaucherie

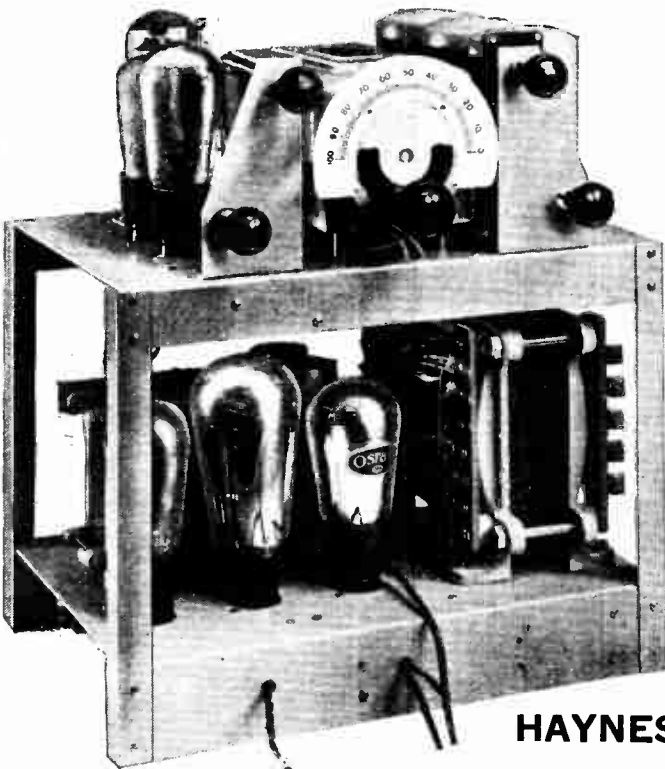
A FRENCH delegate, returned from the Madrid Radio Conference, has "dropped a brick" by declaring that the Spanish Government "treated us royally."

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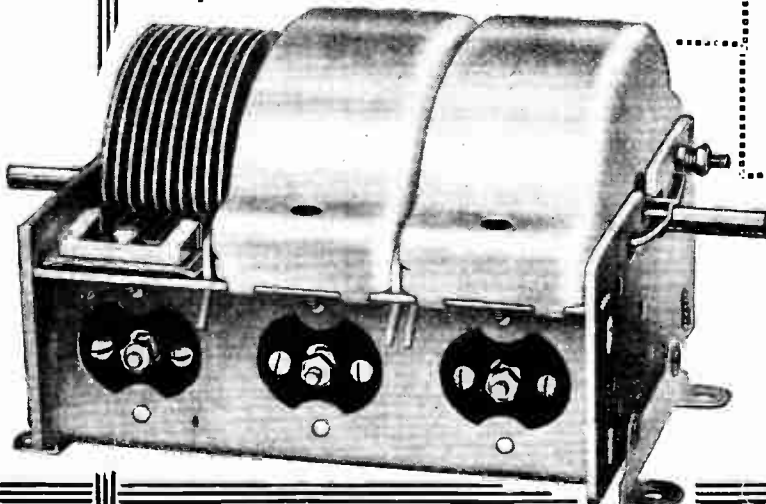
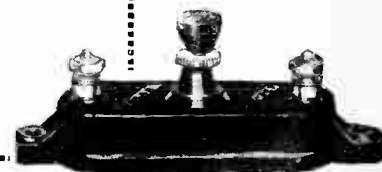
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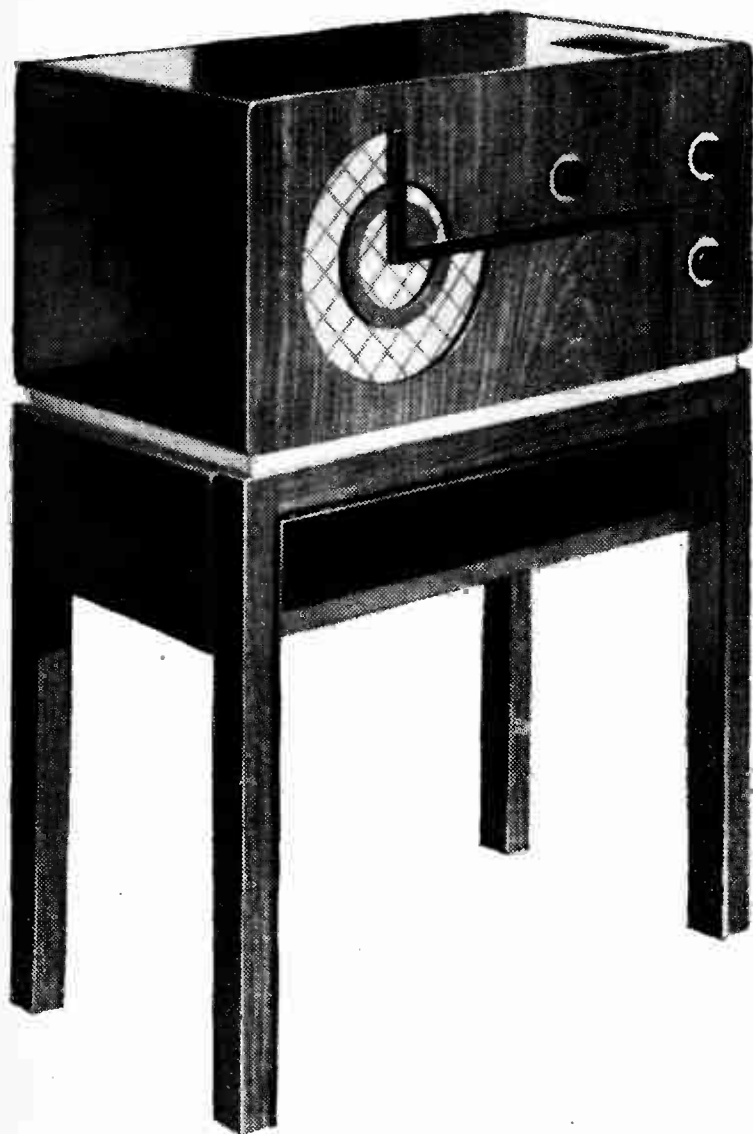
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The section on Selectivity in the A8 Booklet commences:—

SELECTIVITY

There are three forms in which an adjacent station can interfere with the wanted programme. They are

(1) A continuous heterodyne note of 9 kc. due to the carrier frequencies of the wanted and unwanted stations beating with each other.

(A simple illustration of how two frequencies beat can be appreciated by playing two adjacent low notes on a piano, when a slow rhythmic beat note will be heard. The frequency of the beat is equal to the difference in the frequencies of the two notes played.)

(2) Audible modulation interference—that is, the unwanted programme is intelligible and heard as a background to the wanted programme.

(3) Side band interference. The band of frequencies which are transmitted when broadcasting, and convey the audio frequencies produced in the studio, are known as side band frequencies. Those which are higher than the carrier frequency being called the upper side band and those which are lower in frequency the lower side band.

The side band frequencies of an unwanted station can beat with the carrier of the wanted station, the frequency of the beat note produced depending on how far away in the frequency scale the side band is from the wanted carrier.

This kind of interference sounds like “splashing” and is colloquially called, side-band splashing.

In considering selectivity, the following factors must be considered:

- (1) What is the frequency separation of the stations concerned?
- (2) What is their relative field strength at your receiving aerial?
- (3) What extent of audio frequency response is demanded?
- (4) At what maximum volume level will the speaker be operated?

These points are fully dealt with in the booklet, and if you would like a free copy, any Murphy dealer will be pleased to give you one.

Frank Murphy

B.Sc., A.M.I.E.E., A.I.Rad.E.,
Chartered Elect. Engineer.

PROGRAMMES FROM ABROAD

Broadcasting Stations Arranged in Order of Wavelength Times and Details of Full Week's Foreign Transmissions

Metres.	Kc.	kW.	Station.	Tuning Positions.	Metres.	Kc.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania)		381	788	16	Lwow (Lemberg) (Poland)	
1875	160	8.5	Hilversum (Holland)		376.4	797	50	Scottish Regional (Falkirk)	
1796	167	40	Lahti (Finland)		372.2	806	1.5	Hamburg (Germany)	
1725	171	75	Radio Paris, C.F.R.		370.1	810.5	0.8	Radio, L.L. Paris	
1635	183.5	60	Zeesen (Königswusterhausen) (Germany). (Generally relays Berlin.) (S.-W. Sta. P.I.A. on 31.38 m.)		368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (relays Lahti); Khar'kov, RV29 (10 kW.) (Russia).	
1554.4	193	30	Daventry National		364.1	824	1	Bergen (Norway)	
1538	195	7	Ankara (Angora) (Turkey)		363.6	825	13	Algiers (Algeria)	
1481	202.5	100	Moscow, RV1 (Old Komintern) (Russia)		360.6	832	60	Mühlacker (Stuttgart) (Germany)	
1446	207.5	13	Eiffel Tower, P.L., Paris		355.9	843	50	London Regional (Brookmans Park)	
1412	212.5	120	Warsaw 1 (Poland)		352.1	852	7	Graz (Austria). (Relays Vienna)	
1380	217.5	100	Novosibirsk, RV6 (Russia)		348.8	860	7.6	Barcelona, EAJ1 (Spain)	
1348	222.5	30	Motala (Sweden). (Relays Stockholm)		345.2	869	11.5	Strasbourg, PTT (France)	
1304	230	100	Moscow, WZSPS (Trade Union) (Russia)		341.7	878	35	Brno (Brunn) (Czechoslovakia)	
1260	238	10	Baku, RV8 (Russia)		338.2	887	15	Brussels II, Velthem (Belgium). (Flemish Programme.)	
1200	250	5	Stamboul (Turkey)					Madrid (Spain)	
120	250	21	Reykjavik (Iceland)		335	896	5	Caliz (Spain)	
1154	260	7.5	Kalundborg (Denmark). (Relays Copenhagen)		334.4	897	1.9	Poznan (Poland)	
1117	268.5	40	Moscow, Popoff RV58 (Russia)		331.5	905	50	Milan (Italy). (Relays Turin)	
1083	277	60	Oslo (Norway)		328.2	914	60	Poste Parisis (France)	
1090	300	100	Moscow (Russia)		325	923	60	Breslau (Germany)	
938	320	20	Khar'kov, RV4 (Russia)		321.9	932	10	Göteborg (Sweden). (Relays Stockholm)	
857	350	100	Leningrad (Russia)		318.8	941	1.5	Naples, INA (Italy). (Relays Rome)	
819	353.4	4	Rostov-on-Don, RV12 (Russia)		315.8	950	1.6	Marseilles, PTT (France)	
845	355	18.5	Budapest (Hungary)		312.8	959	1.7	Cracow (Poland)	
825	363.6	50	Sverdlovsk, RV5 (Russia)		312.8	959	10	Genoa, IGE (Italy). (Relays Turin)	
779	385	10	Petrozavodsk, RV 29 (Russia)		309.9	968	1	Cardiff	
760	395	1.3	Geneva (Switzerland). (Relays Sottens)		307	977	0.7	Radio Vitus (Paris). (S.-W. Sta. on 43.75 m.)	
720	416.6	20	Moscow, RV2 (Experimental) (Russia)		304	986	13	Bordeaux Lafayette, PTT (France)	
690	434.6	1.5	Oulu (Uleaborg) (Finland)		301.5	995	50	North National (Manchester)	
680	441.2	0.6	Lausanne (Switzerland). (Relays Sottens)		298.8	1004	11	Tallinn (Estonia)	
575	521.5	1.2	Samara, RV16 (Russia)		296.1	1013	7	Huizen (Holland). (Up to 4.10 p.m.)	
574.7	522	2.5	Ljubljana (Yugoslavia)		296.1	1013	20	Huizen (Holland). (After 4.10 p.m.)	
568.1	528	2	Grenoble (France)		293.5	1022	2.6	Kosice (Czechoslovakia)	
563	533	16	Wilno (Poland). (Relay Station)		291	1031	10	Viipuri (Viborg) (Finland). (Relays Helsinki)	
560	536	1.5	Kaiserslautern (Germany). (Relays Munich)		288.3	1040	50	Scottish National (Falkirk)	
558.6	537	1	Tampere (Finland). (Relays Helsinki)		288.3	1040		British Relay Stations (Bournemouth, Ply- mouth).	
550	545	18.5	Budapest No. 1 Lakihegy (Hungary)					Montpellier (France)	
542	551	3	Palermo (Italy)		286	1049	0.8	Lyon (Radio-Lyon) (France)	
542	554	10	Sundsvall (Sweden). (Relays Stockholm)		285.1	1052	0.7	Lisbon CT IAA (Portugal). (Short-wave Station on 31.25 m.)	
533	563	60	Munich (Germany)		282.2	1063	2	Bratislava (Czechoslovakia)	
525	571	15	Riga (Latvia)					Heilsberg (Germany)	
517	580	15	Vienna (Rosenhügel) (Austria)		278.8	1076	13.5	Turin (Italy)	
509	589	15	Brussels No. 1, Velthem (Belgium). (French Programme.)		276.5	1085	60	Remes, PTT (France)	
509	589	10	Astrakhan, RV35 (Russia)		273.7	1096	7	Bremen (Germany). (Relays Hamburg)	
501.7	598	10	Nijni Novgorod, RV42 (Russia)		271.5	1105	1.3	Bari (Italy)	
500.8	599	20	Florence, IPI (Italy). (Relays Turin)		269.8	1112	0.25	Valencia (Spain)	
495.8	605	1.2	Trondheim (Norway)		269.8	1112	20	Lille, PTT (France)	
488.6	614	120	Prague, No. 1 (Czechoslovakia)		267.6	1121	1.5	Moravska Ostrava (Czechoslovakia)	
486.2	617	10	Oufa, RV22 (Russia)		265.8	1128.5	1.3	London National (Brookmans Park)	
480	625	50	North Regional (Manchester)		263.8	1137	11.2	Frankfurt a.M. (Germany)	
480	625	10	Ivanovo-Voznesensk, RV33 (Russia)		261.5	1147	50	Hörby (Sweden). (Relays Stockholm)	
472.4	635	0	Langenberg (Germany)		259.3	1157	17	Gleiwitz (Germany). (Relays Breslau)	
465.8	641	1.5	Lyon la Doua, PTT (France)		257.1	1167	10	Barcelona, EAJ15 (Assoc. Nat.) (Spain)	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland)		253.1	1185	5	Almeria, EAJ18 (Spain)	
453.2	662		San Sebastian, EAJ8 (0.6 kW.); Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (relays Heilsberg); Klagenfurt (0.5 kW.) (Austria) (relays Vienna); Porsgrund (0.7 kW.) (relays Oslo); Tromsø (0.1 kW.); Bodø (0.5 kW.) (Norway); Uppsala (0.15 kW.) (Sweden) (relays Stockholm).		252	1193	1	Prague, No. 2 (Czechoslovakia)	
453.2	662	10	Odessa, RV13 (Russia)		252	1193	1	Trieste (Italy)	
447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.)		249.6	1202		Swansea	
441.2	680	50	Rome, IRO. (S.-W. Station, 2RO on 25.4 m.)		247.7	1211	10	Berne (0.5 kW.) (Switzerland) (relays Bern- in-Schablen); Eskilstuna (0.2 kW.); Sille (0.4 kW.) (Sweden) (relays Stockholm); Cassel (0.25 kW.) (Germany) (relays Frankfurt); Linz (0.5 kW.) (Austria) (relays Vienna); Pietarsaari (0.5 kW.); Turku (Abo) (0.5 kW.) (Finland) (relays Helsinki); Scherbeeck (0.1 kW.) (Belgium)	
435.4	689	55	Stockholm, SASA (Sweden)		245.9	1220	0.12	Belfast (N. Ireland)	
430	698	2.5	Belgrade (Yugoslavia)		242.3	1238	1	Nürnberg (Germany). (Relays Munich)	
424.3	707	2	Madrid, EAJ7 (Union Radio). (After 7.0 p.m.)		238.9	1256	2	Nimes (France)	
424.3	707	1.3	Madrid, EAJ2 (Radio Espana). (Up to 7.0 p.m.)		238	1260	1	Bordeaux, Sud-Ouest (France)	
424.3	707	100	Moscow, Imeni Stalina (Russia)		237.2	1265	3	Lodz (Poland). (Relay Station)	
419.5	715	1.5	Berlin, No. 1, Witzleben (Germany)		235	1283	1.65	Swedish Relay Stations. (Malmö, Norrköping, Karlstad and Trollhättan).	
416.4	720.5	5	Rabat (Morocco)		230.6	1301		Cork (Irish Free State)	
413	725	80	Athlone (Irish Free State)					Fécamp, Radio-Normandie (France)	
408.7	734	16	Katowitz (Poland)		224.4	1337	1	Béziers (France)	
403.8	743	25	Sottens (Radio Suisse Romande) (Switzerland)		223	1345	10	Aberdeen	
398.9	752	25	Midland Regional		219.9	1365	1.5	Warsaw, No. 2 (Poland)	
394.2	761	12	Bucharest (Roumania)		214.3	1400	1	Newcastle	
389.6	770	120	Leipzig (Germany)		214.3	1400	10		
385.1	779	8	Toulouse (Radiophonie du Midi) (France)		211.3	1420	1		



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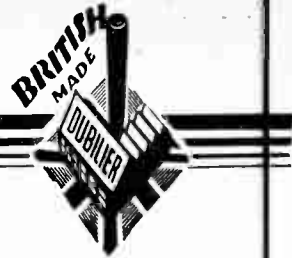
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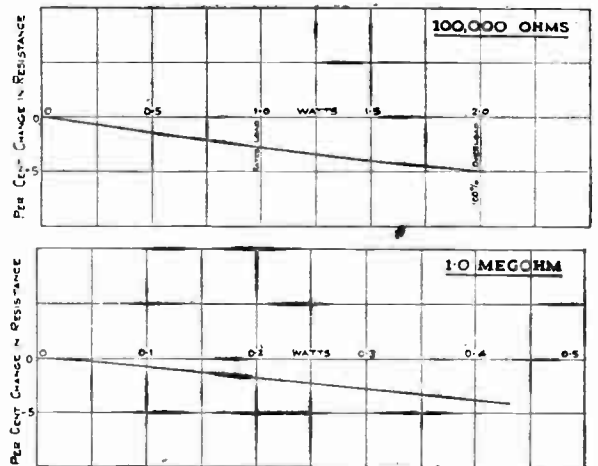
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FOREIGN SUNDAY PROGRAMMES

JANUARY THE TWENTY-NINTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

- NATIONAL** Recital of gramophone records. "The Future Life," by Rev. E. S. Waterhouse. Song recital. Service from Tandridge Church, Oxted. Orchestral concert.
- LONDON REGIONAL** Band programme. Religious Service from St. Columba's, Pont Street. Sunday orchestral concert.
- MIDLAND REGIONAL** Song and violoncello recital. Service from Coventry Cathedral.
- NORTH REGIONAL** Hospital Service from the Cathedral, Manchester.
- WEST REGIONAL** Service for the People, relayed from Colston Hall, Bristol. Carolare, No. 6. Orchestral concert.
- SCOTTISH REGIONAL** National and London Regional programmes.
- BELFAST** Congregational Service from the studio. London and National programmes.

ABROAD

- COPENHAGEN** Verdi concert by the Radio Orchestra, conducted by L. Gröndahl.
- LEIPZIG** Choral concert relayed from Bautzen Cathedral.
- ROME** Operetta: "The Geisha," by Jones.
- STOCKHOLM** Orchestral concert, relayed from Hälsingborg.
- STRASBOURG** Pianoforte recital by Madeleine La Candela.
- STUTTGART** Orchestral concert relayed from Baden-Baden.
- TOULOUSE** English programme arranged by the I.B.C.

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—12 Noon, Concert, relayed from Paris (Ecole Supérieure), 447.1 metres. 2.0 p.m., Relay from Paris or Relay of a Local Festival. 3.0, Programme relayed from Paris (Ecole Supérieure). 7.0, Radio Journal. 7.45, Sports Talk. 8.0, Talk for Ex-Servicemen. 8.15, Lottery Results. 8.30, Popular Music on Gramophone Records. 9.0, Concert of Classical and Modern Music. After the Concert, Entertainments Guide and Time Signal.

BRATISLAVA

279 metres; 14 kW.—2.0 p.m., William Tell—Opera in Four Acts (Rossini), relayed from the Slovak Theatre. 4.30, Variety Music on Gramophone Records. 5.0, Sunday Talk. 5.10, Concert of Light Music from the Carlton Hotel. 5.45, Reading relayed from Kosice (293 metres). 6.0, See Moravska-Ostrava. 6.30, See Brno. 7.0, See Prague. 11.0 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres; 60 kW.; and GLEIWITZ, 253 metres.—9.0 a.m., Protestant Service. 10.6, Address and Recitation on Johanna Wolf's Seventy-Fifth Birthday. 10.50, See Leipzig. 11.5, See Hamburg. 1.0 p.m., Announcements. 1.10, Talk by Hans Wildermann on his Exhibition at the Museum of Fine Arts. 1.30, Agricultural Talk. 1.45, Winter Nights in the Biele Mountains. 2.10, Talk: A Visit to Modern Sparta. 2.30, Programme for Children. 3.0, Songs to the Lute by Edmund Barczyk. 3.30, Orchestral Concert relayed from Stuttgart. 5.0, Talk: Frederic Stendhal, on the Hundred and Fiftieth Anniversary of his Birth. 5.20, Sports Notes. 5.50, Talk on Behalf of the Silesian Winter Relief Fund. 6.0, Viola and Pianoforte Recital by Jaga Stein-Huschinsky and Susanne Kiss-Gottfried. Sonata in E Flat for Viola and Pianoforte (Brahms); Choral Variations for Viola and Pianoforte (D'Indy). 6.30, Weather for Farmers, followed by Talk on the American Army. 7.0, See Vienna. 8.30, Concert from Berlin (Witzleben). 9.0, Time, Weather, News, Sports Notes, and Programme Announcements. 9.30, Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BRNO

342 metres; 25 kW.—10.0 a.m., Concert by the Station Orchestra, conducted by B. Bakala. Soloists, M. Fleischerova (Songs). Serenade in A, Op. 16 (Brahms); Songs (Brahms); Serenade in D Minor, Op. 44

(Dvorak). 11.0, See Prague. 11.5, Military Band Concert. 12.30 p.m., See Prague. 3.0, See Moravska-Ostrava. 4.30, Italian Songs by Bozena Polakova. 5.0, German Transmission: Concert of Light Music. 6.0, See Moravska-Ostrava. 6.30, Bagpipe Music. 7.0 till Close Down, See Prague. 11.0 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—10.0 a.m., Popular Music on Gramophone Records. 11.0, Concert by the Small Station Orchestra, conducted by P. Leemann. 12 Noon, Concert relayed from the Grand Hotel, Antwerp. 1.0 p.m., Le Journal Parlé. 1.10, Concert by Mickey's Club Jazz Attraction. 1.30 to 1.40, Monologues by Mr. Reginald. 5.0, Concert, conducted by Alex. Detyere: Overture, Ber. Froschütz (Weber); Symphonic Poem, Moldavia (Smetana); Prelude to L'Enfant Prodigue (Debussy); Symphonic Poem, Les Préludes (Liszt). In the interval at 5.20 (approx.), Football Results. 6.0, Pianoforte Recital of Music by Haydn: Andante and Variations in F Minor; Sonata in E Minor; Fantasia in C; Sonata in E Flat. 6.30, The Adventures of Bonzo—Radio Sketch (Léon Leroy). 6.50, Gramophone Records: Two Airs from Le Roi malgré lui (Chabrier); (a) Romance du Roi. (b) C'est un ami; Suite Mascareade (Lacôme); Hungarian Rhapsody No. 12 (Liszt). 7.15, Religious Address. 7.30, Talk and Music Review. 8.0, Concert by the Radio Orchestra, conducted by Charles Walpot. Soloist: M. Steurs (Accordion). Sambre et Meuse (Pianoforte); Overture, Banditenstrolche (Suppé); Waltz, H. Bacio (Arditi); Hungarian Rhapsody No. 14 for Two Pianofortes and Orchestra (Liszt); Accordion Solos; Waltz, Le Concor (Jonasson). 8.45, Bach and Laverne Sketches on Gramophone Records. 9.0, Concert (cont'd.); Selection from The Drum-Major's Daughter (Offenbach); Trumpet Solo (Turino); Suite, In the Mediterranean (Armandola). Accordion Solos; The Mill in the Black Forest (Ellenberg); The Student passes by (Bañer); Onstep (Heymann). 10.0, Le Journal Parlé. 10.10, Concert by the Penguin Club Orchestra. 12 Midnight, Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish. 10.0 a.m., Concert by the Little Radio Orchestra, conducted by P. Leemann. Soloists: M. Wigy (Violin) and Paul Doulliez (Pianoforte). Overture, The Italian Girl in Algiers (Rossini); Suite in Old English Style, Henry VIII (Foulds); Volksliedchen (Komzak); Märchen (Komzak); Spanish Pieces

for Violin (Talla); (a) Cradle Song, (b) Can-Can, (c) Polka; Selection from Thais (Massenet); Polish Songs for Pianoforte (Chopin-Liszt); La valse des cloches (Luigini); Norwegian Dances (Grieg). 11.0, Gramophone Concert: Overture, The Magic Flute (Mozart); The Clock Symphony (Haydn); Quartet, Op. 18, No. 5 in A (Beethoven). 12 Noon, Concert by Mickey's Club Jazz Attraction. 1.0 p.m., Le Journal Parlé. 1.10, Concert, conducted by André Felleman, relayed from the Grand Hotel, Antwerp. 5.0, Dance Music from St. Sauveur Palais de Danse. In the interval at 5.15, Sports Notes. 6.30, Harp and Cello Recital by Mme. Khuner and Jacques Khuner: Pieces for Cello and Harp (d'Hervelois); (a) Plainte, (b) Napolitaine; Harp Solos: (a) Improromptu (Grieg); (b) Caprice (Risler); Pieces for Cello and Harp: (a) Idylle (Delcroix); (b) Esquisse (De Boeck); (c) Goyescas (Granados). 7.0, Gramophone Records of Variety Music. 7.15, Religious Address. 7.30, Music Review by Jof Van Durme. 8.0, Swane, relayed from the Royal Flemish Opera House, Antwerp. In the intervals, Recitations and Journal Parlé. After the Relay, Gramophone Dance Music. 12 Midnight (approx.), Close Down.

BUCHAREST

594 metres; 12 kW.—4.0 p.m., Concert of Light Music and Romanian Music by Jean Marco and his Orchestra. 5.0, News and Time Signal. 5.10, Talk. 5.25, Concert (cont'd.). 6.0, Talk on Romanian Monasteries. 6.40, Popular Music on Gramophone Records. 7.0, The Merry Widow—Operetta by Three Acts (Lehár). In the intervals: News Bulletin.

BUDAPEST

550 metres; 18.5 kW. Programme also relayed on 840 metres from 7.0 p.m. till Close Down.—13.15 a.m., Service from the Church in the Kolary Gasse, followed by Time, Weather, Tides Report and Concert by the Budapest Concert Orchestra, conducted by Nandor Mészényi. 1.0 p.m., Gramophone Concert of Popular Music. 2.0, Agricultural Talk. 2.45, Two Educational Talks. 3.30, News, followed by Concert of Marches and Waltzes. 5.15, Recital of Hungarian Folk Songs, with Cigány Band Accompaniment. 6.30, Reading. 7.0, See Vienna. After the Relay, News and France and Cigány Music from the Café Patria.

CASSEL.—See Frankfurt.

COPENHAGEN

221 metres, 9.75 kW.; and KALUNDBORG, 1.153 metres, 7.5 kW.—11.0 a.m., Town Hall Chimes. 11.2, Instrumental Concert. 12 Noon, Talk in English: The Economic Side of Daily Life. 12.20 p.m., Talk in German on Thomas Mann. 12.40, Talk in French on the French Middle Classes. 1.25, Gramophone Records of Popular Music. 1.55, Programme for Children. 2.25, Eleventh Popular Concert from the Axelberg Studio; The Radio Orchestra, conducted by Emil Reesen, with Poul Wiedemann and Chr. Frederiksen (Songs). 4.0 (also relayed by Skamleback on 31.51 metres), Divine Service from the Christiansburg Castle Church. 5.20 (from the Esbjerg Studio), Talk: The Peasant in Danish Literature. 5.50, Weather Report. 6.0, News Bulletin. 6.15, Time and Sports Notes. 6.50, Talk: Young Danes in Industry. 7.0, Town Hall Chimes. 7.2, Verdi Concert by the Radio Orchestra, conducted by Launy Gröndahl: Overture, Sicilian Vespers (Verdi); Ballet Music from Aida (Verdi); Selection from Rigoletto (Verdi). 7.35, Reading of Poems and Prose, and Recital of Songs. 8.20, Choral Music. 8.40, The Hansen Family—Humorous Sketch (Jens Locher). 8.55, Pianoforte Recital. 9.10, News Bulletin. 9.20, Orchestral Concert, conducted by Launy Gröndahl. 10.0, Dance Music from the Wivex Restaurant. 11.0 (in an interval), Town Hall Chimes. 11.50 (approx.), Close Down.

CORK.—See Dublin.

DANZIG See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN, 413 metres, 1.2 kW.; and CORK, 224.4 metres. 8.30 p.m., Time Signal. 8.31, Vocal and Instrumental Concert. 11.0, Time Signal, News Bulletin, Weather Report, and Close Down.

FECAMP

223 metres; 10 kW.—4.0 to 8.0 p.m., Programme in English by the I.B.C. 4.0, International Broadcasting Club Concert: Mimi; My Romance; Pal of my Dreams; Sheltered by the Stars; You've got me in the Palm of Your Hand; Let's all sing like the Birdies sing. 5.0, The Nursery Corner. 5.50, Children's Club Concert. 6.0, Military Band Concert: La Grive (Cok); Viscount Nelson (Zehle); Ballad Memories (arr. Baynes); March, Pomp and Circumstance (Elgar); A Frangese (Costa); New Colonial March (Hall); Selection from the Country Girl

BARCELONA

RADIO-BARCELONA, Call EAJ1, 349 metres; 8 kW.—11.0 a.m., Chimes from the Cathedral and Weather Forecast. 1.0 p.m., Popular Music on Gramophone Records. In an interval at 1.30, Theatre Notes. 2.0, Film Review, followed by Concert by the Station Sextet. 3.0, Programme for Hospitals and other Benevolent Institutions. 4.0 to 5.30, Interval. 5.30, Agricultural Talk in Catalan, followed by Part Relay of an Opera from the Gran Teatro del Liceo. 9.0, Vicente Díez de Tejada reads from his own Works. After the Readings, Selection from Musical Comedy on Gramophone Records. 10.45, Chess Lesson. 11.0 (approx.), Close Down.

BARI

270 metres; 20 kW.—12 Noon, Giornale Radio. 12.10 p.m., Concert of Light Music. 12.55 (in an interval), Weather Forecast. 1.0, Time Signal and Announcements. 4.50, Light Music on Gramophone Records. 5.30 to 7.0, Interval. 7.0, Giornale Radio, Sports Notes and News Bulletin. 7.20, Time Signal and Announcements. 7.35 (approx.), Concert of Variety Music. In the interval, Announcements. 9.20, Concert relayed from the Gran Caffè del Levante. 9.55, News Bulletin.

BASLE.—See Schweizerischer Landessender.

BELGRADE

433.4 metres; 2.8 kW.—3.0 p.m., Concert of Operetta Music by the Radio Orchestra. Soloist: Evka Mikulic (Songs). Overture, Frühlein Loreley (Lincke); Arias from Die Tereza (O. Straus); Selection from The Little Dutch Girl (Kalman); Arias from Die spanische Nachtigall (Fall); Selection from The Bird Faucier (Zeller); Arias from Madame Pompadour (Fall); Song, Oh du mich behst, from Nakiris Hochzeit (Lincke); Waltz from Gipsy Love (Lehár). 5.55, Time and Programme Announcements. 6.0, Popular Music on Gramophone Records. 6.20, Violin and Pianoforte Recital by Vladimir Slatin and Aleksije Butakov. 7.0, Talk on Wireless. 7.30, Military Band Concert. 9.30, News and Dance Music on Gramophone Records.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—10.30 a.m., See Langenberg. 11.20, Concert from Hamburg. 11.55 (in an interval), News and Time Signal. 1.0 p.m., Talk for Parents. 1.30, Talk on Kant and his Philosophy. 2.0, Popular Melodies on Gramophone Records. 3.0, Gustfried Kapp reads from his own Works. 3.20, Concert from Berlin (Witzleben). 4.0, Contemporary Music for Children by a Young People's Choir. 4.50, Talk: Art Centres and Art Treasures of the German Nation: the Portrait Collection of the Prussian State. 5.15, Trio in B, Op. 8 (Brahms). 5.45, Talk: The Struggle for Existence in the East Mark from Frederick the Great to Bismarck. 6.15, Talk: Childhood and Old Age—an Appeal for the Distressed Areas in Lower Silesia. 6.30, Serenade No. 11 for Wind Instruments (Mozart). 7.0 to 9.10, See Langenberg. 9.10, Weather, News, and Sports Notes. 9.25, Radio Report on a Horse Show. 9.45, Weather Report for Shipping. 10.0 (approx.), See Langenberg. 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—10.30 a.m., See Leipzig. 11.5, See Hamburg. 1.0 to 1.30, Programme for Children. 2.0, Cabaret Programme on Gramophone Records. 3.0, W. O. Souin read short Stories. 3.20, Concert of Light Music and Dance Music from the Café Berlin. 4.5, A Play for Children, by Children. 4.35, Talk: Landscape. 5.0, Concert of Magdeburg Music of the Eighteenth Century, relayed from the Stadthalle, Magdeburg. 5.40, Walking through the Graveyards—A Radio Report from the Exhibition—The Front. 6.5, Sports Notes. 6.10, Life and Death—a Literary Programme. 7.0, Concert by the Berlin Philharmonic Orchestra, conducted by Alois Melichar. Soloist: Hedwig von Delitzka (Soprano). Overture, Carnival roman (Berlioz); Songs: (a) Aria from The Magic Flute. (b) Recitative and Aria from Figaro (Mozart); Suite, Le Bourgeois Gentilhomme, Op. 60 (Richard Strauss). 8.0 (approx.), Address by Dr. Bredow: Feyerabend and the German News Service. 8.10, Concert (cont'd.); Overture, Die Fleidermans (Joh. Strauss). Songs: (a) Aria from Eva (Lehár). (b) Song from Paganini (Lehár); Waltz, O schöner Mai from Prinz Methusalem (Joh. Strauss); First Hungarian Rhapsody (Liszt). 9.0, Weather, News, Sports Notes, and Radio Report of the Fourth Grand Prix for Riding and Driving: After the Relay, Dance Music. 11.0 (approx.), Close Down.

BERNE.—See Schweizerischer Landessender.

BEROMUNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODD.—See Oslo.

JAN. 29th

SUNDAY

continued

(Monckton); March, The Thunderer (Sousa). 6.30, Variety Half-Hour: Balloons; You're my Everything; Gipsy Moon; Love is the Sweetest Thing; Mariette; How deep is the Ocean?; Toasts; Swanee; Let's put out the Lights and go to sleep. 7.0, Maid of the Mountains Selection; Fantasia; Song: Live for to-day; Song: Farewell; Duet: My Life is Love; Song: A Bachelor gay; Song: Love will find a Way; Duet: A Paradise for two. 7.30, Orchestral Concert: Waltz, The Blue Danube (Joh. Strauss); Der Rosenkranz-zeugszug (Jessel); Columbine (Garland); Down in the Forest (Lamou Ronald); At the Convent Gate (Sherwood); Ich liebe dich (Grieg); In a Pierrette's Garden (Clifton Brookes); Invitation to the Waltz (Weber-Woodhouse). 8.0, Popular Concert, 9.0 till Close Down, Programme in English by the I.B.C. 9.0, Orchestral Concert with Songs: Waltz from The Sleeping Beauty (Tchaikovsky); Songs: (a) The Sea Road (Haydn Wood), (b) The Londonderry Air (arr. Weatherley); Overture, Miknon (Thomas); Songs: (a) Glorious Devon (German), (b) There is no Death (O'Hara); Searf Dance (Chaminade). 9.30, Concert: Humoresque (Dvorak); Selection from Wild Violets (Stohart); Sleepy Valley (Hanley); Traumeri (Schumann); Selection from The Beggar's Opera (Gay); Waltz Medley from Bitter Sweet (Coward). 10.0, Pianoforte Duets by Layton and Johnstone: Happy-to-ducky you; Silver Hair and Heart of Gold; Dream Sweetheart; The Turning of the Tide; Same old Moon; Round the Bend of the Road; Night shall be filled with Music; Auf Wiedersehen. 10.30, Concert of Dance Music: Let's put out the Lights; Wanderer; There's a Crowd; We just couldn't say goodbye; Yes, Mr. Brown; Old Mother Hubbard; Lym' in the Hay; My Romance. 11.0, Light Songs: River stay away from my door (Dixon Woods); Show the Hoodoo away (Harris Snyder); A Beggar can sing the Song of a King (Keith Guest); There's Happiness over the Hill (Egan-Sullivan); The Empire Parade (Eyton-Mayer); Going Home (Eyton-Adinell); Around the Corner (Kuhn Kassel). 11.30, Russian Music: By the Riverside (arr. Leontiev); Waltz, Impromptu (Andrade); Waltz, The Dream (Andrade); In a Pine Forest (Traditional); Russian Folk Songs and Dances (Traditional); The Red Sarafin (arr. Leontiev); Lovely Night (arr. Leontiev); Song of the Volga Boatmen (Traditional). 12 Midnight, Variety Programme: Somebody Stole My Gal; The Jolly Sailor; Sergeant Jack McPhee; So Ashamed; Here's hoping; Here comes Annie Lee; My Bonnie Highland Maggie; Southern Serenade. 12.30 a.m. (Tuesday), Light Songs: The First Week-end in June (Ellis); I'm in the Market for you (Hanley); I fell for you (Walker); Just like in a Story Book; Sweet Temptation (Young); Body and Soul (Green); Who cares? (Hackworth); Sometimes I'm happy (Youmans). 1.0, Hawaiian Duets: Alma Mia (Whidden); Bone Festa (Traditional); Goodnight, Sweetheart (Noble); O Sole Mio (di Capua); Hawaiian Twilight (Traditional); Sing Something Simple (Hupfeld); Kamischamola (Traditional); Three little words (Cowan). 1.30, Scotch Songs: Border Ballad (Cowan); Kirkcubbin Lea (Traditional); March of the Cameron Men (Campbell); A Fond Kiss (Traditional); Willie's Gene to Melville Castle (Traditional); The Piper o' Dundee (Traditional); Green grow the Rushes O' (Traditional); Corn Rigs (Traditional). 2.0, Dance Music: Yes, Mr. Brown; Merry Mel; Silver Hair and Heart of Gold; Round the Bend of the Road; Take a Spot of Happiness; After Tonight we say Good-bye; Song of the Bell; Love is the Sweetest Thing; Mimi; A Million Dreams; Here's hoping; Wanderer; Isn't it Romantic?; I'll follow you; Always in my Heart; Dreaming. 2.57, I.B.C. Good-night Melody. 3.0 (approx.), Close Down.

FLensburg.—See Hamburg. FLDRENCE.—See Turin. FRANKFURT 259 metres; 17 kW; and CASSEL, 245.9 metres.—10 a.m., Talk on Shaw's New Play, Too True to be Good (on the occasion of the First Performance in Frankfurt). 10.30, See Leipzig. 11.0, See Munich. 12.5 p.m., Concert from Langenberg. 1.0, Agricultural Notes. 1.10, Dialogue. 2.0, Programme for Young People. 3.0, See Stuttgart. 5.0, Talk: Hessian Character Sketches—Selurz. 5.25, Humorous Interlude. 5.55, Talk. 6.20 Sports Notes. 6.30, Erik Reger discusses his Book, Das wachsame Hähnchen. 6.45, Literary Competition—Who is it? 7.0, Jabuka—Operetta (Joh. Strauss). 9.20, Time, News, Weather, and Sports Notes. 9.30, Dance Music, relayed from Berlin (Witzleben). 11.0 (approx.), Close Down. FREDRIKSSTAD.—See Oslo. FREIBURG.—See Stuttgart. GENOVA.—See Radio-Suisse Romande. GENOA.—See Turin. GLEIWITZ.—See Breslau. GOTEBORG.—See Stockholm. GRAZ.—See Vienna. HAMAR.—See Oslo. HAMBURG Call ha (in Morse), 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg,

227.4 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—10.30 a.m., See Leipzig. 11.0, Time and Weather. 11.5 (from Flensburg), Concert by the Municipal Orchestra, conducted by Kurth Barth, relayed from the Deutsches Haus. In the Interval, The True Sea Story of the Week. 1.0 p.m. (from Hanover), Married Life—Address by Trude Wiechert. 1.45, Programme for Children. 2.45, Music for Domestic Work—Words by E. Scharf. Music by H. Erdlen. 3.15, Johanna Wolff Programme on her Seventy-Fifth Birthday. Commentary by B. Dietrich. Songs by H. E. Groh. 3.45 (from Bremen), Concert by a Wind Instrument Orchestra, conducted by Fredo Niemann: March, Des König, Grenadiere (Meyer); Overture, William Tell (Rossini); Kiss Waltz (Waldteufel); Hansa-Marsch (Voges); Songs (Eilenberg): (a) Monatsrose, (b) Wilde Rose; Potpourri, Aus der Woche (Thiele); March, Preussens Gloria (Pierke); Die Wachtparade kommt (Eilenberg); Deutschermeister Regimentsmarsch (Jurek). 4.45 (from Bremen), Chamber Music Concert, relayed from the Goldenre Saal: Astrid Schlytter (Songs), H. von Wedeheld (Pianoforte), Karl Berla (Violin), and V. Hormes (Cello); Serenade in A for Pianoforte (Stravinsky); Nissa brevis, Op. 22, for Voice, Violin, and Cello (Rentler); Violin Sonata in G, Op. 12, No. 2 (Raphael). 5.45, Humorous Programme. 6.30, Talk: Diving as a Competitive Sport. 6.40, Sports Notes. 6.55, Weather. 7.0, See Vienna. 8.30, Dance Music. In an interval at 9.0, Time, Weather, Announcements, Sports Notes, and Police Report. 9.20, Topical Talk.

HANOVER.—See Hamburg. HEILSBERG 276.5 metres; 60 kW.; and DANZIG, 453.2 metres.—10.30 a.m., See Leipzig. 11.0, Concert by the Königsberg Opera House Orchestra, conducted by Werner Franz: Overture, Der Bärenhäuter (Stegfried Wagner); Prelude and Berceuse (Järnefeldt); Suite, Mozartiana (Tchaikovsky); Slav Dances Nos. 1 and 3 (Dvorak); Fantasia on Schwannia, the Piper (Weinberger); Overture, Banditenstreich (Suppé); Kavalier-Walzer (Nedbal); Selection from Das Spielzeug; Huter Majestät (Königsberg); Hungarian Dance Suite from Der Teufelsreiter (Kálmán). 1.0 p.m., Talk on Chess. 1.30, Talk for Young People. 2.0 (from Danzig), Lebricht Lang—A Fairy Tale for the Radio (Sigard Baller); Music by Heinz Hoffman. 2.45, Concert by the Small Organ Orchestra, conducted by Eugen Wilcken. 4.0, See Munich. 5.0, Sports Notes. 5.10, The Letters of Bettina von Arnim to Goethe's Mother. 5.35, Mandoline, Balalaika and Zither Concert. 6.35, Part Relay of the Fifth German Ice Yachting Regatta from Auegerburg (on Gramophone Records). 6.55, Sports Notes. 7.0, See Langenberg. 9.10 (approx.), News and Sports Notes, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

HILVERSUM Announced HUIZEN; 256.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—9.40 a.m. to 4.40 p.m., Programme of the Catholic Radio Society (K.R.O.). 9.40, Mass, relayed from the St. Bernarduskerk, Groenendijk. 11.10, Variety Music on Gramophone Records. 11.40, Talk for Women. 11.55, Concert by the K.R.O. Sextet. In the interval at 12.40 p.m., Literary Talk. 1.40, Religious Address. 2.10, Concert by the K.R.O. Orchestra, conducted by Johan Gerritsen and the Zangst Vocal Quartet. 4.10, Programme for Invalids. 4.40 to 7.25, Programme of the Christian Radio Society (N.C.R.V.). 4.40, Divine Service, relayed from a Church in Bussum, followed by Sacred Music on Gramophone Records. 7.25 till Close Down, K.R.O. Programme. 7.25, Topical Talk. 7.50, Football Results. 7.55, Concert by the Kunst en Broederschap Vocal Ensemble, conducted by L. Keerweer. 8.15, Concert by the K.R.O. Orchestra, conducted by J. Gerritsen. Soloist, Irena Dubiska (Violin). Concerto for Violin in A (Karłowicz); Violin Solos: (a) Largo and Allegro (Veracini-Dilevi), (b) Caprice No. 20 (Paganini), (c) Romanza andaluzia (Sarastate), (d) Spanish Dance (Falla-Kroslar). In the interval at 8.40, News. 9.10, Vocal Concert (contd.). 9.25, Orchestral Concert (contd.): Der Steiner (Noack); Waltz, Blumengeldfister (von Blon); In a Chinese Temple Garden (Ketchey). 9.40, Vocal Concert (contd.). 9.55, Orchestral Concert (contd.): Oriental Suite (Poppe); Waltz, The Skaters (Waldteufel); Zürich March (Heusser). 10.20, Epilogue by the Choir. 10.40 (approx.), Close Down. HORBY.—See Stockholm.

HUIZEN Announced HILVERSUM, 1,875 metres; 8.5 kW.—11.40 a.m. to 4.40 p.m., Programme of the Algemeene Vereniging Radio Omroep (A.V.R.O.). 11.40 a.m., Time Signal. 11.41, Military Band Concert, conducted by Captain C. L. Walther Boer. In the intervals, Popular Music on Gramophone Records. 1.40 p.m., Weekly Book Talk. 2.10, Concert by the Concertgebouw Orchestra, conducted by Eduard van Beinum, relayed from the

Concertgebouw. Amsterdam. Soloist: Caecilia Hansen (Violin). Taras Bulba (Janacek); Violin Concerto (Mendelssohn); The Nutcracker Suite (Tchaikovsky). 3.40, Scenes from The Ideal Husband—Play (Oscar Wilde). 4.25, Sports Notes and Light Music on Gramophone Records. 4.40, Programme of the Workers' Radio Society (V.A.R.A.); Programme for Children. 5.40, Programme of the Liberal Protestant Radio Society (V.P.R.O.); Review of New Books. 6.10 to 7.10, V.A.R.A. Programme. 6.10, Concert by the Little V.A.R.A. Orchestra. 6.40, Concert by De Notenkrakers, conducted by D. Wius. Soloist: A. de Booy (Songs). 7.10, Orchestral Concert (contd.). 7.40 till Close Down, A.V.R.O. Programme. 7.40, Time Signal. 7.41, News Bulletin. 7.55, Concert by the Wireless Orchestra, conducted by Nico Treep. Soloist: Willi Domgraf-Fassbaender (Baritone). 9.20, Recitations. 9.40, Concert of Light Music by Kovacs Lajos and his Orchestra. Soloist: Willi Domgraf-Fassbaender. 10.10, Popular Music on Gramophone Records. 10.20, Concert (contd.). 10.50, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna. KALUNDBORG.—See Copenhagen. KIEL.—See Hamburg. KLAGENFURT.—See Vienna. KOSICE.—See Prague.

LANGENBERG 473 metres; 60 kW.—10.30 a.m., Demonstration of the German Catholic Women's League and the City of Aachen relayed from the Kaisersaal, Aachen: Overture, Egmont (Beethoven). Address by Dr. Eibl, The Mission of the German People throughout the Ages. Finale from the Fifth Symphony in C Minor (Beethoven). 11.20, Masters of Travel Description: On Foot through Cyprus (V. Meyer Eckhardt). 11.45, Talk: The Music of the Week. 12 Noon, Concert, conducted by Wolf; War March of the Piutes from Athalia (Mendelssohn); Concert Waltz in E (Moszkowsky); Overture, Masaniello (Anber); Rhapsodie Fantasia (Urbach) Melody (Rubinstein); Torador and Andalouse (Rubinstein); Potpourri of Bizet's Music (Urbach); Aufzug der Stadtwahe (Jessel); Selection from The Czarevitch (Lehar); Waltz, Estudiantina (Waldteufel). 1.30 p.m., Shortland Lesson. 1.50, Talk on Chess. 2.20, Agricultural Talk. 2.45, Talk: Musicians who died young. 3.10, Talk: The Present Sphere of Chemistry. 3.30, Concert from Stuttgart. 4.0, See Munich. 5.5, The World on Gramophone Records—People in Styria. 5.40, Talk on Industries: Silk. 6.0, An Entertainment. 6.45, Sports Notes. 7.0 to 9.10, Vaudeville Evening. 7.0, Concert by the Station Orchestra, conducted by Eysoldt; Two Melodies (Kreisler); (a) Caprice viennois, (b) Syncopeation; Waltz, Ball bei Hof (Ziehrer); Selection from Wild Violets (Stolz). 7.30, The True Gentleman in all Situations in Life—A Series of Humorous Sketches from Old and New Books of Etiquette and Letter-Writing Manuals (Hanns John and Robert Stenmale); Music by Georg Hummelsant. 8.15, Concert of Old and New Marches by the Station Wind Instrument Orchestra, conducted by Kühn. 9.10, News and Sports Notes. 9.30, String Quartet in G, No. 14 (Mozart). 10.0, Dance Music on Gramophone Records. 11.0 (approx.), Close Down. LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG 389.6 metres; 120 kW.; and DRESDEN, 319 metres.—10.30 a.m., Was mein Gott will, das g'scheh' alzeit—Cantata (Bach), by the Municipal and Gewandhaus Orchestra, the Choir of St. Thomas, and Soloists. 11.5, Concert by the Leipzig Symphony Orchestra, conducted by Willy Stellan; Overture, In Italy (Goldmark); Intermezzo in B Minor (Schubert); Serenade in G Minor No. 4 (Fuchs); Slav Rhapsody No. 2 (Dvorak); Variations on a Flemish Folk Song, for Strings (de Greef); Suite from A Midsummer Night's Dream (Mendelssohn); Selection from "Die schöne Galathée" (Suppé); German Triumph March (Reincke); Waltz, Gold and Silver (Lehar). 1.0 p.m., Weather Forecast and Time Signal. 1.5, Programme Announcements. 1.25, Agricultural Hints. 1.35, Esperanto Lesson. 2.0, Musical Programme for Children by Children. 2.30, Walter Bauer reads from his Poems and Prose Works. 3.0, Kurt Selchert Recital by the Genzel String Quartet, with the Composer at the Pianoforte. 3.30, Die Tage der Kaiser—Historical Drama (Christian Dietrich Grabbe). 5.0, Choral Concert, relayed from Bautzen Cathedral. Organist: Horst Schneider. Fantasia on the Choral O Heiland, reiss die Himmel auf, Op. 5, No. 1 (Spitta); Christmas Oratorio, Op. 17, for Six-part A-Capella Choir (Kurt Thomas). 6.0, Topical Talk. 6.15, Topical Reports on Gramophone Records. 7.0, Das Dorf ohne Glocke (The Village without Bells)—Musical Play in Three Acts (Kinneke). 9.5, News Bulletin. 9.20 (approx.), Dance Music by the Emde Orchestra. 11.0, (approx.), Close Down.

LINZ.—See Vienna. MADRID UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—8.0 to 9.0 a.m., Topical Review. 9.0 p.m., Chimes, Time Signal, Theatre Notes and Concert by the Artys Orchestra. 4.0 to 7.0, Interval. 7.0, Chimes and Dance Music relayed from the Ritz Hotel. 7.30 (in an interval), Agricultural Talk. 8.30 to 9.0, Interval. 9.30, Chimes and Time Signal. 9.35 (approx.), Song Recital by Margarita Cuetu, Interlude by Ramon Gomez de la Serna, Guitar Solos by Luis Garcia and Flamenco Songs by Nino de la Cruz and Manolito Fernandez. After the Programme, Dance Music, relayed from Gong Dance Hall. 12 Midnight, Chimes and Close Down.

MALMO.—See Stockholm. MILAN.—See Turin. MORAVSKA-OSTRAVA 263.8 metres; 11 kW.—3.0 p.m., Concert by the Station Orchestra, conducted by V. Tvrdy. Introduction to Act III of The Devil and Kate (Dvorak); Four Melodies (Mussorgsky); Ballet Music from Le Roi s'amuse (Delibes); Ballet Suite (Gymlark); March of the Aviators (Folprecht); Valse triste (Nedbal); Japanese Air (Balling); Polka (Waldteufel); March (Hasler). 4.30, See Prague. 6.0, Concert of Dance Music by the Station Orchestra. 6.30, See Brno. 7.0 till Close Down, See Prague. 11.0 (approx.), Close Down.

MOSCOW TRADES UNION, 1,304 metres; 100 kW.—4.0 p.m., News. 4.10, Concert. 5.30, Concert, relayed from the Radio Theatre. 8.0, Talk in English: The Results of the First Five Year Plan. 8.55, Time. 9.5, Press Review.

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

MUNICH 533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—11.0 a.m., Concert Relay. 12.5 p.m., Time, Weather and Programme Announcements. 12.15, Agricultural Talk. 12.35, Popular Music on Gramophone Records. 1.30, Chess Lesson. 2.15, Tales and Songs from the Bavarian Forests. 3.0 (from Nürnberg), Concert by the Würzburg Madeline and Guitar Society. 3.40, Programme for Children. 4.0, Chamber Music: Concerto for Three Harpsichords and Orchestra (Bach); Concerto for Viola da Gamba and Strings (Tartini); Concerto for Four Harpsichords and Orchestra (Vivaldi-Bach). 5.0 (from Nürnberg), Talk. 5.20, Concert, conducted by Erich Klose. Soloist: Hugo Kolberg (Violin). 6.35, Topical Talk. 6.45, Weather and Sports Notes. 7.0, Sound Film: Song Revue. 8.15, Concert by the Munich Philharmonic Orchestra, conducted by Willy Haendel-Christiansen, relayed from the Tonhalle. Soloist: Otto Wolf (Tenor). In the Interval, News. 9.45 (approx.), Time, Weather, News and Sports Notes. 10.0, See Stuttgart.

NAPLES.—See Rome. NOTODDEN.—See Oslo.

OSLO 1,083 metres; 60 kW. Relayed by Fredrikstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 456.2 metres; and Rjukan, 447.1 metres. 9.0 a.m., Chimes and Divine Service, relayed from a Church. 3.30 p.m., Concert by the Station Orchestra. 4.30, Recitations, by Karl Holter. 5.0, Theatre Notes. 6.0, Talk. 6.15, Weather Forecast. 6.30, Talk. 7.0, Time Signal. 7.1, Programme relayed from Stavanger (240.6 metres). 8.40, Weather Forecast. 8.45, News Bulletin. 9.0, Topical Talk. 9.15, Concert, conducted by S. Selchert.

OSTERSUND.—See Stockholm. PALERMO 542 metres; 3 kW.—9.25 a.m., Bible Reading. 9.40, Sacred Music. 10.5, Agricultural Report. 11.45, Giornale Radio. 12 Noon, Variety Concert. 1.30 p.m. (in an interval), Time Signal, Announcements, and Weather Forecast. 4.50, Concert of Light Music relayed from the Olympia Tea Rooms. 7.0, Announcements and Giornale Radio. 7.20, Sports Notes. 7.30, Time Signal and Announcements. 7.45, Le Tre Jume—Operetta in Three Acts (Ranzato). In the interval, Talk and Literary Notes. 9.55, News Bulletin.

PARIS EIFFEL TOWER; Call FLE, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres), 1. 9.26 a.m. and 10.26 p.m. (preliminary and 6-dot Signals)—12.30 p.m., Concert relayed from Paris (Ecole Supérieure) (447.1 metres). 1.0, Concert by the Rex Orchestra. 5.0, Le Journal Parlé. 7.20, Weather Forecast. 7.30, Gramophone Concert, Part I: Rossi Music: Selection from William Tell; Overture, Scéniramus. Part II: Mascade from La Feria (Lacôme); Melody from Le Coup le Rouis (Messager); Zigeunerweisen (Sarastate); Air from Le Devin du Village (Roussé); Melody from La Boulangère a d's écus (Offenbach); Salut de printemps;

JAN. 29th

SUNDAY

continued

Melody from Gipsy Love (Lehar); In Old Seville (Rosen); Marie (Solver); Les Jours se suivent mais ne se ressemblent pas (arr. Michalow); The Blue Sea (Benedict); Express Warsaw to Paris (Bauer). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—9.45 a.m., Bible Reading and Sacred Music on Gramophone Records. 10.0, News. 10.5, Sponsored Concert. 11.5, Film Stars. Sponsored Programme. 11.40, Sponsored Gramophone Concert. 12.15 p.m., Sponsored Concert of Sound Film Music. 12.45, Half an Hour of Fantasy by Paul Weill. 1.15, Interval. 1.30, Sponsored Programme. 2.0 to 6.45, Interval. 6.45, Journal Parle. 7.0, Agricultural Talk. 7.15, Sports Notes. 7.30, Catholic Review. 8.0, Sponsored Concert. 8.30, Interval. 8.45, Sponsored Concert. 10.15, Organ Solos by Maurice Durufle. Organistique (Fournemire); Sonata No. 6 (Mendelssohn). 10.30, Concert by the Alexander Scriabin Russian Orchestra, relayed from the Berry.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—7.45 a.m., Light Music on Gramophone Records. 8.0, Press Review and Weather. 8.30, Physical Culture. 10.0, Elementary Book-keeping Lesson. 10.20, Advanced Book-keeping Lesson. 10.40, Spanish Lesson. 11.30 to 12 Noon, Programme in English by the I.B.C. 11.30, Gramophone Concert: How deep is the Ocean? by Jack Payne and his Band; Argue About Ambition, Part I, by Collinson and Dean; I don't want to go to Bed, by the Rhythm Band; Lying in the Hay, by the Rhythm Band; Please Mr. Henningway, by Tully Stuart and Eddy Pola; Watchman, what of the Night? by Francesco Vada (Tenor) and Edgar Thomas (Bass); Theme Songs from Famous Films, Part II, by Reginald Foot; A Good Old Irish Stew, Part II, by the Cosmo Accordion Band. 12 Noon, Religious Address by the Reverend Father Padé. 12.20 p.m., Sacred Music: Tocata (Reichmann); Rhapsody (Mignan); Finale from the Concerto for Organ (Handel). 12.30, Billonnet makes Coffee. 12.45, Press Review, News and Weather. 1.0, Orchestral Concert. 1.30, Variety Music on Gramophone Records. 2.0, Popular Music on Gramophone Records. 3.0, Popular Concert. 3.30, Orchestral Concert. 4.0 to 5.0, Programme in English by the I.B.C. Tea Time Variety Hour, Mr. S. H. C. Williams announcing. 5.0, Orchestral Concert. 5.30 to 6.30, Programme in English by the I.B.C. Variety Hour, Mr. Glyme Williams announcing. 6.30, Orchestral Con-

cert. 7.0 to 8.0, Programme in English by the I.B.C. Film Fans' Hour, Mr. S. H. C. Williams announcing. 8.0, Radio Paris Circus. 8.30, News, Sports Notes and Weather. 8.45, Music Hall Programme. In the interval at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relay by W8XK on 48.85 metres and 25.27 metres.—9.0 p.m., Temple of Song, from New York. 9.30, Vesper Services from Shadyside Presbyterian Church. 10.30, Pages of Romance, from New York. 11.0, Sealed Power, from New York. 11.30, Time Signal. 11.31, Weather Report. 11.32, Teaberry Sport Review. 11.37, Press News-Reeler. 11.25, Strange Facts. 11.44, Temperature Report. 11.45, Programme to be announced. 12 Midnight, Time and Westinghouse Concert. 12.30 a.m. (Monday), Great Moments in History, from New York. 1.0, Russian Gaieties, from New York. 1.30, Red Adams, from New York. 2.0, Programme to be announced. 2.30 to 3.30, New York Relay. 2.30, Walter Winchell. 2.45, Jubilo, Singer of the Lonesome Road. 3.0, D. W. Griffith's Hollywood. 3.15, Edna St. Vincent Millay. 3.30, Jean Wald and her Orchestra. 4.0, Time. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.15, Press Last Minute News. 4.20, Alexander Roy (Tenor). 4.30, Jesse Crawford (Organist), from New York. 5.0, Time Signal and Good-night.

PORSGRUND.—See Oslo.

PRAGUE

488.6 metres; 120 kW.—8.0 a.m., Concert by the Archangelskij Russian Male Voice Choir. Eight Chorales by A. A. Archangelskij. 8.35, Talk: Sunday Reflections. 8.50, Soprano and Contralto Duets. 9.10, Talk for Workers. 9.30, Literary Programme. 10.0, See Brno. 11.0, Chimes. 11.5, See Brno. 12.30 p.m., Agricultural Talks. 12.45, Agricultural Report. 1.15 to 1.25, Talk: Employment Laws in Spain. 3.0, See Moravská-Ostrava. 4.30, Talk. 4.45, Popular Music on Gramophone Records. 5.0, German Transmission. 6.0, See Moravská-Ostrava. 6.30, See Brno. 7.0, Cabaret Programme, relayed from the Lucerna Hall. In the intervals at 8.0 and 9.0, Time Signal, and at 9.1, News Bulletin. 11.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; LAUSANNE, 680 metres; and GENEVA, 760 metres.—8.55 a.m., Chimes. 9.0 (from Geneva), Protestant Service. 10.0 (from Lausanne), Concert by Edouard Moser and his Orchestra. 11.30, News and Weather Forecast. 11.40 to 1.0 p.m. (from Lausanne), Variety Music on Gramophone Records. 2.30 (from Fribourg), Concert by the Landwehr Band, conducted by L. Gaimard, Soloist: Yvonne Lob (Pianoforte). In the interval, Talk: Contemporary Fribourg Composers. 5.30 (from Geneva), Protestant Address: The Message of the Stars. 6.0 (from Lausanne), Saxophone and Pianoforte Recital by MM. Margutti and Moser. 6.40 (from Geneva), Sports Notes and News. 7.0 (from Lausanne), Song Recital by Leo Kausky. 7.30 (from Geneva), Concert by the Radio Orchestra. Soloist: Hermine Graf (Songs). 7.45, Concert of Negro Spirituals, arranged by the National Broadcasting Company of America, relayed from New York: Turkey in the Straw; Washboard Blues; Children Dance; Live Humble; Hurry Sun down and let To-morrow come!; Nobody knows the Trouble I see; Look down the Road; Barbaric Dance. 9.15, News and Weather Forecast. 9.33 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call 1R0, 441 metres; 50 kW. Relay by Naples, 319 metres; and 2R0, 25.4 metres.—9.10 a.m., News, Sports Notes and Amusement Guide. 9.30, Agricultural Report. 9.45, Bible Reading. 10.0 to 11.0, See Turin. 11.30, See Turin. In the interval at 12 Noon, Time and Announcements. 12.30 to 1.30 p.m., Orchestral Concert. 2.45 (Naples), Programme for Children, followed by Weather and Sports Notes. 3.0, Football Report. 3.15 to 5.30, Orchestral and Vocal Concert. Sports Notes in the interval. 6.30, Sports Notes, Football Report and News. 7.0, Time and Announcements. 7.30, Sports Notes. 7.45, The Geisha—Operetta in Three Acts (Jones). In the interval: Reading and Announcements. News after the Programme.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 379.5 metres; 50 kW. Relay at intervals by W2XAF on 31.48 metres, and by W2XAD

on 19.56 metres.—7.0 till Close Down, New York Relay. 7.0, Musical Programme. 7.15, Clyde Doerr and his Saxophone Octet. 7.30, Moonshine and Honeysuckle. 8.0, Wayne King's Orchestra. 8.30, Hour of Worship. 12.0 Midnight, Harmonica Rascals. 12.15 a.m. (Monday), Wheatena Ville. 12.30, Pickens Sisters. 12.45, Smith Brothers. 1.0, Chase and Sanborn Hour. 2.0, General Electric Programme. 2.50, American Album of Familiar Music.

SCHWEIZERISCHER

LANDESENDER

BEROMUNSTER, 450 metres, 60 kW.; BASLE, 244.1 metres; and BERNE, 245.9 metres.—9.0 a.m. (from Berne), Protestant Address. 9.45 (from Berne), Chamber Music by the Berne String Quartet. 10.25, A Mother at the Microphone. 11.0, Concert by the Radio Orchestra. 11.28, Time and Weather. 11.30, News Bulletin. 11.40, Orchestral Concert (cont'd.). 12.30 p.m. (from Berne), Concert of Marches by the Concordia Band of Soleure. 1.0 (from Berne), Talk: Commercial Ownership of Agricultural Machinery. 1.45 (from Zurich), Running Commentary on the Swiss Skiing Contest, relayed from Einsiedeln. 3.0, Rhine-land Songs on Gramophone Records. 3.30, The Dausant on Gramophone Records. 4.0 to 4.5, Weather Report. 5.50 (from Berne), Talk: French Literature from 1820-1930, with Extracts from the Works of Leconte de Lisle, Heredia and Sully Prudhomme. 6.0, Time, Weather and Sports Notes. 6.10 (from Berne), Talk: The Life of Alpine Herd-men in the Emmental, with Gramophone Illustrations. 7.15, Concert by the Radio Orchestra. 7.55 (from Berne), Missa Brevis for Mezzo-Soprano, Boys' Choir, String Quartet and Organ (Hans Berger); The Schifflmann String Quartet and the Berne Boys' Choir, conducted by Hugo Keller. Soloists: Nina Nüesch (Mezzo-Soprano) and Traugott Jost (Organ). 8.30, Weather and News. 8.40, Concert by the Radio Orchestra. 9.15, Sports Notes. 9.25 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relay by Boden, 1,229.5 metres; Gotesborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—10.0 a.m., Divine Service Relay. 11.45, Weather. 1.30, Orchestral Concert relayed from Hälsingborg, 1301 (231 metres). Conductor: Olof Lidner. Soloist: Henry Ragnartz (Cello). Overture. To the Story of the lovely Melusina (Mendelssohn);

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JAN. 29th

SUNDAY

continued

Suite for Strings, Aus Holbergs Zeit (Grieg); Two Piedmontese Dances (Sinigaglia); Fantasia on Russian Melodies for Cello and Orchestra (Davidov); Suite for Sylvia (Debussy). 3.10, Talk in French: Brittany. 3.30, Popular Music on Gramophone Records. 4.5 (from Göteborg). Programme for Children. 4.30, Introductory Talk to the 6.30 Transmission. 5.0, Even-song. 6.30, A Comedy in Four Acts (Telokov). 8.0 (from Göteborg). Violin and Pianoforte Recital by Carl Garaguly and Gertrud Lindström. 8.45, Weather and News. 9.0 (from Göteborg). Military Band Concert. 10.0 (approx.). Close Down.

STRASBOURG

345 metres; 11.5 kW. 9.30 a.m., Orchestral Concert of Classical Music. 10.45, Protestant Service in German. 11.30, Catholic Service in French. 12 Noon, Classical Music on Gramophone Records. 12.45 p.m., News Bulletin. 1.0, Time Signal. 1.2, Light Music on Gramophone Records. 2.0, Agricultural Talk. 2.15, Interval. 2.30, Symphony Concert, conducted by Henri Tomasi, relayed from the Salle du Journal, Paris. 4.0, Chamber Music, relayed from Metz: Quintet for Two Violins, Viola and Two Cellos (Schubert); Quartet for Two Violins, Viola and Cello (Haydn); Quintet for Two Violins, Viola and Two Cellos (Glazunov). 6.0, Medical Talk in German. 6.15, Sports Talk. 6.30, Pianoforte Recital by Madeleine La Candela: Fugue, Largo and Finale from a Concerto (Friedemann-Bach-Stradal); Symphonic Variations (Schumann); Scherzo No. 1 (Chopin); Suite, Pour un Arbre de Noël (Galloni); Three Airs from Le Tombeau de Couperin (Ravel): (a) L'oiseau triste, (b) La Vallée des Cloches, (c) Toccata. 7.30, Time, News and Sports Notes. 7.45, Light Music on Gramophone Records. 8.25, Lottery Results and Announcements. 8.30, Polyact—Tragedy in Five Acts (Cornille). 10.30, Dance Music, relayed from the Savoy. 12 Midnight (approx.). Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW. and FREIBURG, 570 metres.—10.30 a.m., See Leipzig. 11.0, Promenade Concert, relayed from the Schlossplatz. 12 Noon, Topical Talk. 12.15 p.m., Gramophone Concert of Variety Music. 1.15, Talk. 1.35 (from Freiburg). Agricultural Talk. 2.0, See Frankfurt. 3.0, Orchestral Concert, relayed from Baden-Baden. 5.0, Symphonic Studies in the Form of Variations, Op. 13 (Schumann). 5.25, Sports Notes. 5.40, Swabian Dialect Programme with Gramophone Records, arranged by Martin Lang: Emma Mayer and Fritz Löffler (Songs); Carl Ebert, Martin Lang and Ernst Steklinger (Recitations). 6.10, Zwei Breteln—A Merry Hour

of Folk Music in the Snow by the Heinz Mönch Zither Trio, Fritz Mühlfeanz (Accordion) and Fred Höger (Songs). 7.0, See Frankfurt. 9.20, Time, News, Weather, Programme Announcements and Sports Notes. 9.45, Dance Music from Berlin (Witzleben). 11.0 (approx.). Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW. 12.15 p.m., News and Exchange. 12.30, Catholic Service. 1.5, Amusement Guide and Market Prices. 1.5, Opera Music: Melody from The Rhinegold (Wagner); Overture, Orpheus in the Underworld (Offenbach). 1.15, Chansonnettes. 1.30, Instrumental Solos. 1.40, Agricultural Notes. 1.45, Protestant Service. 2.15, News. 2.20, Popular Music: Septet (Saint-Saëns); Overture, Poet and Peasant (Suppe). 2.45, Chansonnettes. 3.15, News and Horse Racing Results. 3.20, Music by a Viennese Orchestra. 3.45, Concert of Opera Music: Suzanne's Song, from Figaro (Mozart); Te Deum, from Tosca (Puccini); Duet from the Fourth Act of Carmen (Bizet); Melody from Sigurd (Reyer); A la nuit tombante, from Samson and Delilah (Saint-Saëns). 4.15, Racing Results. 4.20, Orchestral Music: Slav Dances Nos. 6 and 8 (Dvorák); Old Spanish Song (Aubert); Neapolitan Song (Marucci). 4.30, Dance Music. 5.0, Light Music. 5.15, Racing Results. 5.20, Orchestral Concert of Light Music and Operetta Melodies. 6.0, News Bulletin. 6.15, Accordion Solos. 6.30, Sound Film Music. 6.45, Instrumental Solos. 7.0, Eine Kleine Nachtmusik (Mozart). 7.15, News Bulletin. 7.25, Local News. 7.30, Opera Music: Air from La Basoche (Messager); Harlequin's Serenade, from I Pagliacci (Leoncavallo); Air from Romeo and Juliet (Gounod). 7.45, Viennese Music. 8.0, Chansonnettes. 8.15, Operetta Music: Airs from: (a) François les bas bleus (Messager), (b) Elle est à Vous (Veau), and (c) The Land of Smiles (Lohar). 8.30, Russian Songs. 8.45, Light Music. 9.0, Sound Film Music. 9.30, Orchestral Concert: La Poupée d'Arlequin (Darcy); Marche joyeuse (Chabrier); Selection from Il Seraglio (Mozart); Verschwärzte Liebe (Lincke). 10.0, Tangos. 10.15, North African News. 10.30, Programme in English by the I.B.C.: Evening in the Village Inn—Sketch; Marie Lloyd, Junr.; I'm one of the Ruins; Patrick Yorke (Tenor); Som-times I'm Happy; Mabel Constanduros and Michael Hogan; Grandma

and the Weather Announcer (I and II); Selection from Wunder Bar (Katscher); Franklin Negro Spiritual, By and by; Potpourri, Say it with Songs. 11.0, Concert for Listeners in Morocco: Selection from The Mikado (Sullivan); Duet from Werther (Massenet); The Skaters' Waltz (Waldteufel); Au from a Sound Film (Oberfeld); Les Pupilles de la Marine (Chie). 10.30, Organ Recital: La Sennata (Bregio); Minuet (Paderewski); Interzzo (Mascagni); Dream Palace (Waller). 11.15, Humorous Sketches. 12.0 Midnight, Weather Reports and Announcements. 12.5 a.m. (Monday), Symphony No. 6 (Haydn). 12.30 (approx.). Close Down.

TRIESTE

247.7 metres; 10 kW. 8.40 a.m., See Turin. 8.55, Mass from the Cathedral of San Giusto. 10.0 to 10.20, Agricultural Report. 11.0 a.m. till close Down, See Turin.

TRONDHEIM. See Oslo.

TURIN

273.7 metres; 7 kW. Relayed by Milan, 331.5 metres; Genoa, 312.6 metres; and Florence, 500.8 metres.—8.40 to 8.55 a.m., Giornale Radio. 9.40, Agricultural Report. 10.0, Mass from the Church of the Annunciation. Florence. 11.0 to 11.15, Bible Reading. 11.30 to 12.30 p.m., Orchestral Concert. In the interval at 12 Noon, Time and Announcements. 12.30 to 1.30, Orchestral Concert. 2.30, Light Music on Gramophone Records. 4.0, Brahms Concert from the Politeama Fiorentino, Conductor: Vittorio Gui, Soloists: Adolf Busch (Violin) and Hermann Busch (Cello). In the intervals, Sports Notes. 6.5, Light Music on Gramophone Records. 6.30, Time, Announcements and Popular Music on Gramophone Records. 7.0, Giornale Radio, Sports Notes and Light Music on Gramophone Records. 8.0, Relay of an Opera. In the intervals: Talk, Theatre Notes and Giornale Radio.

VIENNA

517 metres; 15 kW. Relayed by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218.5 metres.—10.30 a.m., Symphony Concert by the Vienna Symphony Orchestra, conducted by Hugo Gottesmann. Soloist: Willy Teutsch-Markovics (Violin). Overture to King Lear (Berlioz); Concerto in D for Violin and Orchestra (Tchaikovsky); Symphonic Poem, Mazeppa (Liszt). 11.45 to

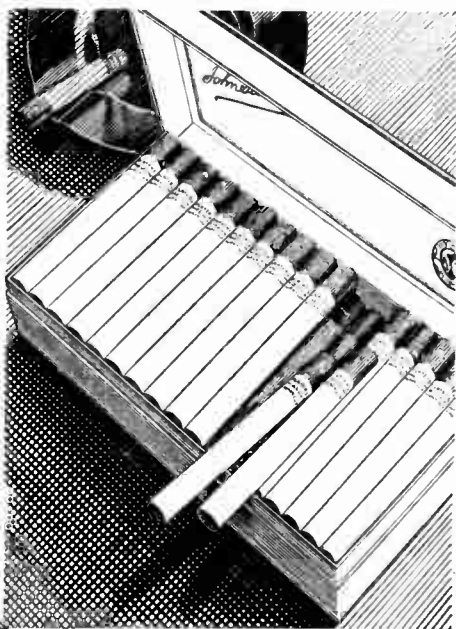
1.0 p.m., Concert of Light Orchestral Music. 2.5, Time and Programme Announcements. 2.5, Review of Books. 2.30, The Ski-Jumping Championship of the Vienna Workers' Sports Association, relayed from the Kolozel. 2.50, Haydn's String Quartet—String Quartet in B flat, Op. 17, No. 5; String Quartet in D, Op. 71. 3.40, Talk: At the Foot of the Beskiden Mountains. 4.5, Orchestral Concert, conducted by Karl Auerth: Overture in Italian Style (Franz Schubert); Nocturne, and Serenade in D Minor, Op. 41 (Dvorák); Sinfonietta for Strings and Harp (Graener). 5.15, Haus von Hülsen reads from his own Works. 5.45, Talk on Abyssinia. 6.10, Time, Programme Announcements and Sports Notes. 6.20, Pianoforte Recital: Wanderer Fantasia (Schubert); Sonata in A (Mozart); La Cathédrale anglaise (Debussy); Reflets dans l'eau (Debussy); Oktavenstudie (Bortoluzzi). 7.0, A Radio Potpourri of Sound Film, Dance and Operetta Music (arr. Victor Uraly). 8.30, News Bulletin. 8.45, Concert of Variety Music.

WARSAW

1,411 metres; 120 kW.—9.0 a.m., Programme Announcements. 9.5, Divine Service, relayed from Poznan (335 metres). 10.35, Talk on Christian Missions. 10.50, Interval. 10.58, Time Signal and Bugle Call from the Tower of St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Weather. 11.15, Concert by the Philharmonic Orchestra, conducted by C. Wilkomirski. Soloists: Lily Herz (Pianoforte) and Sophie Turcz (Songs). Overture, The Master-singers (Wagner); Songs (Wagner): (a) Elizabeth's Prayer from Tannhäuser, (b) Aria from Tannhäuser, (c) Aria from Lohengrin; Symphonic Poem, Till Eulenspiegel's Merry Pranks (R. Strauss); Pianoforte Concerto in E flat (Liszt). In the interval, Talk: The Economic Crisis at Home and Abroad. 1.0 p.m., Agricultural Talk. 1.20, Concert relayed from Lwow (381 metres). 1.40, Talk. 2.0, Concert relayed from Lwow. 3.0, Programme for Children. 3.25, Popular Music on Gramophone Records. 3.45, Topical Talk. 4.0, Classical Concert: E. Zwidryn (Soprano), L. Budkiewicz (Cello) and L. Urstein (Pianoforte). In an interval, News. 4.55, Programme Announcements. 5.0, Concert of Light Music, relayed from the Ziemienski Café. In an interval, News. 6.0, Miscellaneous Items. 6.25, Talk relayed from Lwow. 6.55, Interval. 7.0, Orchestral Concert of Popular Songs and Dances. Soloist: A. Sziemiński (Soprano). In the interval, Sports Notes. 9.30, Dance Music. 9.55, Weather for Aviation and Police Report. 10.0, Dance Music. 11.0 (approx.). Close Down.

ZURICH. See Schweizerischer Landessender.

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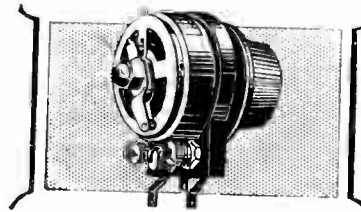
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MONDAY

JANUARY THE THIRTIETH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

- NATIONAL** Orchestral concert. Sonata recital. "Man versus Microbe," a talk. "Some Makers of the Modern Spirit," by Rev. N. Micklem. Military Band concert. "Other People's Houses," a talk. "Great Open Spaces," a topical revue.
- LONDON REGIONAL** Gramophone recital. Orchestral concert. Dance music; String orchestral concert.
- MIDLAND REGIONAL** String orchestral concert from Queen's College, Birmingham. Band programme.
- NORTH REGIONAL** Orchestral concert. Mr. F. W. Brooks: "The Village in Transition." A Minstrel Show. "Squire Dick," a Radio Comedy by F. A. Carter.
- WEST REGIONAL** Orchestral concert, from National Museum of Wales. Welsh interlude. A West Country programme, relayed from Queen's Hotel, Cardiff.
- SCOTTISH REGIONAL BELFAST** Recital of gramophone records. Orchestral concert.

ABROAD

- BRUSSELS (No. 2)** The Symphony Orchestra, conducted by J. Kumps.
- HEILSBURG LANGENBURG STOCKHOLM STRASBOURG** Chamber concert by the Danzig String Quartet. Orchestral concert, conducted by Busch Kötter. Sacred concert, relayed from St. Jacob's Church. Concert by the Station Orchestra, conducted by Maurice de Villers.

BARCELONA
RADIO-BARCELONA, Call EAJI, 348.8 metres; 8 kW.—6.0 p.m., Trio Concert: Selection from Lakmé (Delibes); Romance (Rubinstein); Musette (Offenbach); Selection from Samson and Delilah (Saint-Saëns); Larghetto (Delmas); Erikönig (Schubert). 7.0, Request Gramophone Records. 7.30, Exchange and Talk in Catalan. 8.0, Popular Music on Gramophone Records, followed by News. 9.0, Chimes from the Cathedral, Weather, Exchange and Market Prices. 9.5, Humorous Review of the Week's Events in Verse. 9.15, Concert of Sardinias by the Cöbla Barcelona. 10.0, Concert of Light Music by the Station Orchestra. 10.15, Cabrita que tira al monte—Comedy in Four Acts (Seraffa and Quintero). In an interval at 11.0, News. 12 Midnight (approx.), Close Down.

BARI
 270 metres; 20 kW.—7.0 p.m., Agricultural Notes, Tourist Report and Announcements. 7.20, Giornale Radio and News Bulletin. 8.30, Time Signal and Announcements. 7.35 (approx.), Concert of Operetta Music and Songs. Soloists: Michele Montanari (Tenor) and Clara Demitri (Soprano). 9.30, Concert relayed from the Grand Café del Levante. In an interval, Miscellaneous Announcements. 9.55, News Bulletin.

BASLE.—See Schweizerischer Landessender.
BELGRADE
 430.4 metres; 2.8 kW.—4.0 p.m., Dialogue in German. 5.55, Time and Programme Announcements. 6.0, Reading. 6.40, Schubert Song Recital by Mira Binicki; Aufenthalt; Die Krähe; Irrlicht; Wolin; Liebeschaft; Die Forelle. 7.10, Concert of French Music by the Station Orchestra: Overture, Mignon (Thomas); Suite, Scenes pittoresques (Massenet); Cello Solo: Le cygne (Saint-Saëns); Violin Solo: Air from Sylvia (Delibes); Prelude and Mazurka from Coppélia (Delibes). 8.0, Relay of European Stations. In the interval at 8.40, News.

BERLIN
KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.55 a.m., Nauen Time Signal. 12.35 p.m., News Bulletin. 1.0, Gramophone Concert, relayed from Berlin (Witzleben). 2.0, Handicrafts for Women: Making a Desk. 2.30, Weather and Exchange. 2.45, Review of Books. 3.0, Talk: New Observations on our Rambles. 3.30, Concert from Berlin (Witzleben). 4.10, Talk: The Exhibition Year 1933. 4.30, Chamber Music by Chopin; Etudes in E Minor and G Sharp Minor, Op. 25; Etude in E and Etude in C Sharp Minor, Op. 10; Berceuse; Mazurka in C Sharp Minor, Op. 63; Scherzo, Op. 39. 5.0, Talk for Civil Servants. 5.30, Making Music with Invisible Partners. 5.55, Weather and Announcements. 6.0, English Lesson. 6.30, A Poem. 6.35, Concert of Light Music from the Eden Pavilion. 7.10, Variety Programme by Werner Finck. Inge Bartsch and Kate Köhl. 8.10, Brahms Concert by the Young People's Choir of the State Academy for Church and School Music, conducted by Prof. Heinrich Martens. Soloist: Prof. Julius Dahlke (Pianoforte); Two Sacred Songs: (a) Es flog ein Täublein weisse, (b) In stiller Nacht; Two Songs: (a) Ich fahr dahin, (b) Es ist ein Schmitter; Intermezzo in B Minor for Pianoforte, Op. 19; Two Songs: (a) Es flog ein schneeweiss Vögelein, (b) Verstoßen geht der Mond auf; Andante from the Pianoforte Sonata Op. 1; Three Songs from Lieder and Romanzen, Op. 23; (a) Berberzünig, (b) Malied, (c) Der bucklige Fieller; Waltz for Pianoforte Duets, Op. 39. 9.0, Weather, News and Sports Notes. 9.45, Weather Report for Shipping, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BERLIN
WITZLEBEN, 419.5 metres; 1.5 kW.—3.30 p.m., Concert by the Berlin Wireless Orchestra, conducted by Bruno Seidler-Winkler: Overture, The Flying Dutchman (Wagner); Vlneta—Fantasia for Orchestra with Harp obbligato, Op. 71 (Ponizki); Carnival Overture, Op. 92 (Dvorak); Ballet Music from La Gioconda (Toscanelli); Extract from Aus Italien, Op. 16 (Richard Strauss). 4.30, Dialogue: Will there still be Museums in the year 2000? 4.50, Talk on Sport for the Music Lover. 5.10, String Quartet, Op. 20, No. 2 (Coural Anserge). 5.45, Ten Minutes for the Music Lover. 5.55, The Witzleben Station informs its Listeners. 6.0, Topical Talk. 6.10, Talk: Gas, Benzole, Tar and Perfume—all from Coal. 6.35, First Act of Carmen (Bizet), on Gramophone Records. 7.25, Violin Concerto in D Minor, Op. 47 (Sibelius), by the Berlin Wireless Orchestra, conducted by Bruno Seidler-Winkler. Soloist: Tossy Spiwakowsky. 8.0, News and Sports Notes. 9.15, Bach Recital by Wilhelm Kempff, relayed from the Singakademie; Chromatic Fantasia and Fugue; Three Choral Preludes: (a) Nun komm, der Heiden Heiland, (b) Nun freut euch, lieben Christen g'mein, (c) Wachet auf, ruft uns die Stimme; Passacaglia and Fugue in C Minor (arr. d'Albert). 9.0, Weather, News and Sports Notes, followed by Dance Music from the Roof Garden of the Café Berlin. 11.0, Also on Zeeson (31.38 metres), Juana—Opera in One Act (Max Ettinger), conducted by the Composer.

BERNE.—See Schweizerischer Landessender.

BEROMUNSTER.—See Schweizerischer Landessender.
BODEN.—See Stockholm.
BODO.—See Oslo.
BORDEAUX-LAFAYETTE
 304 metres; 13 kW.—7.30 p.m., News, Exchange Quotations and Market Prices. 7.40, Talk: Bordeaux a Century Ago. 7.55, Lottery Results. 8.0, Programme for Children. 8.15, Charades. 8.20, News Bulletin. 8.30, symphony Concert. After the Concert, Entertainment Guide and Time Signal.

BRATISLAVA
 279 metres; 14 kW.—3.10 p.m., Concert by the Station Orchestra, conducted by F. Dyk: Overture, Der Freischütz (Weber); Selection from Iolanthe (Tchaikovsky); Slav Rhapsody in G Minor, No. 2 (Dvorak); Intermezzo, "Tramonto (Malvezzi); Polka from Schwanda the Piper (Weinberger); Slovak Dance, No. 1 (Halusek). 4.10, Song Recital by E. Simandová: Three Songs to Words by Seveda (Jindrich); Songs of Parting, Op. 19 (Kriek); Serenata (Tosti); Ave Maria (Kahn); Elegy (Massenet). 4.35, Popular Music on Gramophone Records. 5.0, Violin Sonatas by G. Nalovsky; Sonata, Op. 59 (Lind); Sonata (Respighi). 6.0, See Prague. 6.5, Technical Talk. 6.20, Light Music on Gramophone Records. 6.25, See Brno. 6.55, See Prague. 9.15 (approx.), Close Down.

BREMEN.—See Hamburg.
BRESLAU
 325 metres, 60 kW.; and GLEIWITZ, 253 metres.—12.10 p.m., Gramophone Concert: Overture, Le maschere (Mascagni); Potpourri, Zigeunerweisen; Dance of the Marionettes (Wintvernitz); Serenade, Polinichelle (Kreisler); Dämmerung (Cadmán); Im Walle (Ronald); Waltz, Faschingskinder (Ziehrer); Song from Der Verschwendter (Krentzer). 12.45, Time, Weather, News, Exchange, and Shipping Report. 1.5, Gramophone Concert: Overture, Flotte Bursche (Suppé); Waltz, Dorfschwalben aus Oesterreich (Jos. Strauss); Overture, Nakisris Hochzeit (Lincke); Waltz from Die Försterehrstiel (Jarno); Potpourri, Wiener Erinnerung (Lorand); March, Washington Post (Souza). 1.45, Sponsored Programme with Gramophone Records. 2.10, Agricultural Prices. 2.40, Book Review. 3.0, Talk, Formosa, the Island of Head-hunters. 3.20, Concert by the Station Orchestra, conducted by Franz Marszałek; Soloist, Bruno Jagielski (Tenor): Overture, The Thieving Magpie (Rossini); Songs (Schubert); (a) Hoffnung, (b) Das Rosenband, (c) Du schönes Fischermädchen; Kleiner Wiener Marsch (Kreisler); Strauss Potpourri (Korngold); Songs (Schubert); (a) Die Post, (b) Aufenthalt, (c) Der Wanderer an den Mond; Offenbach Potpourri (Urbach); Regimental March (R. Strauss). 4.30, Agricultural Prices

and Talk on Music. 4.55, Legal Talk. 5.20, French Lesson. 5.45, Programme to be announced. 6.0, Talk: The Thirty Years' War—a Catastrophe for Civilisation. 6.30, Weather for Farmers. 6.35, Popular Melodies, on Gramophone Records. 7.0, Andere Städtchen—andere Mädchen (Other Towns—Other Girls)—Folk Song Play (F. Wirth) by the Station Orchestra, a Choir and Soloists. 8.0, Announcements. 8.10, Flute and Pianoforte Recital by Hermann Zanke and Kurt Hattwig; Suite, Op. 7 (Zanke); Little Sonata (Moritz); Idee fixe (Zanke). 8.40, Richard Schalkal talks about his life and work. 9.15, Time, Weather, News, Sports Notes, Market Prices, and Programme Announcements. 9.30, See Langenberg. 10.20 (approx.), Close Down.

BRNO
 342 metres; 35 kW.—4.20 p.m., Literary Review. 4.40, Talk for Women. 5.0, Talk on Gymnastics. 5.15, See Prague. 5.25, German Transmission: News, Elementary French Lesson and Talk on Eugenics. 6.0, See Prague. 6.5, Elementary English Lesson. 6.25, Concert of Hawaiian Music. 6.55 till Close Down: See Prague. 9.15 (approx.), Close Down.

BRUSSELS (No. 1)
 I.N.R.; 509 metres; 15 kW.—12 Noon, Gramophone Records: Selection from La Vie Parisienne (Offenbach); Musical Imitations in the Style of Massenet, Debussy, Iahn, Wagner and Rossini (BeLove); Clair de lune (Faure); Overture, The Secret Marriage (Chimosa). 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Paragraph 3 (Suppé); Weber Potpourri (Tavan); Il Lampionalo (Signorini); Selection from Benvenuto Cellini (Diaz); Arabesque (Montagne Phillips); Waltz, To the Land of My own Romance (Herbert); Dances from The Midnight Tango (Komzati). 2.0, Educational Programme. 5.0, Concert by the Radio Orchestra, conducted by Franz Adrie; Hungarian March (Berlioz); Suppé Potpourri (Urbach); Zigeunerweisen (Sarasate); Gavotte (Sgambati); Minuet (Sgambati); Selection from La Mascotte (Audran); La Cinquantaine (Gabriel-Marie); Russian Dances (Tchaikovsky). 6.0, Talk: The League of Nations and the Manchurian Question. 6.15, Gramophone Records: Theme and Variations and Turkish March from the Sonata in A (Mozart); Scherzo and Wedding March from A Midsummer Night's Dream (Mendelssohn). 6.30, Concert by the Small Station Orchestra, conducted by P. Leemans: Dance and Cortège (LeLange); Selection from Le petit Poucet (Delcroix); Suite, Rustic Revels (Fletcher). 6.45, La Voix de Germaine—Radio Sketch (Lauville). 7.0, Concert (contd.); Selection from Werther (Massenet); Carillon (Elgar). 7.15, Talk:

Volcanic Eruptions. 7.30, Theatre and Cinema Reviews. 8.0, Concert by the Symphony Orchestra, conducted by J. Kumps: Ballet Music from The Cid (Massenet). 8.15, Reading of Poems by Rolinbach, Van Lerberghe, Verhaeren, Maeterlinck, Severin, Mœckel, Le Roy, Baudelaire, Mallarmé, Verlaine and Paul Fort. 8.30, Concert (contd.): Pavane pour une Infante défunte (Ravel); Gothic Minuet (Boëllmann); Golliwog's Cake Walk (Debussy). 8.45, Reading of Poems (contd.). 9.0, L'Education manquée—Opérette (Chabrier). 10.0, Le Journal Parlé. 10.10, Hot Jazz, with Commentary. 10.40, Music by Florent Schmitt on Gramophone Records: Dionysiaques; Viennese Rhapsody. 11.0 (approx.), Close Down.

BRUSSELS (No. 2)
 N.I.R., 338.2 metres; 15 kW.—Programme in Flemish.—12 Noon, Concert by the Little Station Orchestra, conducted by P. Leemans. Soloist: M. Douliez (Pianoforte). Overture, Fra Diavolo (Auber); Potpourri, From Gluck to Wagner (Schreiner); Intermezzo (Braumagne); Selection from Gianni Schicchi (Puccini); Pianoforte Solo: Fantômes crépusculaires (Benoit); Festival in Cordova (Turina); Potpourri, More Melodious Memories (Finck); Waltz, To have and hold you in my Arms (Dubin-Burke); Fox trot, Tell me to-night (Spollansky). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Concert: Marche du seizième Régiment de ligne (Mees); Times change (Borisov); Waltz Suite, Très jolie (Waldteufel); Jacotte (Montagne Phillips); Selection from A Night in Monte Carlo (Heymann); Selection from Im Reich des Indra (Lincke); Selection from Great Day (Youmans); Aria from The Huguenots (Meyerbeer); Waltz from The Desert Song (Romberg); Night (Rubinstein-Cerne); Aria from William Tell (Rossini); Selection from The Gipsy Princess (Kálmán); Marche du vingt-quatrième Régiment de ligne (Bury). 2.0, Educational Programme. 5.0, Concert by the Symphony Orchestra, conducted by Jean Kumps: Symphony in E flat (Mozart); Romance in F for 'Cello and Orchestra (Rubinstein-Indy); Two Dances (Brahms). 5.45, Programme for Children. 6.30, Gramophone Records: Orchestral Suite, Le Bourgeois Gentilhomme (R. Strauss); Selection from Sadko (Rimsky-Korsakov); Gopak (Mussorgsky); Amoretten Liebeswalzer (Reger). 7.15, Talk: The Study of Folklore in Belgium and elsewhere. 7.20, Talk: The Cure of Children. 7.30, Le Journal Parlé. 8.0, Concert by the Radio Orchestra, conducted by Franz André: Italian March (Rousseau); The Nutcracker Ballet (Tchaikovsky); Recitations; Rapsodie Dalmoménne (De Boeck); Recitations; English Scenes (Bantock); Egyptian March (Strauss). 8.45, Talk. 9.0, Concert by the Symphony Orchestra, conducted by Jean Kumps. Soloist: Mariette Herrebant (Mezzo-Soprano). Overture, Nocturne and Scherzo from A Midsummer Night's Dream (Mendelssohn). Songs: (a) Klinkert (Huberti), (b) Meilied (Huberti). Romance from Cavalleria rusticana (Mascagni); Selection from Le Festin de l'araignée (Roussel); Sérénade de Torcello (Gilson); Dance (De Boeck); Waltz from Wiener Blut (Joh. Strauss). 10.0, Le Journal Parlé. 10.10, Light Music on Gramophone Records. 11.0 (approx.), Close Down.

BUCHAREST
 394 metres; 12 kW.—4.0 p.m., Concert of Romanian Music by the Luca Orchestra. 5.0, News and Time Signal. 5.10, Talk. 5.25, Concert (contd.). 6.0, Talk on Romania. 6.40, Light Music on Gramophone Records. 7.0, Quartet, Op. 51, No. 2 (Brahms), by the Station Quartet. 7.30, Talk. 7.45, Recital on Two Pianofortes by Mme. Celia Delavrancea and Michel Jora. 8.5, Quartet in D for Two Violins, Viola and 'Cello (Drogai). 8.40, Programme relayed from the Grand Hotel. 9.0, News Bulletin.

BUDAPEST
 550 metres; 18.5 kW.—Programme also relayed on 840 metres from 6.30 p.m. till Close Down.—4.0 p.m., Concert of Waltzes, conducted by T. Polgar; La Poupée (Audran); Waltz (Joh. Strauss); Alt Wien (Ziehrer); Amour et Printemps (Waldteufel); The Count of Luxembourg (Lehár); Sonnenstrahl (Schwarzkopf). 5.0, German Lesson. 5.20, Concert of Cigány Music. 6.0, Reading. 6.40, Concert by the Philharmonic Society, relayed from the Opera House. 7.50 (in an interval), Talk on the Finnish-Hungarian Gymnastics (Championships). 9.0, News. 9.15 (approx.), Dance Music and Cigány Music from the Café Ostende. Soloist: Paul Kálmár (Songs).

CASSEL.—See Frankfurt.
COPENHAGEN
 281 metres; 0.75 kW.; and KALUNDBORG, 1,153 metres; 7.5 kW.—11.0 a.m. to 1.0 p.m., Concert from the Hotel d'Angleterre. 2.20, Talk for the Housewife. 2.30, Orchestral Concert: March, Semper fidelis (Souza); Waltz, Barcarolle (Waldteufel); Der Spielmann (Sommer); Selection from Show Boat (Kern); Notre doux rêve (Ackermanns); Cradle Song (Rydahl); March, When the Band goes murching by (Sarony); Selection from Wonder Bar (Katscher); Nixengeflüster (Heykens); You are my Heart's Delight, from The Land of smiles (Lehár); Spanish Gipsy Dance (Marquina); My Teddy Bear (Gangberger);

JAN. 30th

MONDAY

continued

Russian Rhapsody (Nussbaum); Mon amour, ou est-tu (Menichetti); March, Frisch voran (Fährbach). 4.40, Exchange and Market Prices. 4.50, Talk on the German Language. 5.20, English Lesson. 5.50, Weather Report. 6.0, News Bulletin. 6.15, Time Signal. 6.30, Review of Politics for the Month of January. 7.0, Town Hall Chimes. 7.2, Concert of Danish Dances by the Radio Orchestra, conducted by Launy Grøndahl; Minuet from Den Vægelsindele (Clans Schall); Pas de deux and Waltz from Romeo and Juliet (Clans Schall); Kehrhaus from Fanden er løs (Clans Schall); Ballet Music from Elverhøj (Kuhlan); Waltz from Et Folkesagn (Gade); Red from Livjaegerne paa Amager (Holm); Country Dance from Little Christie (J. P. E. Hartmann); Finale-Gallop from Napoli (Lamberti); Waltz from The Little Mermaid (Henriques); Galop, Livsgaarden (Henriques). 7.50, Talk for Women. 8.5, Flute and Harp Recital; Suite antique (Joseph Lamber); Rigodon (Lamber). 8.25, Talk: A Visit to a Large Danish Bank. 8.55, News Bulletin. 9.10, Old and New Music to Molière's Le Bourgeois Gentilhomme by the Radio Orchestra conducted by Launy Grøndahl; Music from Le Bourgeois Gentilhomme (Lully); Suite from Le Bourgeois Gentilhomme (R. Strauss). 9.50, Dance Music from the Ninth Restaurant. 11.0 (in an interval), Town Hall Chimes. 11.30 (approx.), Close Down.

CORK.—See Dublin. DANZIG.—See Heilsberg. DRESDEN.—See Leipzig.

DUBLIN

Call 2RN; 413 metres; 1.2 kW.; and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. 6.0, Popular Music on Gramophone Records. 6.15, Programme for Children. 7.0, Light Music on Gramophone Records. 7.20, News Bulletin. 7.30, Time Signal. 7.31, Gaelic Talk. 7.45, Talk. 8.0, Concert by the Station Sextet. 8.30, Tenor Solos by James Cowie. 8.50, The Station Sextet. 9.15, Sketch by Mary O'Boa and Company. 9.45, Violin and Piano Recital. 10.15, The Station Sextet. 10.30, Time Signal, News, Weather Report and Close Down.

FECAMP

223 metres; 10 kW.—10.0 p.m., Dance Music: Moma Lisa; I'm an Unemployed Sweetheart; Blue again; My Song; Love Letters in the Sand; Leave the Rest to Nature; If they ever had an Income Tax on Love; For you; You're just the One Girl for me; Close your Eyes; If you were the only Girl in the World; That's why Darkies were born; I'm just wearing out my Heart for you; The Free and Easy; You brought a New Kind of Love to me; Follow a Star. 11.0, Vocal and Orchestral Concert. Orchestra: Sons les toits de Paris (Moretti); Songs: (a) Exactly like you, (b) I like to do Things for you (Vellen), (c) More than you know (Youmans); Orchestra: My Sunshine is you (Stolz); Songs: (a) My Lover (Vellen), (b) Swingin' in a Hammock (Seymour), (c) On the Sunny Side of the Street (Mellugh). 11.30, Orchestral Concert: The Cuckoo Waltz (Jonasson); Dubinuschka Potpourri (arr. Alexander); Piano Solo: Whoopie Medley (Kahn); That Tiny Teashop (Raymond); The Toymaker's Dream (Golden); Piano Solo: (a) Monte Carlo Medley (Robin), (b) Magic Notes (Steininger); Argentina Amor (Blum). 12 Mid-night, Song Recital: Alone in the Train (Goulding); Eleanor (Handley); Molly (Dougherty); I'm in the Market for you (McCarthy); I don't wanna go Home (Gilbert); Never swat a Fly (de Sylva); I've got a Feeling (Nicholls); Sittin' on a Five Barred Gate (Hargreaves). 12.30 a.m. (Tuesday), Banjo Solos: Boys of the Loch; Teetotallers; The Bullion; Mullingar Races; Wexford Lassies; Fashionette; Cracker Jack; Darktown Dandies; Flapperette; Snatches of Song. 1.0, Half-an-Hour of Comedy: My Canary has Circles under his Eyes; The Engineer; Holding Hands; A Bear Story; Army Estimates; Dr. Macgregor; Drawing Winnie. 1.30, Vocal Duets: All Change for Happiness (Johns); I'm just a Dancing Sweetheart (de Rose); In the Mountains of the Pine (Taft); Parking in the Moonlight (Tobias); I'm just wearing out my Heart (Layton); Living a Life of Dreams (Rubens); Make yourself a Happiness Pie (Perkins); Pasadena Rose (Kennedy). 2.0, Dance Music: How can you say "No"?; Ballrooms; Round the Bend of the Road; I don't want to go to Bed; Let's all sing like the Birds; Sing; I can't write the Words; You'll always be the Same Sweetheart; Let's put out the Lights; Please; How do you do, Mr. Brown; Here lies Love; Leave a Little for me; Strange Interlude; Me minus you; I guess I'll have to change my Plan; Same old Moon. 2.57, I.B.C. Goodnight Melody. 3.0, Close Down.

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

FRANKFURT

259 metres; 17 kW.; and CASSEL, 245.9 metres.—4.0 p.m., See Munich. 5.15, Economic Notes. 5.25, Talk by Dr. A. Wagner. 5.50, English Lesson. 6.15, Time Programme Announcements, Weather, and Economic Notes. 6.20, Art and Science Notes. 6.30, Reading: Ueber Wahrheit und Wahrscheinlichkeit der Kunstwerke—Dialogue (Goethe). 7.0, Concert by the Station Orchestra, con-

ducted by Walter Caspar: March, Fanfarenklänge (Fueck); Overture, Das Modell (Suppe); Walzerflut (Petras); Selection from Jadwiga (Dellinger); Waltz, Berliner Wintermärchen (Holländer); March, Aus dem Prater (Czibulka); Waltz from Vera Violetta (Eysler). 8.0, Piano Solo: Concerto, Op. 15 (Lopatinov), by the Composer, accompanied by the Station Orchestra. 8.30, An old Photograph—Improvisation by Paul Laven. 9.0, Talk: Reminiscences of Old Frankfurt. 9.20, Time, News, Weather, and Sports Notes. 9.45, Concert, relayed from Langenberg. 11.0 (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

Call ha (in Morse). 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 227.4 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—6.5 p.m., Talk by Hermann Claudius: Two Authors meet in the War—How I got to know Hans Grimm. 6.25, Weather. 6.30, Organ Recital, relayed from St. Joseph's Church, Wandobek. Organist: Blümmen, Festival Prelude (Kister); Adagio from the First Organ Fantasia (Mendelssohn); Pastorale (Gühmann); Gloria in excelsis Deo (Reger); Konzertopliudium (Rienenschneider). 7.0, Wilhelm Busch—Comedy (Herbert Scheffler), with Music by Siegfried Scheffler. 7.50, Chancellor and King—Radio Tragedy in Three Acts (H. Franck). 9.10, Time, Weather, Announcements, Sports Notes and Police Report. 9.30, Topical Talk. 9.40, Fortnightly Report of the Norag Sound Service. In an interval at 9.50, Ice Report.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW.; and DANZIG, 453.2 metres.—12.5 to 1.30 p.m., Gramophone Concert of Variety Music. In the interval at 12.20, News. 2.0, Exchange Quotations and Market Prices. 2.30, Programme for Children. 3.0, A Dialogue: Precautions against Skating Accidents. 3.30, Concert from Breslau. 4.30, Review of Books. 4.45, Talk: German-Baltic Problems. 5.15, Market Prices. 5.25 (from Danzig), Talk: Augustus the Strong and his Relations with Danzig, on the Second Centenary of his Death. 5.50, Talk: Memorable Days of the Week. 6.0, Recital of Popular Songs by Rainund Gessner (Tenor); Vocal Tango. Eine kleine Fräulein führt uns oft ins Märchenland (René Porges); Slow Foxtrot, Auf den Feldern blüht der rote Mohr (Fritz German); Vocal Tango: Willst du mein Verhältnis sein? (René Porges); Foxtrot, Ist das nicht wundervoll? (Schwabach, Raymond and Meiseld); Tango, Tanz du auch so gern wie ich? (Willy Rosen); Vocal Tango, Darf ich ein wenig Glück an dich verschwenden? (Mare Roland and Robert Gilbert); March Potpourri, Herr Hauptmann, Herr Leutnant, ich muss an Urlaub gehen (Berl Reissfeld and Marbot). 6.50, Elementary English Lesson. 6.55, Weather and News. 7.0, (from Tilsit), The Town of Tilsit celebrates the Seventy-Fifth Birthday of Johanna Wolff; Addresses, Recitations, and Songs for Choir and Soloist. 7.35 (from Danzig), Concert by the Danzig String Quartet, Quartet in C Minor, Op. 18, No. 3 (Beethoven); String Quartet in A Minor, Op. 29 (Schubert). 8.10, A Topical Programme. 9.10, Weather, News and Sports Notes.

HILVERSUM

Announced HUIZEN, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.). Programme of the Christian Radio Society (N.C.R.V.). 12.10 p.m., Organ Recital by M. Jan Zwart. 1.40, Programme for Schools. 2.15, Light Music on Gramophone Records. 2.25, Talk for Women. 2.55, Dressmaking Lesson. 3.25 to 3.40, Interval. 3.40, Bible Reading and Sacred Music by J. Smit Druyzenkunst (Bartone) and H. Smit Druyzenkunst (Organ). 4.20, Popular Music on Gramophone Records. 4.50, Quintet Concert: Overture, The Merry Wives of Windsor (Nicola); Selection from The Bird Faucier (Zeller); Waltz, Neu Wien (Johann Strauss); Deutschmeister Regimentmarsch (Jurek); Gramophone Records: Berceuse (Ippolitov-Ivanov); Ballet Suite (Popy); Festival Overture (Leutner). 5.10, Question Time. 7.10, Police Notes. 7.25, Religious News. 7.40, Musical Programme, arranged by the Salvation Army, relayed from Amsterdam: A Mixed Choir and Children's Choir, and the Salvation Army Band. 9.10, Song Recital by Mlle. A. Woud (Contralto): Come Ragazzo di Sol (Caldara); Se tu m'ami (Perzolesi); Jesus unser Trost und Leben (Bach); O Jesulein süß, o Jesulein mild (Bach); Auf, Auf! mein Herz mit Freuden (Bach); Gramophone Records: Five Songs (Telemann): (a) Die Jugend, (b) Pastorale, (c) Glück, (d) Das Franzenzimmer, (e) Seltenes Glück; Gramophone Records: Die Lotusblume (Schumann); Im wunderschönen

Mont Mai (Schumann); Lilanci (Schubert); Der Blumenriet (Schubert); Gramophone Records: Four Songs (Wolf): (a) Der Gesessene an der Hollung, (b) Loh-wald, (c) Der Gärtner, (d) Gesang Weiden. In an interval at 9.40, News Bulletin. 10.10, Light Music on Gramophone Records. 11.10 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM; 1,875 metres; 5.5 kW. Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 11.40 a.m., Time Signal. 11.41, Concert by the Small Station Orchestra, conducted by Nico Troop, March, On the Quarter Deck (Alford); Overture, The Nuremberg Doll (Adam); Ballet Suite, La Source (Delibes); Two Songs (Bard): Selection from Samson and Delilah (Saint-Saëns); Interlude: Organ Solos: Laughing Eyes (Finck); Selection from Gipsy Love (Lehar); Selection from Comtesse Maritza (Kálmán); Interlude: Organ Solo: Pleasant Chatter (Fischer); Potpourri of Russian Folk Music (Bernards); Winter-Landschaft (Linke); Old Contrades (Teike). 1.55 to 2.10 p.m., Interval. 2.10, Variety Music on Gramophone Records. 2.40, Concert by the Station Chamber Orchestra, conducted by Nico Gerharz. Le défilé de la garde (Gillet); Overture, Les dragons de Villars (Maillard); Two Pieces (Ganne); (a) Rerive, (b) Petrouille enfantine; Selection from François les bas bleus (Messenger-Mouton); Offenbach Potpourri; Interlude: Gramophone Records: Waltz, Tout Paris (Waldteufel); Melody (Feis-seire); Wo man lacht und lebt (E. Strauss); Selection from The Merry Widow (Lehar). 4.10, Piano Solo: Recital by Hugo Vermeer. 4.40, Concert of Light Music by the Kovacs Lajos Orchestra and Bob Scholte (Songs). 6.10, Book Review. 6.40, Orchestral Concert (cont'd). 7.10, Talk. 7.40, Time and News. 7.45, Brahms Concert by the Hague Orchestra and Choir, conducted by Albert van Raalte, Tragic Overture, Schicksalslied. 8.25, Concert by the Station Orchestra, conducted by Nico Troop. 9.25, Popular Music on Gramophone Records. 9.40, Beethoven Concert by the Station Orchestra, conducted by Nico Troop. Soloist: Stephen Bergmann (Pianoforte); Overture, Egmont; Piano Solo: Concerto No. 4. 10.40, News. 10.45, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 10 kW. 6.10 p.m., Announcements and Opera Music on Gramophone Records. 6.25, Fire Brigade Notes. 7.0, The Letter Box. 7.15 (ill) Close Down. See Warsaw.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

473 metres; 60 kW. 12 Noon, Concert conducted by Wolf. Overture, Queen for a Day (Adam); Suite from Esmeralda (Drigo); Two Pieces (Grieg); (a) Etodia, (b) An den Frühling; Selection from Halda (Mousszko); Cradle Song from Der Selbstgraber (Schreker); Intermezzo from Moma Lisa (von Schilling); Kaiser Walzer (Strauss); Catalan Rhapsody (Albouth); Selection from Der Tenor der Heizung (Künneke). 1.0 p.m. (in an interval), News Bulletin. 1.30, Meat Market Prices. 2.30, Exchange and Time Signal. 2.50, Programme for Children. 3.20, Programme for Young People. 4.0, Vocal and Instrumental Concert: Julia Bergen (Soprano), Karl Klein (Cello), and Willy Watermann (Pianoforte). Four Songs for Soprano (Wolf): (a) Alle Dinge haben Sprache, (b) Die Krone gerichtet, (c) Und gegen Abend, (d) Und alles gehört uns; Cello Solos: (a) Adagio (Beethoven), (b) Melody (Faure); Prelude and Fugue, Op. 35 (Mendelssohn); Two Songs for Soprano (Cyril Scott); (a) Weeping Willows, (b) Cradle Song; Two Songs (Strauss): (a) Nachtsong, (b) Ruhe, meine Seele; Cello Solos: (a) Chanson villageoise (Popper), (b) Scherzo (Van Goens); Piano Solo: (a) Polonaise in A flat (Chopin), (b) Tarantella (Liszt). 5.10, Talk for Women. 5.30, Talk for Parents. 5.50, Weather, Time, Exchange and Sports Notes. 6.5, Talk: From the Animal World—Experiences on an Expedition to Liberia. 6.30, Talk: The Industrial Opening Up of Central Africa. 6.55, First General News. 7.0, Concert of Dance by the Station Orchestra, conducted by Eysoldt. 8.0, Orchestral Concert conducted by Buschkötter, with Albert Fischer (Bass). Concerto for Three Violins and Orchestra (Telemann); Recitative and Aria from The Messiah (Handel); Recitative and Aria from Der zufriedengestellte Arolin (Bach); Serenade for Small Orchestra (Wolf); Drei Gesänge des Harner (Wolf). 9.10, News and Sports Notes. 9.30, The Lord among us—A Religious Play for Soloists, Choir, Orchestra and Speakers. Introductory Music for Wind Instruments (Griegli); Choral and Orchestral Music (Weber); Final Chorus (di Lasso). 10.30, Concert conducted by Wolf. 11.0 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres, 120 kW.; and DRESDEN, 319 metres.—11.5 a.m., Chopin Piano Solo Recital on Gramophone Records. 12 Noon, News, Weather, Snow Report and Time. 12.15 p.m., Concert of Waltzes on Gramophone Records. After the Concert, Exchange Quotations. 1.0, Art and Film Review. 1.20, Advice for the Unemployed. 1.45, Ende im Träume—Short Story (Hans Martin). 2.0, Agricultural Notes. 2.10, Talk for Women; Our Great-Grandmothers' Homes. 2.35, Exchange and Market Prices. 3.0, Vocal and Instrumental Concert: Johann Golzer-Helbing and Ellen Weber (Sopranos), Ellen Dickertmann (Mezzo-Soprano), Erika Sieger (Violin) and Ellen Dressler (Pianoforte); Soprano Solo: Mit meinem Liebchen (Emil Mattiesen); Three Songs for Soprano (Richard Wetz); (a) Legende, (b) Die Krone, (c) Das Meer ist für die Fischer; Violin Sonata in G Minor (Tartini); Two Songs for Mezzo-Soprano (Pitzner): (a) Abschied, (b) Herbstzeit; Piano Solo: Brahms; (a) Intermezzo in A, Op. 76 No. 6, (b) Caprice in C Sharp Minor, Op. 76 No. 5; Two Songs for Soprano (Alfred Rahwes): (a) Weisser Jasmin, (b) Schwoer Abschied; Songs for Soprano: (a) Unzug (Julius Weismann), (b) Der Hufschmied (Julius Weismann), (c) Maria auf der Wiese (Paul Graener), (d) Sonne, Sonne, schone, (e) Hoveli Hahne (Knab); Concert Piece in A for Violin (Saint-Saëns); Songs for Mezzo-Soprano: (a) Die Wiese schäumt von Blüthen (Rinkens), (b) Mariä Weigenlied (Reger); Preludes in C Minor, A, C, B Minor and G Minor (Chopin); Four Songs for Soprano: (a) Des Knaben Berglied (Schumann), (b) Vöglein, wohin so schnell (Martin Frey), (c) Die fünf Hühnerchen (Martin Frey), (d) Mir träumte von einem Königskind; Soprano Solo (Hans Jehndl): (a) Unter einem Fliederstranck, (b) Wenn die blonden Flechterinnen, (c) Ewig jung ist mir die Sonne. 4.50, Weather and Time. 4.50, Exchange Quotations. 5.0, Educational Talk. 5.20, Talk: A Thousand Years of German Literature—the Folk Songs. 5.50, Talk by Heinrich Herse, of the Leipzig Station. 6.0, Legal Dialogue. 6.50, Choral Concert. 7.0, The Literature and Music of Dreams—a Radio Sequence (Hans Eich). 8.0, News Bulletin. 8.10, Concert of Light Music by the Emde Orchestra. 9.15, News. 9.30 (approx.), Concert of Italian Music by the Leipzig Symphony Orchestra, conducted by Theodor Blumer. Soloist: Alois Heydrich (Oboe). Chamber Symphony in B flat for Piano Solo, Two Violins, Viola, Cello, Double Bass, Flute, Oboe, Clarinet, Bassoon and Horn (Wolf-Ferrari); Concerto for Oboe, String Orchestra and Two Horns (Wolf-Ferrari); Three Symphonic Fragments from La Donna serpente (Casella). 11.0 (approx.), Close Down.

LINZ.—See Vienna.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South-East. 8.30, Instrumental Concert, conducted by Charles Strony. Soloist: Mine Jaspard (Pianoforte). After the Concert, News Bulletin.

MADRID

UNION RADIO; Call EAJ7, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotations and Request Gramophone Records. 8.15, News Bulletin. 8.30 (approx.), Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—4.50 p.m., Light Music on Gramophone Records. 5.0, Talk. 5.15, See Prague. 5.30, German Transmission: Talk and Recitations. 6.0, See Prague. 6.5, See Brno. 6.55, See Prague. 9.15 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—4.0 p.m., News. 4.10, Concert. 5.30, Concert, relayed from the Radio Theatre. 8.0, Talk in English: The Doctrines of Marx and Lenin. 8.55, Time. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—4.0 p.m., Orchestral Concert, conducted by Carlo Ranzit. Festival Overture (Lassen); Liebesstündchen (Wilken); Carmen Rhapsody (after Bizet); Ständchen (Ranzit); Trio (Oelschlägel); Waltz, Mein Lebenslied ist Lieb und Lust (Strauss); Hungarian Dances Nos. 5 and 6 (Brahms); March, Mitatternden Falchen (Ranzit). 5.15, Talk on Taxation Questions. 5.35, Talk for Workers. 5.55, Time, Weather and Agricultural Notes. 6.5, Talk: Equilibrium in Nature. 6.25 (from Nürnberg), Orchestral Concert: Overture on a Kreuzer Etude (May); Minuet in A (Zorn); Waltz, Bali bei Hof (Zielner); Selection from The Czarevitch (Lehar); Paraphrase on Eugen Hladick's Song; Der Lenz (Drasmann); Tango, Nur du bist schuld (Strinsky). 7.25, The Play of Plays (Josef Steck), with Music

by T. Huber-Anderach. 8.25, Chamber Music: Pianoforte Trio in E flat (Mozart); Piano-forte, Quartet in G minor (Brahms). 9.20, Time, Weather, News and Sports Notes. 9.45, Serenade. 11.0 (approx.), Close Down.

NAPLES.—See Rome.
NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredrikstad, 367.6 metres; Mamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres; and Rjukan, 447.1 metres.—4.0 p.m., Concert, conducted by M. Gustavson. 5.0, German Lesson. 5.50, Balalaika and Saxophone Music. 6.0, Announcements. 6.15, Weather and News. 6.30, Agricultural Talk. 7.0, Time Signal. 7.1, Reading. 7.30, Concert with Soloists. 8.10, Review of Foreign Politics. 8.40, Weather Report. 8.45, News Bulletin. 9.0, Topical Talk. 9.15, Quintet Concert.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. 7.29, Light Music on Gramophone Records. 7.30 (in an interval), Time Signal and Announcements. 7.45, Concert of Chamber Music: Marisa Bentivegna (Pianoforte), Griznani (Tenor), Clara Bentivegna (Violin), and A. Ruggeri (Cello). Pianoforte Solos: (a) Cuban a andusisa (Fallá), (b) Seguidilla (Albeniz). Tenor Solos: (a) Luna corse (Valente), (b) Ballad from Rigoleto (Verdi). Violin Solo: Concerto in B Minor (Saint-Saëns); Cello Solo: Symphonic Variations (Boellmann); Tenor Solos: (a) Donna, vorrei morir (Tosti), (b) Song from Zaza (Leoncavallo); Cello Solo: (a) Largo (Mullé), (b) La mosca (Forino); Pianoforte Solos: (a) Liebestraume (Liszt), (b) Mazzeppa (Liszt). In an interval: News. After the Concert, Light Music on Gramophone Records. 9.55, News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 15 kW. Time Signals (on 2,650 metres) at 9.25 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals)—5.45 p.m., Le Journal Parlé. 7.20, Weather Forecast. 7.30, Lecocq Concert: Selection from (a) Le Petit Duc, (b) Le Jour et la Nuit, (c) Les Cent Vierges and (d) Ali Baba. 8.30, Variety Programme. 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—7.0 p.m., Hot Jazz on Gramophone Records. 7.30, Popular Music on Gramophone Records. 8.0, Talk. 8.15, Interval. 8.30, Sponsored Concerts. 10.40, News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture. 7.45, Peer Gynt Suite (Grieg) on Gramophone Records. 8.0, Press Review and Weather. 12 Noon, Concert by the Radio Paris Orchestra: Selection from Faust (Schumann). 12.30 p.m., Popular Concert on Gramophone Records. 1.0, Exchange, News, and Weather. 1.5, A Quartet in G. 1.50, Exchange. 1.35, Orchestral Concert (contd.): Selection from Hérodiade (Massenet); La Forêt enchantée (d'Indy); Serenade and Wedding March from Conte d'avril (Widor). 2.0, Exchange. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Elementary English Lesson. 6.50, Film Review. 7.0, Review of New Books. 7.20, Concert by the Radio Paris Orchestra: Selection from Les Noces Corinthiennes (Bousser); Prélude mystique (Février); A Venise (Monti); Air de Ballet (Roussseau). 7.45, Commercial Prices and News. 7.50, Gardening Talk. 8.0, Ballad Evolutions arranged by Georges Chepfer. Soloists: Denise Cam, Jacques Ferny and Paul Weil. In the intervals at 8.30, News, Weather, and Sports Notes. At 8.40, Review by Paul Reboux; and at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—9.0 p.m., Work-a-day Thoughts. 9.5, Business News. 9.15, Programme to be announced. 9.30, Weather. 9.32, Market Report. 9.45, Pianoforte Interlude. 9.50, David Lawrence Dispatch. 9.55, KDKA Artist Bulletin. 9.57, Programme Announcements. 10.0, Programme to be announced. 10.30, The Singing Lady, from New York. 10.45, Little Orphan Annie. 11.0, Time. 11.16, Temperature Report. 11.17, Telemeter Sport Review. 11.22, Press News Boiler. 11.27, Strange Facts. 11.29, Weather. 11.30, Westinghouse Watchmen. 11.45 to 3.15 a.m. (Tuesday), New York Relay. 11.45, Today's News, by Lowell Thomas. 12 Midnight, Popsident Amos 'n' Andy. 12.15 a.m., Tastyest Jesters. 12.30, Five Star Theatre—Marx Brothers. 1.0, Marimba Band. 1.30, A Talk for Dog Lovers by Don Carney. 1.45, Phillips Lord in The Country Doctor. 2.0, Sinclair Minstrels. 2.30, Jack Frost Melody Moments. 3.0, Alice Jay. 3.15, Bridge School of the Air by E. Hall Downes. 3.30, Samuel Di Primio (Tenor). 3.45, Bradley Kinead. 4.0, Time. 4.1, Telemeter Sport Review. 4.11, Temperature Report. 4.12, Weather. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News. 4.20, Henry Halstead and his Californians.

JAN. 30th **MONDAY** continued

5.0, Hotel Bismarck Orchestra, from New York. 5.30, Time and Good-night.
PORSGRUND.—See Oslo.

PRAGUE

488.6 metres; 120 kW. 3.10 p.m., See Bratislava. 4.10, Talk. 4.20, Talk: The Intellectual Labour Market and the Employment of Foreigners. 4.20, Programme for Children. 4.50, Variety Music on Gramophone Records. 5.5, Agricultural Report. 5.15, Talk for German Workers. 5.25, News in German. 5.30, German Transmission. 6.0, News. 6.5, See Erno. 6.55, Talk on the following Transmission. 7.5, Brahms Concert by the Czech Philharmonic Orchestra, conducted by Professor Karel B. Jirak. Soloists: Stanislav Novak (Violin) and Vaclav Cerny (Cello): Tragic Overture, Op. 81; Double Concerto for Violin, Cello and Orchestra; First Symphony in C Minor, Op. 68; In the interval at 8.0, Time Signal. 9.1, News Bulletin.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE, 680 metres;** and **GENEVA, 760 metres.**—5.30 p.m. (from Lausanne), German Lesson. 6.0 (from Lausanne), Weather Forecast and News. 6.30 (from Lausanne), Lesson for Apprentices. 7.0 (from Lausanne), Pianoforte Recital by Mlle. Hafcn. 7.15 (from Lausanne), Introductory Talk to the following Transmission. 7.30 (from Lausanne), Symphony Concert by the Radio Orchestra, conducted by Fernand Closset. In the interval at 8.15, News and Weather Forecast. 9.20 (from Geneva), Talk: The Work of the League of Nations. 9.35 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather Bulletin. 8.40, Musical Programme and Announcements. 9.0, Chimes and News. 9.30, Reading. 10.0, Popular Concert by the Station Quartet with Songs.

RJUKAN.—See Oslo.

ROME

Call IRO, 441 metres; 50 kW. Relayed by Naples, 319 metres; and 2RO, 25.4 metres. 7.0 a.m., Gymnastics. 7.15 to 7.30, Giornale Radio and Announcements. 11.30, Weather, and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Orchestral Concert. In the interval from 12.30 to 12.45, Giornale Radio and Exchange. 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.30, Violin Recital by Gino Francescatti, relayed from the Royal Philharmonic Academy. 6.0, Giornale Radio. 6.10 (Naples), Shipping, News, and Sports Notes. 6.15, Agricultural Report and Announcements. 7.0, Time, Announcements, and Light Music on Gramophone Records. 7.30, Sports Notes and Tourist Report. 8.45, Orchestral Concert. 9.55, News Bulletin.
SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 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., The Revolving Stage, from New York. 8.0, Talk, from New York. 8.15, Antoinette Halstead (Contract). 12.0 Midnight, Stock Reports. 12.15 to 2.30 a.m. (Tuesday), New York Relay. 12.15 a.m., Wheatona Ville. 12.30, Melody Keepsakes. 12.45, The Goldbergs. 1.0, Soconyland Sketches. 1.30, Voice of Firestone. 2.0, A. and P. Gipsies. 2.30, Buick Programme and Programme Resumé.

SCHWEIZERISCHER

LANDESENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASLE, 244.1 metres;** and **BERNE, 245.9 metres.**—11.28 a.m., Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40, Gramophone Concert of Folk Music of many Lands. 12.35 p.m., Weather and Exchange. 12.40 to 2.30, Interval. 2.30, Light Music on Gramophone Records. 3.30, Concert by the Little Radio Orchestra. 4.0, Variety Music on Gramophone Records. 4.30, to 4.35, Weather. 5.30 (from Zürich), Talk: Flamenco Songs and Serenades, with Gramophone Illustrations. 6.0, Time and Weather. 6.15 (from Zürich), Political Talk. 6.45, (from Zürich), Soldiers' Songs to the Lute by Oskar Besenfelder accompanied by the Radio Orchestra, conducted by H. Hofmann. 7.50 (from Zürich), Children in Poetry—Recitations by Cécile Faesy. 8.30, Weather and News. 8.40, Concert of Waltzes and Marches by the Radio Orchestra. 9.15 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 277 metres; Motala, 1,345 metres; Östersund, 570 metres; and Sundsvall, 542 metres.—4.5 p.m., Song and Accordion Recital, relayed from Falun (387 metres). 4.45 (from Göteborg), Reading. 5.0, Variety Music on Gramophone Records. 5.55, Parliamentary Report. 6.15, Weather and News. 6.30, Talk. 7.0, Concert by the

Station Orchestra. Soloists: Knut Almröth (Flute) and Ingrid Egerström (Harp). Overture, Heimkehr aus der Fremde (Alneldsölm); Andantino from the Concerto for Flute and Harp (Mozart); Allegretto from the Symphony in D Minor (Franck); Selection from Tieffand (d'Albert); Song (Halvorsen); Suite from Feramors (Ruhinstein); Slav Dances (Dvorák). 8.15, Talk on Astronomy. 8.45, Weather and News. 9.0, Sacred Concert, relayed from St. Jacob's Church. Choir conducted by Set Svanholm. Soloists: Waldemar Ahlen (Organ), Johnny Selönning and Folke Reiholdesten (Violins), Ake Udden and Nils Alderling (Violas), and Gunnar Norrby (Cello). Organ Solo: Prelude and Fugue in G Minor (Buxtehude); Magnificent anima mea, for Choir, Strings and Organ (Buxtehude); Two Choral Preludes for Organ (Pachelbel); Angelus ad pastores ait (Hassler); In natali Domini (Praetorius); Hymn (Schütz); Kyrie Eleison for a Capella Choir (Lotti); Organ Solo, Prelude and Fugue in G. (Brahms). 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Variety Music on Gramophone Records. 12.45 p.m., News Bulletin. 1.0, Time and Exchange. 1.5, Quintet Concert relayed from Bordeaux-Lafayette. 1.50 to 4.30, Interval. 4.30, Cello and Pianoforte Recital relayed from Radio Coloniale (Paris) (19.68 metres). 5.30, Light Music on Gramophone Records. 6.0, Film Review. 6.15, Topical Talk in German. 6.30, Dance Music: Blonde Hunserebraut (Künnecke); Foxtrot (Uvergoltz); Foxtrot, Wouldn't it be Wonderful? (Clarke); Boston, Musik macht mich Schwach (Rith); Foxtrot (Wal-Berg); Jealousy (Wal-Berg); Tango, Margot, tes yeux (Demaret); Foxtrot, Quit cryin' the Blues (Lewis); Slow Foxtrot, Auf Wiedersehen my Dear (Hoffmann); Waltz, Roses from the South (Joh. Strauss); Foxtrot, Racketeer Stomp (Toxer); Free as the Air (de Kreis); Tango, A Night in Monte Carlo (Heymann); Foxtrot, Long and Short (Uvergoltz); C'est la Rumba (Michaelov); One-step (Verdun and Oberfeld). 7.30, Time and News. 7.45, Popular Music on Gramophone Records. 8.25, Lottery Results. 8.30, Concert by the Station Orchestra, conducted by Maurice de Villers. Soloists: Mlle. La Candela (Pianoforte) and M. Ely (Bassoon). Symphony No. 2 (Saint-Saëns); Concerto for Bassoon and Orchestra (Mozart); Concerto for Pianoforte and Orchestra (Rimsky-Korsakov); La Fête chez Thérèse (Hahn); Pianoforte Concerto (Moreau); Fresques (Gaubert). 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW., and **FREIBURG, 570 metres.**—12.30 p.m., Theodor Scheidl Song Recital on Gramophone Records: The Huntsman's Recitative and Aria from Das Nachtlager von Granada (Kreutzer); Songs from Schwanda, the Piper (Weinberger): (a) Ich bin der Schwanda, (b) Wie kann ich denn vergessen; Songs (Löwe); (a) Prinz Eugen, (b) Fridericus Rex; Da m'acht selbst der Herrgott ein Wiener sein (Körner-Ossop); Geh nach dein Fenster auf (Durek). 1.0, to 1.30, Sponsored Programme. 1.30, Spanish Lesson. 2.0, Elementary English Lesson. 4.0, See Munich. 5.0, Time, Weather and Agricultural Notes. 5.10, Talk on Means of Transport. 5.50, See Frankfurt. 6.20, Time and News. 6.35 to 8.30, See Frankfurt. 8.30, Recital of Italian Opera Arias by Hermann Lingor: O Lola, c'hai di latti la commisa, from Cavalleria Rusticana (Mascagni); Vesti la giubba, from I Pagliacci (Leoncavallo); Aria from Madame Butterfly (Puccini); Aria from Rigoletto (Verdi); Celeste Aida, forma divina from Aida (Verdi). 9.0, Time, News, Weather and Programme Announcements. 9.30, See Langenberg. 10.20, Chess Lesson. 10.45 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0 p.m., News Bulletin. 6.15, Military Music. 6.30, Operetta Music: Airs from Les Cloches de Corneville (Planquette); Rose-Marie (Friml); and La Mascotte (Audran). 6.45, Potpourri of Strauss Operetta Music. 7.0, Tourist Talk. 7.15, News Bulletin, Racing Results, and Market Prices. 7.25, Local News. 7.30, Sound Film Music. 7.45, Opera Music: Selection from Faust (Gounod); Overture, The Magic Flute (Mozart); 8.0, Songs and Instrumental Solos. 8.30, Music by a Viennese Orchestra: Lachendes Wien (Komzak); Fascination (Marchetti); Takes from the Vienna Woods (Joh. Strauss); Moonlight on the Danube (Gay); Wiener Zugvogel (Translatur); Valse mélancolique (Darbus). 9.0, Music Hall Programme. 9.30, Accordion Solos. 9.45, Opera Music: Air from Thérèse (Massenet); Melody from Si j'étais Roi (Adam); Toreador's Song from Carmen (Bizet). 10.0, Airs from Operetta. 10.15, North African News. 10.30, Concert for Listeners in Morocco: Overture, L'Arlésienne (Bizet); Air from Manon

Lescout (Auber); Selection from The Gipsy Baron (Strauss); Air (Nicholls); Spanish Waltz (Carré). 11.0, Request Concert. 11.30, Programme in English by the I.B.C.: Music from the British Isles; Military Band: Potpourri of British Songs; Baritone Solo: Loch Lomond; Tenor Solo: My Old Irish Mother; Soprano Solo: Paradwys fy Nghalon; Military Band: The Empire March; Humorous Item: Tell England; Choir: Merrie England. 12 Midnight, Weather and Announcements. 12.5 a.m. (Tuesday), Dance Music, followed by Music by an Argentine Orchestra. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—6.0 to 6.30 p.m., See Turin. 6.30, Orchestral Concert from the Café Dante. 7.0 (approx.) till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayed by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—6.0 p.m., Giornale Radio. 6.10, Light Music on Gramophone Records. 6.25, Tourist Report. 6.30, Time, Announcements and Popular Music on Gramophone Records. 7.0, Giornale Radio, Weather and Gramophone Records of Variety Music. 7.20, Concert of Chamber Music: Leo Petroni (Violin) and M. Luigi Gallino (Pianoforte). Sonata No. 4 in D (Handel); Il trillo del Davolo (Tartini); Song (Tansman); The Musical Box (Tansman); Cradle Song (Stravinsky); Malaguena (Albeniz). 8.20, A Comedy in One Act. 9.0 (approx.), Orchestral Concert conducted by Ugo Tansini: Symphony in D (Mozart); Two Norwegian Dances (Grieg); Largo (Mullé); Intermezzo from William Ratellif (Mascagni); Overture, Zampa (Hörolid). 10.0, Giornale Radio.

VATICAN CITY

19.84 metres (Morning), and 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

517 metres; 15 kW. Relayed by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres, and Salzburg, 218.5 metres. 4.5 p.m., Concert of Light Music by the Isy Geiger Orchestra. 5.30, Talk: The Exhibition The Dance in Art in the Haggenbund gallery. 5.50, Talk: Books of Reference in Connection with the Week's Talks. 5.55, Talk: The Social and Historical Conditions affecting German Literature about 1800. 6.15, English Lesson. 6.40, Time, Weather, Programme Announcements and Results of the Skiing Championship of the Austrian Skiing Association. 6.55, Recital of Songs and Arias by Eva Hadrabova (Soprano). 7.35, Military Band Concert of Viennese Music, conducted by Anton Mader; March, Wien bleibt Wien (Schrammel); Triumphal Overture (Suppe); March of the Eighth Regiment (Wetachek); Waltz, Natursänger (Ziehrer); Hoch- und Deutschmeistermarsch (Ertl); Polka Mazurka, Lob der Frauen (Joh. Strauss); So wie's einmal war (Haupt); March Foxtrot, Die Garde marschiert (Kálmán); Song, Mei Mautterl war a Weanerin (Gruber); Drinkin' Song from Der lachende Ehemann (Eysler); Waltz Intermezzo from The Merry Widow (Lehar); March, Jetzt geht's los (Lehar); Potpourri of Students' Songs (Mader); Fliegermarsch (Dostal). 9.0, News, Weather and Announcements. 9.15, Dance Music by Fred Clement's Band, relayed from the Grabenatfé.

WARSAW

1,411 metres; 120 kW.—10.58 a.m., Time Signal and Bugle Call from the Tower of St. Mary's Church, Cracow. 11.5, Programme Announcements. 12.20 p.m., Weather Report. 12.25 to 2.10, Interval. 2.10, Announcements. 2.15, Economic Notes. 2.25, Traffic Report. 2.35, Talk. 2.50, Popular Music on Gramophone Records. 3.25, Elementary French Lesson. 3.40, Talk on Economics. 4.0, Recital on Two Pianofortes by S. Dawson and E. Rosenblum; Sonata in E flat (Bach); Fantasia and Duetto concertante (Mozart-Busoni); Scherzo (Saint-Saëns); Danse andalouse (Infante). In the interval, News. 4.35, Song Recital by M. Lestuzzi (Mezzo-Soprano). 4.55, Programme Announcements. 5.0, Light Music from the Café Italia. In the interval, News. 5.50, Miscellaneous Items. 6.20, Answers to Agricultural Correspondence. 6.30, Topical Talk. 6.45, Radio Journal. 7.0, Answers to Technical Correspondence. 9.15, La Gioconda—Opera in Four Acts (Ponchielli), on Gramophone Records. In the interval, Sports Notes and Radio Journal. 9.55, Weather for Aviation and Police Report. 10.0, Dance Music from the Adria Dance Hall. 11.0 (approx.), Close Down.

WILNO

563 metres; 16 kW.—3.25 to 4.55, See Warsaw. 4.55, Programme Announcements. 5.0, See Warsaw. 5.40, Lithuanian Talk on Baltic Affairs. 5.55, Miscellaneous Items. 6.0, Reading. 6.10, Miscellaneous Items. 6.15, Sports Notes. 6.30 to 7.15, See Warsaw. 7.15, Werther—Opera (Massenet), on Gramophone Records, with Introductory Talk. 9.55 to 11.0, See Warsaw. 11.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender.

BARCELONA

RADIO-BARCELONA, Call EA1J, 349 metres; 8 kW.—6.0 p.m., Trio Concert: Selection from Fidelio (Beethoven); Le coucou (Daquin); Shepherd's Song (Elgar); Entr'acte (Humphries); Berceuse (Massenet); Selection from Tristan and Isolde (Wagner). 7.0, Request Gramophone Records. 7.30, Exchange Quotations, followed by Talk on Art. 8.0, Popular Music on Gramophone Records. 8.15, Football Notes, Variety Music on Gramophone Records, and News. 9.0, Chimes, Weather, Messages for Seaman, Exchange, and Market Prices. 9.10, Part Relay of an Opera from the Gran Teatro del Liceo. In an interval at 11.0, News. 12 Midnight (approx.), Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Notes, Tourist Report, and Announcements. 7.20, Giornale Radio and News Bulletin. 7.30, Time Signal and Announcements. 7.35 (approx.), Relay of an Opera from the Teatro Petruzzelli. In the intervals, Literary Review, Talk, and News Bulletin.

BASLE.—See Schweizerischer Landessender.

BELGRADE

430.4 metres; 2.8 kW.—4.0 p.m., Popular Music on Gramophone Records. 5.55, Time and Programme Announcements. 6.0, Concert by the Station Orchestra: Introductory Music to Herzogin Maja (Krstic); Aus schönen Tagen (Leopold Dvorak); Serenade (Hatz); Suite, An Evening in St. Petersburg (Meyer-Helmund); Selection from The Rose of Stamboul (Fall); 7.0, Programme for Women (not yet announced), relayed from Zagreb (307 metres). 9.0, News, followed by Cigány Music from the Gradjevinska Kasina Restaurant.

BERLIN

KONIGS WUSTERHAUSEN; 1,635 metres; 60 kW.—11.55 a.m., News Time Signal. 12.35 p.m., News Bulletin. 1.0, Gramophone Concert, relayed from Berlin (Witzleben). 2.0, Talk for Young People: Problems of the Mechanical Age. 2.50, Weather and Exchange. 2.45, Talk on and Reading from the Works of Heinrich von Kleist. 3.0, Programme for Women: (a) Talk on Johanna Wolf, on her Seventy-fifth Birthday. (b) Book Review. 3.30, See Leipzig. 4.10, Topical Talk. 4.30, Chamber Music—The Chanson from 1907-1933; Die alte Uhr (Belaszkzy); Pantoffelchen (Walter Kollo); Flundern (Walter Kollo); Ladenmädchen (Nelson); Chevreux-Schuh (Nelson); Suleika (Welisch); Tante Tina (Ziegler). 5.0, Talk on Banking. 5.30, Talk: How to play Bach. 5.55, Weather and Announcements. 6.0, Talk: Catholicism and Protestantism—a Comparison and a Contrast. 6.30, A Poem. 6.35, Political Press Review. 7.0, See Langenberg. 9.45, Weather Report for Shipping. 10.0, Weather, News and Sports Notes, followed by Concert from Hamburg. 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN; 419.5 metres; 1.5 kW.—6.0 p.m., Notes on the Sequence of Talks on Help for the Unemployed. 6.10, Concert of Light Music from the Traube Weinrestaurant. 6.40, Talk: The Evening's Musical Programme. 6.50, Concert from the Traube Weinrestaurant. 7.35, Talk: How is sound transmitted to the Records (with Gramophone Record Illustrations). 8.0, Second and Third Parts of The Messiah: Oratorio (Händel) relayed from the Philharmonie. 9.15, Weather, News and Sports Notes. 9.30 (approx.), Concert from Hamburg. 11.0 (approx.), Close Down.

BERNE.—See Schweizerischer Landessender.

BEROMUNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BORDEAUX-LAFAYETTE

304 metres, 13 kW.—7.30 p.m., News and Exchange. 7.40, Talk for Women. 7.55, Lottery Results. 8.0, Topical Talk. 8.15, News Bulletin. 8.30, Dramatic Programme. After the Programme, Entertainment's Guide and Time Signal.

BRATISLAVA

279 metres; 14 kW.—4.20 p.m., Sonata in A Flat, Op. 26 (Beethoven) by Prof. E. Krizan (Pianoforte). 4.45, Talk. 5.0, Variety Music on Gramophone Records. 5.15, See Prague. 5.25, Popular Music on Gramophone Records. 5.45, Slovak Spelling Lesson. 6.0, See Prague. 6.5, See Brno. 6.20, See Prague. 6.40, Concert by the Station Orchestra, conducted by F. Dyk. 7.20, See Prague. 10.0 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres, 60 kW.; and GLEIWITZ, 253 metres.—12.10 p.m., Gramophone Concert: Overture, Fra Diavolo (Anber); Mazurka (Godard); Pierrot and Pierrette (Hirsch); Rokoko-Minuet (Leiss); Potpourri of Old Operetta Music; Waltz from Eva (Lehar); March, Friederician (Grosse). 12.45, Time, Weather and Exchange. 1.5, Gramophone

TUESDAY

JANUARY THE THIRTY-FIRST

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL

Instrumental concert. "How the Mind Works" (Series 3), by Professor Cyril Burt. "Social Psychology." Chamber music.

LONDON REGIONAL

Manchester Tuesday Midday Society's concert. Zigeuner orchestral programme. Male Voice Choir recital. "Great Open Spaces," a topical revue. Instrumental concert.

MIDLAND REGIONAL

Choral programme. Sonata recital. "From the Musical Comedies," orchestral programme.

NORTH REGIONAL

Concert from the Houldsworth Hall, Manchester. Orchestral concert.

WEST REGIONAL

Police Band concert. National programme.

SCOTTISH REGIONAL

Miss Marion McNeill: "A Talk on the Art of Scottish Cooking." Programme of Music by Coleridge Taylor. "Foundations of Scottish Song": A talk by Mr. Thomas Henderson, with musical illustrations.

BELFAST

Dance music. "Enter Mrs. Grundy," a comedy by E. A. Bryan.

ABROAD

BRUSSELS

Concert of eighteenth century music, conducted by C. Walpot.

HEILSBURG

Act I of "Der Rosenkavalier" (Strauss), relayed from Königsberg.

RADIO PARIS

Symphony concert, conducted by E. Bigot.

STRASBOURG

Orchestral concert, conducted by M. de Villeis.

STUTTGAERT

Concert of romantic music, by the Philharmonic Orchestra.

Concert: Wellington's Victory, or the Battle of Vittoria (Beethoven); Air from Eugénie Onegin (Tchaikovsky); Two Mazurkas (Chopin); Selection from La belle Hélène (Offenbach). 1.45, Sponsored Programme with Gramophone Records. 2.10, Agricultural Prices. 2.40, Programme for Children. 3.15, Song and Pianoforte Recital by Alberto Uzielli (Baritone) and Kurt Malig: Romance in F Sharp (Schumann); Kerner-Lieder, Op. 35 (Schumann); (a) List der Stürmchen, (b) Stirn', Lieb' und Freud', (c) Wanderlied, (d) Erstes Grün, (e) Sehnsucht nach der Waldgegend, (f) Auf das Trinkglas eines verstorbenen Freundes, (g) Wanderung, (h) Stille Liebe, (i) Frage, (j) Stille Tränen, (k) Wer machte dich so krank, (l) Alte Laute; Sonatina in E (Jokl). 4.15, Review of Books on Sport. 4.30, Agricultural Prices. 4.32, Wolfram Brockmeier reads from his own works. 5.0 (from Gleiwitz), Topical Talk. 5.40, Talk: The Counter-Reformation as a Religious Movement. 6.10, Concert from the Traube Restaurant. 6.40, Weather for Farmers. 6.45, Request Concert by the Station Orchestra. Soloist: Alfred Stöckel (Tenor). 8.0, Announcements. 8.10, Concert of Witty Topical Songs by the Station Choir, conducted by Edmund Nick. 9.10, Time, Weather, News, Sports Notes and Programme Announcements. 9.30, Political Review. 9.55, Theatre Notes. 10.5, Concert from Hamburg. 11.0 (approx.), Close Down.

BRNO

342 metres; 35 kW.—4.50 p.m., Esperanto Lesson. 5.0, Music Review. 5.15, Talk for Workers. 5.25, German Transmission: News and Relay from a Dairy. 6.0, See Prague. 6.5, Political Talk. 6.20, Reading. 6.40, See Bratislava. 7.20, See Prague. 10.0 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—12 Noon, A Visit to Italy—Concert by the Small Station Orchestra, conducted by P. Leemans: Venezia Misteriosa (Travassia); Venetian Gondola (Mendelssohn); A Day in Capri (Sudess). 12.30 p.m., Grieg Concert. Soloist: M. Douliet (Pianoforte). Norwegian Dances; To the Spring; Pianoforte Solos: (a) The Butterfly, (b) March of the Dwarfs; A Summer's Evening; Wedding March. 1.0, Le Journal Parlé. 1.10, Gramophone Concert: Selection from Raymond (Thomas); Carnaval de Venise (Thomas); Melodies (de Sévère); (a) Toto déguisé en suisse d'église, (b) Mimi se déguise en marquise, (c) Valse romantique; Le carnaval de Rome (Thomas). In the interval at 1.30, Song Recital by Mlle. Yolande Jorion. 5.0, Guck Concert by the Radio Orchestra, conducted by Charles Walpot; Overture. Arrière; Selection from Alestis; Religious March; Flute Solo; Minuet from Orphée; Overture, Orphée. 5.30, Programme for Children. 6.5, Literary Talk. 6.15,

van Rijsselberghe (Pianoforte). Part I: Richard Strauss Programme: Symphonic Poem, Till Eulenspiegel's Merry Pranks; Waltz from Der Rosenkavalier. Songs: (a) Traum durch die Dämmerung, (b) Ständchen, (c) Heimliche Aufforderung. Symphonic Poem, Don Juan. Radio Play. Part II: Brahms Programme: Two Waltzes, Songs: (a) Sapphische Ode, (b) Immer leiser wird mein Schlummer, (c) Vergebliches Ständchen. Pianoforte Solos: (a) Intermezzo in E, (b) Rhapsody in G Minor; Academic Festival Overture. 10.0, Le Journal Parlé. 10.10, Light Music on Gramophone Records. 10.20, De Vuurtoren. 10.35, Gramophone Dance Music. 11.0 (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—4.0 p.m., Concert of Light Music and Romanian Music by the Motzoi Orchestra. 5.0, News and Time Signal. 5.10, Talk. 5.25, Concert (cont'd.). 6.0, Talk on Romania: Her Railways. 6.40, Popular Music on Gramophone Records. 7.0, Symphony Concert by the Station Orchestra, conducted by T. Rogalski. Soloists: Mlle. Lily Wechsler (Pianoforte), and Mme. Rosl Baumann-Radulesco (Songs). Overture, Don Giovanni (Mozart); Concerto for Pianoforte and Orchestra (Schumann); Five Songs: (a) Tre giorni (Pergolesi), (b) Plaisir d'amour (Martini), (c) Aria from Figaro (Mozart), (d) Capriccio brillante for Pianoforte and Orchestra (Mendelssohn). 8.15, Talk. 8.25 (approx.), Symphony Concert (cont'd.): Italian Symphony (Mendelssohn). 8.45, News Bulletin.

BUDAPEST

550 metres; 18.5 kW., Programme also on 640 metres from 7.0 p.m. till Close Down.—4.30 p.m., Dance Music from the New York Café. 5.30, French Lesson. 6.0, Pianoforte Recital by Arpad Hanak: Aus der Tiefe rufe ich (Bach-Szantoni); Tambourin (Rameau); Three Pieces (Debussy): (a) La fille aux cheveux de lin, (b) Minuet, (c) General Lavine—ecceitric; Little Waltz (Renato Bellini); Twelfth Rhapsody (Liszt). 6.30, Programme by Marius Rabinovskiy. 7.0, Talk with Gramophone Records. 8.0, Poems. 8.30, Concert by the Hungarian Opera House Orchestra, conducted by Ernst Dolmányi. Soloist: Maria Bafides, Leona Overture No. 1 (Beethoven); Aria from Cantata No. 53 (Bach); Ballet Music from Idomeno (Mozart); Aria from The Messiah (Händel); Symphony in G (Haydn). 9.15, News Bulletin. 10.0, Cigány Music from the Café Spolarich.

CASSEL.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW; and KALUNDBORG, 1,153 metres; 7.5 kW.—11.0 a.m., Town Hall Chimes. 11.2 to 1.0 p.m., Concert from the Bellevue Strandhotel. 2.0, Orchestral Concert, conducted by Lanny Gröndahl. Soloist: Beth Kullmann (Songs). Jubelmarsch (Böcker-Nielsen); Overture, Le Cid (Thomas); Caprice brillant (Glinka); Fantasia on Old Danish Sailor Songs (arr. Lanny Gröndahl); Norwegian Wedding March (Christensen); Waltz from Du liebes Wien (Stolz); Seven Songs; Overture, La Mascotte (Andran); Waltz, Hoffmings-Strahlen (Lanner); Czardas from The Swan Lake (Tchaikovsky); Swedish Folk Melody (arr. for Strings by Herman Sandby); Segundilla, Castalla (Albeniz); Irish Folk Melody, Molly on the Shore (Percy Grainger); March, Fanfarenklänge (Fueick). 4.0, Programme for Children. 4.40, Exchange and Market Prices. 4.50, Talk from the Aarhus Studio. 5.20, German Lesson. 5.50, Weather Report. 6.0, News Bulletin. 6.15, Time Signal. 6.30, Talk: Danish Painting—Expressions and the New Art. 7.0, Town Hall Chimes. 7.2, Hans Højed—Play in Five Acts (Wilhelm Meyer-Förster), arranged for Radio. 9.0, News Bulletin. 9.15, Concert of French Music, by the Radio Orchestra, conducted by Emil Resen: Overture, L'épreuve villageoise (Grétry); Two Airs from The Damnation of Faust (Berlioz); Four Airs from the Second Suite from Carmen (Bizet); Three Airs from L'enfant prodige (Debussy); Habanera and Slav Dance (Chabrier). 10.0, Dance Music from the Nimb Restaurant. 11.0 (in an interval), Town Hall Chimes. 11.50 (approx.), Close Down.

CORK.—See Dublin.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN, 413 metres; 1.2 kW; and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. 6.0, Popular Music on Gramophone Records. 6.15, Programme for Children. 7.0, Light Music on Gramophone Records. 7.15, News and British Market Report. 7.30, Time Signal. 7.31, Gaelic Talk. 7.45, Talk. 8.0, Pianoforte Recital by Madge Bradbury. 8.25, Mezzo-soprano Solos by Mary Maguire. 8.40, Traditional Irish Music by C. Mae Fhionnualaich. 9.0, Irish Music by the Station Sextet. 9.30, Relay of the Ladies' Night from the Gresham Hotel. 10.30, Time Signal, News, Weather Report and Close Down.

BRUSSELS (No. 2)

I.N.R., 338.2 metres; 15 kW., Programme in Flemish.—12 Noon, Gramophone Concert of Opera and Operetta Music: Jazz Paraphrase on the Overture to Orpheus in the Underworld (Offenbach); Song from The Merry Peasant (Fall); Selection from Louise (Charpentier); Drinking Song from La Traviata (Verdi); Overture, Die Fledermaus (Joh. Strauss); Aria from La Favorita (Donizetti); Selection from L'ile de France (Schubert); Coronation Scene from Boris Godunov (Mussorgsky); Waltz from Eva (Lehar); Overture, Les Saltimbanques (Ganne). 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Little Station Orchestra, conducted by F. Leemans: Cortege oriental (Leemans); Dance, Leszinka (Rubinstein); Spanish Caprice (Rimsky-Korsakov); Short Story for Violin (Gershwin Dushkin); Brazilian Dance, Leme (Milhaud); Waltz (Stolz); American Potpourri 1930 (Nielhuis). 5.0, Concert by the Radio Orchestra, conducted by Charles Walpot; Overture, Zampa (Herold); Rustic Suite (Gilsen); Military March (Schubert); Italian Caprice (Tchaikovsky). 5.45, Programme for Children. 6.30, Gramophone Concert: Overture, The Thieving Magpie (Rossini); Symphonic Entr'acte from Messidor (Branca); Third Prelude (Rachmaninov); Tarantelle (Cui); Reverie for Horn (Glazunov); Scherzo—Waltz (Chabrier); Slav Rhapsody (Friedemann); Gopak, from The Fair at Sorochinsk (Mussorgsky). 7.15, Reading. 7.30, Le Journal Parlé. 8.0, Concert by the Station Orchestra, conducted by A. Menlemans. Soloists: Marguerite Lamm (Songs) and Irène

FECAMP

223 metres; 10 kW.—10.0 p.m. till Close Down, Programme in English by the I.B.C. 10.0 p.m., Dance Music. You're blasé; I'm thru with love; Star dust; I wanna be loved by you; I don't know why; I found you; The Queen was in the Parlour; Me; The Love Waltz; Blue turning grey over you; They didn't believe me; It always starts to rain; Eleven more months and ten more days; Beware of Love; Livin' in the Sunlight, lovin' in the Moonlight; Don't wear your heart on your sleeve. 11.0, Vocal and Orchestral Concert. Potpourri Overture, No. 1 (arr. Leggett). Songs: (a) By the Waters of Minnetonka (Lienance), (b) Good-bye (Tosti); The Clock and the Dresden Figures (Kettelbey). Songs: (a) My Little Irish Cottage (Summers), (b) O Dry those Tears (del Riego); Dance of the Tea Dolls (Smith-Hagen). 11.30, Orchestral Concert. French Comedy Overture (Kéler-Béla-Trotter); The Capricious Musical Box (Fresco); Waltz, Acclamations (Waldteufel); The Phantom Brigade (Myddleton); Selection from Chu Chin (Chow (Norton)); Sleight Bells (Lindeman); Love in Cloverland (Peter); Fairy on the Clock (Myers). 12 Midnight, Vocal Duets: He's that kind of a pal (Ager); I ain't gonna tell (Strachan); There'll never be another Mary (Yellen); She can't make up her mind (Casting); I'm following you (Dreyer); I may be wrong (Ruskin); I'm sailing on a sunbeam; Sitting by the window (Courad). 12.30 a.m. (Wednesday), Harmonium and Zither Duets: Bonnie lass o' bon accord; The Laird o' Dunblair; Handsome Gigolo (Casucci); The Rose in the Heather; Muzurka; Carnalava; My beauty waltz; The Skirl o' the Pipes; Polly (Zamocnick). 1.0 a.m., Celebrity Concert. Maurice Chevalier: (a) Paris stay the same, (b) Nobody's using it now. Stanley Holloway: (a) The Lion and Albert, (b) 'Al, 'oo goes there. Maurice Chevalier: (a) Valentine, (b) My Love Parade. Stanley Holloway: (a) Three ha'pence a foot, (b) Old Sam. 1.30, Light Songs. Back to gay Paree; Oh, how he looks at me; We're uncomfortable; Please, Percy; Cooking breakfast for the one I love; Fall in and follow the Band; When a Woman loves a Man; Sally. 2.0, Dance Music. Underneath the Arches; Round the Marble Arch; The clouds will soon roll by; It ain't no fault of mine; They all start whistling Mary; Love me to-night; Happy go lucky you; While we danced at the Mardi Gras; Say it isn't so; Let's all sing like the Birdies sing; How'm I doin'; Wanderer; The Old Man of the Mountains; Try a little tenderness; Let's put out the light; When the morning rolls around. 2.57, I.B.C. Good-night Melody. 3.0, Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW., and CASSEL, 245.9 metres.—4.0 p.m., See Stuttgart. 5.15, Economic Notes. 5.25, Talk: Second Sight. 5.50, Time, Programme Announcements, Weather and Economic Notes. 6.30, Mandoline Concert: March, Mandolinata (Siegmund); Waltz, Fiore Alpino (Sartori); Intermezzo, Am Märchenmännchen (Kollmeyer); Waltz, Traumlo (Sartori); Overture, San Giusto (Bittell); Fantasia, Musical Impressions (Sartori); Loreley Paraphrase (Nesvadba). 7.15, The Citizen and the Unstable a Humorous Episode from Old Frankfurt, relayed by Paul Laven. 9.20, Time, News, Weather and Sports Notes. 9.45, Concert from Hamburg. 11.0 (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

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 227.4 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—6.0 p.m., Agricultural Talk. 6.25, Weather. 6.30, (from Bremen), Karl Lerbs reads Anecdotes. 7.0, Concert by the Norag Orchestra, Women's Choir and Soloists. Conductor: Horst Platen. Overture, Poet and Peasant (Suppe); Duet; Was seh ich, from Undine (Lortzing); Liebesgeständnis from Fäschingsbilder (Nicodé); Trio from Le postillon de Longjumeau (Adam); Serenade from Les millions d'Arlequin (Drigo); Wadz, Estudiantina (Waldteufel); Interlude: The Fiftieth Birthday of Linse-mann, the Master Potter—Sketch (G. Tischer); Waltz Song from Les cloches de Corneville (Planquette); Overture, Der Bettelstudent (Müllcker); Serenade from Don Cesar (Dellinger); Czardas from Der Geist des Wojewoden (Grossmann); Quartet from The Betrothal by Lanternlight (Offenbach); Selection from Eva (Lehar); Waltz, Roses from the South (Joh. Strauss). 9.0, Time, Weather, Announcements, Sports

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TUESDAY

continued

Notes and Police Report. 9.20, Topical Talk. 9.20 (from Hanover), Concert of Light Music by Modern Composers. Conductor: von Susen. Overture, Die Märchenprinzessin (Kostal); Three Pieces (Königsberger): (a) Roté Rosen, (b) Idyll am Bach, (c) Ein Liebesbrief, in G flat; Humoresque (Vreuls); Romance (Demaret); Chinese Dance (Eilenberg); Feuilletou-Walzer (Fueik); Intermezzo, Im Liebesgarten (Hartung); Two Pieces (Kubat): (a) Stenka Razin, (b) Einzug der Kombianten (after Smetana); Cello Solo: Serenade, To Columbine (Frederiksen); Tyrolienne (Kostal); Ikarus-Marsch (Stelzig); Rapid-Galopp (Leopold). In an interval at 10.20, Ice Report.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW. and DANZIG, 453.2 metres.—12.5 p.m., Variety Concert on Gramophone Records. In the interval at 12.20, News. 1.30, Sponsored Programme with Gramophone Records. 2.0, Exchange Quotations and Market Prices. 2.30, Programme for Children: We play at Broadcasting. 3.0, Concert by the Little Orchestra, conducted by Eugen Wilcken. Overture, Jessonda (Spohr); Selection from Preciosa (Weber); Minuet and Scherzo (Schubert); Suite from A Midsummer Night's Dream (Mendelssohn); Overture, Hans Heiling (Marschner); Overture, Der Lehemann (Grünfeld); Fascination (Marchetti); Idylle passionelle (Razigade); Selection from The Czarevitch (Lehar); Waltz, Estudiantina (Waldteufel). 4.0 (in an interval), Calendar Mottoes for the Month of February. 4.50, Talk: The Dog and his Training. 5.15, Market Prices. 5.30, Talk for Workers. 6.0, Pianoforte Suites by Bach, played by Rudolf Winkler; Partita in G; Partita in E Minor. 6.25, Short-hand Dictation. 6.50, Weather and News. 6.55, Talk on the following Transmission. 7.5, First Act of Der Rosenkavalier—Opera (Richard Strauss), relayed from the Opera House, Königsberg. 8.0, Humorous Topical Review. 8.10, Dance Music by the Small Orag Orchestra, conducted by Eugen Wilcken and the Edmur Runde Band. 9.30, Weather, News and Sports Notes.

HIL VERSUM

Announced HUIZEN, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.) 11.55 a.m. till Close Down, Programme of the Catholic Radio Society (K.R.O.). 11.55, Concert by the K.R.O. Sextet: Tarantella (Smith); Serenata diabolica (Terri); Ziganika (Worch); Narcissus (Nevin); 1927 Potpourri (Nicholls); Variety Music on Gramophone Records; Campana a Sera (Billi); Genisches Kom-potpourri 1931 (Dostal); Serenade (Poep-ping); Waltz, Donnusagen (Fueik); Finale. 1.40, Talk. 2.15, Programme for Women. 3.10, Dressmaking Lesson. 4.10, Popular Music on Gramophone Records. 5.10, Sonata Recital by Mlle. L. van Wijnngaerden (Violin) and M. J. Ligtelin (Pianoforte); Sonata (Debussy); Sonata (Milkand). 6.10, Esperanto Lesson. 6.30, Popular Music on Gramophone Records. 6.50, Talk. 7.10, Police Notes. 7.25, Talk. 7.40, Concert by the K.R.O. Boys, conducted by P. Lustenhouwer. Soloist: J. Mossel (Songs). 8.10, Topical Talk. 8.40, Concert (cont'd.). 9.0, News Bulletin. 9.10, Cello and Pianoforte Recital by S. Brill and F. Boshart: Malaguena (Albeniz); Minuet (Händel); Tarantella (Popper); Arlequin (Popper). 9.30, Concert by the K.R.O. Orchestra, conducted by J. Gerritsen. Soloist: S. Brill (Cello); Dramatic Overture, Patrie (Bizet); Concerto in D Minor (Lalo); Ballet Music from Le Roi saunse (Delibes); Selection from The Girl of the Golden West (Puccini); Overture, Sakuntala (Goldmark). 10.55, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 1,875 metres; 8.5 kW. Programme of the Algemeene Vereenig-ing Radio Omroep (A.V.R.O.).—11.40 a.m., Time Signal. 11.41, Concert of Light Music by the Kovacs Lajos Orchestra and Bob Scholte (Songs). In an interval, Gramophone Records. 1.40 to 1.55 p.m., Interval. 1.55, Popular Music on Gramophone Records. 2.40, Talk. 3.40, Violin and Pianoforte Recital by Boris Linsky and Egbert Veen. 4.10, Concert by a Children's Choir, conducted by Jacob Hamel. 4.40, Programme for Children. 5.10, Talk. 5.40, Variety Music on Gramophone Records. 6.10, Talk. 6.40, Cello and Pianoforte Recital by Loewen Boomkamp and Willem Andriessen. Sonata in E Minor, Op. 38 (Brahms); Sonata (Debussy). 7.10, English Lesson. 7.40, Time and News. 7.45, Concert by Dajos Bela and his Orchestra, relayed from the Carlton Hotel, Amsterdam. 8.40, Recitations. 8.55, Concert by the Station Orchestra, conducted by Nico Troep. Selection from The Dollar Princess (Fall); Selection from The Geisha (Jones). 9.25, Accordion Music. 9.40, Concert (cont'd.). March (Ciere); Waltz (Lehár). 9.55, Accordion Music. 10.10,

Concert (cont'd.). Overture, Pique Dame (Suppe); Melody (Kernbach); La voix des Cloches (Luigini); The Call of the Khan (Burgese). 10.40, News. 10.45, Concert (cont'd.). Selection from A Kiss in Spring (Kálmán); Melody (Finck); Parade of Jack and Jill (Lake). 11.10, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.0 p.m., Talk on New Books for Children. 6.15, Announcements and Opera Music on Gramophone Records. 6.25, Sports Notes. 6.30 till Close Down, See Warsaw.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres; 40 kW.; and HELSINKI, 368.1 metres.—5.40 p.m., Concert by the Station Orchestra, conducted by Toivo Haapanen. Soloist: Inari Haapalainen (Cello): Prelude (Kaski); Two Orchestral Pieces (Schatelewitz); Suite for Cello and Orchestra, In the Forest (Popper); Maria Wiegand (Reger); Ein Abend in Toledo (Schmelz-ing); The Skaters' Waltz (Waldteufel); Romanian Dances (Béla-Bartók). 6.45, Reading of Letters (Strindberg). 7.10, Song Recital by Pia Ravenna: Arias from: (a) Lucia di Launermoor (Donizetti), (b) La Traviata (Verdi); Songs (Schubert): (a) Liebesbotschaft, (b) Auf dem Wasser zu singen; Songs (Schumann); (c) Der Nussbaum, (d) Ein Jüngling liebt ein Mädchen. 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert, conducted by Wolf: Spanish Waltz, El Turia (Granados); Overture, Heimkehr aus der Fremde (Mendelssohn); Selection from Eugene Onegin (Tchaikovsky); Liebesleid (Kreiser); Schön Rosmarin (Kreiser); Suite compestre (Amadei); Overture, Die Land-streicher (Ziehrer); Selection from Die Fledermaus (Strauss); March, Um die deutsche Meisterschaft (Müller-Hagen). In the interval at 1.0 p.m., News Bulletin. 1.30, Sponsored Programme with Gramophone Records. 2.30, Exchange and Time Signal. 2.50, Programme for Children. 3.20, Notes on the Broadcasts to Schools. 3.30, Talk: Modern Geographical Problems—Landscape and Human Psychology. 4.0, Trio Concert: Pianoforte Trio in D Minor, Op. 32 (Aren-sky); Pianoforte Trio in D, Op. 5 (Wolff-Ferrari); Pianoforte Trio in C, Op. 87 (Brahms). 5.15, Italian Lesson. 5.45, Weather, Time, Exchange and Sports Notes. 6.0, Agricultural Talk. 6.20, Wireless Notes. 6.30, Talk: Industry in Europe—Preparation for a New Age. 6.55, First General News. 7.0, Götz von Berlichingen—Play (Goethe). After the Play: News, Sports Notes and Silent Night.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW., and DRESDEN, 319 metres.—12.15 p.m., Concert of Light Music on Gramophone Records. After the Concert, Exchange Quotations. 1.0 to 1.15, Advice for the Unemployed. 2.0, Fairy Tales for Children. 2.35, Exchange and Market Prices. 3.0, Talk: Can a Blind Man create Works of Art? 3.30, Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber: Overture, L'épreuve villageoise (Grétry); Ballet Music from Armide (Gluck); Divertimento à la Hongroise (Schubert); Selection from Oberon (Weber). 4.30, Weather and Time. 4.50, Exchange Quotations. 5.0, Johanna Wolff Programme for the Seventy-Fifth Birthday of the Authoress. 5.30, French Lesson. 5.50, Introductory Talk to the Gewandhaus Concert on February 2nd. 6.0, Talk: Man, Creator and Creature of History. 6.30, Dance Music by the Emdé Orchestra; H8ty—Talk and Readings. 8.0, News Bulletin. 8.10, Talk on Economic Questions of the Day. 8.20, Symphony No. 1 in C (Beethoven), by the Leipzig Symphony Orchestra, conducted by Willy Steffen, with Commentary by Dr. Alfred Heuss. 9.25, News. 9.40 (approx.), "Augustus the Strong"—Historical Radio Drama (E. C. Schmidt). 11.0 (approx.), Close Down.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—6.30 p.m., Geography Lesson. 7.0, Concert of Chamber Music. 8.0, Concert, relayed from the Café Zvezda. 9.0, Time, News and Light Music.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South-East. 8.30, Orchestral and Choral Concert of Armenian Music. After the Concert, News Bulletin.

MADRID

UNION RADIO; Call EAJ7; 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotations, Medical Talk, and Request Gramophone Records. 7.30, Talk by Joaquin Espana Cantos, and Gramophone Records (cont'd.). 8.25, News Bulletin. 8.30 to 8.0, Interval. 9.0, Linguaphone English Lesson. 9.30, Chimes, Time Signal, and Humorous Programme. 10.30, Concert by the Madrid Symphony Orchestra, conducted by Enrique Fernandez Arbos: Overture, The Bartered Bride (Smetana); Concerto for Flute and Harp (Mozart); Heraldo (Bacarrisse); Suite No. 2 for Small Orchestra (Stravinsky); Selection from The Mastersingers (Wagner). In the interval, News Bulletin. 1.0 a.m. (Wednesday), (approx.), Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—3.10 p.m., Dance Music by the Station Orchestra, conducted by J. Plichta. 4.10, See Prague. 4.50, See Brno. 5.0, Medical Talk. 5.15, See Prague. 5.25, See Brno. 6.0, See Prague. 7.5, See Brno. 6.20, Country Band Concert. 7.8, Chromatic Accordion Solos. 7.20 till Close Down, See Prague. 10.0 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—4.0 p.m., News. 4.10, Concert. 5.30, Concert, relayed from the Radio Theatre. 8.0, Talk in French: The Results of the First Five Year Plan. 8.55, Time Signal. 9.5, Press Review.

MOTILA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—3.45 p.m., Orchestral Concert, conducted by Erich Kloss; Overture, Lurline (Wallace); Extraacts from the Rocco Suite (Haas); Selection from The Emperor's Poet (Frankenstein); Florentine Intermezzo (Waghalter); Lyric Suite (Karganov); Minuet in G (Moszkovsky). 4.45, Wireless Report: The Statistics Office. 5.15, Review of Periodicals. 5.35, Talk: Wagner and his Milieu—Friends and Enemies. 5.55, Time, Weather, and Agricultural Report. 6.5, Flösser auf der Theis—Sketch (Kühne). 6.25, Choral Concert, relayed from Nürnberg. 7.0, Popular Music on Gramophone Records. 7.45, Topical Talk. 7.55, Beatrix—Opera Legend in Three Scenes (Kurt Pister). 8.40, Little Things to think about—a Variety Programme. 9.20, Time, Weather, News and Sports Notes.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredrikstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres; and Rjukan, 447.1 metres.—4.0 p.m., Popular Music on Gramophone Records. 5.0, Talk for Housewives. 5.45, Song Recital. 6.0, Announcements. 6.15, Weather and News. 6.30, English Lesson. 7.0, Time Signal. 7.1, Cello Recital by Vrijo Armas Selim. 7.30, A Childhood Friend—Comedy (Edmond See). 8.40, Weather Report. 8.45, News Bulletin. 9.0, Topical Talk. 9.15, Orchestral Concert, conducted by Hugo Kramm.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tourist Talk, Agricultural Notes, and Giornale Radio. 7.20, Light Music on Gramophone Records. 7.30 (in an interval), Time Signal and Announcements. 7.45, Maria di Magdala—Opera in Three Acts (Arrigo Pedrolfo). In the Intervals, Talk and Art Review. 9.55, News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and dot signals).—5.45 p.m., Le Journal Paré. 7.20, Weather Forecast. 7.30, Chamber Music: Caprice on Russian and Danish Airs for Pianoforte, Flute, Oboe and Clarinet (Saint-Saëns); Aubade for Flute, Oboe and Clarinet (Wally); Pianoforte solo, Wedding Cake (Saint-Saëns); Tarantella for Flute, Clarinet and Pianoforte (Saint-Saëns); Suite de valse, Moulhousiennes for Flute, Oboe, Clarinet and Pianoforte (Herhart); Commemora-tary by André Delacour. 8.30, The Battle—Play in Three Acts (Pierre Frondaie), after the Novel by Claude Farrere.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—7.0 p.m., Sponsored Concert, with Gramophone Records. 8.0, Film Review. 8.15, Interval. 8.30, Sponsored Concert. 8.45, Interval. 9.0, Concert of Music by Women Composers by the Station Symphony Orchestra. 10.30, News.

PARIS

RADIO PARIS. Call CFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture, 7.30, Weather and Physical Culture (contd.). 7.45, Popular Music on Gramophone Records. 8.0, Press Review and Weather. 12 Noon, Concert by the Kretzky Orchestra: Overture La caravane (Grétry); Selection from The Daughter of the Regiment (Donizetti); Overture, Stradella (Flotow); Entr'acte from Messidor (Bruneau); The Legend of the Sage Bush from Our Lady's Jugger (Massenet); Song and Dance from Le Timbre d'argent (Saint-Saëns); Second Suite from L'Arlesienne (Bizet); Selection from Héloïse (Messager); Selection from La Fuite de l'Abbe Mouret (Bruneau). In the intervals at 1.0, Exchange, News, and Weather, and at 1.30, Exchange, 2.0, Exchange and Announcements, 3.45, Exchange and Market Prices, 4.30, Elementary English Lesson, 4.50 to 6.10, Interval, 6.10, Agricultural Talk, 6.30, Advanced English Lesson, 6.50, Theatre Review, 7.5, Talk: Art in Foreign Countries, 7.20, Concert by the Kretzky Orchestra, 7.45, Commercial Prices, News, and Review of the British Press, 8.0, Symphony Concert, conducted by Eugène Bigot; Soloist: M. Tortelier (Cello); Third Symphony (Schumann); Variations on a Rocooco Theme for Cello and Orchestra (Tchaikovsky); Suite from Nannetta (Lalo); Le Tombeau de Couperin (Ravel); Spanish Suite (Albeniz). In the intervals at 8.30, News and Weather; at 8.40, Review by Zamacois; and at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—9.0 p.m., Work-a-day Thoughts, 9.5, Business News, 9.15, Programme to be announced, 9.30, Weather Report, 9.31, Johnny Muskrat, 9.32, Market Report, 9.45, Pianoforte Interlude, 9.50, David Lawrence Dispatch, 9.55, KDKA Artist Bulletin, 9.58, Programme Announcements, 10.0, Programme to be announced, 10.30, The Singing Lady, from New York, 10.45, Little Orphan Annie, 11.0, A. and P. Programme, 11.15, Time Signal, 11.16, Weather Report, 11.17, Teaherry Sport Review, 11.22, Press News Reader, 11.27, Strange Facts, 11.29, Temperature Report, 11.30, KDKA Dinner Concert, 11.45 to 12.45 a.m. (Wednesday), New York Relay, 11.45, Today's News by Lowell Thomas, 12 Midnight, Pepsodent Anns n' Andy, 12.15 a.m. (Wednesday), National Advisory Council on Radio in Education: The Powers of Congress, by James M. Beck, First Pennsylvania District, and Prof. Jesse S. Reeves, University of Michigan, 12.45, Fireflies, 1.0 to 3.15, New York Relay, 1.0, Eno Crime Club, 1.30, Time Signal and Adventures in Health, 1.45, Phillips Lord in The Country Doctor, 2.0, Household Musical Memories, 2.30, Willard Robinson's Deep River Orchestra, 3.0, Morin Sisters, 3.15, Westinghouse Pioneers, 3.30, Ho May Bailey and Orchestra, from New York, 3.45, Bradley Kincaid, 4.0, Time Signal, 4.1, Teaherry Sport Review, 4.11, Temperature Report, 4.12, Weather Report, 4.13, KDKA Artist Bulletin, 4.15, Press Last Minute News Flashes, 4.20, Henry Halstead and his Californians, 5.0, Cotton Club Orchestra, from New York, 5.30, Time Signal and Goodnight.

PORSGRUND.—See Oslo.

POZNAN

335 metres; 1.9 kW.—5.50 p.m., Miscellaneous Items and Announcements, 6.10, Book Review, 6.28, Time Signal, 6.30, See Warsaw, 7.0, Military Band Concert, conducted by Antoni Szalkowski, 7.45, Song Recital by Mlle. B. Ludzianka (Soprano) and M. Kazimierz Putekwi (Baritone), 8.25, Chopin Pianoforte Recital. In the intervals, Theatre Notes and Announcements, 9.0, See Warsaw, 9.15, Time Signal and Sports and Police Notes, 9.30, Dance Music, relayed from the Café Esplanade.

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., See Moravská-Ostrava, 4.10, Talk on Economics, 4.20, Czech Lesson for Germans, and German Lesson for Czechs, 4.50, Light Music on Gramophone Records, 5.5, Agricultural Market Prices, 5.15, Talk for Workers, 5.25, News in German, 5.30, German Transmission, 6.0, News, 6.5, See Brno, 6.20, Song Recital by Vera Mora, 6.40, See Bratislava, 7.20, Talk on the following Transmission, 7.30, The Castle Rogue—One-act Opera (Novak). In the interval at 8.0, Time Signal, 9.0, Time Signal, 9.1, News Bulletin, 9.15, Jazz Music on Two Pianofortes, by Erwin Schulhoff and Dr. O. Leffus, 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS; 403 metres; 25 kW.; LAUSANNE, 680 metres; and GENEVA, 760 metres.—2.30 p.m. (from Lausanne), Concert by the Radio Quintet, 3.15 (from Lausanne), Pianoforte Solos, 3.30 (from Lausanne), Programme for Women, 4.0 to 5.0, Interval, 5.0, Talk: Conjugal Disagreements and Nervous Troubles, 5.30 (from Geneva), English Lesson, 6.0 (from Geneva), Weather, News

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TUESDAY

continued

and Report on the Work of the League of Nations, 6.20 (from Geneva), Answers to Correspondence, 6.30 (from Geneva), Newly-released Gramophone Records, 7.0 (from Geneva), Chamber Music by the Pro Nova Society; Sonata for Violin and Cello (Honegger); Three Etudes for Pianoforte (Debussy); Divertissement for Four Instruments (Tanzmann), 8.0 (from Geneva), Cabaret Programme, 9.0, News and Weather Forecast, 9.15 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather Report, 8.40, Musical Programme and Announcements, 9.0, Chimes and News, 9.30, Reading, 10.0, Pianoforte Recital by Emil Thorsdósen, 10.15, Recitations, 10.25, Dance of the Seven Veils from Salome (Richard Strauss) on Gramophone Records.

RJUKAN.—See Oslo.

ROME

Call 1R0, 441 metres; 50 kW. Relayed by Naples, 319 metres; and 2R0, 25.4 metres.—7.0 a.m., Gymnastics, 7.15 to 7.30, Giornale Radio and Announcements, 11.30, Weather and Light Music on Gramophone Records, 12.2 to 1.15 p.m., Orchestral Concert. In the interval from 12.30 to 12.45, Giornale Radio and Exchange, 3.45, Children's Radio Review, 4.10, Announcements, 4.15, Exchange and Giornale Radio, 4.30, Concert from Turin, 4.50 to 5.0 (approx.). See Turin, 6.0, Giornale Radio, 6.10 (Naples), Shipping and Sports Notes, 6.15, Atmospheric Signals, Agricultural Report, and Announcements, 7.0, Time and Announcements, 7.2, Talk: The Heavens in February, 7.15, Light Music on Gramophone Records, 7.30, Sports Notes and Tourist Report, 7.45, Variety Concert, Soloists: Maria Senes (Soprano), Arturo Dalmonico (Bass), and Giulio Bigonami (Violin); Andante for the Quartet for Strings, Op. 11 (Tchaikovsky); Rhapsodie nègre for Pianoforte, two Violins, Viola, Cello, Flute, Clarinet, and Bass Voice (François Poulenc), Soprano Solos: (a) Aria from The Thieving Magpie (Rossini), (b) El majo discreto (Granados), (c) Serenade (Alvarez), (d) Nina querida (Bizet-Pecchia); Concerto in G Minor for Violin and Orchestra (Vivaldi-Nachez), 8.45, Non è mia, è tua—Comedy in One Act (Niccolo de Belli), 9.15, Concert (contd.); Concerto in D for Violin and Orchestra (Paganini); March from Lohengrin (Wagner); Barchinale from Les Erynnis (Massenet), 9.55, News Bulletin.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY, W.G.Y., 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres, and by W2XAD on 19.56 metres.—12 Midnight, General Electric Programme, 12.15 a.m. (Wednesday), Stock Reports, 12.30 to 3.0, New York Relay, 12.30, Soloist, 12.45, The Goldbergs, 1.0, Blackstone Plantation, 1.30, Wayne King's Orchestra, 2.0, Ben Bernie's Orchestra, 2.30, Ed. Wynn and the Fire Chief Band, 3.0, Lucky Strike Hour and Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW.; BASEL, 244.1 metres; and BERNE, 245.9 metres.—11.28 a.m., Time Signal from Neuchâtel Observatory, 11.30, Weather and News, 11.40, Concert by the Radio Orchestra, 12.30 to 12.40 p.m., Weather and Exchange, 2.30, Concert by the Little Radio Orchestra, 3.0, Gramophone Concert of Opera and Operetta Music, 4.30 to 4.35, Weather, 5.30 (from Berne), Programme for Children, 6.0, Time and Weather, 6.5 (from Berne), Notes on the Broadcasts for schools, 6.15 (from Berne), Talk: Surgical Operations Yesterday and Today, 6.45 (from Berne), Musical and Literary Programme by Käthe Kruse (Violin) and the Berne Dramatic Society directed by C. Lertz, 6.30, Weather and News, 8.40 (from Berne), Hugo Wolf Song Recital by Hans Hoelllin and the Radio Orchestra, 9.15 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—4.5 p.m. (from Sundsvall), Provincial Programme, 4.45, Popular Music on Gramophone Records, 5.40, Talk, 6.0, Recital of Folk Songs by Märta Ekström, 6.15, Weather and News, 6.30, Talk, 7.0, Military Band Concert, relayed from Umeå, 231 metres. Conductor: P. Berg, Festival Polonaise (Berg); Waltz, Tout Paris (Waldteufel); Swedish Rhapsody, De färviska jungfrurna (Atterberg); Selection from The Land of Smiles (Lehár); Suite from Der Rosenkavalier (R. Strauss); March (Berg), 8.0, Literary Review, 8.30, Cello Recital by Roman Dukstulsky, Polonaise (Ivorák);

Rondo (Braun); Die Biene (Schubert), 8.45, Weather and News, 9.0, Orchestral Concert, March, The Diplomat (Souza); Overture, Czar and Carpenter (Lortzing); Selection from The Legend of Thrym (E. Hartmann); Melody (Brosh); Waltz, Wine, Woman and Song (Joh. Strauss); Potpourri, Skåneland (Sandell); Tango nostalgia (Malvezzi); In a Persian Market (Ketelbey), 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Beethoven Concert on Gramophone Records; Symphony No. 3 in E Flat; Sonata-Fantasia, Op. 27; Adagio Sonata, Les Adieux, Falsence et la retour, 12.45 p.m., News, 1.0, Time and Exchange, 1.5, Light Music on Gramophone Records, 2.0 to 4.45, Interval, 4.45, Talk on French Towns and Provinces; Auvergne, 5.0, Dance Music, conducted by Roskam, 6.0, French Lesson, 6.15, Talk: Topical Problems, 6.30, Orchestral Concert, conducted by M. de Villers; Overture, Egmout (Beethoven); Ballet Music from Les Petits Riens (Mozart); The Unfinished Symphony (Schubert); Suite, Jeux d'enfants (Bizet), 7.30, Time and News, 7.45, Concert (contd.): Prelude and Serenade (Rachmaninov); Ballet Music from Henry VIII (Saint-Saëns); Suite from Izeyl (Pierné), 8.25, Lottery Results, 8.30, Gala Programme, relayed from Paris, 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER; 360.5 metres; 60 kW.; and FREIBURG, 570 metres.—12.30 p.m., Concert from Langenberg, 1.0, Sponsored Gramophone Music, 1.30 to 2.0, Advanced English Lesson, 3.0, Talk on Flowers, 3.30, Talk for Women: Sociability as an Expression of Life, 4.0 (from Freiburg), Concert of Forgotten Opera Music, by the Freiburg Concert Orchestra, conducted by Richard Fried. Soloist, Nella Hoehreiter (Contralto), Overture, Der Edelknecht (C. Kreutzer); Two Songs from Der Heideschlag (Franz von Holstein); Selection from Jean de Lorraine (Joucières); Aria from Tancréd (Rossini); Overture, The Siege of Corinth (Rossini); Song from Le Medicin malgré lui (Gounod); Selection from The Goldsmith of Toledo (Offenbach); Overture, Die Eisenmühle (Reissiger), 5.15, Time, Weather, and Market Prices, 5.25, Talk on Friedrich Gerstäcker, 5.50, Skiing Lesson, 6.15, Time and News, 6.30, Songs by Richard Tauber (on Gramophone Records), 7.0, Minna von Barnhelm—Comedy (Gotthold Ephraim Lessing), 8.15 (from Mannheim), Concert of Romantic Music by the Philharmonic Orchestra, conducted by Max Einzheimer, Soloist, Otto Ross (Pianoforte), Overture, The Hebrides (Mendelssohn); Wanderer-Fantasia (Schubert-Liszt); Variations on a Theme by Haydn (Brahms); Overture, Euryanthe (Weber), 9.20, Time, News, Weather, Snow Report and Programme Announcements, 9.30, See Hamburg, 11.0 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONE DU MIDI, 385 metres; 8 kW.—6 p.m., News Bulletin, 6.15, Airs from Operettas; Melodies from (a) Bégonia (Mercier) and (b) Phi-Phi (Christine), 6.30, Cello Solos: Après un Rêve (Faure); The Red Sarafan (Arlamov); La Iduse (Dunkler); Spanish Serenade (Glazunov), 6.45, Ballet Music from Faust-Opera (Gounod), 7.0, Tourist Talk, 7.15, News, Racing Results, and Market Prices, 7.25, Local News, 7.30, Light Music, 7.45, Military Music, 8.0, Accordion Solos, 8.15, Airs from Opera; Selection from I Pagliacci (Leoncavallo); Overture, Si J'étais Roi (Adam), 8.30, Extracts from La Bohème Opera (Puccini), 9.0, Viennese Music: Marionetten-Hochzeit (Rathke); Küssen ist köhn' Sünd (Eysler); Wiener Praterleben (Translatour); Parade of the Tin Soldiers (Jessel); Roses (Metra), 9.30, Opera Music: Hymn to Venus from Tannhäuser (Wagner); Barcarolle from the Tales of Hoffman (Offenbach); Air from Così fan tutte (Mozart), 9.45, Concert: A Hunt in the Black Forest (Voelcker); Selection from Light Cavalry (Suppé); Overture, Raymond (Thomas); Three Songs, 10.15, North African News, 10.30, Concert for Listeners in Morocco: Tes yony (Bouincontro); The Angel's Serenade (Braga); Selection from gipsy Love (Lehar); Air from Le Roi malgré lui (Chabrier); Serenade for Cello (Pierné); The Phantom Brigade (Myrdleton), 11.0, Sound Film Music, 11.15, Music by an Argentine Orchestra, 11.30, Programme in English by the I.B.C.; Dance Music: Paris; The Vamp of Baghdad; In Old Madrid; The Longer that You Linger in Virginia; Viennese Nights; Hunting Tigers out in India; When it's Sunset on the Nile, 12 Midnight, Weather and Announcements, 12.5 a.m. (Wednesday), Orchestral Concert: Prelude à l'après-midi d'un Faune (Debussy); Marche héroïque (Saint-Saëns); Potpourri, Fortissimo (Kallman); Norwegian Rhapsody (Lalo), 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—4.0 p.m., Chamber Music: Trio in C Minor for Pianoforte, Violin, and Cello (Beethoven); Trio in B, Op. 8, for Pianoforte, Violin, and Cello (Brahms), 4.50 till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayed by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 560.8 metres.—4.0 p.m., Orchestral Concert, conducted by Ugo Tansini; Overture, Le preziose ridicole (Cattandà); Prelude to and Sicilienne from Cavalleria rusticana (Mascagni); Waltz, Mirka (Ranzato); Intermezzo from the Third Act of Manon Lescaut (Puccini); Waltz, The Skaters (Waldteufel), 4.50 to 5.0, Talk on the History of Art, 5.35, Giornale Radio, Agricultural Report and Announcements, 6.0, Giornale Radio, 6.10, Light Music on Gramophone Records, 6.25, Report of the Royal Geographical Society, 6.30, Time, Announcements and Light Music on Gramophone Records, 7.0, Giornale Radio, Weather and Gramophone Records (contd.), 7.30, Rondopieno—Operetta in Three Acts (Giuseppe Pietri), conducted by the Composer. In the intervals: Talk and Notes on Art, Giornale Radio after the Operetta.

VATICAN CITY

10.84 metres (Morning) and 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

517 metres; 15 kW. Relayed by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218.5 metres.—3.50 p.m., Gramophone Concert: Trio in D Minor, Op. 49 (Mendelssohn); Overture, The Bartered Bride (Smetana); Ballet Music from Faust (Gounod); Waltz, Dorf-schwaben aus Oesterreich (Jos. Strauss); Potpourri, Marja Nina (Theimer); In deinen Augen les' ich ein Märchen (Niederberger); Selection from A Waltz Dream (O. Strauss); Waltz, Winterstürme (Furck), 5.0, Agricultural Talk, 5.25, Talk: Six Million Wild Horses, 5.50, Italian Lesson, 6.15, Time, Weather and Programme Announcements, 6.25, L'Elisir d'Amore—Opera in Two Acts (Donizetti), relayed from the State Opera House, 8.30, News, Weather and Announcements, 8.45, Report on Ice Hockey, 9.5, Dance Music by the Astoria Band, relayed from the Café Sacher.

WARSAW

1,411 metres; 120 kW.—10.58 a.m., Time and Bugle Call from the Tower of Notre Dame, Cracow, 11.5, Programme Announcements, 11.10, Variety Music on Gramophone Records, 12.20 p.m., Weather, 12.25 to 2.10, Interval, 2.10, Announcements, 2.15, Talk on Economics, 2.25, Anti-Gas and Airraid Drill, 2.30, Announcements, 2.35, Book Review, 2.50, Popular Music on Gramophone Records, 3.25, Educational Talk, 3.40, Reading, 4.0, Symphony Concert by the Philharmonic Orchestra, conducted by G. Fitelberg; Soloist: H. Jacobi (Pianoforte); Overture, Amarcœur (Cherubini); Pianoforte Concerto in C Minor (Beethoven); Fantasia, Francesca da Rimini (Tchaikovsky). In the interval, Announcements, 4.55, Programme Announcements, 5.0, Orchestral Concert of Light Music, relayed from the Café Gastro-nomia. In the interval, News, 6.0, Miscellaneous Items, 6.20, Agricultural Notes, 6.30, Talk on Music, 6.45, Radio Journal, 7.0, Orchestral Concert, conducted by J. Oziminski; Soloist: J. Frantzes (Violin). In the interval, Sports News and Radio Journal, 9.0, Reading, 9.15, Dance Music from the Café Italia, 9.55, Weather for Aviation and the Police Report, 10.0, Dance Music from the Bodega, 11.0 (approx.), Close Down.

WILNO

563 metres; 16 kW.—3.25 to 4.55 p.m., See Warsaw, 4.55, Programme Announcements, 5.0, See Warsaw, 5.40, Talk in Lithuanian: Lithuania Wilno and the Industrial Crisis, 5.55, Miscellaneous Items, 6.0, Reading, 6.10, Miscellaneous Announcements, 6.15, Talk: Events in Wilno, 6.30 to 7.0, See Warsaw, 7.0, Request Gramophone Records, 8.0, Concert from Warsaw, 9.0, Variety Programme, 9.30 till Close Down, Programme from Warsaw, 11.0 (approx.), Close Down.

ZAGREB

307 metres; 0.75 kW.—7.0, Concert by a Mandoline and Guitar Orchestra, 7.40, Recital of Yugo-slavian Songs, 7.55, Mandoline and Guitar Concert (contd.), 8.55, Recital of Opera Arias: Valentin's Prayer from Faust (Gounod); Monologue from Rigoletto (Verdi); Aria from Carmen (Bizet); Aria from The Barber of Seville (Rossini), 9.0, News, Weather and Sports Report, 9.10, Dance Music, relayed from the Grill Room, 10.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender.

WEDNESDAY

FEBRUARY THE FIRST

PRINCIPAL EVENTS OF THE DAY:

AT HOME

- NATIONAL** Orchestral concert from the Pavilion, Bournemouth. Organ music. "The State and the Individual," by Professor H. J. Laski. Introductory Talk to the Symphony Concert, by Mr. Hubert J. Foss. Symphony concert from Queen's Hall. "Strange Music," feature programme.
- LONDON REGIONAL** Ballad concert. Organ recital. Orchestral concert. Vaudeville programme. Military Band concert.
- MIDLAND REGIONAL** Ballad concert. Organ recital. Orchestral concert.
- NORTH REGIONAL** Organ recital. "The Business Man Abroad," a talk by Mr. Harold Dehn. Orchestral concert.
- WEST REGIONAL** Orchestral concert from National Museum of Wales. Mr. C. P. Williams: "Welsh Industrialism from Abroad."
- SCOTTISH REGIONAL** Orchestral concert. London Regional programme.
- BELFAST** Orchestral concert, from Strammillis.
- ABROAD**
- BRUSSELS (No. 1)** Gala concert by the Station Orchestra, conducted by D. Defauw.
- HEILSBURG** Reichswehr concert, relayed from the Stadthalle, Königsberg.
- RADIO PARIS** The Lamoureux Concert Society, conducted by Albert Wolff.
- STOCKHOLM** Chopin's Nocturnes played by Anita Harrison.
- WARSAW** Recital of operatic arias, by A. M. Guglielmetti.

BARCELONA
RADIO-BARCELONA; Call EAJ1; 348.8 metres; 8 kW.—6.0 p.m., Trio Concert: Trümmerei (Schumann); Selection from Martha (Flotow); Appassionata (Liszt); Prelude, Op. 28, No. 17 (Chopin); Oriental Romance (Hainas); Selection from Lohengrin (Wagner). 7.0, Request Gramophone Concert. 7.30, Exchange and Market Prices, followed by Relay of a Corporation Meeting. 8.0, Popular Music on Gramophone Records and News. 9.0, Chimes, Weather, Exchange and Market Prices. 9.5, Concert by the Station Orchestra. 10.0, Educational Talk. 10.15, Pianoforte Recital by Rosaura Coma. 10.45, Concert by the Station Orchestra: Overture, Anacréon (Cherubini); Suite, Les Erynnies (Massenet); Algerian Suite (Saint-Saëns). In an interval at 11.0, News. 11.30, Dance Music by the Demon's Jazz Band, relayed from the Hollywood Bar Dance Hall. 12 Midnight (approx.), Close Down.

BARI
 270 metres; 20 kW.—7.0 p.m., Agricultural Report, Tourist Notes and Announcements. 7.20, Giornale Radio and News Bulletin. 7.30, Time Signal and Announcements. 7.35 (approx.), Concert of Chamber Music. Donato Marrone (Pianoforte), Maria de Santis Bruno (Soprano), and Nilde Pignatelli (Violin). Overture, William Tell (Rossini); Pianoforte Solos: (a) Ballad, Op. 52 (Chopin), (b) Kinderszenen, Op. 15 (Schumann); Soprano Solos: (a) Siciliana (Pergolesi), (b) Nonna sorrída (Tosti); Violin Solos: (a) Aria (Matthewson-Prinsep), (b) Minuet (Mozart); Soprano Solos: (a) Lo spillo (Dolcease), (b) M'am tu ancora (Dolcease); Pianoforte Solo: Prelude in E Minor (Brahms); Overture, The Ruins of Athens (Beethoven); Soprano Solos: (a) La canzone del Presagio (Toselli), (b) Alla's Retreat (Toumar); Violin Solo: Gavotte variata (Pugnani-Curti); Pianoforte Solos: (a) Scherzino (Mussorgsky), (b) The Old Castle (Mussorgsky); Violin Solos: (a) Orientale (Ché), (b) Presto (Clementi-Prinsep); Pianoforte Solo: Jeux d'eau (Bavel). In the interval, Reading. 9.30, Concert, relayed from the Gran Caffè del Levante. 9.55, News Bulletin.

BASLE.—See Schweizerischer Landessender.

BELGRADE
 430.4 metres; 2.8 kW.—4.0 p.m., Medical Talk. 5.55, Time and Programme Announcements. 6.0, Recital of the Songs of Schubert, Schumann, Mendelssohn, and Mozart, by Zdenka Greguric. 6.30, Roses to Renee—Radio Play (J. Röslér). 7.0, Concert from London. 9.0 (approx.), News, followed by Gypsy Music from the Potrosacka Zadruga Restaurant.

BERLIN
KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.55 a.m., News Time Signal. 12.35 p.m., News Bulletin. 1.0, Gramophone Concert, relayed from Berlin (Witzleben). 1.45, A Radio Play for Young People. 2.30, Weather and Exchange. 2.45, Reading of Legends. 3.0, Talk: Christian Egypt. 3.30, See Hamburg. 4.10, Legal Talk. 4.30, Talk: The Original Home of the Indo-Germanic Race. 5.0, Chamber Music: Trio Sonata in G (Pergolesi); Chamber Sonata (dall' Abaco). 5.30, Advanced Shorthand Dictation. 5.55, Weather and Announcements. 6.0, French Lesson. 6.30, A Poem. 6.35, Concert of Light Music from the Café Berlin. 7.50, Forty Years of Workers' Choral Societies—Concert, with Introductory Talk. 8.50, Talk: Combat as a World Principle? 9.10, Weather, News, and Sports Notes. 9.45, Weather Report for Shipping, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BERLIN
WITZLEBEN, 419.5 metres; 1.5 kW.—6.0 p.m., Topical Talk. 6.10, Help for the Unemployed—Programme preceded by a Talk by an Unemployed Workman. 6.40, Talk: The Evening's Musical Programme. 6.50, Concert of Light Music from the Golf Hotel at the Zoo. 7.50, Dialogue—From the World of the Learned. 8.10, Symphony Concert by the Berlin Wireless Orchestra, conducted by Ernst Ansermet: Symphony (Arthur Honegger); Six Epigraphes antiques (Debussy); Symphony in C Minor (Haydn). 9.15, Weather, News, and Sports Notes, followed by Dance Music from the Femina. 11.0 (approx.), Close Down.

BERNE.—See Schweizerischer Landessender.
BEROMUNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BORDEAUX-LAFAYETTE
 304 metres; 13 kW.—7.40 p.m., Agricultural Talk. 7.55, Lottery Results. 8.0, Agricultural Report. 8.15, News Bulletin. 8.30, Popular Music on Gramophone Records. 9.0, Dramatic Programme. After the Programme, Entertainments Guide and Time Signal.

BRATISLAVA
 279 metres; 14 kW.—4.0 p.m., Song Recital by M. Perslova. 4.25, Light Music on Gramophone Records. 4.35, Programme for Children. 4.45, Polish Lesson. 5.0, Three Hungarian Sketches. 6.0, See Prague. 6.20, Organ Recital by A. Ladyna: Symphony in G Minor, Op. 12, No. 5 (Widor); Pastorale in A, No. 1 (Springer); Prelude in D (Springer); Fantasia in D Minor, Op. 118 (Rheinberger); Variations in C Minor with Cadence (Bartók). 7.15, See Prague. 9.15 (approx.), Close Down.

phone Records. 4.35, Programme for Children. 4.45, Polish Lesson. 5.0, Three Hungarian Sketches. 6.0, See Prague. 6.20, Organ Recital by A. Ladyna: Symphony in G Minor, Op. 12, No. 5 (Widor); Pastorale in A, No. 1 (Springer); Prelude in D (Springer); Fantasia in D Minor, Op. 118 (Rheinberger); Variations in C Minor with Cadence (Bartók). 7.15, See Prague. 9.15 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU
 325 metres; 60 kW.; and **GLEIWITZ**, 253 metres.—12.10 p.m., Gramophone Concert: Overture, Abu Hassan (Weber); Military March (Schubert); Valse impromptu (Liszt); Overture, A Midsummer Night's Dream (Mendelssohn); Entry of the Gods into Valhalla, from The Rhinegold (Wagner). 12.45 p.m., Time, Weather, News, and Exchange. 1.5, Gramophone Concert: Selection from The Tales of Hoffmann (Offenbach); Leguen-Walzer (John Strauss); Russian Dance, Bulbicki; Selection from The Gipsy Princess (Kaldman); Waltz, Gold and Silver (Lehar); Old Berlin in Waltz Time (Hildebrandt-Lenselmer). 1.45, Sponsored Programme with Gramophone Records. 2.10, Agricultural Prices. 3.0, Reading: Self-Caricatures of Great Artists—Otto Bratskoven. 3.30, Alois Heidzcek's Compositions—Pianoforte Recital by the Composer: Extracts from Träume, Nos. 1, 2, and 7; Suite for Pianoforte. 4.0, Book Review. 4.15, Humorous Talk in Dialect. 4.35, Agricultural Prices, followed by Talk: Infectious Diseases and Their Prevention. 5.0, Talk for Parents. 5.20, Dialect Talk. 5.25, Recital of Carl Loewe's Ballads by Richard Colm (Bass); Kleiner Haushalt; Heinrich, der Vogler; Efkönig; Meerfahrt; Edward; In der Marienkirche; Prinz Eugen; Der Papagei. 6.30, Weather for Farmers, followed by Review of Foreign Politics. 7.0, Humorous Programme by Carl Napp and Joseph Plant, with Music by the Station Choir, conducted by Franz Marszalek. 8.0, Announcements. 8.10 (from Gleiwitz). Concert by the Upper Silesian Station Quartet and Women's Quartet, conducted by Walter Schön. Women's Quartet: (a) Wenn kleine Mädchen (Scarpa), (b) Leutnant ward du einst bei den Husaren, (c) Puppenhochzeit. Station Quartet: (a) Ein bisschen Jazzmusik (Wolf-Hinak), (b) He Rumba (E. Strauss), (c) Ist dein kleines Herzchen mir treu? (Eisele-Hinak). Station Quartet and Women's Quartet: (a) Heimweh (Irwing-Gomp), (b) Variations on a Children's Song (Wrobel), (c) Comic Serenade from Die falsche Pepita (Müller-Scotta). 9.10, Time, Weather, News, Sports Notes, and Programme Announcements. 9.30, Answers to Wireless Correspondence. 9.40, Pack up your Bag and go travelling—Reflections by Kurt Walde. 10.0, Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BRNO
 342 metres; 35 kW.—5.25 p.m., German Transmission: News, Talk on Wagner's Rienzi, and Talk for Workers. 6.0, See Prague. 6.20, Band Concert of Folk Music. 7.15, See Prague. 9.15 (approx.), Close Down.

BRUSSELS (No. 1)
 I.N.R., 509 metres; 15 kW.—12.0 Noon, Concert, conducted by André Felleman, relayed from the Grand Hotel, Antwerp: Nibelungen-Marsch (Sonnag); Potpourri, Servus Wien (Dostal); Hindu Song for Cello (Rimsky-Korsakov); Les airs de Maurice Chevalier (Salabert); Saxophone Solo: The Phantom Melody (Kettelbey); Kéler Béla Potpourri (Rhode). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Concert: Marche du Sixième Régiment de chasseurs à pied (Graindorge); Bonhomme Noël (Loizid); Chantilly Waltz (Waldteufel); Romance, Mélanie (Delmou); Tarantella, Napolitana (Pojezki); Duet from La peau de Chagrin (Leyadé); Galop (d'Altona); Waltz, Ponia (Waldteufel); Der Rosenhochzeit (Jessel); Intermezzo, The Nightingales' Serenade (Klose); Memories of Rome; Russian Song, Moscow; Fantasia (Siede); Marche du quatrième régiment de Chasseurs à pied (Aveat). 5.0, Massenet Concert by the Radio Orchestra, conducted by Charles Walpot: Overture, Phédre; Divertissement from Les Erynnies; Meditation from Thaïs; Orchestral Suite, Scenes alsaciennes; Elegy; Selection from Manon; Ballet Music from Hérodiade. 6.0, Agricultural Talk. 6.15, Violin Solos by L. Valerio: Rondo Capriccioso (Saint-Saëns); Sonata, Il Trillo del diavolo (Tartini-Cornélli); Tandonnin chinois (Kreisler). 6.45, Gramophone Records Concerto Grosso No. 8 (Corelli); Nursery Suite (Elgat). 7.15, Protestant Address. 7.30, Pigeon Flying Report and Medical Talk. 8.0, Gala Concert by the Station Orchestra, conducted by Desiré Defauw. Soloist: Henri Deslin (Violin); Interlude from Rédemption (Franck); Concerto for Violin and Orchestra (Brahms). 8.45, Talk and Readings: Louis Baqueux a Belgian Author. 9.0, Concert (cont'd.); Symphony in D Minor (Franck). 9.45, Gramophone Records: Les Préludes (Liszt). 10.0, Le Journal Parlé. 10.10, Concert by Max Alexys and his Orchestra, relayed from the Ancienne Belgique. 11.0 (approx.), Close Down.

BRUSSELS (No. 2)
 N.I.R.; 338.2 metres; 15 kW.—Programme in Flemish.—12 Noon, Light Music on Gramophone Records. 1.0 p.m., Le Journal Parlé. 1.10, Concert, conducted by André Felleman, relayed from the Grand Hotel, Antwerp: Pudding Potpourri (Morena); Nocturne for Cello (Schumann); Foxrot Overture (Nussbaum); Foxrot, Grasnivolt (Zwysen); Selection from Poet and Peasant (Suppe). 5.0, Chamber Music Concert. Henri Coule-

mans (Cello), Henri Gaucyne (Violin) and Mme. Lamoureux De Guchtenaere (Pianoforte). Trio in G (Haydn); Trio in B Flat, Op. 97 (Beethoven). 6.0, Recitations. 6.15, Gramophone Records: Overture, Lähna (Stolana); Symphonic Poem, The Swan of Tuonela (Sibelius). 6.30, Recital of Sonatas by M. and Mme. Lykoudi-Passet; Sixteenth Sonata (Mozart); Sonata in A (Faure). 7.15, Religious Address: Protestant Missions in the Congo. 7.30, Review of International Affairs. 8.0, Concert by the Radio Orchestra, conducted by Charles Walpot. Soloist: Mr. Van Beveren (Songs). Spanish March, Granada (García); Waltz, Schneeballen (Zehner); Overture, The Barber of Seville (Rossini); Songs; Potpourri, Dividenden (Morena). 8.45, Recitations. 9.0, Concert (cont'd.): Hochzeitung in Lilliput (Translatour); The Nutcracker Ballet (Tchaikovsky); Songs; Selection from White Horse Inn (Benatzky); Waltz, Donauwellen (Yvanovitch); Happy Days are here again (Vellen). 10.0, Le Journal Parlé. 10.10, Gramophone Records: Jazz Paraphrase on the Overture to Orpheus in the Underworld (Offenbach); Mazurka (Noruda); Spring Song (Mendelssohn); The Black Rose (Autry); Cello Solo: Le Nil (Letroux); The Clock is Playing (Blauw); Overture and Ballet Music from Le Roi Pansole (Honegger); Ballad from La Mascotte (Aubran); Serenade, Blonde amie (Carcel); Sous la feuillée (Thomé); Overture, Poet and Peasant (Suppe) arranged for Accordion; Radetzky March (John Strauss). 11.0 (approx.), Close Down.

BUCHAREST
 394 metres; 12 kW.—4.0 p.m., Concert by the Station Orchestra: March (Fricik); Waltz, Frühlingstimmen (Strauss); Ballet Suite (Gyldmark); Gavotte (Popper); Russian Scenes (Granville-Bantok); Melody in F (Rubin Stejn). 5.0, News and Time Signal. 5.10, Talk. 5.25, Concert by the Station Orchestra (cont'd.): In a Persian Market (Kettelbey); Selection from The Flower of Hawaii (Abraham); Suite in Old Style (Fonds). 6.0, Talk on Romania: Her Waterways. 6.40, Popular Music on Gramophone Records. 7.0, Cello Recital by M. Fotino. 7.30, Talk. 7.45, Pianoforte Solos by Mlle. Popa Popovici: Prelude and Fugue in E Flat Minor (Bach); Papillons (Schumann); Ballad, No. 3 (Chopin); Papillons (Lavalé). 8.15, Violin Solos by A. Theodorco; Sonata in E Minor (Mozart); Popular Spanish Suite (Faló). 8.45, News Bulletin.

BUDAPEST
 550 metres; 18.5 kW.—Programme also relayed on 840 metres from 6.25 p.m. till Close Down. 4.0 p.m., Concert of Gypsy Music. 4.50, Programme by Iure Bihary. 5.15, Gramophone Records of Music from Sound Film Operettas. 6.0, Reading. 6.30, The Tales of Hoffmann—Operetta (Offenbach), relayed from the Opera House. News in the interval. After the Operetta, Gypsy and Dance Music from the Café Emke.

CASSEL.—See Frankfurt.
COPENHAGEN
 281 metres; 0.75 kW.; and **KALUNDBORG**, 1,153 metres; 7.5 kW.—11.0 a.m., Time and Chimes from the Town Hall. 11.5, String Ensemble Concert, conducted by A. Bendix, relayed from the Wivex Restaurant. 1.0 to 2.0, Interval. 2.0, Concert by Mogen Hansen's Instrumental Ensemble: Overture, La petite Bohème (Hirschman); Russian Sketches (Petras); Serenade in A for Strings (Pierne); Waltz, Golden Rain (Waldteufel); Selection from The Jewels of the Madonna (Wolf-Ferrari); Overture, Vert-Vert (Offenbach); Standartenführer-Marsch (Fährbach); Waltz (Kálmán); Selection from The Land of Smiles (Lehár); Plaisir d'amour (Martini); Overture, Les Dragons de Villars (Maillet). In the interval at 2.45 (approx.), A Discussion for Women. 4.0, Gramophone Concert: Frida Leider: Schmerzen (Wagner); Maria Ivogün: Two Songs; The National Chorus: Abide with me (Lyte-Menk); Richard Crooks: Tell me to-night (Spolinsky); Erica Morini: Humoresque (Tchaikovsky-Kreisler); Fritzi Massary and Max Pallenberg: Duet from Madame Pompadour (Fall); Carl Brisson: We're a Couple of Soldiers, my Baby and Me (H. Woods); Harold Ramsay: Paradise (Brown-Clifford); The Three Ginx; Liza Lee (Green-Stepf). 4.40, Exchange and Fish Market Prices. 4.50, Talk on D. H. Lawrence. 5.20, French Lesson for Beginners. 5.50, Weather Forecast. 6.0, News. 6.15, Time Signal. 6.30, Agricultural Talk. 7.0, Chimes from the Town Hall. 7.5, Kálmán and Lehár Concert. The Radio Orchestra, conducted by Emil Reesen. Soloist: Julie Winding (Song); Children's Song from Countess Maritza (Kálmán); Selection from Die Fasching-fee (Kálmán); Dances from Clo-clo (Lehár); Songs: (a) Song from Countess Maritza (Kálmán), (b) Liebe, du blümel auf Erden, from Paganini (Lehár), (c) Song from The Circus Princess (Kálmán); Selection from The Czarevitch (Lehár); Tennis—Foxrot from Countess Maritza (Kálmán). 8.0, Topical Talk. 8.30, Concert by the Radio Orchestra, conducted by Emil Reesen: Overture, Phédre (Massenet); Fantasia on Russian Folk Songs, Kamarinskaya (Gliuka); Melody from Gurre (Halvorsen); Finlandia (Sibelius). 9.0, News. 9.15, Quintet in A, Op. 114—The Trout Quintet, for Pianoforte,

FEB. 1st

WEDNESDAY

continued

Violin, Viola, Cello and Double Bass (Schubert). 10.0. Dance Music from the National Opera. In the interval at 11.0, Time and Chimes from the Town Hall. 11.30 (approx.), Close Down.

CORK.—See Dublin.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

DUBLIN

Call 2RN, 413 metres; 1.2 kW.; and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. 6.0, Popular Music on Gramophone Records. 6.15, Programme for Children. 7.0, Light Music on Gramophone Records. 7.20, News Bulletin. 7.30, Time Signal. 7.51, Gaelic Talk. 7.45, German Lesson. 8.0, Military Band Concert, conducted by Fritz Brase. 9.0, Tenor Solos by W. J. Hobbs. 9.20, The Station Sextet. 9.45, Concert by the Caledonian Male Voice Choir, conducted by L. G. Banton. 10.15, The Station Sextet. 10.30, Time Signal, News, Weather Report and Close Down.

FEKAMP

223 metres; 10 kW.—10.0 p.m. till Close Down, Programme in English by the I.B.C. 10.0 p.m., Dance Music: Good Evening; Ho Hum; My Baby just cares for me; Shoo the Hoodoo away; There's Happiness over the Hill; More than you know; Lazy Louisiana Moon; Pardon me; Bye bye Blues; Whistling in the Dark; A Girl Friend of a Boy Friend of mine; With my Guitar and you; Good-bye to all that; Gipsy Melody; A Bench in the Park; Faithfully yours. 11.0, Popular Songs: All alone Monday (Kahmar); Dance away the Night (Thompson); Anytime's the Time to fall in Love (Janis); Waiting at the End of the Road (Berlin); I'm in the Market for you (McCarthy); Painting the Clouds with Sunshine (Dubin-Burke); Just like in a story book (McCarthy); Tiptoe through the Tulips (Dubin-Burke). 11.30, Military Music: Changing of the Guard (Flotsam and Jetsam); The Mad Major (Alford); Serenade (Heykens); Carry on (Dundas); The Whistler and his Dog (Pryor); Down South (Myddleton); Cupid's Army (Sierier-Hamez); In the Sudan (Sebek). 12 Midnight, Popular Songs: The Future Mrs. Awkins (Chevalier); Just a dancing Sweetheart (Tobias); My Old Dutch (Chevalier); My Old Irish Mother (O'Donnell); Lirr (Sarony); Poor Kid (Gilbert); Little Dolly Day Dreams (Stuart). 12.30 a.m. (Thursday), Popular Music: Av. Av. Av. (Freire); Bye bye Blues; Aloha Oe; Old New England Moon; Go Home and tell your Mother; Hawaiian Hotel; With my Guitar and you; Kilina. 1.0 a.m., Scottish Humour: Always keep a wee drap for the Morning; Auchtner-muchty Times; The Wedding of Lauchie McGraw; The Safest of the Family; The Engineer; The Paekman; Dr. Macgregor; Wee Macgregor. 1.30, Vocal Duets: I travel the Road; Put your loving Arms around me; When it's Moonlight on Killiney; When the Moon comes over the Mountain; Good-night Sweetheart; Just a Song called Home Sweet Home; You are my Heart's Delight; Kiss me again. 2.0, Dance Music: What makes you so adorable?; By the Fireside; Don't tell a Soul; Good-night, little Girl; Good-night; When the Rest of the Crowd goes Home; Hoch Caroline; Long ago; Sing Brothers; Hummin' to Myself; We will always be Sweethearts; Night shall be filled with Music; What would you do?; Moonlight on the River; Let's all dance the Polka; Song of the Lamp; How are you? 2.57, I.B.C. Good-night Melody. 3.0, Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW.; and CASSEL, 245.9 metres.—12.30 p.m., Concert Relay. 1.0, News. 1.10, Sponsored Concert. 2.0, Weather. 2.10, Time and Economic Notes. 2.15, Programme for Young People. 4.0, Concert. 5.25, Dialogue; Theatrical Life, Past and Present. 5.50, Topical Talk. 6.15, Time, Announcements, Weather, and Economic Notes. 6.30, See Stuttgart. 8.0, The Twenty Fourth of February—Play (Zacharias Werner), arranged for the Radio by Willy Haas. 9.15, Time, News, Weather, and Sports Notes. 9.30, Wind Instrument Concert, relayed from London. 10.15 (approx.), Close Down.

FREDRIKSSTAD.—See Oslo.

FREIBURG.—See Stuttgart.

GENEVA.—See Radio-Suisse Romande.

GLEIWITZ.—See Breslau.

GENOA.—See Turin.

GOTEBORG.—See Stockholm.

GRAZ.—See Vienna.

HAMAR.—See Oslo.

HAMBURG

Call ha (in Morse), 372 metres; 1.5 kW. Relay by Bremen, 270 metres; Flensburg, 227.4 metres; Hanover, 566 metres, and Kiel, 232.2 metres.—3.30 p.m. (from Hanover), Orchestral Concert. Conductor: v. Sosen. Overture, The Masked Ball (Auber); Friedmann-Bach-Suite (Leuschner); Catalan Rhapsody (Albouth); Song, Addio (Leoncavallo); Symphonic Burlesque, Harlekin-

strieche, Op. 83 (Schroeder); Königskinder-Walzer (Lühr). 4.30, Talk: The Middle-class Home in North Germany. 4.55, songs without Words. Variety Concert by the Norag Chamber Orchestra, conducted by Fritz Gartz. Soloists: Janka Weinkauff (Pianoforte) and Hans Rosenlöcher (Violin). 5.50, Market Prices. 6.0 (from Kiel), Talk: Libraries and their Aims through the Ages. 6.25, Weather. 6.30, Norbert Jacques reads from his own Works. 7.0, Military Band Concert, relayed from Bad Segeberg. Conductor: Arthur Michel. March, Der Königgrätzer (Piefke); Overture, Wallensteins Lager (Rosenkranz); The Lost Chord (Sullivan); Fantasia on Four German Songs (Schmidt); March, Der alte Berner (Schmelzing); Overture, Orpheus in the Underworld (Offenbach); Waltz, Winterstürme (Fucik); Four Regimental Marches; Two Fanfare Marches: (a) Kreuzritter-Fanfare (Henriem), (b) Hussars' March (Müller). 8.15, The World in a Retort—Radio Scenes from the History of Chemical Research (Hans Schimank and Adolf Wasmund), with Music by Horst Platen. 9.15, Time, Weather, Announcements, Sports Notes and Police Report. 9.35, Topical Talk. 9.45, Dance Music, relayed from the Haus Sieglar Café. In an interval at 10.20, See Report.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW., and DANZIG, 453.2 metres.—12.5 p.m., Gramophone Records. Part I—Music from Many Lands. Part II—Famous Singers of the Milan Scala. In an interval at 12.20, News. 1.30, Sponsored Programme with Gramophone Records. 2.0, Exchange Quotations and Market Prices. 2.20, Hints for the Housewife. 2.30, Programme for Children. 3.0, Talk: The German Ideal of Education in Modern Educational Literature. 3.3, Concert by the Little Orag Orchestra, conducted by Eugen Wilcken; Overture, Rosamund (Schubert); Selection from La Favorita (Donizetti); Waltz, Krolls Balklange (Lunbye); Largo from Xerxes (Händel); Serenade (Haydn); Potpourri, Mousseuse (Waldteufel). 4.30, Review of Books. 4.45, Talk: Fifteen Months of Exploration in the Fjords of East Greenland. 5.15, Market Prices. 5.30, Concert by a Boys' Choir, conducted by Hugo Hartung; Zum Lob der Natur, Op. 81, No. 2 (Joseph Haas); Von der edlen Musik (Rathgeber-Theil); Morgen marschieren wir (Hans Lang); Die blauen Dragoonier (Karl Boeckh); So wünsch ich ihr ein gute Nacht (Kronek); Kein schöner Land in dieser Zeit (Folk Song); Ach herziges Herz (Heinrich Finck); Der Gutzaueh (Laurentius Lombini); Hans zing zum Ter hinaus (Othegraeb); Wenn die Bettelgellen tanzen (Leo Blech). 6.10, Bridge Lesson. 6.40, Weather and News. 6.45, Cabaret Programme by Robert Koppel and the small Orag Orchestra. 8.15, Third Reichswehr Concert, relayed from the Stadthalle, Königsberg. 9.30, Weather, News and Sports Notes. 10.0 (approx.), Dance Music from Copenhagen. 11.30 (approx.), Close Down.

HILVERSUM

(Announced HUIZEN), 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.). Programme of the Christian Radio Society (N.C.R.V.).—11.55 a.m., Sacred Concert by the Oranje Orchestra and a Choir, relayed from Assen. 1.40 to 2.10 p.m., Interval. 2.10, Popular Music on Gramophone Records. 2.40, Religious Address. 3.10, Talk. 3.40, Organ Recital by M. H. Pylman, with Songs by the Solo De Gloria Choir, conducted by H. Benner. 4.40, Programme for Children. 5.40, Organ Recital by M. H. Pylman, with Songs by the Meppel Choir; Songs: (a) Ecce quoniam moritur (J. Handl), (b) Op het kerhof (Andriessen); Passacaglia and Fugue in C Minor (Bach); Songs: (a) Evening Song (Mens), (b) Nimmer Nacht (Andriessen); Toccata and Fugue (Bach); Het breiesterige (Olman); Song: Rocierslied (de Vlieghe). 6.40, Talk. 7.10, Police Notes. 7.25, Religious News. 7.40, Choral Concert of Sacred Music, with Addresses. 10.10, News Bulletin. 10.20, Light Music on Gramophone Records. 11.10 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

(Announced HILVERSUM), 1,875 metres; 8.5 kW.—11.40 a.m. till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). 11.40 a.m., Concert by De Nolenkrakers, conducted by D. Wims. 1.40, Programme for Women. 2.40, Programme for Children. 5.10, Vocal and Instrumental Concert: Liebe kommt einmal von irgendwoher (Künnecke); Melody (Gluek-Kreisler); Spanish Dance (Schurmann); Whispering; Le Cygne (Saint-Saëns); Waltz in E Minor (Chopin); Rondo (Borgh); Irene (Pali Tot); Arlequin (Popper); If Winter comes (Tennent); Nocturne (Boulanger); Auf Wiedersehen, my Dear (Hoffmann); Danse villageoise (Popper); Fire Dance (Falla); Chimes from Scotland; Eastern Dance (Verhey); Hejre Kati (Hubay); Donna Vatra (Köpping); Minnet (Loelly); Piece (Albeniz); Scherzetto (Büsen); Tango (Albeniz-Kreisler); Holoholin calling; Viennese Dance (Friedmann-Gärtner). 6.40, Talk. 7.0, Concert by the

V.A.R.A. Orchestra, conducted by H. de Groot; Soloist: A. Moszkowski (Violin); Overture, Zais (Ramon); Concerto in A Minor (Telemann); Overture, Figaro (Mozart); Concerto in D (Mozart). 7.38, S.O.S. Messaeres. 7.40, Talk. 8.0, Der Musikfeind—Operetta (R. Gence); The Station Orchestra, Mlle. Elize de Haas (Soprano), M. Plooyer (Tenor), and J. Lammen (Bass). 9.0, Dramatic Programme. 9.20, News. 9.50, Organ Recital by J. Jong; Gipsy Melodies (Borganov); Selection from The Merry Wives of Windsor (Nicolai); Czardas (Monti); Die Nachtigall in Fliederbusch (Krone); Gramophone Records; Selection from Rigoletto (Verdi); Lehar Potpourri (Hubay). 10.50, Light Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.0 p.m., Talk for Housewives. 6.15, Announcements and Opera Music on Gramophone Records. 6.25, Report of the Polish Youth Association. 6.30, See Warsaw. 9.20, Dance Music. 10.0, The Letter Box in French, for Foreign Listeners.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres; 40 kW.; and HELSINKI, 368.1 metres.—5.10 p.m., News in Swedish. 5.15, Esthonian Lesson. 5.40, Violin Recital by Irma Nissinen. 6.0, Talk. 6.20, Songs for Choir. 6.40, Talk. 7.0, Dance Music by the Station Orchestra. 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

473 metres; 60 kW.—12 Noon, Orchestral Concert, conducted by Kühn. Soloist: Elsbeth He (Pianoforte); Festliches Präludium (Schmalstich); Allegro appassionato for Pianoforte and Orchestra (Saint-Saëns); Selection from Salome (Richard Strauss); Suite (Bizet-Gocher); Ave Maria (Lattermann); Gasteiner-Walzer (Kern); Overture, Cagliostro in Wien (Joh. Strauss). In the interval at 1.0 p.m., News. 1.30, Sponsored Programme with Gramophone Records. 2.30, Exchange and Time. 2.50, Programme for Children. 3.10, Talk on Johanna Wolf, on her Seventy-Fifth Birthday. 3.30, Talk: Radio in the Village School. 4.0, See Munich. 5.20, Reading. 5.45, Weather, Time, Exchange and Sports Notes. 6.0, Talk: Hygiene in Garden Suburbs and in Unorganised Settlements. 6.20, Talk: Health before Everything Why has a child no Appetite. 6.35, Review of Books. 6.55, First General News. 7.0, Musik um Sisi Musical Comedy in Three Acts (Bernhard Grün). 8.40, The World on Gramophone Records. Songs from Finland. 9.10, News and Sports Notes. 9.30, Serenade on Gramophone Records. 9.45, See Munich. 11.0 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW.; and DRESDEN, 319 metres.—10.30 a.m., Military Band Concert, conducted by Hermann Thiele. In an interval at 12 Noon, News, Weather, Snow Report and Time Signal. After the Concert, Exchange Quotations. 1.0 p.m., Programme for Unemployed: How to build a Wireless Receiver. 2.35, Exchange and Market Prices. 3.0, Programme for Young People. Part I: Die Tageszeiten—Cantata by the Choir and Orchestra of the Jena Conservatoire and Soloists (Telemann); Part II: Rusendorf muss sterben—Radio Play (Herbert Marschak). 4.50, Exchange Quotations, Weather and Time. 5.10, Book Review. 5.35, Italian Lesson. 5.55, Programme to be Announced. 6.5, Mandoline Concert of Folk Music. 6.30, Topical Talk. 7.0, Iphigenia in Tauris—Opera in Four Acts (Gluck). In an interval at 8.10 (approx.), News. 9.15, News Bulletin. 9.30 (approx.), Dance Music by the Endé Orchestra. 10.30 (approx.), Close Down.

LINZ.—See Vienna.

I JUBLJANA

574.7 metres; 2.5 kW.—5.0 p.m., Popular Music on Gramophone Records. 5.30, An Experiment in Phonetics. 6.0, Russian Lesson. 6.30, Literary Programme. 7.0, Recital of Songs and Duets. 7.30, Quintet Concert. 9.0, Time, News and Light Music on Gramophone Records.

LWOW

381 metres; 16 kW.—4.30 p.m., Popular Music on Gramophone Records. 4.40, See Warsaw. 5.0, Choral Concert of Christmas Carols. Soloists: Mlle. Gizela Paschel (Soprano) and M. Stanislas Russocki (Tenor). 5.55, Reading. 6.10, Miscellaneous Items. 6.30, See Warsaw. 11.0 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South East. 8.30, Educational Talk. 8.45, Concert

Relay. Mme. Domeizi (Pianoforte), Mme. A. Ruff (Violin), Mme. M. Ruff (Violin), and M. Ruff (Cello). Introductory Address by Dr. Trénel. In the intervals, Talk. After the Concert, News Bulletin.

MADRID

ARANJUEZ, Call EAQ, 30.43 metres; 20 kW.—10.30 p.m., Concert of Light Music. In the interval at 10.45, Wireless Review. 11.15, Talk. 11.40, Variety Music. 12 Midnight, Close Down.

MADRID

UNION RADIO, Call EAJZ, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotations, Literary Talk and Request Gramophone Concert. 7.30, Agricultural Talk and Gramophone Concert (contd.). 8.25, News Bulletin. 8.30 to 9.30, Interval. 9.30, Chimes and Time Signal followed by Prize Radio. 11.5, News Bulletin. 12 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—5.25 p.m., Violin Recital by Marta Cittova. Six Pieces (Debussy): (a) En Batuau, (b) Arabesque, No. 1, (c) La Fille aux cheveux de Lin, (d) Waltz, La plus que lente, (e) Corège, and (f) Beau soir. 6.0, See Prague. 6.40, See Brno. 7.45 till Close Down, See Prague. 9.15 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—4.0 p.m., News. 4.10, Concert. 5.30, Concert, relayed from the Radio Theatre. 8.0, Talk in a foreign language (to be announced). 8.55, Time Signal. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—4.0 p.m., Orchestral Concert, conducted by Erich Klose; Overture, Lisola disabitata (Haydn); Melody (Gluek); Minnet from the Divertimento in D (Mozart); Suite from Die Geschöpfe des Prometheus (Beethoven); Heroischer Marsch (Schubert); Hungarian Rhapsody No. 4 (Liszt); Two Waltzes from Op. 9 (Brahms); Der Vogel als Prophet (Schumann); Winterszeit (Schumann); Andante and Scherzo (Mendelssohn). 5.15, French Lesson. 5.35, Talk: Wagner and his Music. 5.55, Time, Weather and Agricultural Report. 6.5, Herbert Reinhold talks about his Experiences in Snow Storms. 6.30, Variety Programme. 7.30, Orchestral Concert conducted by Hans A. Winter. Soloist: August Schmid-Lindner (Pianoforte); Overture, Der Freischütz (Weber); Concerto in B Flat for Pianoforte and Orchestra (Beethoven); Ballet Suite from Glasbäiser und Dogareia (Reusz); Overture-Fantasia, Raskolniky (Reznicek). 9.0, A Dialogue. 9.20, Time, Weather, News and Sports Notes. 9.45, Dance Music. 11.0 (approx.), Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredrikstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrunn, 452.2 metres; and Rjukan, 447.1 metres.—4.0 p.m., Concert, conducted by M. Hans Backe. 5.0, French Lesson. 5.30, Programme for Children. 6.0, Announcements. 6.15, Weather and News. 6.30, Talk. 7.0, Time Signal. 7.1, Sacred Concert. 8.30, Talk. 8.0, Weather Report. 9.0, Topical Talk. 9.5, Recitations by M. Krohn. 9.45, Dance Music.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tourist Talk, Agricultural Notes and Giornale Radio. 7.20, Popular Music on Gramophone Records. 7.30 (in an interval), Time Signal and Announcements. 7.45, Orchestral Concert. Soloists: Silvia de Loli (Soprano) and Marisa Bentivegna (Pianoforte). Mozartiana (Tchaikovsky); Soprano Solos: Three Songs with String Quartet Accompaniment (Pizzetti); American Folk Sketches (MacDowell); Intermezzo (Musorgsky); Three Miniatures for Pianoforte and Strings (Piek-Mangiaglioli); Selection from The Mandarin's Son (Cui). In an interval, Talk. 9.0, Variety Concert of Songs.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW.—Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 5-dot Signals).—5.45 p.m., Le Journal Paré. 7.20, Weather Forecast. 7.30, Recitation. 7.45, Programme for Young People. 8.5, News. 8.20, Symphony Concert, conducted by M. Flament. Soloist: M. Cantrelle (Violin). Recuerdos de Viaje (Albeniz); Merck (Fog); Violin Solo; Air de ballet (e Taeye); Selection from Javotte (Saint-Saëns). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—7.0 p.m., Gramophone Concert of Popular Music. 8.0, Tourist Talk. 8.15, Interval.

FEB. 1st

WEDNESDAY

continued

8.30, Sponsored Concert. 9.0, Interval. 9.10, Sponsored Concert. 10.10, Dance Music by the Lido Dance Band. 11.0, News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (cont.). 7.45, Ballet Music from Les Deux Pigeons (Messager) on Gramophone Records. 8.0, Press Review and Weather. 12 Noon, Educational Talk. 12.15 p.m., Concert by the Radio Paris Orchestra: Selection from Le Postillon de Longjumeau (Adam). 12.30, Organ Recital from the Gaiumont Palace. 1.0, Exchange, News and Weather. 1.5, Orchestral Concert (cont.): Selection from The Country Girl (Moucton-Godfrey); Operetta Potpourri (Hesse); Selection from Il re di Chez Maxim (Costa-Cecce); Gladys (Puger); Selection from Le Grand Casimir (Lecocq). In the interval at 1.30, Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Market Prices, Agricultural Report and Exchange. 6.40, German Lesson. 7.0, Medical Talk. 7.20, Concert by the Radio Paris Orchestra: Lamento (Raband-Rudd); Overture, Heimkehr aus der Fremde (Mendelssohn); Cantilene nostalgique (Bonincontro); 7.45, Commercial Prices and News. 8.0, Literary Readings. 8.30, News and Weather. 8.40, Fashion Review by Mlle. José. 8.45, Gramophone Records: Scherzo for Piano (Borodin); Prelude in C (Prokofiev); The Fountain of Arethusa (Szymanowski). 9.0, Concert by the Lamoureux Concert Society, relayed from the Salle Gaveau. The Orchestra conducted by Albert Wolff. Soloists: Mme. Martinielli (Songs) and Arthur Ruinstein (Piano). The Seventh Symphony (Beethoven); Songs: Concerto in B Flat (Brahms); Schéhérazade (Ravel); Polovtsian Dances from Prince Igor (Borodin). In the interval at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by W8XK on 48.86 metres and 25.27 metres. 9.0 p.m., Work-a-day Thoughts. 9.5, Business News. 9.15, Programme to be announced. 9.30, Weather Report. 9.32, Market Reports. 9.45, Piano-forte Interlude. 9.50, David Lawrence Dispatch. 9.55, KDKA Artist Bulletin. 9.58, Programme Announcements. 10.0, Westinghouse Chief. 10.15, Programme to be announced. 10.30, The Singing Lady. 10.45, Little Orphan Annie, from New York. 11.0, A. and P. Programme, from New York. 11.15, Time Signal. 11.16, Weather Report. 11.17, Tenberry Sport Review. 11.22, Press News-Reader. 11.27, Strange Facts. 11.29, Temperature Report. 11.30, Sheer Romance. 11.45 to 3.15 a.m. (Thursday), New York Relay. 11.45, Today's News, by Lowell Thomas. 12 Midnight, Ames in Andy. 12.15 a.m., Carson Robison and his Barbasol Buckaroos. 12.30, Five Star Theatre. Dramatisation of Short Stories. 1.0, Kino Crime Club. 1.30, Time Signal and Harriet Lee and her Leaders. 1.45, Country Doctor. 2.0, Adventures of Sherlock Holmes. 2.30, Woodbury Programme with Morton Downey and Donald Davis. 3.0, D. W. Griffith's Hollywood. 3.15, Bridge School of the Air by E. Hall Downes. 3.30, Around the Cracker Barrel. 3.45, Bradley Kincaid. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.13, KDKA Artist Bull-Go. 4.15, Press Last-minute News Flashes. 4.20, Songs in French Manner by Mlle. Diane Laval. 4.30, Henry Halstead and his Californians. 5.0, College Inn Orchestra, from New York. 5.30, Time Signal and Good-night.

PORSGRUND.—See Oslo.

POZNAN

335 metres; 1.9 kW.—6.0 p.m., Miscellaneous Items and Announcements. 6.28, Time Signal. 6.30 to 7.50, See Warsaw. 7.50 (approx.), Theatre Notes and Announcements. 8.0, See Warsaw. 9.15, Talk arranged by the Temperance League. 9.30, Time Signal and Announcements. 9.45, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., Concert by the Station Orchestra, conducted by Jeremias; Soloist: Marie Mustanova (Songs); Overture (Roob); Songs: (a) Aria from Jean of Arc (Tchaikovsky), (b) Aria from Prince Igor (Borodin), (c) Aria from The Queen of Spades (Tchaikovsky); Spanish Caprice, Op. 34 (Rimsky-Korsakov). 4.0, Talk: Life in the Carpathians. 4.10, A Marionette Play. 5.5, Agricultural Report. 5.15, Talk: Czech Workers as Poets. 5.25, News in German. 5.30, German Transmission. 6.0, News. 6.5, Talk: Theatre Reminiscences. 6.20, See Brno. 7.15, Talk: A Journey round the World, with Gramophone Illustrations. 7.45, A One-act Play (Turgenev), translated by S. Minarik. In the interval at 8.0, Time Signal. 8.45, Popular Music on Gramophone Records. 9.0, Time Signal. 9.1, News Bulletin. 9.15 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres, 25 kW.; LAUSANNE, 680 metres; and GENEVA, 760 metres.—6.0 p.m. (from Lausanne). Weather Forecast and News. 6.20 (from Geneva). Report on the Work of the League of Nations. 6.30

(from Lausanne). Agricultural Report. 7.0 (from Geneva). A Conversation with the Moon. Sketch (Tanner). 7.35 (from Geneva). Concert by the Paris Symphony Orchestra, conducted by Pierre Monteux, relayed from the Victoria Hall; Soloist, François Lang (Piano); Brandeburg Concerto in F for Violin, Flute, Oboe, and Trumpet (Bach); Concerto in D Minor for Piano and Orchestra (Mozart); Fifth Symphony in C Minor (Beethoven); Spanish Rhapsody (Ravel); Ballet, Petruska (Stravinsky)—Concert Version. In the interval, News and Weather Forecast. 10.0 (approx.). Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather Report. 8.40, Musical Programme and Announcements. 9.0, Chimes and News. 9.30, Reading. 10.0, Acts III and IV of Carmen—Opera (Bizet).

RIGA

525 metres; 15 kW.—5.0 p.m., English Lesson. 5.30, Agricultural Report. 5.58, Weather Report. 6.0, Vert-Vert—Operetta in Three Acts (Offenbach), relayed from the Workers' Theatre. In the interval at 8.0, Weather. After the Operetta, Dance Music. 10.0 (approx.). Close Down.

RJKAN.—See Oslo.

ROME

Call 1R0, 441 metres; 50 kW. Relayed by Naples, 315 metres; and 2R0, 25.4 metres.—7.0 a.m., Gymnastics. 7.15 to 7.30, Giornate Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Orchestral Concert: Sanguis gitano (Mattioli); Sennade (Galli); Atlantis (Robbeld); Selection from La Bohème (Puccini); Veni ante the Woman for Me (Sorge); Fox-Trot, Carmen (Dostal); Alma de Dios (Serrano); Flora (Petrolli); Selection from Tip Toes (Gershwin); Melody (Dax). In the interval from 12.30 to 12.45, Giornate Radio and Exchange. 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornate Radio. 4.30 to 5.15, Concert of Chamber Music. 6.0, Giornate Radio. 6.10 (Naples), Shopping and Sports Notes. 6.15 Agricultural Report and Announcements. 7.0, Time and Announcements, followed by Light Music on Gramophone Records. 7.15, Medical Talk. 7.30, Sports Notes and Tourist Report. 7.45, Relay from a Theatre. In the intervals: Talk by Mario Corsi, Theatre Notes, and News. SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY, W.G.Y., 379.5 metres; 50 kW. Relayed at intervals by W2KAF on 31.48 metres, and by W2KAD on 19.55 metres.—7.30 to 12.15 a.m. (Thursday). New York Relay. 7.30, Westminster Choir. 8.0, Two Seats in the Balcony. 12.0 Midnight, Soloist. 12.15 a.m., Stock Reports. 12.30 to 2.0, New York Relay. 12.30, Ralph Kirby (Baritone). 12.45, The Goldbergs. 1.0, Standard Brands Programme. 1.20, The Shadow. 2.0, Musical Programme. 2.15, Three Shades of Blue. 2.30, Supper Club Orchestra and Programme Resume.

SCHWEIZERISCHER

LANDESENDER

BEROMUNSTER, 459 metres; 60 kW.; BASEL, 244.1 metres, and BERNE, 245.9 metres. 9.20 a.m., Broadcast for Schools: Christian Lereh relates some of his Experiences in Canada. 9.50 to 11.28, Interval. 11.28, Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40, Smetana and Richard Strauss Concert on Gramophone Records. 12.35 to 12.40 p.m., Weather and Exchange. 2.30, Gramophone Concert of Songs and Music for Children. 3.30 (from Basle). Programme for Children. 4.0, Gramophone Concert of Music in Waltz Time. 4.30 to 4.35, Weather. 5.30 (from Zürich). Talk: Hints gleaned on Travelling from our great Grandfathers. 6.0, Time, Weather, News and Market Prices. 6.10 (from Zürich). A Visit to a Bank Director—A Study in Economics, by Hans Georg Pauls. 6.50 (from Zürich). Conrad Beck Concert by the Radio Orchestra, conducted by H. Hofmann. Soloists: Walter Frey (Piano); Walter Kägi (Violin); and Marcel Siffel (Oboe). 8.30, Weather and News. 8.40 (from Zürich). Dance Music by the Radio Orchestra. 9.15 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by Boden, 1,229.5 metres; Göteborg, 322 metres; Hårbj, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—4.5 p.m., Acordion Music, relayed from Falun (307 metres). 4.30, Reading of a Father Brown Story (G. K. Chesterton). 5.0, Popular Music on Gramophone Records. 5.55, Reading in German. 6.15, Weather and News. 6.30, Talk: The History of the Refor-

mation of the Swedish Church, relayed from Mainö (231 metres). 7.0 (from Göteborg). Symphony No. 3 in A (Carl Nielsen). 7.45, Friday Morning—Radio Play (Val. Gicquard). 8.20, Recital of Chopin's Nocturnes by Anita Harrison; Nocturne in E. Op. 15, No. 1; Nocturne in D Flat, Op. 27, No. 2; Nocturne in C Minor, Op. 48, No. 1. 8.45, Weather and News. 9.0, Dance Music Relay. 10.0 (approx.). Close Down.

STRASBOURG

245 metres; 11.5 kW.—11.30 a.m., Wagner Concert on Gramophone Records. 12.45 p.m., News Bulletin. 1.0, Time and Exchange. 1.5, Quintet Concert, relayed from Borceaux-Lafayette. 1.50 to 4.45, Interval. 4.45, Talk on Electricity. 5.0, Orchestral Concert, conducted by Roskam; Overture, Si j'étais Roi (Adam); Waltz from Gipsy Love (Lohar); Selection from The Drum-Major's Daughter (Offenbach); Serenade, Il ballo de Micheli; Minuet (Paderewski); Selection from L'île Tine (Schubert-Betty); Rustle of Spring (Sinding); March (Rehner). 6.0, Trio Concert relayed from Lille (265.4 metres). 7.0, Talk on French Legends: Parsifal. 7.15, Legal Talk. 7.30, Time and Announcements. 7.45, Programme for Children, relayed from Paris (Eiffel Tower). 8.15, Lottery Results and Gramophone Records. 8.30, Concert, relayed from Lille: Overture, Fingal's Cave (Mendelssohn); Danse macabre (Saint-Saëns); Rhapsody on Popular Airs (Gambert); Ballet Music from Les Héritiers (Lévy); Overture, Copolans (Beethoven); Prelude (Rachmaninov); Waltz from Patrie (Padurile); Taras Boulba (Georges); Pavane pour une Infante défunte (Lavelle); Polovtsian Dances from Prince Igor (Borodin). 11.0, Concert, conducted by Henry Tomasi, relayed from Radio Coloniale (Paris) (25.63 metres). 12 Midnight (approx.). Close Down.

STUTT GART

MUHLACKER, 360.5 metres; 60 kW.; and FREIBURG, 570 metres.—12.30 p.m., Concert from Langenberg. 1.0 to 1.15, Sponsored Gramophone Music. 3.0 (from Freiburg), Programme for Children. 4.0, See Frankfurt. 5.15, Time, Weather and Market Prices. 5.25 (from Mannheim). Talk: Life in the Light of Modern Research. 5.50, Talk: Pictures of Trade Life in the Ancient World. 6.15, Time and News. 6.30, A Nrgia Service in Haadlen—(arranged Karl Köstlin). 7.0 (from Karlsruhe). Symphony Concert, conducted by Josef Krips; Symphony in F, No. 3, Op. 90 (Brahms); Dante, Symphony (Hubay). 9.0, Time, News, Weather and Programme Announcements. 9.20, Military Band Concert, conducted by B. Walton O'Donnell, relayed from London. 10.15 (approx.). Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0, News Bulletin. 6.15, An Argentine Orchestra. 6.30, Airs from (a) L'air à la Bouche (Paris-Van Parys), and (b) Kadubec (Yvain). 6.45, Polovtsian Dances from Prince Igor (Borodin). 7.0, Instrumental Music Cavatina (Raff); Talk: Minuet (Mozart). 7.15, News, Racing Results, and Market Prices. 7.25, Local News. 7.30, Military Music. 7.45, Songs from Opera: Know'st thou the Land? from Mizan (Thomas); Air from Lakme (Delibes); Prayer from Weather (Massenet). 8.0, Acordion Music. 8.15, Orchestral Music: Meditation from Thaïs (Massenet); Selection from Les Millions d'Arlequin (Drigo); Serenade (Heykens). 8.30, Sound Film Music. 8.45, Cello Solos: Prelude to Le Déluge (Saint-Saëns); Gavotte (Lully); La Trémoine (Massenet). 9.0, Concert by the Philharmonic Society. 9.45 (in an interval), Light Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco; Overture, The Caliph of Bagdad (Bohldien); Tomjours (Cazes); Guitar Solos: Carnival in Venice (Gascon); Air from Tosca (Puccini); Potpourri (Jessel). 11.0, Request Concert: Les Papillons de Nuit (Gabaroche); Solweig's Song (Greig); Air from Werther (Massenet); Waltz, Gold and Silver (Léhar); Pavane pour une Infante défunte (Ravel); Dream of Love after the Ball (Czibulka). 11.30, Programme in English by the I.B.C.; Piano-forte Entertainer: Selection from The King of Jazz; 'She was only Somebody's Daughter (Weston). I certainly don't need you (Hilliam); Potpourri of Popular Melodies (Ray); Memories of Maurice Chevalier; Selection from Puffin on the Ritz. 12 Midnight, Weather and Announcements. 12.5, Military Music. 12.15, Viennese Music. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—4.0 to 6.30 p.m., See Turin. 6.30, Orchestral Concert from the Café Dante. 7.0 (approx.) till Close Down. See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayed by Milan, 331.5 metres; Genoa, 312.8 metres; and

Florence, 500.8 metres.—4.0 to 5.0 p.m., Song Recital: Bruno Herlitzka (Tenor), E. Benedetti (Soprano), Tenor Solo: Sculo nel cuore (Scarlatti); Soprano Solo from Così fan tutte (Mozart); Tenor Solo: Deh più a me von Vascómite (Bononcini); Soprano Solo: Aria from La serva padrona (Pergolesi); Tenor Solo: Vittoria, Vittori (Carissimi); Soprano Solo: Il fanciullo smarrito (Rossini); Two Songs for Tenor (Schubert); (a) Wolin?, (b) Danksagung an den Bach; Soprano Solo: Nimm-mama (Donizetti); Three Songs for Tenor (Brahms); (a) Sonntag, (b) Ständchen, (c) Der Schmelzer; Soprano Solo: Tarantella (Rossini). 6.35, Giornate Radio, Agricultural Notes and Announcements. 6.0, Giornate Radio. 6.10, Light Music on Gramophone Records. 6.25, Tourist Report. 6.30, Time, Announcements and Light Music on Gramophone Records (cont.). 7.0, Giornate Radio and Weather. 7.15, Medical Talk. 7.30, A Comedy in Three Acts, followed by Orchestral Concert: Overture, La finta giardiniera (Mozart); Melody (Eschobar); Scherzo (Mendelssohn); A Mediterranean Cruise (Jalowiec); Andalusian Scene de Calotta; Divertissement (Lalo). 10.5, Giornate Radio.

VATICAN CITY

19.84 metres (Morning), and 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

517 metres; 15 kW. Relayed by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 452.2 metres; Linz, 245.9 metres; and Salzburg, 218.5 metres.—4.0 p.m., Concert by the Gustav Macho Orchestra; Overture, Die geschiedene Frau (Fall); Waltz, Sommerlied (Lincke); Tango, Iona (Roman); Violin Solos: (a) Caprice viennois (Kreisler), (b) Valse (Welleba); Japanisches Regentlied (Mory); Prelude and Serenade from Der Schenker (Korngold); Potpourri, Wiener Melodienkorgess (Machlo); March, Austria (Schieder). 5.15, Talk: Systematic Treatment of Cancer. 5.40, Talk for Workers: The English Workman. 6.5, Talk: Johann Strauss. 6.30, Time, Weather, and Programme Announcements. 6.40, Folk Songs by the Josef Holzer Orchestra. 8.5, Topical Talk. 8.35, A Little Tragedy—a Radio Story (Nouvet Garai). 8.50, Talk by Dr. Robert Konta: The Austrian Musical Festival. 8.55, Report on the Austrian Musical Festival (April 22nd and 23rd). 9.5, News, Weather, and Announcements. 9.20, Dance Music by the Paul Raab Orchestra, relayed from the Café Paluhof; Soloist, Ladislav Kaway (Songs).

WARSAW

1,411 metres; 120 kW.—10.40 a.m., Press Review. 10.50, Weather Report for Aviation. 10.58, Time Signal and Bugle Call from St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.15, Light Music on Gramophone Records. 12.20 p.m., Weather Report. 12.25 to 2.10, Interval. 2.10, Announcements. 2.15, Economic Notes. 2.30, Boy Scout Report. 2.35, Programme for Children. 3.0, Gramophone Concert: Extracts from Opera: (a) Faust (Gounod), (b) Lucia di Lammermoor (Donizetti), (c) A Masked Ball (Verdi), (d) La Gioconda (Ponchielli), (e) Mephistopheles (Botta), (f) Music in Exile (Rossini), (g) La Juive (Halévy); La Nina Quirida (Buzzi-Pecora); Tenor Solo: Princessita (Padilla). 3.40, Talk. 4.0, Talk for Teachers. 4.30, Announcements. 4.40, Talk. 4.55, Programme Announcements. 5.0, Light Music relayed from the Adria. In the interval: News. 6.0, Miscellaneous Items. 6.20, Agricultural Bulletin. 6.20, Literary Talk. 6.45, Radio Journal. 7.0, Review of Old and New Music. 7.50, Sports Notes. 7.55, Radio Journal. 8.0, Song Recital by A. M. Guglielmetti; Arias from: (a) Figaro (Mozart), (b) The Secret Marriage (Cimarosa), (c) Lucia di Lammermoor (Donizetti), (d) Sonnambula (Bellini), (e) The Barber of Seville (Rossini), (f) Rigoletto (Verdi), (g) La Bohème (Puccini). 9.0, Topical Talk. 9.15, Dance Music on Gramophone Records. 9.55, Weather Forecast for Aviators, and Police Notes. 10.0, Dance Music from the Café Ziemińska. 11.0 (approx.), Close Down.

WILNO

563 metres; 16 kW.—3.0 p.m., Richard Strauss Concert on Gramophone Records. 3.40 to 4.40, See Warsaw. 4.40, Reading. 4.55, Programme Announcements. 5.0, See Warsaw. 5.40, Lithuanian Review. Miscellaneous Items. 6.0, Reading. 6.10, Miscellaneous Announcements. 6.15, Talk: Poznan as an Educational Problem. 6.30 to 11.0, See Warsaw. 11.0 (approx.), Close Down.

ZAGREB

307 metres; 0.75 kW.—4.30 p.m., Trio Concert. 6.0, Literary Talk. 6.15, Announcements. 6.35, Science Talk. 7.0, Light Music on Gramophone Records. 8.35, Introductory Talk to the Following Transmission. 8.45, Symphony Concert relayed from London. In the interval, News, Weather, and Sports Notes.

ZURICH.—See Schweizerischer Landessender.

BARCELONA

RADIO-BARCELONA; Call EAJ; 348.8 metres, 8 kW.—6.0 p.m., Trio Concert. 7.0, Request Gramophone Concert. 7.30, Exchange Quotations, followed by Gramophone Records, and News. 9.0, Chimes, Weather, Exchange and Market Prices. 9.5, Part Relay of an Opera from the Gran Teatro del Liceo. In an interval at 11.0, News. 12 Midnight (approx.). Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Notes, Tourist Talk and Announcements. 7.20, Giornale Radio and News Bulletin. 7.30, Time Signal and Announcements. 7.35 (approx.), Military Band Concert, conducted by Salvatore Rubino: Triumphal March from Cleopatra (Mancinelli arr. Rubino); Overture, The Barber of Seville (Rossini). Selection from Tosca (Puccini); Suite, Scenes pittoresques (Massenet); Selection from Opera (Wagner): (a) Gotterdammerung (The Twilight of the Gods); (b) The Valkyries; March, Generale Parlante (Rubino). 9.30, Popular Music on Gramophone Records. In an interval, Film Notes. 9.55, News Bulletin.

BASLE.—See Schweizerischer Landessender.

BELGRADE

430.4 metres; 2.8 kW.—11.5 a.m., Concert by the Station Orchestra: Honage March (Grieg); Festival Overture (Lortzing); Ballet Music from Czar and Carpenter (Lortzing); Poeme (Arkenmans); Rocco Gavotte (Kockert); Salut d'Amour (Elgar); Réverie lyrique (Bullerian); Waltz, Wiener Extrablätter (Translatenr); Potpourri, Rendez-vous bei Lehar (Bruby). In the interval at 11.35, Exchange. 12.30 p.m., News. 2.0, Relay of Der Orlov—Sound Film Operetta (Gramischtedten). 4.0, Variety Music on Gramophone Records. 5.25, Time and Chimes. 5.30, Dialogue in French. 6.0, Concert by the Station Orchestra: Overture, Boceaccio (Suppé); Waltz, Tales from the Vienna Woods (J. Strauss); Selection from Lilac Time (Schubert-Berté). 7.0, Gala Programme: Introductory Talk and Radio Play with Incidental Music. 8.30, News and Popular Music on Gramophone Records. 9.20, Gigan Music from the Rudnicain Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.55 a.m., Nauen Time Signal. 12.35 p.m., News Bulletin. 1.0, Gramophone Concert from Berlin (Witzleben). 2.0, Musical Programme for Children. 2.30, Weather and Exchange. 2.45, Reading (Franz Hesse). 3.0, Talk for Women: Children of Unhappy Marriages. 3.30, Concert from Berlin (Witzleben). 4.10, Wireless Technical Talk. 4.30, Mozart song Recital. 5.0, Talk: Form and Colour in Everyday Life. 5.30, Talk on Early Romantic Opera—Otto Nicolai, with Illustrations. 5.55, Weather and Announcements. 6.0, German for Germans. 6.30, A Poem. 6.35, Agricultural Talk. 6.55, Talk on Winter Relief. 7.10, European Concert, relayed from Copenhagen. 8.15, See Munich. 9.20, Weather, News, and Sports Notes. 9.45, Weather Report for Shipping, followed by Dance Music from Berlin (Witzleben). 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—1.0 p.m., Leo Fall Concert on Gramophone Records; Marek Weber and his Orchestra, with Soloists: Selection from Der liebe Augustin; Vienna Schrammel Quartet; Waltz from Brüderlein fein; Melody from The Dollar Princess; Paul Godwin and his Orchestra: Selection from The Dollar Princess; Erica von Hansmann and her Viennese Waltz Orchestra: Kind, du kannst tanzen wie meine Frau, from Die geschiedene Frau; Paul Godwin and his Orchestra: Selection from The Merry Peasant; Fritz Massary: Heut' könnt' einer sein Glück bei mir machen from Madame Pompadour; Fritz Massary and Marcel Wittrisch: Ich bin dein Untertan, dein Treuer from Madame Pompadour; Fritz Massary: Im Liebesfalle from Madame Pompadour; Fritzi Massary and Max Pallenberg: Ach Josef, ach Josef from Madame Pompadour; Richard Tauber and Carlotta Vanocenti: Duet from The Rose of Stamboul; The Berlin Opera House Orchestra, conducted by Alois Melichar: Selection from The Rose of Stamboul. 1.55, Berlin Exchange Quotations and Agricultural Prices. 2.20, Talk: Women and Professions from 1913 to 1933. 2.35, Harpsichord Recital by Eta Harich-Schneider: Toccata in A (Purcell); Suite in G (Purcell); Irish Melody; Watkin's Ale; Doctor Bull's my selfe (John Bull); The Reed Pipes (Dandri); The Guitar (Daquin); La Gfioriele (Comperin). 2.55, Hans Pfitzner Song Recital by Anna Marie Lenzburg (Soprano): Ist der Himmel darum in Leuz so blau; Hast du von den Fischerkindern; Gebet; Lockung; Die Einsame; Die Nachtigallen; Sonst. 3.15, Talk: An Eleven Hour Flight from the Mediterranean to the Spree. 3.30, Variety Concert on Gramophone Records. 4.30, A Medical Discussion: For and Against Compulsory Vaccination. 4.50, Talk: The Younger Generation—Ex and the Labour Problem. 5.10, Sonata in F for Pianoforte (Mozart), by Fritz Thöne. 5.30, Margarethe Vater interviews Young Stenographers. 5.55, The Witzleben Station informs its Listeners. . . . 6.0, Topical Talk.

THURSDAY

FEBRUARY THE SECOND

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL Pianists in Variety. Concert from the Town Hall, Birmingham. Orchestral concert from the Hotel Metropole. "The Art of Reading," by Mr. Desmond MacCarthy. Vaudeville programme. Song and Cello recital.

LONDON REGIONAL Concert from Queen's College, Birmingham. Organ music. Danish European concert relayed from Copenhagen. Orchestral concert. Three plays: "The Hatchet" (Edward Lewis). "Forward, Please" (Althaus). "The Monkey's Paw" (W. W. Jacobs).
MIDLAND REGIONAL Concert from Queen's College, Birmingham. Light music—serenades. Concert from the Town Hall, Newark.
NORTH REGIONAL Orchestral music. Organ music. Hallé Society's concert from the Free Trade Hall, Manchester. A relay from the Royalty Theatre, Chester.
WEST REGIONAL Orchestral concert. Organ music. Light music. "Lotus Blossoms," a little Japanese programme.
SCOTTISH REGIONAL Orchestral music. "Fitting Scotland's House in Order" (3); Mr. Bennett Miller; "Education." Recital by a vocal quartet.
BELFAST Orchestral music. Organ recital. An Irish programme. String orchestral concert.
ABROAD
BERO-MUNSTER Wagnier concert by the St. Gallion Concert Society.
COPENHAGEN European concert, relayed from the State Broadcasting Building.
ROME ORCHESTRAL concert, conducted by R. Santarelli.
STRASBOURG Symphony concert, conducted by M. de Villers.

6.10, Orchestral Concert, relayed from the Eden Pavillon. 7.0, Variety Programme, relayed from the Philharmonic. 8.0, A Report for Workers, with Literary Extracts. 9.0, Weather, News, and Sports Notes. 9.15, Dance Music, relayed from the Europa Pavillon. 11.0 (also relayed by Zeen on 31.38 metres): Extracts from Die schöne Rösche—Operetta in Three Acts (Fall) for the Sixtieth Birthday of the Composer.

BERNE.—See Schweizerischer Landessender.
BEROMUNSTER. — See Schweizerischer Landessender.
BODEN.—See Stockholm.
BODO.—See Oslo.

BORDEAUX-LAFAYETTE 304 metres; 13 kW.—7.30 p.m., News Bulletin and Exchange Quotations. 7.40, Talk arranged by the International Labour Bureau: Restrictions on the Employment of Foreign Labour. 7.55, Lottery and Charades Results. 8.0, Talk on Wines. 8.15, News Bulletin, Exchange Quotations and Weather Forecast. 8.30, Popular Music on Gramophone Records. 10.15, Topaze—Comedy (Marcel Pagnol), relayed from the Paramount. After the Programme, Entertainments Guide and Time Signal.

BRATISLAVA 279 metres; 14 kW.—5.15 p.m., A Play (Hugo von Hofmannsthal). 6.0, See Prague. 6.5, Talk on Economics. 6.20, See Brno. 6.35, See Prague. 7.10, European Concert, relayed from Copenhagen. 9.15, See Prague. 10.0 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU 325 metres; 60 kW.; and GLEIWITZ, 253 metres.—12.10 p.m., Orchestral Concert: Potpourri of Popular Songs (Dostoi); Overture, Prince Methusalem (Joh. Strauss); March, Gut Heil! (Kaden). 12.45, Time, Weather, News, and Exchange. 1.5, Gramophone Concert: Overture, Don Pasquale (Donizetti); La Campanella (Paganini-Liszt); Selection from Tosca (Puccini-Tavan); Fantasia on Carmen (Bosoni); Lagenen-Walzer (Joh. Strauss); Annen-Polka (Joh. Strauss). 1.45, Sponsored Programme with Gramophone Records. 2.10, Agricultural Prices. 2.40, Talk: Week-ends in Winter. 2.50, Book Review. 3.10, Leo Fall Concert by the Station Orchestra, for the Composer's Sixtieth Birthday: Soloist: Hellmut Hallendorf (Tenor); Overture, Die geschiedene Frau; Selection from The Dollar Princess; Waltz from The Rose of Stamboul; Selection from Der liebe Augustin; Air from Madame Pompadour. 4.15, Agricultural Prices and Programme for Children. 4.40, Talk: The Danish Revellers, with Gramophone Illustrations. 5.15, Talk: Thoughts about Lour des. 5.35, Talk for Workers. 6.0, Talk:

The Struggle between Town and Country in the Seventeenth Century. 6.30, Weather for Farmers. 6.35, Concert by the Station Orchestra, conducted by Franz Marszalek: One Step, Epina (Schickel); Waltz from Frühlingstakt (Jos. Strauss-Boterer); Tango from Tempo sum (Pataky); Song Potpourri of Popular Melodies, Wir schlagen ein (Götzow). 7.10, European Concert, relay from Copenhagen. In an interval, Announcements. 9.15, Time, Weather, News, Sports Notes, and Programme Announcements. 9.35, Talk in Esperanto. 9.45, Talk: The Spreewald—the German Venice. 10.0 (approx.), Close Down.

BRNO 342 metres; 35 kW.—3.10 p.m., Concert by the Station Orchestra, conducted by B. Bakala: Overture, Sakuntala (Goldmark); Symphonic Poem, The Midday Witch (Dvorak); Yugoslavian Rhapsody, Op. 60 (Bend); Norwegian Artists' Carnival, Op. 11 (Svendsen). 4.10, News for Young People. 4.20, See Prague. 4.50, Educational Talk. 5.0, Literary Review. 5.15, See Prague. 5.25, German Transmission: News and a Sketch. 6.0, See Prague. 6.5, Elementary English Lesson. 6.20, Talk. 6.35, See Prague. 7.10, See Copenhagen. 9.15, See Prague. 10.0 (approx.), Close Down.

BRUSSELS (No. 1) 1.N.R., 509 metres; 15 kW.—12 Noon, Concert by the Little Station Orchestra, conducted by P. Leemans: Overture, Casanova (Lincke); Three Eastern Miniatures (Fischer); Piccolo, L'Echo des bois (Dunier); Selection from Sigurd (Reyer); Canzonetta for Violin (d'Ambrosio); Ballet Music from Faust (Gounod); Gläd'ge Frau, komm und spiel mit mir! (Heymann); Waltz from Bitter Sweet (Coward); Foxtro, Tiger Rag (La Rocca). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Records: March, The Rest of the Fair (Souza); A Musical Comedy Sketch (arr. Henry Hall); Fantasia for Clarinet on Rigoletto (Verdi); Strauss Waltz, Potpourri (Weber); Badmire (Camps); A qui mieux, mieux (Pillcoestre); Selection from The Maid of the Mountains (Fraser-Simpson). 5.0, Concert by the Symphony Orchestra, conducted by Jean Knipps: Selection from Carmen (Bizet); Invitation to the Waltz (Weber); Selection from Sylvia (Delibes). 5.30, Programme for Children. 6.0, A Lesson in Interior Decoration. 6.15, Gramophone Concert: Tintazet (Bax); Prélude a l'après-midi d'un faune (Debussy); Je vous amais et On dirait ce qu'on voudra, from Brummel (Hahn); Song from Hans the Flute-Player (Ganne); Babel of Cadet from Manuelle Nitouche (Herys); Blanche-Marie from Les petites Michus (Messager); Song from The Tales of Hoffmann (Offenbach); Humorous Gramophone Records. 7.15, Talk for Workers. 7.30, Gardening Talk and Wireless Notes. 8.0, Concert by the Radio Orchestra, conducted by Franz André;

March (Translatenr); Overture, ballet (Méhul); Waltz (Strauss). 8.15, Paquet Tenacity (Vidrac), arranged for Radio. 8.25, Talk: The Disarmament Conference. 9.0, Debussy Pianoforte Recital by Mlle. Jacoté. Minuet and Clair de lune, from the Suite bergamasque; Soirée dans Grenade and J'adins sous la pluie, from Estampes; La Cathédrale engloutie; La Pille aux cheveux de lin; Minstrels. 9.30, Concert by the Radio Orchestra, conducted by Franz André: Manolita (Borchard); Waltz, City of Love (Heymann); Christine Potpourri (Salabert); The Peanut Vendor (Gilbert); Stolz Potpourri. 10.0, Le Journal Parlé. 10.10, Concert of Old and Modern Dance Music, on Gramophone Records. 10.30, Gramophone Records: Habanera (Aubert); Spanish Rhapsody (Ravel) 11.0 (approx.), Close Down.

BRUSSELS (No. 2) 1.N.R., 338.2 metres; 15 kW. Programme in Flemish.—12 Noon, Popular Music on Gramophone Records. 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Little Station Orchestra, conducted by P. Leemans: Overture, Der Wildschütz (Lortzing); Suite, In the Gulf of Naples (Eidenberg); Spanish Waltz, La Serenata (Metta); Verdi Potpourri (Morena); Fantasia Impromptu for Pianoforte (Chopin); Vecchio minuetto (Sgarbi); Slav Dance (Dvorak). 5.0, Concert by the Radio Orchestra, conducted by Franz André: Liberty March (Kostal); Overture, La Classe du jeune Henri (Méhul); Selection from The Desert Song (Romberg); Spanish Dances (Sarate); The Bronze-saurus (Sykes); Foxtro, Viva Bamboula (Closset); Arlequin (Popper); Waltz, Lou du bal (Gillet); The Nutcracker Ballet (Tchaikovsky). 6.15, Talk: D. H. Lawrence. 6.30, Concert by the Little Station Orchestra, conducted by P. Leemans: Overture, Les hirondelles (Hirschmann); Ballet Scene (Aymonod); Selection from Le Grand Mogol (Andran); Cradle Song, Catinone della Manina (Corti); Waltz, Potpourri, Rheinfrieden (Strassé); Piece d'Agreves; Seldatini in parata (Linetta). 7.15, Literary Talk. 7.30, Programme for Women. 8.0, Nocturne from the Quartet in D Minor (Borodin) on Gramophone Records. 8.10, European Concert, relayed from Copenhagen. 10.15, Le Journal Parlé. 10.25, Dance Music from the St. Sauveur Palais de Danse. 11.0 (approx.), Close Down.

BUCHAREST 394 metres; 12 kW.—4.0 p.m., Concert of Light Music and Romanian Music by the Unico Orchestra. 5.0, News and Time Signal. 5.10, Talk. 5.25, Concert (contd.). 6.0, Talk on Romania: Motoring and Aviation. 6.30, Relay from the Opera House. In the intervals: News.

BUDAPEST 550 metres; 18.5 kW. Programme also relayed on 840 metres from 6.45 p.m. till Close Down. 1.0 p.m., Gramophone Concert. 2.0, Reading of Fairy Tales. 3.0, Concert of Gigan Music. 4.0, Agricultural Talk. 4.10, Choral Concert: Two Pieces (Volkmann); Im Gewitter; (b) Nachtmusik; Two Songs (de Adana); (a) Petruca, (b) Lied von Hut; Seguidilla (Bazin); Soldier Songs (Szeghő); Abschied (Seibel); Russian Songs (Dehewen). 5.15, A Radio Play. 7.10, European Concert, relayed from Copenhagen. 9.15, News and Sports Notes. 9.25 (approx.), Orchestral Concert, conducted by F. Friedl: Overture, Eva (Lehar); Waltz from Der lachende Ehemann (Eysler); Selection from Die Bayadere (Kálmán); Suraya (Siede); Quod Tamour meurt (Chernicus); Internonno (Mannfred); Potpourri (Peesi); Gondellied (Joh. Strauss); Narrissus (Nevin); Selection from The Cinema Star (Gilbert); March (Borsay).

CASSEL.—See Frankfurt.

COPENHAGEN 281 metres; 0.75 kW.; and KALUNDBOR, 1,153 metres; 7.5 kW.—11.0 a.m., Time and Chimes, from the Town Hall. 11.5, String Ensemble Concert, conducted by Max Skalko, relayed from the Hotel of Angleterre. 1.0 to 1.40 p.m., Interval. 1.40, Light Music on Gramophone Records. 2.10, Reading. 2.25, Orchestral Concert, relayed from the Wivax Restaurant. 4.0, Programme for Boys. 4.40, Exchange and Fish Market Prices. 4.40 (from the Aarhus Studio), Talk: The School Forecast. 5.20, English Lesson. 5.50, Weather Forecast. 6.0, News. 6.15, Time Signal. 6.15, Talk on Population Problems. 6.45, Danish Lesson. 7.10, European Concert, relayed from the State Broadcasting Building.—Danish Music by the Station Orchestra, conducted by Georg Heideberg: Soloist: Nies Hansen (Songs); Overture, Hakon 3-4 (J.P.E. Hartman); Andante from the Symphony No. 4 in B Flat, Op. 20 (Gade); Song from (a) The Witch (Enna), and (b) Vita-daka (Toll); Legend for Strings (Hoerberg); Prelude to Wavland the Smith (E. Høegh); Ten Minutes Interval; Symphony No. 5, Op. 50 (Carl Nielsen). 9.15, News. 9.30, Reading. 9.50, Dance Music from the Wivax Restaurant. In the interval at 11.0, Time and Chimes from the Town Hall. 11.10 (approx.), Close Down.

CORK.—See Dublin.

DANZIG.—See Heilsberg.
DRESDEN.—See Leipzig.

FEB. 2nd

THURSDAY

continued

DUBLIN

Call 2RN, 413 metres; 1.2 kW.; and GORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. 6.0, Popular Music on Gramophone Records. 6.15, Programme for Children. 7.0, Light Music on Gramophone Records. 7.10, Dublin Castle Market Report. 7.20, News Bulletin. 7.30, Time Signal. 7.51, French Lesson. 7.45, Literary and Dramatic Talk. 8.0, The Station Sextet. 8.30, Pianoforte Recital by Kitty Payne. 8.50, Tenor Solos by Hugh Davey. 9.5, The Station Sextet. 9.20, Soprano Solos by Edith Mirrison. 9.45, The Station Sextet. 10.0, Dance Music on Gramophone Records. 10.30, Time Signal, News, Weather Report, and Close Down.

FECAMP

223 metres; 10 kW.—10.0 p.m. till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: Them there Eyes; Always in all ways; My Sweet Virginia; Dreaming of my Indiana Sweetheart; When I take my Sugar to Tea; I apologise; Just you, just me; Moonlight on the Colorado; Must it end like this?; Memories of you; River stay 'way from my Door; That's Somerset; Why shouldn't I?; The Parade of the Minutes; When you were the Blossom; Koppa-ka-banna. 11.0, Organ and Song Recital, Organ Solo: A Perfect Day (Jacobs Bond); Songs: (a) Darby and Joan (Molloy). (b) The Flight of Ages (Bevan). (c) For all Eternity (Mascheroni); Organ Solo: Love's Old Sweet Song (Molloy); Songs: (a) My Treasure (Trevaiso). (b) The Children's Home (Cowan). (c) Vale (Russell). 11.30, Light Orchestral Concert: The Devil Dance (Peterson); Dance of the Raindrops (Reeves); The Wedding of the Birds (Peterson); Crazy Pionette (Frisk); We're Friends again (Turk); That Lindy Hop (Kazet); Baby's Birthday Party (Ronell); Song of the Islands (King). 12.0 Midnight, Recital of Duets and Pianoforte Solos, Pianoforte Solo: Selection from Bow Bell's (Sullivan); Duets: (a) In an Old World (McHugh). (b) Looking for Love (McHugh). (c) There's another Good Man gone Wrong (Beimett). (d) When you've gone (Werner). (e) Now I'm in love (Shapiro). (d) We're Uncomfortable (Butler); Pianoforte Solo: Selection from The Cat and the Fiddle (Kern). 12.30 a.m. (Friday), Organ Recital: The Sacred Hour (Ketchick); Till I Wake (Woodford-Finden); In a Japanese Garden (Higgs); Kashmiri Love Song (Woodford-Finden); Savanri Scenes (Fletcher); Falling in Love again (Holländer); Now I'm in love (Vollen); The Love Waltz (Heymann). 1.0, Variety Programme: All in Favour; The Alpine Milkman; Bandy Bertha's Birthday; There's a Good Time coming; Barnacle Bill; Baracky Bert the Soldier; Let's all have a Sing-Song; We all go on ha ha. 1.30, Vocal Duets: My Heart is where the Mohawk flows; Sweet Kentucky Lou; Would you take me back again; Wandering down Memory Lane; Why shouldn't I?; In Sleepy Hollow; Indiana Sweetheart; There's something in your Eyes. 2.0, Dance Music: Too many Tears; Listen to the German Band; We all know why; A Great Big Bunch of you; Is I in love? I is; Sweet sixteen and never been kissed; Wherever you are; We just couldn't say Good-bye; Bahama Mama; Moon; If you were only mine; Let's put out the Lights and go to sleep; Moonlight, the Danube and you; Maid about the Bay; You're my Everything; The Younger Generation. 2.57, I.B.C. Good-night Melody. 3.0 (approx.), Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW.; and CASSEL, 245.9 metres.—4.0 p.m., See Munich. 5.15, Economic Notes. 5.25, Topical Talk. 5.50, Talk: The Death of Employment for Young University Graduates. 6.15, Time, Programme Announcements, Weather, and Economic Notes. 6.20, Topical Talk. 6.30, See Stuttgart. 9.0, Popular Music on Gramophone Records. 9.20, Time, News, Weather, and Sports Notes.

FREDRIKSSTAD.—See Oslo.

FREIBURG.—See Stuttgart.

GENEVA.—See Radio-Suisse Romande.

GENOA.—See Turin.

CLEIWITZ.—See Breslau.

COTEBORG.—See Stockholm.

GRAZ.—See Vienna.

HAMAR.—See Oslo.

HAMBURG

Call ha (in Morse); 372 metres; 1.5 kW. Relay by Bremen, 270 metres; Flensburg, 227.4 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—5.55 p.m., Rienz—Opera in Five Acts (Wagner), relayed from the Municipal Theatre, Bremen. In the interval, Commentary on the Opera, by Dr. Zimmermann. 10.0, Time and News. 10.20, Ice Report. 10.25, Concert, relayed from the Café Wallhof.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW.; and DANZIG, 453.2 metres.—12.5 p.m., Popular Music on Gramophone Records. In the interval at 12.20, News. 2.0, Exchange Rates and Market Prices. 3.0, Talk for Young People: An Adventurous Film Expedition in Winter. 3.20, Concert by the Small Station Orchestra, conducted by Eugen Wleken: Overture, The Mandarin's Son (Chiu); Serenade (Rachmaninov); Hindi Song (Rinsky-Korsakov); Waltz Fantasia (Glinka); Selection from Halka (Moinuszko); Intermezzo and Scherzo (Mussorgsky); Divertimento (Tchaikovsky). 4.45, Review of Periodicals. 5.15, Agricultural Prices. 5.30, Agricultural Talk. 6.0, Song Recital by Ruth Schöbel; Four Folk Songs (arr. Reimann); (a) Norwegian Pastoral Song. (b) Finnish Folk Song. (c) Neapolitan Serenade. (d) Andalusian Song; Three Songs from Liebeslieder, Op. 10 (Gross); (a) Schwan ein junges Mädchen. (b) Hat mein Liebster. (c) Lass mein Kösslein satteln; Songs from Kinderlieder, Op. 142 (Reger); (a) Wiegenlied. (b) Schwalbenmütterchen. (c) Klein Eychlein; Gute Nacht, gute Nacht, from the Heimliche Lieder der Nacht, Op. 54 (Jos. Haas). 6.30, English Lesson for Beginners. 7.0, Weather and News. 7.10, Concert by the Königsberg Opera House Orchestra, conducted by Ludwig Leschitzky; Divertimento No. 11 in D (Mozart); Eine Nachtmusik, Op. 5 (Brand); Selection from Othello (Verdi); Prelude and Serenade from the Snowman (Korngold); Poème lyrique, Op. 12 (Glazunov); Tarentella (Liszt). 8.40 (from Danzig), Talk: The Modern World as seen by the Physicist. 9.10, Weather, News and Sports Results.

HILVERSUM

Announced HUIZEN, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—11.55 a.m. to 1.40 p.m., Programme of the Catholic Radio Society (K.R.O.). Concert by the K.R.O. Orchestra, conducted by Johan Gerritsen. 1.40 till Close Down, Programme of the Christian Radio Society (C.C.R.V.). 1.40, Lesson in Handicrafts. 2.40, Programme for Women. 3.10 to 3.40 Interval. 3.40, Bible Reading and Sacred Music. 4.40, Instrumental Concert, II. Hermann (Violin). K. Beyers (Cello), II. Hermann (Violin). K. Beyers (Cello), and Mlle. L. Lauenroth (Pianoforte and Organ); Largo (Handel); Allegro (Kruys); Melody (Frankel); Selection from Le Postillon de Lonjumeau (Adam); Selection from Martha (Flotow); Overture, Don Giovanni (Mozart). 5.25, Handwork for Young People. 5.55, Talk. 6.25, Dress-making Lesson. 6.40, Press Review. 7.10, Police Notes. 7.25, Religious Report. 7.50, Concert by the Amsterdam Orchestral Society, conducted by F. v. Diepenbeek; Triumphal March from Tannhäuser (Wagner); Overture, The Italian Girl in Algiers (Rossini); Entr'acte from Rosamunde (Schubert); Tessou mio (Beethoven); Selection from Il Travatore (Verdi); The Nigger's Dream (Myddleton). 8.40, Talk for Parents. 9.10, Concert (cont'd.): March, Hoch Heidecksburg (Herzer); Overture, Oberon (Weber); Adagio cantabile (Beethoven); Soldatentänze (Kerényi-Bela); Overture, Zampa (Hérold); Selection from The Geisha (Jones). In the interval at 9.40, News. 10.10, Variety Music on Gramophone Records. 11.10 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM; 1,875 metres; 8.5 kW. Programme of the Algemeene Vereeniging Radio Omroep (A.A.R.O.). 11.40 a.m., Time Signal. 11.41, Concert of Light Music. 1.40 p.m., Talk. 2.10, Interval. 2.25, Talk. 2.40, Popular Music on Gramophone Records. 3.40, Talk for Hospitals. 4.10, Variety Music on Gramophone Records. 4.40, Concert by the Station Orchestra, conducted by Nico Tremp. Overture, Rund um die Liebe (O. Strauss); Ballet russe (Lugini); Jota (Cools); Selection from Lilaie Time (Schubert-Berté); The Clock and the Dresden Figures (Kitelbey); In the Temple of the Bells (Yoshitomo); Frauentanz (Joh. Strauss); March, Germania (Blakenburg). 5.10 to 6.10, Interval. 6.10, Sports Notes. 6.40, Concert (cont'd.). Legend (Lindsay-Thiemer); Melody (Lehar); Selection from White Horse Inn (Benatzky-Krome). 7.10, English Lesson. 7.40, Time and News. 7.45, Concert by the Station Orchestra, conducted by Nico Tremp. Soloist: N. Roth (Violin); Overture, Anacron (Cherubini); Romance in F (Beethoven); Rhapsodic Dance, Bambula (Coleridge-Taylor); Polonaise in A (Wieniawsky); Waltz, Du und Du (Joh. Strauss); Two Spanish Dances (Moszkowsky). 8.40, Radio Play. 9.10, Concert of Light Music by the Kovacs Lajos Orchestra, Bob Schulte (Soprano). In the interval, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW. 6.0 p.m., Sports Notes. 6.15, Announcements and Opera Music on Gramophone Records. 6.20, Boy Scouts' Report. 6.25, See Warsaw. 9.25, Dance Music. 9.55, See Warsaw.

KAUNAS

1,935 metres; 7 kW. 4.40 p.m., Variety Programme. 5.0, Announcements. 5.10, Talk: Materials for Handwork. 5.30, Variety Programme. 6.0, Time Signal, Weather Report and News. 6.30, Concert of Light Music. 7.10, Talk. 7.30, Concert. 8.0, Talk in Esperanto: News from Lithuania. 8.20, Concert. 9.30 (approx.), Close Down.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres; 10 kW., and HELSINKI, 368.1 metres.—4.0 p.m., Concert by the Station Orchestra, conducted by Erkki Linko; In alter Frische (Steinbeck); Overture, The Nuremberg Doll (Adam); Romance, Far from the World (Wachs); Waltz from Gipsy Love (Lehár); Air from Katia the Dancer (Gilbert); Chaconne (Durand); Pierrot March (Bosc). 5.10, News in Swedish. 5.15, Agricultural Talk. 5.40, Song Recital by Väinö Hintikka. 6.5, Talk. 6.25, Pianoforte Recital by Timo Mikkilä. 6.45, News in Finnish and Swedish. 7.0, Introductory Talk to the following Relay. 7.10, European Concert, relayed from Copenhagen. 9.15 (approx.), Close Down.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert, conducted by Eysoldt, Soloist, Harry Sem (Cello). Manöverbilder-Marsch (Wolpert); Overture, Il Guarany (Gomes); Cello Solos: (a) Intermezzo, Granados; (b) Chant du Minstreil (Glazunov). (c) Après un Réve (Faure); Furlant from Schwanda the Piper (Weinberger); Selection from The Master-singers (Wagner); Suite, Aus aller Herren Länder (Moszkowsky); Liebeslied (Schütt); Patpourri, Was wir lieben (Ganzberger); Intermezzo, Entry of the Spring Flowers (Kockert). In the interval at 1.0 p.m., News. 1.30, Sponsored Programme, with Gramophone Records. 2.30, Economic Notes and Time. 2.50, Programme for Children. 3.10, Notes on the Broadcasts for Schools. 3.15, Educational Talk. 3.45, Astronomical Talk. 4.0, Orchestral Concert. 5.10, Talk: A Lost Animal Paradise in Westphalia. 5.20, French Conversation. 5.50, Weather, Time, Economic Notes, and Sports Results. 6.5, Talk: The History of the German Language. 6.30, The Rhenish Volcanic District and its Economic Development. 6.55, News. 7.0, Operatic Concert. The West German Chamber Orchestra, conducted by Hermann Spitz. Soloists: Helly Buschan (Soprano), Marita Gründgens (Soprano), and Joseph Bading Barfuss (Tenor). Commentary by Paul Gelly. 8.0, Der alte Fritz in Westfalen—a Radio Fantasy (Josef Winkler). 9.5, News and Sports Notes. 9.30, Serenade, conducted by Eysoldt. 11.0 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW.; and DRESDEN, 319 metres.—12.15 p.m., Famous Dance Bands on Gramophone Records. After the Dance Music, Exchange Quotations. 1.0, Film Review. 1.30, Talk, Unemployed Artists. 2.0, Programme for Young People: Games for Winter Evenings. 2.35, Exchange Quotations. 3.0, Concert by the Dresden Philharmonic Orchestra, conducted by Ernst Richter. Ballet Music from Dama Diana (Heinrich Hofmann); Wedding Music (Adolf Jensen); Dance of the Hours from La Gioconda (Ponchielli); Styrian Dances (Kienzl); Italian Serenade (Schubert); Music by Fall; (a) Prelude to the Third Act of Der liebe Augustin. (b) Waltz Song from The Girl in the Taxi. (c) Selection from The Rose of Stanboul. (d) Waltz Song and Foxtrot from Madame Pompadour. (e) Waltz from The Merry Peasant. 4.30 to 4.35, Weather and Time. 4.50, Exchange Quotations. 5.15, Notes on Taxation. 5.30, Spanish Lesson. 5.50, Talk: Twenty Years of the Kleist Prize. 6.0, Dialogue: Garden Solos. 6.30, Concert: Franz Baumann (Tenor), Erna Held (Soprano), Alfred Simon and Friedbert Sammler (Pianofortes); Two Polonaises for Pianoforte Duets (Schubert); Tenor Solos: (a) Maria della Salute (Baumann-Albott). (b) So im Vorübergeln (Baumann-Redl). (c) Es war am stillen Waldsee (Baumann-Krone). (d) Weit ist der Weg (Barney-Buder); Soprano Solos: (a) Ja, dort im Liechardt-tal (May-Pflanzner). (b) Das muss ein Stück vom Himmel sein (Heymann); Kleintänzerlein (Leo Blech); (a) March. (b) Mazurka. (c) Styrian Melody; Picnicella from A Picture-Book without Pictures, for Two Pianofortes (Oscar Strauss); Tenor Solos: (a) Was war es ohne Bonn (Buchhorn-Redl). (b) Ich hab ein Mädchen von dreimal sieben Jahren (Bau-

mann-Fresco). (c) Liehelen, gute Nacht (Baumann-Bransen); Two Viennese Songs for Soprano: (a) Dann zieht der Frühling ein (Stolz). (b) I muss eich wieder in Grünzing sein (Benatzky); Pianoforte Duets: Aus galanter Zeit (Karl Thiessen); (a) Waltz. (b) Mazurka. (c) Polonaise. 7.25, Hunted Folk—A Tragedy of the Thuringian Forest (Hermann Anders Krüger). 8.25, Part Relay of the European Concert from Copenhagen: The Fifth Symphony (Carl Nielsen). 9.10, News and Silent Night.

LINZ.—See Vienna.

LWOW

381 metres; 16 kW.—4.0 p.m., Concert. M. Boehm (Tenor), Mme. Zofja Szafran (Pianoforte) and Mme. Marja Dobrowska (Soprano): Mio caro Ieu (Giordano); Song (Loewe); Tenor Solos (Puccini), from (a) The Girl of the Golden West, and (b) Turandot; Pianoforte Solos: (a) Minuet (Schubert). (b) Ballad (Brahms). (c) Impromptu (Schubert). (d) Two Mazurkas (Chopin). (e) Despair (Gretchaninov). (f) Gavotte (Prokofley); Soprano Solos from Italian Opera. 5.0, See Warsaw. 5.55, Talk. 6.10, Light Music on Gramophone Records. 6.25, See Warsaw. 7.10, European Concert, relayed from Copenhagen. 9.15, See Warsaw. 11.0 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South-East. 8.50, Orchestral Concert, conducted by Gaston Billet. Soloists: Mlle. Michèle Dupond (Soprano) and M. Thibaud (Tenor). Overture, Il Guarany (Gomez); Songs: (a) Nadir's Aria from The Pearl Fishers (Bizet). (b) Offrande (Hahn); Two Melodies from the Masquerade Suite (Lacôme); (a) Cortège. (b) Harlequin and Columbine; Villanelle des petits enuards (Chabrier); Three Melodies from the Masquerade Suite (Lacôme); (a) Minuet. (b) The Mandoline Players. (c) Finale; Songs: (a) Chanson à la lune (Daberoze); Reverie (Raton); Scherzo (Paganelli); Susanna's Aria from Figaro (Mozart); Two Arias from the Ballet Suite (Siede); (a) Introduction. (b) Waltz; Songs: (a) Vergeblisches Ständchen (Brahms). (b) Träume (Wagner); Two Arias from the Ballet Suite (Siede); (c) Schottische. (d) Intermezzo Grottesque. After the Concert: News Bulletin.

MADRID

ARANJUEZ. Call EAQ, 30.43 metres; 20 kW.—10.30 p.m., Light Music. 10.45, Radio Review. 11.0, Light Music (cont'd.). 11.35, Tourist Talk. 11.40, Variety Music. 12.0 Midnight, Close Down.

MADRID

UNION RADIO, Call EAJ7, 421.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotations, Programme for Children and Request Gramophone Records. 8.15, News Bulletin. 8.30 to 9.0, Interval. 9.0, Linguaphone English Lesson. 9.50, Chimes and Time Signal, followed by Orchestral Concert, relayed from the Hotel Nacional. 11.45, News Bulletin. 12 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

253.8 metres; 11 kW.—5.50 p.m., German Transmission: Two Talks. 6.0, See Prague. 6.5, See Brno. 7.35, Concert from Copenhagen. 9.0, See Prague. 10.0 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—4.0 p.m., News. 4.10, Concert. 5.30, Concert, relayed from the Radio Theatre. 8.0, Talk in a Foreign Language (to be announced). 8.55, Time Signal. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 500 metres; and Nürnberg, 239 metres.—4.0 p.m., Concert by the Amy Rosenberger Chamber Quartet: Selection from L'Amico Fritz (Mascagni); Cello Solos: (a) Andante (Goltermann). (b) La cinquantaine (Gabriel-Marie); Du meines Herzens Krönlein (R. Strauss); Scherzade (Schmal-tich); Narcissus (Clemens); Waltz, Vive la danse (Waldteufel); Ein Tango macht verlieht (Karl); Waltz, Vielleicht bist du das grosse Glück (Erwin); Mein Schatz, ich bin in dein Parfum verliebt (Fäl); Pasodoble, Ins blaue Leben (Fäl). 5.15, Talk on Occupations. 5.35, Agricultural Talk. 5.55, Time, Weather and Agricultural Notes. 6.5, Talk: A Greek Week-end. 6.25, Variety Concert by the Station Orchestra: Part I, Music by Hermann Larsen. Conductor: The Composer: Antonius-Marsch; Waltz, Münchener Trübner; Ballet Fantasia, An die Sonne; Furlana de Naples, from the Dance Suite No. 1; Gavotte, Clarina; March, Untern Löwenbanner; Interlude: Watching the Ski-ers. Part II, Conductor: Karl List: Zingareza (Ellerton); Waltz, Estudiantina (Waldteufel); Humoresque (Rezer); Two Viennese Dances (Friedmann-Gärtner); Variations on

FEB. 2nd THURSDAY continued

Ein Prosit der Gemütlichkeit (Jakob). 7.50, Talk: Ideas held by People in the Far East about Germany. 8.15, Our Lady's Cathedral—a Radio Picture of the Frauenkirche, Munich (Ruth Schumann and Alfons von Zühlka). 9.20, Time, Weather, News and Sports Notes.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredrikstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres; and Rjukan, 447.1 metres.—4.0 p.m., Popular Music on Gramophone Records. 5.0, German Lesson. 5.30, Talk. 6.0, Announcements. 6.15, Weather and News. 6.30, Song Recital by M. Cvejeic. 7.0, Time Signal. 7.10, European Concert, relayed from Copenhagen. 9.15, Weather Report. 9.30, News Bulletin, followed by Topical Talk.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Agricultural Notes and Giornale Radio. 7.30, Time Signal Announcements. 7.45, Concert of Operetta Music: Extracts from: (a) The Girl in the Taxi (Gilbert), (b) The Merry Widow (Lehar). In an interval, Film Notes. 8.30, The bridge delle signore mature—Three-Act Comedy (Lucio d'Ambrà). 9.0, Concert of Operetta Music (cont'd.): Selection from: (a) Katja the Dancer (Gilbert), (b) The Dance of the Dragonflies (Lehar). 9.55, News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.25 a.m. and 10.25 p.m. (Preliminary and 6-dot signals).—5.45 p.m., The Journal Paris. 7.20, Weather Forecast. 7.30, Gramophone Concert: Selection from I Pagliacci (Leoncavallo); Intermezzo from Cavalleria rusticana (Mascagni); Ballet Music from Coppélia (Delibes); Mon vieux jardin (Dangereux); Mon jardin des roses (Bestier); Melody from The Desert Song (Romberg); Je ne saurais jamais dire ça; A Summer's Evening (Pietro); Mandolinata (Michaelis); Schatzwälder (Strauss); Viennese Potpourri (Kozak); Melody from Lilac Time (Schubert-Berte); Chinese Serenade (Siede); You are my Heart's Delight (Lehar); Madrid (Kotter); Entry of the Gladiators (Fucik). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN; 328.2 metres; 60 kW.—7.0 p.m., Programme for Children. 7.30, Sponsored Concert. 8.0, Variety Music on Gramophone Records. 8.15, Interval. 8.30, Literary Programme: Montmartre and the Latin Quarter. 9.0, Interval. 9.10, Instrumental and Vocal Concert. 10.0, Concert by the Alexander Scriabin Russian Orchestra, relayed from the Berry. 10.30, News.

PARIS

RADIO PARIS; Call CFR; 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (cont'd.). 7.45, Light Music on Gramophone Records. 8.0, Press Review and Weather. 12 Noon, Protestant Address. 12.30 p.m., Orchestral Concert. Part I: Programme for Children; Contes et Fantaisies (Chabrier); Children's Corner (Debussy). 1.0, Exchange, News and Weather. 1.15, Piano-forte Recital by Mlle. Jeanine Weill. 1.30, Exchange. 1.35, Orchestral Concert. Part II: Musical Comedy Music: Hallelujah, from Hit the Deck (Youmans); Song from Tip Toes (Gershwin); Selection from Nina Rosa (Romberg). 2.0, Exchange. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Gramophone Records; Overture, The Merry Wives of Windsor (Nicola); Songs from Le Petit Duc (Lecocq); Duets from La Fille de Madame Angot (Lecocq). 6.45, Legal Talk. 7.0, Talk. 7.20, Orchestral Concert: Tarass Boulba (Rossenau); Jota Navarra (Sarate); Chant du crémuscule (Pesse); Diversissements (Luzin). 7.45, Commercial Prices, News, and Review of the German Press. 8.0, La Cruche—Play (Courteline). In the intervals at 8.30, News and Weather; at 8.40, Review by Christopher; and at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA); 306 metres; 25 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—9.0 p.m., Work-a-day Thoughts. 9.5, Business News. 9.15, Programme to be Announced. 9.30, Weather Report. 9.32, Market Report. 9.45, Piano-forte Interlude. 9.50, David Lawrence Dispatch. 9.55, KDKA Artist Bulletin. 9.58, Programme Announcements. 10.0, Programme to be Announced. 10.30 to 11.15, New York Relay. 10.30, The Singing Lady. 10.45, Little Orphan Annie. 11.0, A. and P. Gipsies. 11.15, Time Signal. 11.16, Weather Report. 11.17, Teaberry Sport Review. 11.22, Press News-Reeler. 11.27, Strange Facts. 11.29, Temperature Report. 11.30, KDKA Orchestra. 11.45 to 12.30 a.m. (Friday), New York Relay. 11.45, Today's News, by Lowell Thomas. 12 Midnight, Pepsodent Amos 'n' Andy. 12.15 a.m., Carson Robinson and his Barbasol Buckaroos. 12.30, Westinghouse Parade. 1.0 to 4.1, New York

Relay. 1.0, Cape Diamond Lights. 1.30, Time Signal and Rin Tin Tin Thrillers. 1.45, Thurston, the Magician. 2.0, Death Valley Days. 2.30, Dancing Strings. 3.0, Mr. Twister. 3.15, Wilfred Glenn (Bass). 3.30, Jo May Bailey and Orchestra. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News Flash. 4.20, Heart Songs, by Louise Frayne. 4.30, Henry Halstead and his Californians. 5.0, Hotel McAlpin Orchestra, from New York. 5.30, Time Signal and Good-night.

PORSGRUND.—See Oslo.

POZNAN

335 metres; 1.9 kW.—6.5 p.m., Miscellaneous Items and Announcements. 6.25, See Warsaw. 7.8, Time Signal. 7.10, European Concert from Copenhagen. In the intervals, Theatre Notes and Announcements. 9.15, Topical Talk. 9.30, Talk, arranged by the Temperance League. 9.45, Time Signal, Sports, and Police Notes. 10.0 (approx.), Close Down.

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., See Brno. 4.10, Talk on Economics. 4.20, Programme for Children. 4.50, Variety Music on Gramophone Records. 5.5, Talk for Gardeners. 5.15, Talk for Workers. 5.25, News in German. 5.30, German Transmission. 6.0, News. 6.5, See Brno. 6.35, Sonata in C minor for Violin and Piano-forte, Op. 30, No. 2 (Beethoven), by S. Novak and Karl Solc. 7.10, European Concert, relayed from Copenhagen. In the interval at 8.0, Time Signal. 9.0, Time Signal. 9.15, News Bulletin. 9.30, Light Music on Gramophone Records. 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; LAUSANNE, 680 metres; and GENEVA, 760 metres.—11.28 a.m., Time Signal from Neuchâtel Observatory. 11.30, News and Weather Forecast. 11.40 (from Lausanne), Popular Music on Gramophone Records. 12.40 p.m. (from Lausanne), Financial Information. 12.45 to 2.28, Interval. 2.28, Time Signal from Neuchâtel Observatory. 2.30 (from Geneva), The Broadcasting Serenaders, conducted by J.-M. Pasche. 3.0 (from Lausanne), Conversations . . . by Mme. Breuleux. 3.20 (from Geneva), The Broadcasting Serenaders. 4.0 to 5.0, Interval. 5.0 (from Lausanne), Sports Talk. 5.20 (from Geneva), Esperanto Lesson. 5.35 (from Lausanne), Italian Lesson. 6.0 (from Geneva), News, Weather Forecast, and Report on the Work of the League of Nations. 6.15 (from Lausanne), Answers to Correspondence. 6.30 (from Geneva), Theatre Review. 7.0 (from Lausanne), Piano-forte and Cello Recital by Clara Haskil and André Lévy. 7.45 (from Lausanne), Song Recital by Mme. Doubentzoff. 8.15, Part Relay of the European Concert from Copenhagen. 9.15, News and Weather Forecast. 9.30 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather Report. 8.40, Musical Programme and Announcements. 9.0, Chimes and News. 9.30, Reading. 10.0, Concert by the Station Quartet: Soloist: Georg Takács (Violin). After the Programme: Symphonic Variations (César Franck) on Gramophone Records.

RJUKAN.—See Oslo.

ROME

Call IRO, 441 metres; 50 kW. Relayed by Naples, 319 metres, and 2RO, 25.4 metres.—7.0 a.m., Gymnastics. 7.15 to 7.30, Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Orchestral Concert. In the interval from 12.30 to 12.45, Giornale Radio and Exchange. 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.30 to 5.15, Orchestral Concert: Madriena (Tagliaferri); Siciliana canora (Mullé); Second Waltz (Roland); Selection from Cavalleria rusticana (Mascagni); Romance (Lohr); Ragazza d'Orgi (Mascagni); Selection from Endlich allein (Lehar); The Flight of the Bumble Bee (Rimsky-Korsakov); Madrid (Alex). 6.0, Giornale Radio. 6.10 (Naples), Shipping and Sports Notes. 6.15, Agricultural Report and Announcements. 7.0, Time and Announcements. 7.2, Talk. 7.15, Popular Music on Gramophone Records. 7.30, Sports Notes and Tourist Report. 7.45, Orchestral Concert, conducted by Riccardo Santarelli, with Nino Rossi (Piano-forte); Largo for Strings, Harp and Organ (Bandoli); Concerto in C Minor for Piano-forte and Orchestra (Giovanni Platini); Allegro da concerto for Piano-forte and Orchestra (Podrolo); The Fifth Concerto in E flat for Piano-forte and Orchestra (Beethoven); Nocturne (Martucci); Rhapsody, España (Chabrier). In the intervals, Cinema Review and Talk on Literature and Art. 9.55, News Bulletin.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY, W.G.Y., 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres, and by W2XAD on 19.56 metres.—12 Midnight, Jane Froman, from New York. 12.15 a.m. (Friday), Stock Reports. 12.30 to 3.0, New York Relay. 12.30, Regimentalists. 12.45, The Goldbergs. 1.0, Fleischman Hour. 2.0, Captain Henry's Show Boat. 3.0, Lucky Strike Hour and Programme Resumé.

SCHWEIZERISCHER

LANDESENDER

BEROMUNSTER, 459 metres; 60 kW.; BASEL, 244.1 metres; and BERNE, 245.9 metres.—11.28 a.m., Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40 (from Basle), Concert by the Kiehlin Theatre Orchestra, conducted by S. Kremo. 12.35 to 12.40 p.m., Weather and Exchange. 2.30 (from Berne), Talk for Women. 3.0, Waltzes on Gramophone Records. 3.30, Popular Songs of Today and Yesterday on Gramophone Records. 4.0, Marches on Gramophone Records. 4.30 to 4.35, Weather. 5.30 (from Basle), Talk with Gramophone Illustrations: Impressions of Central Africa. 6.0, Time, Weather and Traffic Report. 6.15 (from Basle), Talk in Italian. 7.0 (from St. Gall), Wagner Concert by the St. Gall Concert Society, conducted by Dr. Othmar Schoeck; Soloist, Dr. Max Hirzel of Dresden. 8.15, Weather and News. 8.25, Part Relay of the European Concert from Copenhagen. 9.15 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,345 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—4.5 p.m., Studio Service, relayed from Uppsala (453.2 metres). 4.30, Programme for Children. 4.45, Popular Music on Gramophone Records. 5.45, Elementary English Lesson. 6.15, Weather and News. 6.30, Talk on Economics, relayed from Malmö (231 metres). 7.10, European Concert, relayed from Copenhagen. 8.15, Topical Talk. 8.45, Weather and News. 9.0, Orchestral Concert of Light Music. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Modern French Music on Gramophone Records. 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Variety Music on Gramophone Records. 2.0, Programme for Children. 3.0 to 4.15, Interval. 4.15, Elocution Lesson. 4.30, Programme for Children, relayed from Bordeaux-Lafayette. 6.0, History Talk. 6.15, Talk on the Consumption of Fish. 6.30, Orchestral Concert, conducted by Roskam: March, Kansas City (Benoit); Waltz, Winter Storms (Fucik); Overture, Casanova (Lincke); Cello Solo, Selection from Die Fledermaus (Strauss); Suites pour mes petits amis (Pieme); Valse poudrée (Popy); March (Rosey). 7.30, Time and News. 7.45, Light Music on Gramophone Records. 8.25, Lottery Results. 8.30, Symphony Concert by the Station Orchestra, conducted by M. de Villers. Soloist, M. Briquetteur (Viola); Scottish Symphony (Mendelssohn); Viola Solo, Symphonic Poem, Harold in Italy (Berlioz); Overture, Le Carnaval Romain (Berlioz). 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and FREIBURG, 570 metres.—12.30 p.m., Concert from Langenberg. 1.0, Sponsored Concert. 1.30, Sponsored Lesson. 2.0, Elementary English Lesson. 2.30 to 3.30, Programme for Children from Frankfurt. 4.0, See Munich. 5.15, Time, Weather and Market Prices. 5.25, Talk: The A.B.C. of the Art of Life. 6.5, Talk: What is Technocracy? 6.15, Time and News. 6.30, Zither and Guitar Recital, Part I: Zither Music: Romance (Bauer); Im chambre séparée from Der Opernball (Heuberger); Vöglein in den Zweigen (Obermaier); Waltz, Rose mousse (Bose). Part II: Guitar Music: Minuet, Op. 22 (Sor); Andante (Moreno Torroba); Mandolinata (Heinrich Albert); Tango (Francisco Tarrega). 7.10, European Concert, relayed from Copenhagen. 9.15, Time, News, Weather and Programme Announcements.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW. 6.0 p.m., News. 6.15, Overture, Le roi d'Ys (Lalo). 6.30, Programme for Children. 7.0, Accordion Music. 7.15, News, Racing Results and Market Prices. 7.25, Local News. 7.30, Light Music. 7.45, Hunting Horn Solos. 8.0, A Viennese Orchestra. 8.30, Operatic Airs from: (a) Sigurd (Reyer), (b) Le Jongleur de Notre Dame (Massenet), and (c) La Favorita (Donizetti). 8.45, Orchestral Music. 9.0, Extracts from Mireille—Opera (Gounod). 9.30, Instrumental Music: Opera are Mine (Whit-

ing); Minuet (Boccherini); A little Love (Silesu). 9.45, Operetta Airs, followed by Military Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco—Selection from The Queen of Spades (Tchaikovsky); O Paradis, from L'Africain (Meyerbeer); Tales from the Vienna Woods (Strauss); Accordion Solo (Raiter). 11.0, Orchestral Concert: Bourrée fantasque (Chabrier); Melody (Weinberger); Was it a Dream? (Coslov); Overture, Rannutche (Pieme). 11.30, Programme in English by the I.B.C.: Cheerful little Earful; Dawn in a Sussex Farmyard—a Sketch; Saxophone Solo: Happy Days are here again; Humorous Item: The Singing Lesson; Lucky me, lovable you; Chorus: The Wolf at the Door; Evening in the Village Inn—Sketch; You are the Melody. 12.0 Midnight, Weather and Announcements. 12.5 a.m. (Friday), Dance Music. 12.15, Vocal Tangos. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—6.0 p.m. till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relayed by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—6.0 p.m., Giornale Radio. 6.10, Light Music on Gramophone Records. 6.25, Tourist Report. 6.30, Time, Announcements, and Variety Music on Gramophone Records. 7.0, Giornale Radio. Weather, and Gramophone Records (cont'd.). 7.20, Talk for the Housewife. 7.25, Variety Music on Gramophone Records. 7.30, Reading from the Twenty-first Canto of Dante's Inferno. 8.0, Relay of an Opera. In the intervals: Talk on Science, Literary Report, and Giornale Radio.

VATICAN CITY

19.84 metres (Morning) and 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

517 metres; 15 kW. Relayed by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218.5 metres.—4.0 p.m., Orchestral Concert: March from Der Teufelsreiter (Kálmán); Waltz, Wiener Gmüät (Schramm); Eysler Potpourri (Irlhuby); Intermezzo from the Ballet, Nala (Delibes); In the Mystic Land of Egypt (Ketilbey); Foxtroh, Mein Schatz, ich bin in dein Parfüm verliebt (Richard Fall); Potpourri, Wie kurbeln ar (Dostal). 5.5, Talk: Technical Progress and Western Civilisation. 5.30, Talk: What is Good Form? 5.55, Talk: Oil as a Fuel for Central Heating Systems. 6.20, Time, Weather, Sports, and Programme Announcements. 6.30, Choral Concert by the Austrian Railwaymen's Choral Society, relayed from the Konzerthaus; Soloist: Georg Maikl (Songs); Introduction and Waltz from Fasching (Kienzl); Serenade (Szekely Demeny); Zapfenstreich (Grossmann); Two Folk Songs (arr. Plätzender); (a) Die kleine Rekrut, (b) Mädel, ruck, ruck, ruck, ruck, Liebeslieder (Joh. Strauss-Führer). 7.5, Concert from Berlin (Witzleben). 8.5, News, Weather, and Announcements. 8.25, European Concert, relayed from Copenhagen. 9.15, Snow Report. 9.30, Concert of Chamber Music, relayed from the Krantz-Ambassador Hotel; Gustav Macho (Violin), Eugen Billig and Fritz Spielmann (Piano-forte).

WARSAW

1,411 metres; 120 kW.—10.58 a.m., Time Signal and Bangle Call from St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Weather Forecast. 11.15, Beethoven Concert by the Warsaw Philharmonic Orchestra, conducted by B. Wolfstal. Soloist, Mme. Donska (Piano-forte). Overture, Coriolanus; Piano-forte Concerto in G, Sinfonia Eroica, No. 3. In an interval, Topical Talk. 1.0, Agricultural Bulletin. 1.20, Musical Programme. 1.40, Agricultural Talk. 2.0, Musica Programme. 3.0, Programme for Children. 3.25, Popular Music on Gramophone Records. 3.45, Talk on the Sigismund Column in Warsaw. 4.0, Song and Violin Recital by Anita Romanowska-Radzka (Violin) and Junelli Trembicki (Bass); Violin Concerto in E minor (Nardini-Hauser); Bass Solos: (a) Prayer from La Juive (Halévy), (b) Aria from Salvatore Rosa (Gomez), (c) Ballad from Faust (Gounod); Violin Solos: (a) Gavotte in E (Bach-Kreisler), (b) Minuet (Debussy). Bass Solos: (a) Aria from Robert le Diable (Meyerbeer); (b) Song from Don Giovanni (Mozart), (c) Mephistopheles Serenade (Carulli); Violin Solos: (a) Song without Words (Mendelssohn), (b) Perpetuum mobile (Ries). 4.55, Programme Announcements. 5.0, Light Music, relayed from the Restaurant Crystal. In the interval, News. 5.0, Miscellaneous Items. 6.25, Reading. 6.55, Introductory Talk to the following Transmission. 7.10, See Copenhagen. 9.15, Sports Notes. 9.30, Dance Music on Gramophone Records. 9.55, Weather Report for Aviators, and Police Notes. 10.0, Dance Music, relayed from the Café Gastronomica. 11.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landessender.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—5.0 p.m., Trio Concert: Selection from (a) Madame Butterfly (Puccini); (b) The Rhinegold (Wagner); Minnet (Ganne); Pastorale (Loyreglio); Serenade (Rachmaninov); Selection from The Cid (Massenet). 7.0, Request Gramophone Concert. 7.30, Exchange. 8.0, Popular Music on Gramophone Records and News. 9.0, Chimes, Weather, Messages for Seamen, Exchange, and Market Prices. 9.10, Concert by the Station Orchestra: March, Manhattan Beach (Souza); Noche en la bahia de Palma (Turina); Valse triste (Sibelius); Overture, The Ruins of Athens (Beethoven). 9.30, See Madrid (EAJ7). In an interval at 11.0, News. 12 Midnight (approx.), Close Down.

BARI

270 metres; 20 kW. 7.0 p.m., Agricultural Notes, Tourist Talk, and Announcements. 7.20, Giornale Radio and News Bulletin. 7.30, Time Signal and Announcements. 7.35 (approx.), Concert of Opera Music; Soloists: Lino d'Angelo (Baritone) and Milena Barberio (Soprano); Overture, Oberon (Weber); Baritone Aria from Don Giovanni (Mozart); Selection from Martha (Flotow); Soprano Solo from Gloria (Cilea); Selection from Act IV of André Chénier (Giordano); Baritone Aria from La Favorita (Donizetti); Soprano Aria from Turandot (Puccini); Overture, The Bohemian Girl (Balfe); Soprano Solo from Gianni Schicchi (Puccini); Baritone Solo; Song from Hamlet (Thomas); Selection from Adma (La Rotonde); Soprano Aria from Adriana Lecouvreur (Cilea). In the interval, Sports Talk. 9.40, Concert relayed from the Gran Café del Levante. 9.55, News Bulletin.

Basle.—See Schweizerischer Landessender.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—11.55 a.m., Nansen Time Signal. 12.35 p.m., News Bulletin. 1.0, Gramophone Concert from Berlin (Witzleben). 2.0, Talk for Girls. 2.30, Weather and Exchange. 2.45, Reading (Max Mohr). 3.0, Educational Talk. 3.30, See Leipzig. 4.10, Talk: The German University at Dorpat. 4.50, Talk: Christianity and the New Nationalism. 5.0, Beethoven's Piano-forte sonatas: Sonatas in G and G Minor, Op. 49; Sonata in G, Op. 79. 5.30, Talk on Health: What is Rheumatism? 5.55, Weather and Announcements. 6.0, Talk: Chemistry as an Aid in Germany's Struggle to obtain Food. 6.30, A Poem. 6.35, Concert from Frankfurt. 7.0, Talk by Kurt Sell: What People are talking about in America, relayed from America. 7.15, Concert from Frankfurt (cont'd.). 7.30, Self-Criticism in Germany—A Radio Sequence (Karl Ramehl). 8.10, See Leipzig. 9.10, Weather, News, and Sports Notes. 9.45, Weather Report for Shipping, followed by Gipsy Concert from Budapest. 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—6.0 p.m., Topical Talk. 6.10, Wireless Technical Report. 6.35, Maria Rubino reads from her own Works. 7.0, Talk by Kurt G. Sell: What People are talking about in America, relayed from America. 7.15, Der Kellermeister—Operetta in Three Acts (Zeller). In the interval at 8.5 (approx.), News and Sports Notes. After the Operetta, Second News Bulletin. 9.15 (approx.), String Quartet in A Minor (Zschornich), by the Kniestadt Quartet, relayed from the Singakademie. 9.30 (approx.), Gipsy Music from Budapest. 11.0 (approx.), Close Down.

Berne.—See Schweizerischer Landessender.

Beromünster.—See Schweizerischer Landessender.

Boden.—See Stockholm.

Bodo.—See Oslo.

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—7.30 p.m., News Bulletin. 7.40, Educational Talk. 7.55, Lottery Result. 8.0, Spanish Lesson. 8.15, News Bulletin. 8.30, Symphony Concert. After the Concert, Entertainments Guide and Time Signal.

BRATISLAVA

279 metres; 11 kW. 5.25 p.m., Song Recital: Aria from L'Enfant Prodigue (Debussy); Four Bergerettes (Weckerlin). 5.45, Slovak Spelling Lesson. 6.0, See Prague. 6.20, Concert of Light Music. 6.50, See Brno. 8.0, See Prague. 9.15 (approx.), Close Down.

Bremen.—See Hamburg.

BRESLAU

325 metres; 60 kW., and GLEIWITZ, 253 metres.—12.5 p.m., Weather for Farmers. 12.7, Gramophone Concert: Overture, Der Wildschütz (Lortzing); Ständchen (Haydn); Waltz from the Serenade, Op. 48 (Tchaikovsky); Old Dances and Arias (Bespighi); Polonaise, No. 2 (Liszt). 12.45, Time, Weather, News and Exchange. 1.5, Gramophone Concert (cont'd.): Selection from Der Bettelstudent (Müllacker); Wenn zwei sich lieben, from Der Kastellbinder (Lohar); Glow-worm Idyll, from Lysistrata (Lincke); Küssen ist kein' Sünd, from Bruder Straubinger (Eysler); Nur für Natur, from Der

FRIDAY FEBRUARY THE THIRD PRINCIPAL EVENTS OF THE DAY: AT HOME NATIONAL Light classical concert. "The Cinema," by Argus. Music by Frederic H. Cowen, orchestral concert. Three plays: "The Hatchet" (Edward Lewis), "Forward, Please" (Althaus), "The Monkey's Paw" (W. W. Jacobs). Dance music. Instrumental concert. The Radiotomists' Concert Party. Military Band programme. Light music. Choral programme. Scottish Regional programme. "British Composers," orchestral concert. Organ music. Orchestral concert. "Scrapbook," feature programme by L. W. A. Baily. National programme. LONDON REGIONAL MIDLAND REGIONAL NORTH REGIONAL WEST REGIONAL SCOTTISH REGIONAL BELFAST Organ recital. Dance music. Music of American composers. ABROAD BARI Concert of opera music. BRUSSELS (No. 1) Concert by the Symphony Orchestra, conducted by A. Meulemans. COPENHAGEN Cello solos and Mandoline concert. EIFFEL SYMPHONY CONCERT, conducted by M. Flament. TOWER Gipsy programme for orchestra, choir, and soloists. LANGENBERG Symphony concert by the Philharmonic Orchestra, conducted by G. Eitelberg. WARSAW

Justige Krieg (Joh. Strauss); Canzonetta, from Gasparone (Müllacker); Luna-Walzer, from Fran Lina (Linke). 1.45, Sponsored Programme with Gramophone Records. 2.0, Agricultural Prices. 2.40, Talk for Young People. 3.10, Concert by the Station Orchestra, conducted by Franz Marszalek; Märkische Heide-Marsch (Linke); Waltz, Königskinder (Lohr); Melody (Lohr); March Intermezzo, Puppen-Revue (Pretsch); Selection from The Land of Smiles (Lehár). 4.30, Agricultural Prices. 4.35, Talk: Leaders and Armies of the Great War. 5.0, Hans Heyck reads from his own Works. 5.30, Topical Talk. 6.0, Review of New Gramophone Records. 6.30, Weather for Farmers. 6.35, Gramophone Concert: Overture, Der Rosenkavalier (R. Strauss); Abendlied (Schumann); Après un rêve (Fauré); Prelude (Jännefelt); Polovtsian Dances from Prince Igor (Borodin). 7.0, Talk: Art in the Counter-Reformation Period. 7.30, Roccoo Suite, Op. 65, for Soprano, Violin, Cello and Piano-forte (Zilcher). 7.50, News. 8.0, Der preussische Achill (The Prussian Achilles, Prince Louis Ferdinand—a Radio Play (Josef Bekhern)). With Music. 9.15, Time, Weather, News, Sports Notes and Programme Announcements. 9.30, Answers to Technical Wireless Queries. 9.40, See Budapest. 11.0 (approx.), Close Down.

BRNO

342 metres; 35 kW.—3.10 p.m., Concert by the Station Orchestra, conducted by B. Bakala. 3.55, Theatre Notes. 4.5, See Prague. 5.5, Talk: Creative Art. 5.15, Talk for Workers. 5.25, German Transmission: News, Sports Notes, and Opera Music on Gramophone Records. 6.0, See Prague. 6.20, Piano-forte Recital: Sonata in A (Mozart); Spring Sonata, Op. 54, No. 1 (Novak); Sonata in E Minor (Axman). 6.50, A Musical Play. Music by the Station Orchestra, a Band and Mixed Choir. 8.0, See Prague. 9.15 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—12 Noon, Gramophone Concert: Overture, Châl Romano (Kettlhey); Waiting at the End of the Road (Berlin); Cuckoo Suite (Kettlhey); Kentucky Babe (Gebel); Jungle Drums (Kettlhey); Sing you sinners (Coslow-Hardin); Air with Variations on a Swiss Theme (Molnar); Second Hungarian Rhapsody (Liszt). 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Little Station Orchestra, conducted by P. Lecmans; Overture, Cotillon III (Cassades); Suite pour mes petits amis (Pierini); Sérénade Florentine (Godard); Ballet Music from Ballet (Thomas); Ballad for Piano-forte (Dupuis); The Springtime of Love (Kalkman); Humorous Piece (Aludi); Fox-trot, Tell me tonight (Spoliansky). 2.0, Educational Programme. 5.0, Concert by the Station Orchestra, conducted by P. Lecmans. Overture, Jean de Paris (Boieldieu); Eley

(Rachmaninov); Suite, En Vacances (Rhené-Baton); Dance (Ladmirault); Romance for Cello (d'Agrières); Selection from The Mask (Hubay); Pastorale for Piano-forte (Sgarlatti-Tausig); Third Little Suite (de Micheli). 6.0, Talk: A Moral Crisis. 6.15, Gramophone Records: Allegretto, Presto, and Allegro con brio from the Seventh Symphony (Beethoven). 6.45, The Harpsichordists: Piano-forte Recital by Oscar Delvigne: Prelude and Fugue in G Minor (Bach); Prelude and Fugue in B Flat (Bach); Aria from the Concerto in F Minor (Bach); L'Égyptienne (Rameau); Musette and Ronde (Rameau); La Victoire (Rameau); Three Pieces in D, D Minor, and A (Sgarlatti). 7.15, Talk: The Middle Classes. 7.30, Agricultural Talk and Literary Review. 8.0, Concert by the Symphony Orchestra, conducted by Arthur Meulemans: March from Tannhäuser (Wagner); Overture, William Tell (Rossini); Serenade (Pierini); Ballet Music from Coppélia (Delibes); In the Steppes of Central Asia (Borodin); Rhapsody, España (Chabrier). 8.45, Talk: The Economic Organisation of the Ministry for Foreign Affairs. 9.0, Concert (cont'd.): Scènes pittoresques (Massenet); Song from Hérodiade (Massenet); Napoli (Charpentier); Estudiantina (Waldteufel); Songs: (a) Le pouqui, from Lakmé (Delibes); (b) Petite table, from Mignon (Massenet); Dances from The Bartered Bride (Smetana). 10.0, Le Journal Parlé. 10.10, Gramophone Concert: Minuet Op. 11, No. 1 (Paderewski); Sinfietta (v. Blom); Waltz, Sphäroklänge (Strauss); Romance, from Martha (Flotow); Regimella (Lama); Golliwog's Cake Walk (Debussy-Choincé); Norwegian Bridal Procession (Grieg); Messenger, Potpourri (Berville); Soirées de Vienne (Schubert-Liszt); Selection from The Mastersingers (Wagner). 11.0 (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish. 12 Noon, Concert by the Little Station Orchestra, conducted by P. Lecmans; Overture, Phèdre (Massenet); In the Temple of the Bells (Yoshitomo); Ballad, Suite from Ascanio (Saint-Saëns); First Movement from the Spanish Symphony for Violin (Lalo); The Bird of Love (Grieg); Fantastic Rhapsody for Piano-forte (Doubey), played by the Composer; Potpourri Fortissimo (Kálmán). 1.0 p.m., Le Journal Parlé. 1.10, Acts I and II of La Bohème (Puccini), on Gramophone Records, by the Cast of the Milan Scala. 2.0, Educational Programme. 5.0, Dance Music from the St. Sanyem Palais de Danse. 6.15, Schubert's Songs on Gramophone Records: Die Krähe; Die Post; Die Forelle; Liebesbotschaft. 6.30, Concert by the Little Station Orchestra, conducted by P. Lecmans: Festival Overture (Lantour); Medieval Suite, The Minstrel (Anadi); Night in the Bay of Palma (Turina); Eley for Violin (Delcroix); Weber, Potpourri (Taven); Marche l'ombre d'une Mousmé

(Gabriel Marie). 7.15, Talk on Economics. 7.30, Wireless Notes. 8.0, A Radio Play (Hjalmar Bergman), translated by Dr. A. Jacob from the Swedish. 10.0, Le Journal Parlé. 10.10, Light Music on Gramophone Records. 11.0 (approx.), Close Down.

BUCHAREST

594 metres; 12 kW.—4.0 p.m., Concert by the Station Orchestra: March (Brahms); Waltz from Faust (Gounod); Overture, Le Maçon (Anber); Selection from Lohengrin (Wagner); Leuchtkäfchen's Stellchlein (Linke). 5.0, News and Time Signal. 5.10, Talk. 5.25, Concert (cont'd.): Romance, Die Geliebten (Schmalstieg); Selection from Der Orlov (Granievskien); Intermezzo, Bit et Bob (Denaret); Fox-trot, The Bat (Kochmann). 6.0, Talk on Romania: Her Telegraph and Postal Service. 6.40, Light Music on Gramophone Records. 7.0, Symphony Concert by the Philharmonic Orchestra, conducted by M. Perlea: Prelude and Death of Isolde from Tristan and Isolde (Wagner); Six Songs and a Rumba (Jora); Concerto for Piano-forte and Orchestra (Ravel). 8.0, Talk. 8.15, Symphony Concert (cont'd.): Symphonic Poem, Also sprach Zarathustra (R. Strauss). 8.45, News Bulletin.

BUDAPEST

550 metres; 18.5 kW. Programme also relayed on 840 metres from 8.45 to 11.0 p.m.—4.0 p.m., Gramophone Concert of Light Music. 5.0, Shorthand Lesson. 5.20, Song and Violin Recital, by Tibor Szentimihaly and Wilhelm Teutsch. 6.20, Talk: The Hungarian Weimar in the Eighteenth Century. 6.45, Caramba—Operetta in Three Acts (Munoz Seca and Perez Fernandez), followed by Gipsy Music from the Hotel Hungaria.

Cassel.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW., and KALUNDBORG, 1,153 metres; 7.5 kW.—11.15 a.m., German Lesson for Schools. 11.45, Concert by the Harald Andersen String Ensemble, relayed from the Bellevue Strandhotel. 1.0 to 2.0 p.m., Interval. 2.0, Concert by the Radio Wind Instrument Orchestra, conducted by Lanny Gründahl. Soloist: Minna Poulsen (Violin); Entry March of the Boyards (Halvorsen); Overture, Stradella (Flotow); Selection from The Daughter of the Regiment (Donizetti); Melody from El Folkesang (Gade); Mazurka (Fahrbach); Florentine March (Pueck); Violin Solos: (a) Romance (Grazmov), (b) Scherzo (Dittersdorf-Kreisler), (c) La Gitana (Kreisler); National Emblem March (Bjerg); Overture, Czar and Carpenter (Lortzing); Au moulin (Gillet); Selection from Babes in Toyland (Herbert); Mazurka, La Czernia (Ganne); Frode's Aria from Frode (Reingaard); Gallop, Husarenattaque (Ellenberg). 4.0, Programme for Children. 4.40, Exchange and Fish Market Prices. 4.50, Talk. 5.20, German Lesson. 5.50, Weather. 6.0, News. 6.15, Time. 6.30, Talk: Political Culture. 7.0, Time Signal from the Town Hall. 7.1, Programme by Per Kuntzon. 7.10, Concert of Sacred Music relayed from Christiansburg Castle Church. The Chamber Orchestra and the Copenhagen Boys' Choir, and a Male Voice Choir, conducted by Mogens Wöldike. Soloists: Bernhard Christensen (Organ), Agnete Zacharias, and J. Andersen (Songs). Organ Solo: Turecata (Frescobaldi); Gloria, from Tu es Petrus (Palestrina); Pater noster (J. G. Handl). Organ Solo (J. M. Bach); Jesus as a Boy in the Temple, Biblical Scene for Soloists, Choir, Strings, and Organ (Schütz). 7.50, Lethe—Radio Play in Two Scenes (A. Dons). 8.35, Piano-forte Solos by Viktor Fischer: Romance in D flat (Cherque); Three Preludes (Harsanyi). 8.45, Heritage—Radio Sketch (Kori Towska). 9.0, News. 9.15, Cello Solos by Karl Bjørnhoj: Sarahande (Händel); Twelve Variations on a Theme by Handel (Beethoven). 9.35, Mandoline Concert by the Venetian Trio. Soloist: Aase Wallenström (Songs). Pastorale, from Daphnis and Chlör (Hansen); Two Airs (Petersen); Two Songs, with Mandoline Accompaniment; The Mill (Jensen); Stille (Albert Frank); Polka-Mazurka, Helga (Lundbye); Two Songs, with Mandoline Accompaniment. 10.5, Dance Music by Tonny Boston's Dance Band relayed from the Lodbjerg Restaurant. In an interval at 11.0, Time Signal from the Town Hall. 11.30 (approx.), Close Down.

Cork.—See Dublin.

Danzig.—See Heilsberg.

Dresden.—See Leipzig.

DUBLIN

Call 2RN, 413 metres; 1.2 kW., and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. 6.0, Popular Music on Gramophone Records. 6.15, Programme for Children. 7.0, Variety Music on Gramophone Records. 7.20, News Bulletin. 7.30, Time Signal. 7.31, Talk on Gardening. 7.45, Reading of Poems by Cathleen Murphy. 8.0, Concert by the Augmented Station Orchestra, conducted by V. O'Brien. 8.30, Soprano Solos by Mary B. Collins. 8.50, Piano-forte and Violin Duets. 9.10, The Augmented Station Orchestra. 9.30, Rencontre—Sketch (Andrew Wright) by the Studio Players. 10.0, The Augmented Station Orchestra. 10.30, Time Signal, News, Weather Report, and Close Down.

FECAMP

223 metres; 10 kW.—10.0 p.m. till Close Down, Programme in English by the I.B.C. 10.0 p.m., Concert: Cheerful little Earl; Every Day away from you; Fire in my Heart; Hurt; Just two Hearts and a Waltz Refrain; You call it Madness; Lonely Troubadour; You're the one I care for; My Mystery Girl; You're lucky to me; My Marguerita; Moonlight Saving-Time; Thoughts of you; The Wedding of the Birds; Tie a little String around your Finger; When it's sunset on the Nile. 11.0, Vocal and Orchestral Concert: Overture, Figaro (Mozart); Aria from The Magic Flute (Mozart); Vulcan's Song from Philemon and Baucis (Gounod); Aria from Figaro (Mozart); Song, I rage, I melt, I burn (Händel); Aria from The Barber of Seville (Rossini); Aria from Acis and Galatea (Händel); Selection from Il Seraglio (Mozart). 11.30, Orchestral Concert: Selection from Morning, Noon, and Night (Suppe); Air de Ballet (Herbert); Molly on the Shore (Grainger); Down by the Old Mill Stream; Dance of the Clowns (Smetana); Mignonne (Friml); Chinese Fantasy (Deppen); Waltz, Roses from the South (Joh. Strauss). 12 Midnight, Song Recital: One for you (Wienburg); Mamma is gone (Heidensou); My Song of the Hill (Meyer); Just keepin' on (Carter); Since you went away (Johnson); A Banjo Song (Homer); Lonesome Moonlight (Strickland); Wild de Moon, Moon, Moon (Cook). 12.30 a.m. (Saturday), Violin Recital: Kashmiri Love Song (Wood); March of the Cameron Men; Hindu Song (Rinsky-Korsakov); John Anderson my Jo; Mary Morrison; Lord Lovat's Lament; The Logie o' Buchan; Lea Riggs. 1.0, Vaudeville: Charlie in Spain; The Day I went to Wembley; I'm a Daddy at Sixty-Three; Maggie and I and the Baby; Down in the Field where the Buttercups grow; In the Wax-works; Running up and down our Street; With me Gloves in me and. 1.30, Song Recital: The little Things in Life (Berlin); I am the Words (de Sylva); Reaching for the Moon (Berlin); Little White Lies (Donaldson); Just once for all time (Leigh); Just because I lost my Heart (Gilbert); Live, love and laugh (Hoymann); To-day I feel so happy (Carter). 2.0, Dance Music: Paradise; Let me be your Carmen for To-night; Strangers; Let that be a Lesson to you; Pagan Moon; Same old Moon; Leave the Rest to old Man Moon; Through that Open Window; I've gone and lost my little Yo-Yo; I do like to see a Game of Football; The Gag Song; Sing a New Song; The Old Kitchen Kettle; Speedway Sam; At Eventide; Dance of the Cuckoos. 2.57, I.B.C. Goodnight Melody. 3.0, Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW.; and CASSEL, 245.9 metres.—4.0 p.m., See Munich. 5.25, Good and Bad Titles for Books—A Discussion between Werner Türk and Ernst Rohwolt. 5.50, Programme to be announced. 6.15, Time, Programme Announcements, Weather and Economic Notes. 6.30, Concert of Light Music. 8.10, German Ballads. 8.45, Symphony in D Minor, Op. 23, Per aspera ad astra (Scharrer). 9.25, Time, News, Weather and Sports Notes. 9.45, Serenade. 11.0 (approx.), Close Down.

FREDRIKSSTAD.—See Oslo.

FREIBURG.—See Stuttgart.

GENEVA.—See Radio-Suisse Romande.

GENDA.—See Turin.

GLEIWITZ.—See Breslau.

GOTEBORG.—See Stockholm.

GRAZ.—See Vienna.

HAMAR.—See Oslo.

HAMBURG

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 227.4 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—6.5 p.m. (from Kiel), Talk: How can the Children in Big Towns amuse themselves in their Leisure Time? 6.25, Weather Report. 6.30, Josef Friedrich Personig reads from his own Works. 7.0, Weber Concert; The Hamburg Philharmonic Orchestra, conducted by Adolf Secker; Soloists: Erna Kroll-Lange, Herbert Ernst Groh, Bernhard Jakschakt, and Gerhard Gregor; Overture, Euryantus; Aria and Duet from Euryantus; Grosse Polonaise in E. Caspar's Song from Act I of Der Freischütz; Overture, Abu Hassan; Perpetuum mobile; So muss ich mich vorstellen, from the Third Act of Oberon; Invitation to the Dance. 8.0, News. 8.10, Wibeke-Play in North German Dialect (Walter Gätke). 9.10, Time and News. 9.20, Norag Sound Service; Talk by Kurt G. Sell: What People are talking about in America. 9.35, Concert from the Alsterpavilion. 10.20, Ice Report. 10.25, Concert relayed from the Hotel Reichshof.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 60 kW.; and DANZIG, 453.2 metres.—12.5 p.m., Gramophone Concert: Viktoria-Marsch (Neumann); The Blue Danube (Joh. Strauss); Potpourri, Fair alle

FEB. 3rd

FRIDAY

continued

(Dostal); Waltz from Lysistrata (Lincke); Waltz from Gri-Gri (Lincke); Wir marschieren (Scharf); Rosenstramm in Sausson (Bernards); Rocooco Gavotte (Kockert); Two Alsatian Peasant Dances (Merkling); St. Hubertus-Marsch (Prager); Loin du bad (Gille); Vibraphone-Waltz (Löhrl); Wiener Extrablätter (Translatour); Wiener Zugvögel (Translatour); Alpenlieder-Marsch (Lüschow); Alle Tage ist kein Sonntag (Clewing); Hab' Sonne im Herzen (Krone); Fünf-Chr-Teo bei Robert Stolz (Dostal); Loreto-Marsch (Thiele). In the interval at 12.20 p.m., News. 1.30, Sponsored Programme with Gramophone Records. 2.0, Exchange Rates and Market Prices. 2.30, Programme for Children. 3.0, Talk: Family Life To-day. 3.30, See Leipzig. 4.45, Agricultural Talk. 5.15, Agricultural Prices. 5.30, Talk with Gramophone Records: A Review of Horse-racing in 1932. 6.0, The World on Gramophone Records—English and American Music: Overture, Di Ballo (Sullivan); Noyelle No. 3 (Bridge); Summer Night on the River (Delius); The Three Bears (E. Coates); Mississippi Suite (Grofé); Rhapsody in Blue (Gershwin). 6.50, Weather and News. 7.0, Talk by Kurt G. Sell: What People are Talking about in America, relayed from America. 8.20, The Fifth Symphony in C Minor (Beethoven), by the Königsberg Opera House Orchestra, conducted by Eugen Jochum, relayed from the Town Hall. 8.45, Two Readings. 9.15, Weather, News and Sports Results.

HILVERSUM

(Announced HUIZEN), 296.1 metres; 20 kW (7 kW up to 4.40 p.m.). Programme of the Christian Radio Society (N.C.R.V.).—12.10 p.m., Trio Concert. Soloist: C. Hengeveld (Violin). Overture, Si j'étais Roi (Adam); Waltz, Frühlingsstimmen (Strauss); Selection from Norma (Bellini); A Gramophone Record: Les Millions d'Arlequin (Origo); Selection from The Gipsy Baron (Strauss); A Gramophone Record: Delibes, Potpourri (Urbach); Serenade (Bozi); Overture, Flotte Bursche (Suppe). 1.40 to 2.10, Interval. 2.10, Religious Reading. 2.40, Talk for Women. 3.10, Organ Recital: Overture, Raymond (Thomas); The Skater's Waltz (Waldteufel); Selection from Faust (Gounod); A Gramophone Record: Madrigal (Simonetti); Goodbye (Tosti); Cavatina (Raff); French Minuet (Tremblay); Romance (Rubinstein); Selection from The Bird Fancier (Zeller). 4.40, Talk for Young Stamp-collectors. 5.10, Talk on Photography. 5.40, Agricultural Report. 6.10, Talk on Horticulture. 6.40, Literary Programme. 7.10, Police Notes. 7.20, Religious Address. 7.40, Concert by the Amheim Orchestral Society, conducted by J. Spaanderman. Soloists: Jo Juda (Violin). Serenade, Op. 8, for Strings (Tchaikovsky); Violin Concerto in D (Paganini). 8.40, Talk. 9.10, Orchestral Concert (contd.); Symphony in D—the London (Haydn); Old Dutch Dances (Röntgen). In the interval at 9.40, News Bulletin. 10.10, Light Music on Gramophone Records. 11.10 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

(Announced HILVERSUM), 1,875 metres; 8.5 kW.—11.40 a.m. to 3.40 p.m., Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 11.40, Concert by the Wireless Orchestra, conducted by Nico Gerharz. Overture, Britannicus (Scassola); Minuet (Paderewsky); On the Volga (Dyck); Interlude on Gramophone Records; Red Poppies (Elliott); Planderei (Stendebach); Dream after the Ball (Bronstet); Bei uns z'haus (Joh. Strauss); Potpourri, Servus Wien (Dostal); Interlude on Gramophone Records; The Gipsy March (Lacôme); Selection from The Gipsy Princess (Kálmán); Potpourri of Strauss Music (Weber). 1.40, Light Music on Gramophone Records. 2.10, Concert by the Little Wireless Orchestra, conducted by Nico Treep; March (Gyldmark); Overture to a Spanish Comedy (Kéler-Béla); Woodland Echoes (Tapp); Mariette-coquette (Ancliffe); April's Lady (Ancliffe); Selection from The Prophet (Meyerbeer); Interlude on Gramophone Records; Selection from The Student Prince (Ronberg); Japanese Dance (Hugnet); Symphonic Meditation (Fanchey); Liebesfreund (Kreisler); Syncope (Kreisler); Waltz, Die Kosenden (Launer). 3.40 to 7.40, Programme of the Workers' Radio Society (V.A.R.A.). 3.40, Orchestral Concert, conducted by P. Duchant. 4.30, Programme for Children. 5.10, Light Music by De Notenkrakers. 5.55, Organ Recital. 6.25, Talk. 6.45, Concert by De Notenkrakers (contd.). 6.55, Concert of Light Music. 7.40 to 10.40, Programme of the Liberal Protestant Radio Society (V.P.R.O.). 7.40, Religious Address. 8.10, Song and Piano-forte Recital. 8.40, Religious Address. 9.10, Concert. 9.40, News. 9.55, Religious Address. 10.25, Variety Music on Gramophone Records. 10.40 till Close Down. V.A.R.A. Programme. Variety Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.15 p.m., Announcements and Opera Music on Gramophone Records. 6.25, Sports Notes. 6.30, See Warsaw. 10.0, The Letter Box in French for Foreign Listeners.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres; 40 kW.; and HELSINKI, 368.1 metres.—6.0 p.m. (from Helsinki), Concert by the Station Orchestra. 7.0, An Egyptian Tale—Musical Play (O. Merikanto). 7.20 (from Helsinki), Concert. 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert, conducted by Wolf; March, Unser Zeppelin (Bauthan); Edelweiss-Ouverture (Kozjak); Ballet Music from Undine (Lortzing); Humoresque (Dvorak); A Dance (Dvorak); Selection from Cavalleria rusticana (Mascagni); Waltz, Das Leben im Tanz (Joh. Strauss); Slav Rhapsody No. 1 (Friedemann); Selection from The Merry Widow (Lehar). In the interval at 1.0 p.m., News. 1.30, Sponsored Programme with Gramophone Records. 2.30, Economic Notes and Time. 2.50, Handwork for Children. 3.20, Readings for Young People. 4.0, Fall Concert for the Sixtieth Anniversary of his Birth; Music from his Operettas by the West German Chamber Orchestra, conducted by Herman Spitz; Soloists: Kläre Hansen (Soprano), Marita Gründgens (Soprano), and Leonhard Aramesco (Tenor); Commentary by Paul Gehly. 5.20, English Conversation. 5.45, Weather, Time, Economic Notes, and Sports Results. 6.0, Talk: Taxation in 1932. 6.20, Talk for Workers. 6.35, Book Review. 6.55, News. 7.0, Talk by Kurt G. Sell: What People are talking about in America, relayed from America. 7.15, Gipsy Programme, Concert for Orchestra, Choir and Soloists; Helene Guernanova (Contralto), Bronislaw Mittmann Violin, Hansen (Soprano), and Woke (Baritone); Hungarian Rhapsody No. 1 (Liszt); Poem Nomad Life (Potöfi); Three Gipsy Songs; A Gipsy Legend; Talk on Gipsy Music; Gipsy Melodies (Saraste); The Gipsy in Literature; The Gipsy Fiddle—a Musical Play (Konrad Ramrath after Poems by Max Apffelstaedt); Among the Gipsies of Andalusia (Nexo); Rhapsody for Violin and Piano-forte; Tzigane (Ravel); Habanera and the Card Song from Carmen (Bizet). 9.15, News and Sports Notes. 9.30, Cigány Music by the Iure Magyarai Band, relayed from the Hotel Hungaria. 11.0 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW.; and DRESDEN, 319 metres.—11.0 a.m., Weather, Time, and Orchestral Concert. In the interval at 12 Noon, News, Weather, Snow Report and Time Signal. Exchange Quotations after the Concert. 1.0 p.m., Notes on Art. 1.30, Kant for all—by Erna Freymuth. 2.15, Talk for the Country Woman. 2.35, Exchange Quotations. 3.0, Talk: The Heavens in February. 3.30, Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blüner; Overture, Fidelio (Beethoven); Ballet Music from Rosamund (Schubert); Suite for String Orchestra, Op. 8 (Richard Stöhr); Symphonic Sketch for Small Orchestra (Walter Saatzmann); Hungarian Rhapsody No. 1 in E Flat (Liszt). 4.30, Review of Books. 4.50, Exchange, Weather and Time Signal. 5.0, Talk: Women as Artists. 5.25, English Lesson. 5.50, Talk. 6.0, A Discussion: The Attitude of the Younger Generation towards the Theatre, the Radio and the Cinema. 6.30, August Kopisch Programme on the Eightieth Anniversary of the Author's Death. 7.0, Concert by the Leipzig Symphony Orchestra, conducted by Dr. Howard Hanson. 8.0, News Bulletin. 8.10 (approx.), Music at the Court of Augustus the Strong. Introductory Talk and Commentary by Dr. Richard Engländer. Trio for Flute, Violin and Thorough Bass (J. D. Heinichen); Two Arias with Harpsichord Accompaniment (Antonio Lotti); (a) Melody from Irene Augusta, (b) Foca superbo; Pastorale from a Sonata for Violin and Harpsichord (F. M. Veracini); Gigue and Variations for Violin (Pisendel); First Movement from the Concerto in F for Harpsichord (J. D. Heinichen); Aria with accompaniment by two Flutes, Violin, Harpsichord and Cello from Zeffire e Clori (J. D. Heinichen); Aria from an Italian Solo Cantata for Coloratura-Soprano with Harpsichord obbligato (J. D. Heinichen); Trio Sonata for Flute, Gamba and Thorough Bass (Lotti). 9.10 (approx.), News, followed by Concert by the Dresden Soloist Ensemble. In an interval from 9.45 to 10.0, Talk: What People are talking about in America, relayed from America. 11.0 (approx.), Close Down.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—4.30 p.m., Quintet Concert. 5.30, Talk on Slovene History. 6.0, French Lesson. 6.30, Talk for Women. 7.0, See Vienna. 9.0, Time, News, and Light Music on Gramophone Records.

LWOW

381 metres; 16 kW.—6.0 p.m., Literary Talk. 6.15, Miscellaneous Items. 6.30, See Warsaw. 10.0, Relay of Foreign Stations. 10.10 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South-East. 8.30, Dramatic Programme: Three Plays: (a) Il faut qu'une Porte soit ouverte on femme (de Musset), (b) Celui qui n'a pas tué (Rostand), and (c) Rosine (Rostand). In the intervals, Music from Auvergne. After the Programme, News Bulletin.

MADRID

ARANJUEZ; Call EAQ, 30.43 metres; 10 kW.—10.30 p.m., Light Music. 10.45, Wireless Review. 11.0, Light Music (contd.). 11.35, Answers to Correspondents. 11.40, Spanish-American Talk. 11.45, Variety Music. 12.0 Midnight, Close Down.

MADRID

UNION RADIO; Call FAJ7; 424.3 metres; 2 kW.—7.0 p.m. (approx.). Chimes, Exchange Quotations, Medical Talk, Programme of Musical Novelties and Variety Items by Ramon Gomez de la Serna. 8.15, News Bulletin. 8.30 to 9.30, Interval. 9.30, Chimes and Time Signal, followed by Mephistopheles—Opera (Boito) on Gramophone Records (Concert Version). 11.45, News Bulletin and Programme Announcements for Listeners Abroad. 12 Midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—6.20 p.m., Concert by the Station Orchestra, conducted by E. Tvrdy. Soloist: Albert Bursik (Flute). Flute Concerto in D, No. 2 (Mozart); Ecosaisas (Beethoven); Tempo di Minuetto, Op. 9, No. 2 (Beethoven). 6.50, See Brno. 8.0, See Prague. 9.15 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—4.0 p.m., News. 4.10, Concert. 5.30, Concert, relayed from the Radio Theatre. 8.0, Talk in a Foreign Language (to be announced). 8.55, Time Signal. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 560 metres; and Nürnberg, 239 metres.—4.0 p.m., Concert by the Station Orchestra, conducted by T. Huber-Anderach; Les préludes (Liszt); First Part of Gyt Suite (Grieg); Interlude: German Folk Songs by Elisabeth Waldeman; Selection from The Barber of Seville (Rossini); Extracts from the Carnival Suite (Huber-Anderach); Overture, Die Fledermas (Joh. Strauss); 5.15, Talk: Our Snow-covered Mountains. 5.45, Talk. 5.55, Time, Weather and Agricultural Notes. 6.25, Introductory Talk to the following Transmission. 6.35, Il Trovatore—Opera (Verdi), relayed from the National Theatre. 9.20, Time, Weather, News, Sports Notes, Snow Report and Road Report.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredrikstad, 367.6 metres; Hamar, 560 metres; Notodden, 447.1 metres; Porsgrund, 452.2 metres; and Rjukan, 447.1 metres.—4.0 p.m., Popular Concert. 5.0, French Lesson. 5.45, Recitation. 6.0, Announcements. 6.15, Weather and News. 6.30, Talk. 7.0, Time Signal. 7.1, Symphony Concert, conducted by M. Odd Gruner Hegge. 8.30, Agricultural Talk. 8.40, Weather Report. 8.45, News Bulletin. 9.0, Topical Talk. 9.15, Talk.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society, and Giorno e Radio. 7.20, Popular Music on Gramophone Records. 7.30 (in an interval), Time Signal and Announcements. 7.45, La meraviglia notte di Toti e Lisa—Musical Play (Giacchino), followed by a Talk. 8.45, Concert of Light Music. 9.55, News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 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. 7.20, Weather Forecast. 7.30, Symphony Concert, conducted by M. Flament; Concerto for Violin and Strings (Nardini); Selection from Le Marchand de sable et le passe (Roussel); Melody from Bertrand (Le

FEB. 3rd

FRIDAY

continued

Born (Casadesus); Orientale (Flament). 8.15, Literary and Musical Programme, followed by La Porte et la Fenêtre—Opéra-Comique in One Act (Nadlaud). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—7.0 to 9.0 a.m. (Commentary on the Test Match in Australia). 7.0 p.m., Gramophone Concert of Popular Music. 7.30, Topical Talk. 8.0, Talk on Music. 8.15, Interval. 8.30, Concert by the Station Symphony Orchestra: Overture, La princesse jaune (Saint-Saëns); Divertissement. Zorica (Bousquet); Scènes antiques (Larriren); Symphonie Interlude, Spring (Nerini); Trot de Cavalerie (Rubinstein); Sicilian Rhapsody (Silver); Bourrée fantasque (Chabrier); Three Dances (Février-Longeray); Marche bohémienne (Filippucci). 10.30, News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Popular Music on Gramophone Records. 8.0, Press Review and Weather. 12 Noon, Address in Hebrew. 12.30 p.m., Concert by the Kretzky Orchestra: Allegro spiritoso and Sicilienne (Delagrave); Andante from the Concerto in A (Mozart); Overture, Fingal's Cave (Mendelssohn); Waltz (Brahms); Cantilène from the First Trio (Schubert); Serenade (Godeard); Réverie du Soir (Saint-Saëns); Norwegian Rhapsody (Lalo); Night in the Bay of Palma (Turina); Paysage (Hahn); Sur les cimes (Charpentier); Clair de Lune (Debussy); In the Hall of the Mountain King (Grieg). In the intervals at 1.0, Exchange. News and Weather, and at 1.30, Exchange. 2.0, Exchange and Announcements. 3.45, Exchange and Market Prices. 4.30, Elementary English Lesson. 6.10, Agricultural Report. 6.30, Review of New Books. 6.50, Talk on Social Insurance. 7.0, Talk: The Coming Economic Conference and the World Financial System. 7.20, Concert by the Kretzky Orchestra: Amorette (Gungl); Sur les cimes alpestres (Tollé); Loin du Bal (Gillet); Cardus (Monti); Haiphong (Courtioux). 7.45, Commercial Prices and News. 8.0, Literary Readings: Monologues from the Good Old Times. 8.30, News and Weather. 8.40, Gastronomic Review. 8.45, A Revue, relayed from the Folies Bergère. In the interval at 10.10, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relay by W3XK on 48.86 metres and 25.27 metres.—9.0 p.m., Work-a-day Thought. 9.5, Business News. 9.15, S.A.I. Musicale (Carnegie Tech Chapter). 9.30, Piano Interlude. 9.50, David Lawrence Dispatch. 9.55, KDKA Artist Bulletin. 9.58, Programme Announcements. 10.0, Muskingum College Music Clubs. 10.15 to 11.15, New York Relay. 10.15, Dromedary Caravan. 10.30, The Singing Lady. 10.45, Little Orphan Annie. 11.0, A & P Programme. 11.15, Time Signal. 11.16, Weather Report. 11.17, Terberry Sport Review. 11.22, Press News-reeler. 11.27, Strange Facts. 11.29, Temperature Report. 11.30, KDKA Dinner Concert. 11.45 to 3.15 a.m. (Saturday), New York Relay. 11.45, To-day's News by Lowell Thomas. 12 Midnight, Popsodent Amos 'n' Andy. 12.15 a.m., Hilda Burke (Soprano). 12.30, Five Star Theatre—Charlie Chan. 1.0, Nestlé's Programme. 1.30, Time Signal and Adventures in Health. 1.45, Howard Thurston, the Magician. 2.0, The First Nighter. 2.30, Armour Programme. 3.0, Alice Joy. 3.15, Westinghouse Pioneers. 3.30, Bridge School of the Air. 3.45, Bradley Kincaid. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News Flashies. 4.20, Cora Williams Hines (Contralto). 4.30, Henry Halstead and his Californians. 5.0, Cotton Club Orchestra, from New York. 5.30, Time Signal and Good-night.

PORSGRUND.—See Oslo.

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., See Brno. 3.55, Talk: Ski Racing at Innsbruck. 4.5, Concert by the Ondrick Quartet: Piano-forte Quartet in G Minor No. 1 (Mozart); Piano-forte Quartet in A Minor, Op. 1 (Suk). 5.5, Agricultural Market Prices. 5.15, Talk for Workers. 5.25, News in German. 5.30, German Transmission. 6.0, News. 6.5, Talk: The Modern Woman. 6.20, Concert by the Hermann Sextet. 6.50, See Brno. 8.0, Time Signal. 8.1, Concert of Old Czech Music by the Station Orchestra, conducted by Otakar Jeremias. Soloists: Nelly Gajerová (Songs), F. Daniel (Violin), B. Heran (Cello), L. Kucera (Viola), J. Majrych (Clarinet). Overture in C (Vranický); Songs: (a) Cara de torna in pace (Mysliveček), (b) Stácerb se vnořil ríspetti (Mysliveček), (c) Avaterra (Rösler); Quartet in E Flat (Masck); Symphony in C (Kozeluh). 9.0, Time Signal. 9.1, News Bulletin. 9.15 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; LAUSANNE, 660 metres; and GENEVA, 760 metres.—6.0 p.m. (from Lausanne), Weather Forecast and News. 6.30 (from Lausanne), Book-keeping Lesson. 7.0 (from Geneva), Chopin 'Cello

and Piano-forte Recital by Henry Buenzod and Renée Mottier. 7.40 (from Geneva), Talk: Inns and Hostels in the Old Quarters of Geneva. 8.0, Concert of Light Music by the Radio Orchestra. 9.0, News and Weather Forecast. 9.10, Talk: The Work of the League of Nations. 9.25 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather Report. 8.40, Musical Programme and Announcements. 9.0, Chimes and News. 9.30, By the Fireside.

RIGA

525 metres; 15 kW.—6.15 p.m., Symphony Concert. In the intervals at 7.0, News; and at 8.0, Weather and News. 8.30, Dance Music. 9.30 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call IRO, 441 metres; 50 kW. Relay by Naples, 319 metres; and 2RO, 25.4 metres.—7.0 a.m., Gymnastics. 7.15 to 7.30, Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Orchestral Concert. In the interval from 12.30 to 12.45, Giornale Radio and Exchange. 3.0, Song Recital by Rudolph Watzke (Baritone) from the Royal Academy of Saint Cecilia. 6.0, Giornale Radio. 6.10 (Naples), Shipping and Sports Notes. 7.0, Time and Announcements. 7.5, Report of the International Institute of Agriculture (in Italian, French, English, German, and Spanish). 7.30, Talk on Sport. Sports Notes, and Tourist Report. 7.45, Variety Concert: Soloists: Lina Spera (Violin), Maria Macola (Piano-forte), Emilio Livi (Tenor) and Maria Serra Massara (Soprano); Sonata for Violin and Piano-forte (Pietro Ferrù); Tenor Solos: (a) Aria from Anna allegria (Vittadini), (b) The Stars were shining from Tosca (Puccini), (c) Song from Martha (Flotow), (d) Stonelli capriccioso (Caravali); Second suite from Peer Gynt (Grieg). 8.30, Il cassetto segreto—Comedy in Two Scenes (Adriano Mancini). 9.0, Concert (contd.), Extracts from William Ratcliff (Mascagni); Dance Music after the Concert. 9.55, News Bulletin.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 379.5 metres; 50 kW. Relay at intervals by W2XAF on 31.48 metres and by W2XAD on 19.55 metres.—7.30 p.m. to 12.15 a.m. (Saturday), New York Relay. 7.30, Three Shades of Blue. 7.45, Muted Strings. 8.0, Echoes of Erin. 8.15, Famous Loves. 12 Midnight, Jane Froman. 12.15 a.m., Stock Reports. 12.30 to 1.30, New York Relay. 12.30, Three Keys. 12.45, The Goldbergs. 1.0, Cities Service Concert. 1.30, WGY Farm Forum. 2.0, Musical Programme from New York. 2.30, Pond's Programme and Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW.; BASEL, 244.1 metres; and BERNE, 245.9 metres.—11.28 a.m., Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.35, Concert by the Little Radio Orchestra. 12.35 to 12.40 p.m., Weather and Exchange. 2.30, Concert by the Radio Orchestra. 3.30 (from Zürich), Programme for Children. 4.0, Variety Music on Gramophone Records. 4.30 to 4.35, Weather. 5.30 (from Berne), Talk: Municipal Architecture. 6.0, Time, Weather, News, Market Prices and Tourist Report. 6.20 (from Berne), Talk. 6.45 (from Berne), The Lamps of Life—Opera (Péro). 8.0 (approx.), Das Leisse Eisen—Comic Opera (Werner Wehrli). 8.30, Weather and News. 8.40, Dance Music. 9.15 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA (436 metres); 55 kW. Relay by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—4.5 p.m., Concert of Folk Music, relayed from Malmö (231 metres). 4.30, Reading. 5.0, Popular Music on Gramophone Records. 5.55, Talk on Foreign Politics. 6.15, Weather and News. 6.30, Medical Talk. 7.0, Cabaret Programme. 7.50, Talk, relayed from Malmö. 8.20, Concert by the Station Orchestra. Soloist: Stefan Frenkel (Violin). Violin Concerto No. 4 in D (Mozart). 8.45, Weather and News. 9.0, Orchestral Concert (contd.): Suite for Violin and Strings (S. Frenkel); Adagio from the Sonata, Op. 8b (Kallstenius); Scene from the Fantastic Symphony (Berlioz); Romanian Rhapsody No. 1 in A (Euseco). 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Gramophone Concert: Till Eulenspiegel's Merry Pranks (R. Strauss); La Campanella (Liszt); Scherzo from A Midsummer Night's Dream

(Mendelssohn); Invitation to the Waltz (Weber); Indian Lament (Dvorak); Romance (Schumann); Waltz Caprice (da Motta); Chula (da Motta); Waltz in A (Brahms); Slav Dance (Dvorak); Three Melodies (Fauré): (a) Les roses d'Ispahan, (b) Clair de lune, (c) Soir; Selection from Gretna Green (Guiraud). 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Gramophone Concert: Selection from Rigoletto (Verdi); Melody (Bialezki); Selection from Die Puppefee (Bayer); Romance (Glinka); Prayer (Mintewsky); Three Ecosaises (Chopin); Spinning Song (Mendelssohn); Méditation from Thais (Masseuet); Cavatina (Raff); Barcarolle (Fetras); Waltz, Gold and Silver (Lehar); Scene from Maritana (Wallace); Minuet from the Time of Louis XII; Gipsy (Gilbert); Someone to admire (Walter); Selection from Coppélia (Delibes). 2.0 to 4.45, Interval. 4.45, Talk in French: The World of the Theatre in Former Times. 5.0, Dance Music conducted by M. Roskam. 6.0, Trio Concert, relayed from Lille (265.4 metres). 7.0, Topical Talk in German. 7.15, Talk in French: Gallicisms in the French Language. 7.30, Time and News. 7.45, Light Music on Gramophone Records. 8.25, Lottery Results. 8.30, Orchestral Concert, conducted by Maurice de Villers: Soloists, Suzanne Suire and Mlle. Riecklin (Sopranos), and M. Ramelle (Baritone); Symphony in G Minor (Mozart); Concerto for Harp and Flute (Mozart); Allegretto and Scherzando for Clarinet and Orchestra (Monfeillard); Incidental Music to Le marchand de sable qui passe (Roussel); Overture, The Barber of Seville (Rossini); Arias from Figaro (Mozart): (a) Figaro's Aria, (b) Rosina's Aria, (c) Duet of Figaro and Rosina. 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and FREIBURG, 570 metres.—12.15 p.m., Time, News, Weather, Snow Report and Programme Announcements. 12.30, Gramophone Concert: Duet from Carmen (Bizet); Trio from The Tales of Hoffmann (Offenbach); Barcarolle from The Tales of Hoffmann (Offenbach); Duet from Il Trovatore (Verdi). In the interval, Selection from Samson and Delilah (Saint-Saëns). 1.0, Sponsored Concert. 1.30, Advanced English Lesson. 2.0 to 4.0, Interval. 4.0, See Munich. 4.50, Time, Weather and Agricultural Report. 5.0, Talk: The Commercial Traveller on his Rounds. 5.25 (from Mannheim), Medical Talk. 5.45, Talk: My Sunday Excursion. 5.55, Time and News. 6.0, Concert by the Philharmonie Orchestra, conducted by Gustav Görlisch. Soloist: Olga Kalliwoda (Soprano). Overture, King Stephen (Beethoven); Jennie d'Arc au bûcher for Soprano and Orchestra (Liszt); Huldigungsmarsch (Liszt); Overture, Semiramis (Rossini); Corsican Folk Songs (Tomasi): (a) Niunia, (b) Vocera, (c) O Cincarella, (d) Zilimbriina Song to a Shepherdess (Cortopassi); Saltarello (Amadei). 7.0, Talk by Kurt G. Sell: What People are talking about in America, relayed from America. 7.15 to 9.25, See Frankfurt. 9.25, Time, News, Weather, Snow Report, Programme Announcements and Sports Notes. 9.45, Cigány Music from Budapest. 11.0 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0 a.m., News Bulletin. 6.15, Orchestral Concert. 6.45, Overture, Tannhäuser (Wagner). 7.0, Tourist Talk. 7.15, News, Racing Results, and Market Prices. 7.25, Local News. 7.30, Accordion Solos. 7.45, Opera Music: Aïrs from Fortunio (Messager), Carmen (Bizet), and Lakmé (Delibes). 8.0, Operetta Music: Ballet Music from Le roi pausole (Honegger); Selection from Le pré aux cleres (Hérold); Selection from Die Bajadere (Kalman). 8.15, Sonnd Film Music. 8.30, Concert by a Viennese Orchestra. 9.0, Songs from French Provinces. 9.30, Orchestral Concert: Selection from The Czarevitch (Lehar); Sarabande (Ferrand); Amaya (Guéridi); Selection from The Crown Diamonds (Barbieri); Selection from Maritana (Wallace). 10.0, Light Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco: Overture, Morning, Noon, and Night (Suppé); Air from Prince Igor (Borodin); Selection from Die geschiedene Frau (Fall); Melody from Maïus (Pagnol). 11.0, Military Music. 11.15, Chansonnettes. 11.30, Programme in English by the I.B.C.; Military Band Concert: Marche lorraine (Ganne); Sereenade (Heykens); Fantasia, The Battle (Eskersberg); Selection from Faust (Gounod); Hungarian Rhapsody No. 2 (Liszt); Jungle Drums (Kotelbey). 12 Midnight, Weather and Announcements. 12.5 a.m. (Saturday), Violin Solos. 12.15, Music by an Argentine Orchestra. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—6.0 to 6.30 p.m., See Turin. 6.30, Orchestral Concert from the Café Dante. 7.0 (approx.) till Close Down. See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relay by Milan, 351.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—6.0 p.m., Giornale Radio. 6.10, Light Music on Gramophone Records. 6.25, Report of the Royal Geographical Society. 6.30, Time, Announcements, and Variety Music on Gramophone Records. 7.0, Giornale Radio, Weather, and Gramophone Records (contd.). 7.30, Talk on Sport and Popular Music on Gramophone Records. 8.0, Symphony Concert, conducted by Vittorio Gui. 10.0, Giornale Radio.

VATICAN CITY

19.84 metres (Morning) and 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

517 metres; 15 kW. Relay by Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218.5 metres.—3.45 p.m., Vocal and Instrumental Concert: Nora Neville (Songs), Magda Hajos (Violin), Otto Schieder (Bassoon), and Oskar Malata and Paul Ulanowsky (Piano-forte). Aria from Don Pasquale (Donizetti); Aria from Il Seraglio (Mozart); Aria from Don Giovanni (Mozart); Sonata in D for Violin and Piano-forte (Prohaska); Sonata for Bassoon and Piano-forte (Malata). 5.0, Tourist Report. 5.15, Talk: Light Athletics and Gymnastics for Everyone. 5.30, Weekly Sports Report. 5.40, Talk: The Squares of Vienna—the Josephsplatz. 6.5, Talk: Colonisation and Peace. 6.25, Time, Weather and Programme Announcements. 6.35, Reading: Koc-Lina, die Spröde (Georg Viktor Meindl). 7.5, Sixth Orchestral Concert of the Gesellschaft der Musikfreunde, relayed from the Music Society's Hall. The Vienna Philharmonic Orchestra, conducted by Erich Kleiber: Overture, Preciosa (Weber); Third Symphony in D (Schubert); Seventh Symphony in A. Op. 92 (Beethoven). 8.40, News and Weather. 9.0, Concert by Otto Wackel and his Orchestra: Florentine March (Fucik); Overture, Orpheus in the Underworld (Offenbach); Emperor Waltz (Joh. Strauss); Introduction and Dance of the Moorish Slaves from Aida (Verdi); Two Hungarian Dances (Brahms); Liebeserklärung (Bauer); Arabian Intermezzo (Neumann); Folk Song, Grinning France; Selection from Viktoria and her Hussar (Abraham); March, Mann an Bord (Wackel).

WARSAW

1,411 metres; 120 kW.—10.40 a.m., Press Review. 10.50, Weather Report for Aviation. 11.5, Programme Announcements. 11.10, Light Music on Gramophone Records. 11.30, Weather Forecast. 11.55, Concert for Schools relayed from the Philharmonic Hall: The Philharmonic Orchestra, conducted by C. Wilkomirski; Soloists, S. Zmigrod-Fedykowska (Soprano) and M. Halik (Violin); March from the Nutcracker Suite (Tchaikovsky); Overture, The Voyevod (Tchaikovsky); Soprano Solos: (a) Légende du Christ (Tchaikovsky), (b) Berceuse (Gretchaninov); Violin Solos; Soprano Solos: (a) Three Songs from the Nursery (Mussorgsky); The Musical Snuff-Box (Linday); The Cossack (Dargomyzky); Melody from the Suite, Caucasian Sketches (Ippolitov-Ivanov). 1.55 to 2.10, Interval. 2.10, Weather Forecast. 2.15, Economic News. 2.25, Aviation and Anti-Gas Report. 2.30, Talk: Maritime and Colonial Affairs. 2.35, Talk. 2.50, Popular Music on Gramophone Records. 3.25, Review of Periodicals. 3.40, Contemporary Philosophers—Talk on Henri Bergson's Latest Book, relayed from Lwow (381 metres). 4.0, Concert by the Philharmonic Orchestra, conducted by S. Pietruszka. In the interval, Announcements. 4.55, Programme Announcements. 5.0, Light Music relayed from the Adria. In the interval, News. 5.50, Skiing Notes, relayed from Cracow (312.8 metres). 6.0, Miscellaneous Items. 6.20, Agricultural Talk. 6.30, Talk. 6.45, Radio Journal. 7.0, Talk on Music. 7.15, Symphony Concert by the Warsaw Philharmonic Orchestra, conducted by G. Pfitlberg: Soloists, E. Feuermann (Cello) and B. Woytowicz (Piano-forte); Four Indian Dances (Jacobi); 'Cello Concerto in C (d'Albert); Piano-forte Concerto (Woytowicz); 'Cello Concerto (Pfitlberg). In the interval, Reading and Book Review. 9.40, Sports Notes. 9.45, Radio Journal. 9.55, Weather Report for Aviation and Police Notes. 10.0, Dance Music. 11.0 (approx.), Close Down.

WILNO

563 metres; 10 kW.—2.50 p.m., Concert for Young People (on Gramophone Records). 3.20, Programme for Children. 3.40 to 4.55, See Warsaw. 4.55, Programme Announcements. 5.0, See Warsaw. 5.40, Talk for Poles in Lithuania. 5.55, Miscellaneous Items. 6.0, Reading. 6.10, Miscellaneous Announcements. 6.20 to 11.0, See Warsaw. 11.0 (approx.), Close Down.

ZAGREB

307 metres; 0.75 kW.—4.0 p.m., Trio Concert. 5.50, Sports Announcements. 6.5, Announcements. 6.25, Popular Science Talk. 6.50, Introduction to the following Transmission. 7.0, See Vienna. 9.0, News and Weather. 9.10, Dance Music relayed from the Grill Room.

ZURICH.—See Schweizerischer Landesseender.

BARCELONA

RADIO-BARCELONA; Call EAJ1; 348.8 metres; 8 kW.—5.0 p.m., Programme for Children. 7.0, Request Gramophone Concert. 7.30, Exchange, and Catalan Grammar Lesson. 8.0, Popular Music on Gramophone Records, and News. 9.0, Chimes and Weather. 9.5, Concert by the Station Orchestra: Spanish March, Montreal (Ribault); Selection from La Torre del Oro (Ginénez); Waltz (Stolz); Selection from Werther (Massenet); Églogue (Faure); Overture, Frau Luna (Lincke). 10.0, Concert by the Popular Sansense Band, conducted by J. M. Vallespi. 11.0, News and Radio Gazette. 11.40, Popular Music on Gramophone Records. 12 Midnight (approx.), Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Notes, Tourist Talk, and Announcements. 7.20, Giornale Radio, Sports Notes, and News Bulletin. 7.30, Time Signal and Announcements. 7.40, An Opera, relayed from the Teatro Petruzzelli. In the intervals, Topical Talk, Announcements, and News Bulletin.

BASLE.—See Schweizerischer Landessender.

BELGRADE

430.4 metres; 2.8 kW.—4.0 p.m., Popular Music on Gramophone Records. 5.55, Time and Programme Announcements. 6.0, Talk on Wireless. 6.40, Violin Recital by Andrija Hanuser. 7.40, The Dawn—Opera (Hinckel). 8.30, News, followed by Variety Music on Gramophone Records. 9.20, Light Music relayed from the Central Hotel.

BERLIN

KONIGS WUSTERHAUSEN; 1,635 metres; 60 kW.—11.55 a.m., Nauen Time Signal. 12.35 p.m., News Bulletin. 1.0, Gramophone Concert from Berlin (Witzleben). 2.0, Programme for Children. 2.30, Weather and Exchange. 2.45, Reading (Hermann Löns). 3.0, Talk: Christian Egypt. 3.30, See Hamburg. 4.10, Topical Review. 5.0, Eine kleine Nachtmusik (Mozart) by the Chamber Orchestra, conducted by Rudolf Schulz-Dornburg. 5.30, Talk: Famous German Painters—Albrecht Dürer. 5.55, Weather and Announcements. 6.0, The Quiet Hour. 6.30, A Poem. 6.35, The Childhood of Christ—Oratorio (Joh. Christoph Bach), by the Chamber Choir, conducted by Rudolf Schulz-Dornburg. 7.0, See Munich. 9.10, Weather, News, and Sports Notes. 9.45, Weather Report for Shipping, followed by Concert from Stuttgart. 11.0 (approx.), Close Down.

BERLIN

WITZLEBEN; 419.5 metres; 1.5 kW. 3.0 p.m., Concert: March, Hoch Heidecksburg (Gutzeit); Nordische Hochzeit (Brasé); Italian Suite No. 1 (Becke); Waltz, Der gelbe Tango (Niemann); Einsame Feldwacht (Graener); Japanese Fantasia (Aihout); Minuet and March from Fredericus Rex (Marc Roland). 3.50 (approx.), Sports Notes. 4.0, Concert (contd.); Liebesszene (Holländer); In the Harbour of Port Said (Armandola); Waltz, Lustiges Wien (Meisel); Maurischer Marsch (Geisler); Der lustige Clown (Geisler); Achtung! Achtung! Es sendet mein Herz... (H. Hauptmann); Potpourri, Alle Neuze (Kollo); Waltz-Rondo, Manzanares, deine Wellen singen Lieder (Redl). 5.0, The Cozy Corner. 5.55, The Witzleben Station Informs its Listeners... 6.0, Topical Talk. 6.10, Robert Schumann Song Recital by Fred Drissen (Schumann); Wanderung; Morgen steh ich auf und frage; Himmel und Erde; An den Mond; Ins Freie; Der Bräutigam und die Birke; Es leuchtet meine Liebe; Mein Wagen rollt langsam. 6.40, Reminiscences by Artur Beyer: Among Trappers in Alaska. 7.0, Programme of Dance Music by the Station Orchestra, conducted by Julius Bürger; and Oscar Joost's Dance Band, with Eric Holgar (Tenor). 9.0, Weather, News, and Sports Notes. 9.15 (approx.), Dance Music from the Charity Ball of the Berlin Medical Association in the Kaisersaal of the Zoo. 10.30, Variety Concert for the Benefit of Disabled Soldiers and War Widows and Orphans, relayed from the Ufa Palast in the Zoo. The Ufa Palast Symphony Orchestra, conducted by Manfred Gulditt and Dr. Helmut Thierfelder. Soloists: Käthe Heidersbach, Jarmila Novotna, Rosalinde von Schirach, Gerhard Hüsck, Emanuel List, Richard Tauber, Paul Wegener, and Erwin Christoph. Talk by Joseph Plant. 11.30 (approx.), Close Down.

BERNE.—See Schweizerischer Landessender.

BEROMUNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—6.30 p.m., Radio Journal. 7.0, Sports Notes. 7.5, News, Exchange, Market Prices and Lottery Results. 7.10, News Bulletin and Weather Forecast. 7.20, Popular Music on Gramophone Records. 7.50, See Paris (Eiffel Tower). After the Relay, Entertainments Guide and Time Signal.

BRATISLAVA

279 metres; 14 kW.—3.10 p.m., Concert by the Station Orchestra, conducted by J. Odchazel. Coronation March from The Prophet (Meyerbeer); Ecossaises (Beet-

SATURDAY FEBRUARY THE FOURTH PRINCIPAL EVENTS OF THE DAY: AT HOME NATIONAL A running commentary on the International Rugby Football Match, from Swansea. Music hall, vaudeville programme. "Should They be Scrapped?" a talk. "Fifty Years of Tunes," instrumental concert. LONDON REGIONAL Mr. S. P. B. Mais: "The Week-end." Silver Band concert. MIDLAND REGIONAL "Reedradio" (No. 4), a gramophonic entertainment. Orchestral concert, from the Town Hall, Birmingham. NORTH REGIONAL The Lancashire Mimmers' Concert Party. Excerpts from musical comedy. Backside Chronicles, by Zachariah Briggus, No. 1, "Mrs. Slowwit." WEST REGIONAL Orchestral concert, from the National Museum of Wales. Running commentary on the International Rugby Football Match. Welsh interlude. SCOTTISH REGIONAL Eye-witness account of the second round tie in the Scottish Cup. Mr. George Blake: "The Week in Scotland." Band concert. BELFAST Flute Band concert. Alexander Riddell—Ulster Regiments: The Inniskillings. Orchestral concert from Ulster Hall. ABROAD BRUSSELS (No. 2) Wagner concert, by the Station Orchestra. HEILSBURG Winter festival of the Königsberg Theatrical Society. STRASBOURG Opera: "Hérodiade" (Massenet), relayed from Paris. WARSAW Chopin recital by Z. Drzewiecki.

hoven); Gavotte, Louis XV (Galimbert); Gopak (Mussorgsky); Czardas (Michiels); Tango (Bayer); Polka (Horta); Foxtrot from The Midnight Tango (Komiati); Valencina (Padilla); Gallop (Bosselt); Suite (Holezal); 4.10, Stefan Mihail reads from his own Poems. 4.50, Light Music on Gramophone Records. 4.45, Programme for Children. 5.45, Talk for Housewives. 6.0, See Prague. 6.20, See Moravska Ostrava. 7.0, See Prague. 8.0, The Betrothal by Lanternlight Operetta in One Act (Ollenbach). 9.0, See Prague. 9.15, See Moravska-Ostrava. 10.30 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

325 metres; 60 kW.; and GLEIWITZ, 253 metres.—12.5 p.m., Weather for Farmers. 12.7, Popular Music on Gramophone Records. 12.45, Time, Weather, News and Exchange. 1.5, Popular Music (contd.). 1.45, Sponsored Programme with Gramophone Records. 2.10, Market Prices. 2.40, Film Review. 3.0, Talk: German Banking during the Past Century. 3.30, See Hamburg. 4.30, Review of Books. 4.55, Talk: The Peace of Westphalia—the Beginning of the New Political Order. 5.35, Talk: German Folk Songs. 5.50, Gramophone Concert: Overture, Meeressstille und glückliche Fahrt (Mendelssohn); Till Eulenspiegels Merry Pranks (L. Strauss); Der Jongleur (E. Tsch.) Waltz, Künstlerleben (Joh. Strauss). 6.30, Weather for Farmers and Topical Talk. 7.0, From Suppé to Millocker—Concert by the Silesian Philharmonic Orchestra, conducted by Franz Marszalek. Soloists: Anny Fried (Soprano) and Hans Priem (Tenor). Overture, Paragraph 3 (Suppé); Tren sein, das liegt mir nicht from Eine Nacht in Venedig (Joh. Strauss); Laura's Song from Casanova (Joh. Strauss-Benatzky); Duet, Horch die Haiskapelle spielt from Der arme Jonathan (Millocker); Polka from Jadwiga (Bellinger); Melody (Offenbach); Muss auch jetzt geschieden sein (O. Strauss); Duet from The Bird Fancier (Zeller); Overture, Der Opernball (Heuberger); Yum-Yum's Song from The Mikado (Sullivan); Volga Song from The Czarevitch (Lehar); Duet from The Carnival Fairy (Kálmán); Overture, Die geschiedene Frau (Fall); Auftritt der Mary-tun; Melody from Das Fürstentum (Lehar); Finale from The First Act of The Cousin from Nowhere (Künneke); In the Interval, News. 9.0, Time, Weather, News, Sports Notes and Programme Announcements. 9.30, See Berlin (Witzleben). 11.30 (approx.), Close Down.

BRNO

342 metres; 35 kW.—4.50 p.m., Esperanto Lesson. 5.0, Theatre and Film Review. 5.16, See Prague. 5.25, German Transmission: News and Pianoforte Recital of Dances of Four Centuries, with Introductory Talk. 6.0, See Prague. 6.20, Pariah—Comedy in One Act. 7.0, See Prague. 8.0, See Bratis-

lava. 9.0, See Prague. 9.15, See Moravska-Ostrava. 10.30 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—12 Noon, Concert, conducted by André Fellenan, relayed from the Grand Hotel, Antwerp; Soloist, Blanche Lambert (Songs); March (Herzer); Potpourri, From Glück to Wagner (Schreiner); Songs; Selection from Carmen (Bizet); Foxtrot, Swanee Stamp (Mackintosh); Two Pieces (Stok); (a) Lieblich du bist ein Mann mit Herz, (b) Pasodoble. 1.0 p.m., Journal Parlé. 1.10, Concert (contd.): Overture, Orpheus in the Underworld (Offenbach); Songs, Schubert Potpourri (Petras); Waltz, Kiss me Goodnight (Göbler); Selection from a Sound Film (Abraham). 5.0, Concert by Mickey's Club Jazz Attraction, conducted by Lolo Langlois. 6.0, Talk on Abnormal Children. 6.15, Sonata Recital by Mme. Bussy-Rohin (Violin) and Rosette Moldavsky (Pianoforte): Sonata in D (Handel); Sonata (R. Strauss). 6.45, Le savetier et le financier—Radio Sketch (L. Donnay). 7.0, Allegretto grazioso and Finale allegro con spirito from Symphony No. 2 (Brahms), on Gramophone Records. 7.15, Talk: Wireless in Schools. 7.30, Review of International Events and Gardening Hints. 8.0, Half-an-Hour of Fantasy. 8.50, Gramophone Concert: Selection from Lakmé (Delibes—Tavan); Méditation from Thaïs (Massenet); Mexican Rhapsody (Briceno); Réverie (Copolla); Slav Rhapsody (Friedemann). 9.0, Recital of Walloon Songs. 10.0, Journal Parlé. 10.10, Hot Jazz, with Commentary by André Asche. 10.40, Concert, conducted by Paul Moreaux, relayed from the Memling Hall, Antwerp. 11.20, Gramophone Concert: Foxtrot, Orange Blossom Time (Goodwin); Waltz, Künstlerleben (Joh. Strauss); Foxtrot, Your Mother and mine (Goodwin); One-step, New York (Padilla); Foxtrot, In the Evening (Hanley); Tango (Schreier-Bottero); Foxtrot, I'd rather cry over you (Dougherty); Songs from Show Boat (Kern); Ol' Man River, (b) Why do I love you, (c) Can't help lovin' that Man, (d) You are Love, (e) Make believe. 12 Midnight (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R.; 338.2 metres; 15 kW.—Programme in Flemish. 12 Noon, Gramophone Concert of Light Music. 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Little Station Orchestra, conducted by P. Leemans; Overture, Light Cavalry (Suppé); Andalusian Song (Port); Piece (Miller-Melhorn); Minuet for Violin (Mozart); La mia serenata (Staffelli); Hindu Song from Saitko (Rimsky-Korsakov); Recitations; Andalusian Serenade, The Pavilion (Armandola); Ballet Music from The Cid (Massenet). 5.0, Concert by the Radio Orchestra, conducted by Franz André; Stolz Potpourri (Dostak); Potpourri for Two Trumpets, Merle et Pinson (Reynaud);

Humorous Intermezzo, The Last Horse Team (Rausch); Japanese Bell Dance (Yoshitomo); The Student passes (Ibanez); Overture, Orpheus in the Underworld (Offenbach). 5.45, Programme for Children. 6.30, Gramophone Records; Symphonic Suite, Sheherazade (Rimsky-Korsakov). 7.15, Film and Book Review. 7.30, Talk on Films. 8.0, Wagner Concert by the Station Orchestra, conducted by Arthur Meulemans; Overture, The Flying Dutchman; Bass Aria from Tannhäuser; Siegfried Idyll; Pilgrim's Chorus from Tannhäuser. 8.50, Talk: Wagner's significance in the History of Music. 9.0, Concert (contd.): Prelude to Act III of Lohengrin; Prayer from Lohengrin; Overture to Parsifal; Song of the Valkyries, from the Valkyries; Kaisermarsch. 9.55, Evening Prayer. 10.0, Le Journal Parlé. 10.10, Carabaria rusticana—Opera (Mascagni), on Gramophone Records, by the Cast of the Scala, Milan. 12 Midnight (approx.), Close Down.

BUCHAREST

594 metres; 12 kW.—4.0 p.m., Light Music and Romanian Music by the Sibiceano Orchestra. 5.0, News and Time Signal. 6.0, Talk. 5.25, Concert (contd.). 6.0, Talk on Romania; Her Broadcasting System. 6.40, Popular Music on Gramophone Records. 7.0, Choral Concert relayed from the Aza Church. 7.45, Talk. 8.0, Concert of Light Music by the Station Orchestra. 8.45, News Bulletin.

BUDAPEST

560 metres; 18.5 kW.—Programme also relayed on 840 metres from 6.45 p.m. till Close Down.—4.30 p.m., Grieg Concert by the Budapest Concert Orchestra, conducted by D. Markus; Overture, Im Herbst; Suite from Peer Gynt (Grieg); Two Songs: (a) Ich liebe dich, (b) Erotica; A Norwegian Bridal procession. 5.45, The Letter Box. 6.15, Concert of Cigány Music. 7.30, Review of Foreign Affairs. 7.45, Violin Recital by Emil Telmányi. 8.30, Operetta Concert, conducted by Vincze. Soloists: Theresé Küszeghy and Andreas Rösler. 9.15, News Bulletin. 10.30 (approx.), Cigány Music from the Hotel Pannonia.

CASSEL.—See Frankfurt.

COPENHAGEN

281 metres; 0.75 kW.; and KALUNDBORG, 1,153 metres; 7.5 kW.—11.0 a.m., Time Signal and Chimes from the Town Hall. 11.2, Concert by the A. Bendix String Ensemble, relayed from the Wivex Restaurant. 1.10 to 1.30, Interval. 1.30, Gramophone Concert: Michele Fleta, A misos ojos hechiceros (Bardoz); Koloman von Pálaky, The Flower-Song from Carmen (Bizet); Theodore Chaliapin, Der Doppelgänger (Schubert); Jan Kiepura Tell me To-night (Spotinsky); Mischa Elman, Minuet in G, No. 2 (Beethoven); Willi Forst, Song from the Prince of Arceady (Stolz); Kate Telling, Vodel, Erzherzog-Johann; Layton and Johnstone, Hello Gorgoons (Donaldson); The Mills Brothers, The Old Man of the Mountains (Brown and Young). 2.0, Programme for Children. 2.30, Concert by the Station Orchestra, conducted by Emil Lassen; Soloist, Alfred Petersen (Songs); Overture, Maximilian Robespierre (Lito); Selection from La dame blanche (Boieldieu); Two Swedish Sketches for Strings (Petri); Three Dances from The Bartered Bride (Smetana); Six Songs; Overture, Der Waldmeister (Joh. Strauss); Valse charmante (Bossi); Selection from The Force of Destiny (Verdi); Rheinlegende (Mahl); Two Airs from Lakmé (Delibes); Czardas from Ritter Pasman (Joh. Strauss). 3.40, Exchange and Fish Market Prices. 4.50, Talk. 5.20, Elementary French Lesson. 5.50, Weather. 6.0, News. 6.15, Time. 6.30, Talk. 7.0, Time Signal from the Town Hall. 7.1, Concert of Austrian Music by the Station Orchestra, conducted by Fritz Mahler; Divertimento militare (L. Mozart); Extract from the Serenade in B Flat, No. 10 (W. A. Mozart); Waltz, Die Sorgenbräuer (Joh. Strauss, Sen.); Overture, Die Fledermans (Joh. Strauss). 8.0, Reading. 8.20, Concert by Louis Prell's Instrumental Ensemble; Soloist, Erna Schröder (Song); March, Sie kommen! (Lincke); Valse douce (Nikisch); Der Spielmann (Sommer); Selection from The Three Bears (E. Coates); Songs: (a) When will the Sun shine for me? (Silver), (b) I love that dear old Home of Mine (Drey), (c) They're wearing 'em higher in Hawaii (Mohr); Intermezzo, Bib and Bob (Demaré); Ein Wiener-Liebeslied (Naef); La Sérénade d'amour (Hanns Löfl); Parade of Jack and Jill (M. Lake); Spanish Gipsy Dance (Marquina). 9.15, News. 10.30, Dance Music by Louis Prell's Radio Dance Orchestra. In an interval at 11.0, Time Signal and Chimes from the Town Hall. 11.30 (approx.), Close Down.

CORK.—See Dublin.

CRACOW

312.8 metres; 1.5 kW.—6.0 p.m., Miscellaneous Items and Announcements. 6.35, Review of Foreign Politics. 6.30, See Warsaw. 10.0, Light Music and Dance Music, relayed from the Pavilion Restaurant. 11.0, Bugle Call from the Tower of St. Mary's Church.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

FEB. 4th

SATURDAY

continued

DUBLIN

Call 2RN, 413 metres; 1.2 kW.; and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report, and Popular Music on Gramophone Records. 7.20, News Bulletin. 7.30, Time Signal. 7.31, Talk. 7.45, Gaelic Talk. 8.0, Concert by the Dublin Philharmonic Society Orchestra: Conductor, Fritz Brase. 10.30, Time Signal, News, Weather Report, and Close Down.

FECAMP

223 metres; 10 kW.—11.0 p.m. till Close Down. Programme in English by the I.B.C. 11.0, International Broadcasting Club Concert: Big Ben is saying "Goodnight"; Gorgonzola; The Midnight Song; I'm forgetting myself; When they're on the Love Parade. 11.30, Concert: Waltz, Frühlingsstimmen (Strauss); Glockenspiel Solo: The Black Forest Chiming Clock; Liebesfreud (Kreisler); Waltz, Morgenblätter (Strauss); Xylophone Solo: Gold Fishes (Kroeger); Autumn Leaves (Pepper); Souvenir de Capri (Berce). 12.0 Midnight, Song Recital: Captain Mac (Sanderson); The Londonderry Air (arr. Weatherley); The Wheelapper's Song (Wolesley Charles); Molly Bawn (Lover); glorious Devon (German); Just keeping on (Phillips Carter); The Leader of the Town Brass Band (Longstaffe); Silent O'Moyle (arr. Hughes). 12.30 a.m. (Sunday), Xylophone Solos and Quartet Music. Quartet: Union Reel (Traditional); Xylophone Solos: (a) Selection from Carmen (Bizet), (b) Carnival of Venice (arr. Gaston), (c) The Huntsman (Nelson), (d) Jovial Jasper (Green). Quartet: Unlucky Blues (Lewis). Xylophone Solos: (a) Tarantella (Byng), (b) Xylophonia (Green). 1.0, Songs: Home (Van Steeden); Wind in the Willows (Ellis); My Song (Brown); With a Song in my Heart; Pretty Kitty Kelly (Johns); Speak to me of Love (Siewert); To-day, To-morrow, for ever (Milton); Springtime reminds me of you (Carter). 1.30, Vaudeville Programme: Make up your mind; O Sebastian; Sittin' on a Five-bar Gate; When you've got the Pip; On a Cold and Frosty Morning; Sweet Caroline; The Return of Barnacle Bill; Will Anybody have a Drink? 2.0, Dance Music: Bravo, Jim; She was only Somebody's Daughter; When the Band goes marching by; Marching along together; After To-night we say Good-bye; Same old Moon; Good-bye; Good-bye Blues; Silver Hair and Heart of Gold; Rock your Cares away; Song of the Bells; A Bedtime Story; Where is this Lady?; Yes, Mr. Brown; Tell me to-night; Take a Spot of Happiness. 2.57, I.B.C. Good-night Melody. 3.0 (approx.), Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

259 metres; 17 kW.; and CASSEL, 245.9 metres.—3.55 p.m., See Munich. 5.15, Economic Notes. 5.50, Talk for Workers. 6.15, Time, Programme Announcements, Weather and Economic Notes. 6.30, See Stuttgart. 9.20, Time, News, Weather and Sports Notes. 9.30 See Stuttgart. 11.0 (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

Call ha (in Morse); 372 metres; 1.5 kW. Relayed by Bremen, 270 metres; Flensburg, 227.4 metres; Hanover, 566 metres; and Kiel, 232.2 metres.—3.30 p.m., Concert by the Hamburg Philharmonic Orchestra, conducted by José Eibenschütz: Leonce und Lena (Müller-Hartmann); Finnish Melody (Eibenschütz); Boston-Intermezzo (Niek); Concert Waltz, Rheinisches Leben (Engelke); Toréador et Andalouse (Rubinstein); Selection from The Girl in the Taxi (Gilbert); Hungarian March (Lehár). 4.30, Talk. 4.55 (from Kiel), Variety Programme. 6.0, Talk: Colonial Conquests in the Pacific Ocean. 6.25, Weather. 6.30, Cabaret Concert on Gramophone Records. 7.0, The Theatrical World—Variety Programme. 9.0, Time and News. 9.20, Topical Talk. 9.30, Dance Music from the Haus Sieglar. In the interval at 10.20, Ice Report. 10.30, Dance Music from the Fann.

HANOVER.—See Hamburg.

HEILSBURG

276.5 metres; 10 kW.; and DANZIG, 453.2 metres.—12.5 p.m., Gramophone Concert. Part I—Potpourri Extravaganzen (Morena), Wien bei Nacht (Kozak); Karnevals-klänge (Hannemann); Auf der Wunderschaft (Manfred); With Song and Wine (Armandola); Vindobona (Leopold); Part II—Operetta Music, Selection from The Merry Widow (Lehár); Selection from Marietta (O. Straus); Selection from Paganini (Lehár); Sie horen jetzt (Dostal); Waltz Potpourri No. 3 (Robrecht). In the interval at 12.20 p.m., News. 1.30, Sponsored Pro-

gramme with Gramophone Records. 2.0, Exchange Rates and Market Prices. 2.30 (from Danzig), Handwork for Children. 3.0 Concert from Berlin (Witzleben). In the interval at 3.50 (approx.), Humorous Topical Review. 5.0, Programme Announcements in Esperanto. 5.15, Agricultural Prices. 5.30, World Market Prices. 5.45, Talk: Private Housing Estates on the (int.-talks of Königsberg. 6.15, Talk: East Prussian Folklore—Witchcraft and spells. 6.50, Weather and News. 7.0, A Journey into the Blue—Winter Festival of the Königsberg Theatrical Society, relayed from the Town Hall. 9.15, Weather, News, and sports Results, followed by Concert from Stuttgart. 11.0 (approx.), Close Down.

HILVERSUM

Announced HUIZEN, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—11.55 a.m. till Close Down, Programme of the Catholic Radio Society (K.R.O.). 11.55, Concert by the K.R.O. Orchestra, conducted by M. van 't Woud; Marche joyeuse (Piercy); Overture, The Daughter of the Regiment (Donizetti); Fantasia, De Fremersberg (Koeueman); Valse bluette and Pizzicato (Drigo); A Fête in Aranjuez (Demerssman); Variety Music on Gramophone Records; Overture, Raymond (Thomas); Suite, Gipsy Idyll (Percy); Waltz, Gitana (Bucalossi); March Potpourri (Zimmer). 1.40, Programme for Young People. 2.10, Programme for Children. 3.40, H.I.R.O. Programme. 4.40, Concert by Pupils of the Maastriicht Conservatoire; Canon (Berton); Festsdag (Roovaert); Toccata in D Minor (Bach); Sonata in G Minor for Violin (Händel); Sonata for 'cello (Cervetto); Christmas Carol; Waltz for Pianoforte (Böhme); Larghetto for Quintet (Mozart); Talk: Art in Maastriicht; Andante cantabile (Tchaikovsky); Rhapsody in G Minor for Pianoforte (Brahms); Trio (de Wally); Jardins sous la pluie (Debussy); Andalusian Romance for violin (Sarasate); Gothic Suite for Organ (Bohlmann). 6.25, Talk. 6.45, Variety Music on Gramophone Records. 6.50, Talk. 7.10, Police Notes. 7.25, Sports Talk. 7.40, An Hour in the Dutch Indies. Programme arranged by Raden S. Hardjodirenggo. The Orchestra conducted by Raden D. Doornakawara. 8.40, News Bulletin. 8.55, Concert by the K.R.O. Boys, conducted by P. Lutenhouwer. Soloist: J. Nossel (Songs). 9.40, Recitations. 9.55, Concert (cont'd.). 10.40, Light Music on gramophone Records. 11.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 1,875 metres; 8.5 kW.—11.40 a.m. till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). 11.40, Concert by the Notenkrakers, conducted by D. Wins. 1.55 p.m., Variety Music on Gramophone Records. 2.30, Song Recital by E. Doornbos; Berceuse cruelle (Batu); Louise (Whiting); Après de ma blonde; Contre Pierrot (Biscio); Crazy People (Monaeco); Susanna, don't you cry for me; La Chanson de la Gaité (Eyemien). 2.50, Variety Music on Gramophone Records. 4.10, Talk. 4.30, Concert by the Flierefluiters, conducted by Hugo de Groot; Hallo, hier Hilversum! (de Groot-MacCarthy); Berliner Jüngers (Krome); Russian Cocktail (Kaper); Das ist Wien und es bleibt immer so (Stolz); Hungarian Potpourri (Debyr Somers); Constantimople (Carlton); Light Music on Gramophone Records; Adlio a Napoli (Marzilli); Spanish Gipsy Dance (Marquina); Ca c'est Paris (José-Padilla); London on a Night like This (Valentin); Broadway Melody (Brown); In Honolulu (Rosen); Die ganze Welt ist himmelblau (Stolz). 5.20, Literary Talk. 5.40, Concert by De Wick-waal, conducted by P. Tiggers. 6.10, Concert by the V.A.R.A. Balalaika Orchestra, conducted by I. Powarjev; Petrova Kuyawiak (Winiawsky); Russian Dance; Dream (Tchaikovsky); Russian Songs (Powarjev). 6.30, Talk. 6.40, V.R.O. Programme. 7.40, S.O.S. Messages. 7.43, Variety Concert by the V.A.R.A. Orchestra, conducted by Hugo de Groot and The Village Barber; Overture, Morning, Noon and Night (Suppe); Lotosblumen (Ohlsen); Two Irish Dances (Grainger); Jungle Drums (Kételbey); The Juggler (Rosey). 8.40, News. 8.45, Variety Programme by the V.A.R.A. Orchestra, conducted by Hugo de Groot. C. Stern, the V.A.R.A. Carillonier, the Notenkrakers conducted by D. Wins, M. Fuld (Songs), Johan Jong (Organ), C. Steyn (Accordion and Pianoforte), D. Wins (Pianoforte), J. Vogel (Pianoforte), and Gramophone Records.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

408 metres; 16 kW.—6.0 p.m., Talk on California. 6.20, See Warsaw. 10.35, Popular Music on Gramophone Records.

KAUNAS

1,925 metres; 7 kW.—5.40 p.m., Variety Concert. 6.0, Time, Weather, and News. 6.30,

Concert of Light Music. 7.10, Talk: How People behave in Different Circumstances in Life. 7.30, Dance Music. 8.30, Sports Notes. 8.40, Concert of Light Music. 9.30 (approx.), Close Down.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

1,796 metres; 40 kW.; and HELSINKI, 368.1 metres.—4.0 p.m., Talk. 4.25, Accordion Music. 4.50, News. 5.15, Talk. 5.40, Concert: Ole Bäckman (Songs); Maija Korkekoski (Pianoforte), and Erkki Kihl (Cello). 6.20, Pahassa pulassa—Play (Kiljander). 7.0, Concert by the Station Orchestra, conducted by Erkki Linko; Overture, William Tell (Rossini); Air from The Barber of Seville (Rossini); Waltz, Dorfselwalben aus Oesterreich (Jos. Strauss). 7.45, News in Finnish. 8.0, News in Swedish. 8.15, Dance Music, relayed from Kämp. 10.0 (approx.), Close Down.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert, conducted by Wolf. Soloist: Fitty Brüning (Contralto). Overture, Carnival in Rom (Strauss); Schneeballen-Walzer (Ziehrer); Three Songs (Brahms): (a) Komm bald, (b) Malnacht, (c) Auf dem See; Second Orchestral Suite from Peer Gynt (Grieg); Ballet des Parfums (Poppy); Songs: (a) Still wie die Nacht (Bohm), (b) Liebestier (Weingartner); Potpourri, Major and Minor (Schreiner); Selection from Der Obersteiger (Zeller); Music for a Punch and Judy Show (Gabriel-Marie); Die frohen Spatzen (Lühr). In the interval at 1.0 p.m. (approx.), News. 1.35, Popular Music on Gramophone Records. 2.30, Economic Notes and Time. 2.50, Programme for Children. 3.10, Talk on German History. 3.30, Reading in English. 4.0, Concert. 5.10, Talk by Hermann Tille. 5.30, Talk for Women. 5.50, Weather, Time, Economic Notes and Sports Results. 6.0, Book Review. 6.20, Topical Talk. 6.30, Talk: The Atom and its Composition. 6.55, News. 7.0, Variety Programme in Aid of the West German Winter Relief Fund, relayed from the Sauerlandhalle, Altenhundem. 9.30, News and Sports Notes. 10.0, See Stuttgart. 11.0, Programme to be announced. 12 Midnight, Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

389.6 metres; 120 kW.; and DRESDEN, 319 metres.—11.5 a.m., Operetta and Sound Film Music on Gramophone Records. 12 Noon, News, Weather, Snow Report and Time. 12.15 p.m., Gramophone Concert: Waltz, Nachtschwärmer (Ziehrer); Potpourri of Student Songs; Es zogen drei Burschen (Winkler-Wengraf); Mecklenburgischer Melodienkranz (Krusse); Songs: (a) Hast du mich lieb? (Bohm), (b) Gute Nacht, du mein herziges Kind (Abt); Ritterrud Reckenmarsch (Rathke); Waltz, Freut euch des Lebens (Joh. Straus); Träume der Nacht (Schmalstich); Oh sie wohl kommt? from Die Bajadere (Kálmán); Duet from The Count of Luxembourg (Lehar); Erz herzog Adreht-Marsch (Kozak); followed by Exchange Quotations. 1.0, Wireless Notes. 1.30, Programme for Children. 2.15, Chess Lesson. 2.45, Economic Notes. 3.0, Music Notes. 3.15 to 3.30, Interval. 3.30, Concert from Berlin (Witzleben). 5.0, Readings from the Works of Fritz Gökking and Armin Schöberg. 5.30, German for Germans. 5.50, A Modern Dictionary. 6.0, Talk: The Results of Medical Research during 1932. 6.30, Pianoforte Recital by Theodor Blumer: Valse mignonne, Op. 54, No. 2 (Palmgren); Abendstimmen, Op. 47, No. 1 (Palmgren); Ständchen from Op. 3 (Thuille); Pierrette, Op. 41 (Chaminade); Melody, Op. 3, No. 3 (Raehmaninov); Concert Waltz after Josef Lanner (Pillwey). 7.0, Popular Programme, relayed from Planitz. 8.0, See Munich. 9.5, News. 9.15, See Stuttgart. 11.0 (approx.), Close Down.

LINZ.—See Vienna.

LJUBLJANA

574.7 metres; 2.5 kW.—4.30 p.m., Quintet Concert. 5.30, English Lesson. 6.0, Talk on Sociology. 6.30, Philosophical Talk. 7.0, Tannhäuser—Opera (Wagner) on Gramophone Records. 9.0, Time, News and Light Music.

LWOW

381 metres; 16 kW.—6.0 p.m., Literary Talk. 6.15, Miscellaneous Items. 6.30, See Warsaw. 10.0, Light Music and Dance Music by a Mandoline Orchestra. 11.0 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South East. 7.50, See Paris (Eiffel Tower).

MADRID

ARANJUEZ; Call EAQ, 38.43 metres; 20 kW.—6.0 to 8.0 p.m., Programme for Lis-

teners in the Canary Islands, Guinea and America. 6.0 p.m., Concert of Light Music. 7.15, Talk. 7.30, Dance Music. 8.0, Interval. 10.30, Pasodoble, Mantoneito de crespon (Macheco). 10.45, Radio Review. 11.0, Musical Novelties. 11.35, Talk. 11.40, Variety Music. 12.0 Midnight, Close Down.

MADRID

UNION RADIO, Call EAJ, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotations and Request Gramophone Records. 7.30, Talk on Co-operative Societies and Gramophone Music (cont'd.). 8.15, News Bulletin. 8.30 to 9.0, Interval. 9.0, Linguaphone English Lesson. 9.30, Chimes and Time Signal, followed by La Calesera—Musical Comedy (Alonso). 11.45, News Bulletin. 12.0 midnight, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—5.25 p.m., Concert of Popular Music by the Railway Brass Band. 6.0, See Prague. 6.20, Light Music by the Station Orchestra, conducted by J. Plichta. 7.0, See Prague. 8.0, See Bratislava. 9.0, See Prague. 9.15, Concert by the Station Orchestra, conducted by J. Plichta; Potpourri of Dvorak Music (arr. Leopold); Waltz from Faust (Gounod); Spanish Caprice (Malvezzi); Waltz (Prozavnik); Puriant (Bayer); Foxtrox (Prince-Wilks); Tango (Tichy); Polka (Vaekar); Waltz (Lühr); March (Hudec). 10.30 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—4.0 p.m., News. 4.10, Concert. 5.30, Concert, relayed from the Radio Theatre. 8.0, Talk in a Foreign Language (to be announced). 8.55, Time Signal. 9.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 560 metres, and Nürnberg, 239 metres.—3.55 p.m., Gramophone Concert of Popular Music. 4.55, Wireless Hints. 5.10, Programme for Girls. 5.35, Reading (Jack London). 6.5, Violin Recital by Anna Moodie. Richard Staab at the Pianoforte. 6.45, Wireless Hints. 7.0, Bunter Abend. Part I—Concert by the Small Station Orchestra, conducted by Erich Kloss. Soloists: Salvatore Salvini (Tenor), Martha Schellenberg (Soprano) and Austin Egan (Popular Songs). Part II—Bei der Wirtin zum weiss-blauen Kränzli—Short Operetta (Willy Richardt). 9.20, Time, Weather, News and Sports Notes. 9.45, Concert from Stuttgart. 11.0 (approx.), Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

1,083 metres; 60 kW. Relayed by Fredriksstad, 367.6 metres; Hamar, 560 metres; Notodden, 477.1 metres; Porsgrunn, 453.2 metres; and Rjukan, 447.1 metres.—3.15 p.m., Concert. 4.15, Programme for Children. 5.75, Concert of Norwegian Music. 5.45, Talk. 6.0, Announcements. 6.15, Weather and News. 6.30, Talk. 7.0, Time Signal. 7.1, Der Schauspielfeldrektor—Opera (Mozart). 8.0, Orchestral Concert. 8.15, Reading. 8.40, Weather Report. 8.45, News Bulletin. 9.0, Topical Talk. 9.15, Song Recital and the Week's Review. 9.45, Dance Music.

OSTERSUND.—See Stockholm.

PALERMO

542 metres; 3 kW.—7.0 p.m., Announcements, Tomrist Talk, Agricultural Notes, and Giornale Radio. 7.20, Light Music on Gramophone Records. In the interval at 7.25, Sports Notes; Time Signal and Announcements. 7.45, Rossini—Operetta in Three Acts (Etторе Bolini). In the intervals, Book Review and Miscellaneous Announcements. 9.55, News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW.—Time Signals (on 2,650 metres) at 9.25 a.m. and 10.26 p.m. (Preliminary and 6-dot signals). 5.45 p.m., Le Journal Paris. 7.20, Weather Forecast. 7.30, Le Journal Paris (cont'd.). 7.50, Hérodiade—Opera in Three Acts (Massenet), relayed from the National Theatre.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—7.0 p.m., Gramophone Concert of Popular Music. 8.0, Talk: The Event of the Week. 8.5, Theatre Notes. 8.15, Interval. 8.30, Chamber Music Concert. 9.0, Interval. 9.10, Dance Music by the Sonora Orchestra, conducted by Fred Hogmann. 11.0, Dance Music on Gramophone Records. 12 Midnight (approx.), Close Down.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (cont'd.). 7.45, Light Music on Gramophone Records. 8.0, Press Review and Weather. 9.0, Con-

FEB. 4th

SATURDAY

continued

cert by the Conservatoire Society, relayed from the Old Conservatoire. 12 Noon, Concert by the Radio Paris Orchestra: Reminiscences of Ireland (Godfrey); A Day in Capri (Sinfissi); Entr'acte from Mugnette (Missia); Les Pyrénées (Lacôme); Petite Suite (Borodin-Mouton); Javanese Song (de Séverac-Chapelier); Four Norwegian Dances (Grieg). 1.0 p.m., Exchange, News and Weather. 1.30, Exchange. 2.0, Exchange. 3.0, Programme for Children. 3.45, Exchange and Market Prices. 3.50, Dance Music by the Radio Paris Orchestra. 6.30, Market Prices, Weather, Agricultural Report and Exchange. 7.0, Talk on Science. 7.20, Agricultural Talk. 7.45, Commercial Prices, News and Review of the Latin Press. 8.0, Variety Programme. 8.30, News, Sports Notes, and Weather. 8.40, Review by Jean Rieux. 8.45, Gramophone Concert: Suite in F (Roussel); Two Old Wedding Songs (Gretchaninov); Song from Dubrinja Nikitch (Gretchaninov). 9.0, Concert relayed from the Salle Gaveau. In the interval at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 366 metres; 25 kW. Relay by W8XK on 48.86 metres and 25.27 metres.—7.0 p.m., Words and Music, from New York. 7.30, Programme to be announced. 9.0, Dance Masters, from New York. 9.30, Concert Favourites, from New York. 10.0, KDKA Orchestra. 10.30, Weather Report. 10.32, Behind the Law—Tales of the Pennsylvania State Police. 10.45, Little Orphan Annie, from New York. 11.0, Little German Band. 11.30, Time Signal. 11.31, Temperature Report. 11.32, Teaberry Sport Review. 11.37, Press News-Reader. 11.42, Strange Facts. 11.44, Weather Report. 11.45, A Recreio by Bill and Alex of the Downtown Y.M.C.A. 12 Midnight, Time Signal and Fields and Hall, from New York. 12.15 a.m. (Sunday), Atkinson String Ensemble. 12.30, KDKA Players. 1.0 to 4.0, New York Relay. 1.0, American Taxpayers' League. 1.15, The Boston Symphony Orchestra. 3.15, Salon Singers. 3.30, Buccaneers. 3.45, Twenty Fingers of Harmony. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News. 4.20, Messages to Presbyterian Missionaries. 5.20, Messages to Dwellers in the Far North.

PORSGRUND.—See Oslo.

POZNAN

335 metres; 1.9 kW.—6.0 p.m., Miscellaneous Items and Announcements. 6.28, Time Signal. 6.30, Topical Talk. 6.45 to 7.50, See Warsaw. In an interval: Theatre Notes and Announcements. 7.50, Pianoforte Recital by J. Padilla. 9.0, Time Signal, Sports, and Police Notes. 9.5, See Warsaw. 9.40, Announcements. 9.50, Dance Music, relayed from the Café Polonia.

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., See Bratislava. 4.10, Talk on Economics. 4.20, Czech Lesson for Germans and German Lesson for Czechs. 4.50, Variety Music on Gramophone Records. 5.5, Agricultural Report. 5.15, Talk for Workers. 5.25, News in German. 5.30, German Transmission. 6.0, News. 6.5, Talk. 6.20, See Moravská-Ostrava. 7.0, The Prague Ghetto—a Radio Sketch (Waltner), with Modern Incidental Music. 8.0, Time Signal. 8.1, See Bratislava. 9.0, Time Signal. 9.1, News Bulletin. 9.15, See Moravská-Ostrava. 10.30 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS; 403 metres; 25 kW.: LAUSANNE, 680 metres; and GENEVA, 760 metres.—11.28 a.m., Time Signal from Neuchâtel Observatory. 11.30, News and Weather Forecast. 11.40 (from Geneva), Ray Ventura and his Collegians. 12.5 p.m. (from Lausanne), Popular Music on Gramophone Records. 12.40 (from Lausanne), Financial Report. 12.45 (from Lausanne), Variety Music on Gramophone Records. 1.0 to 2.28, Interval. 2.28, Time Signal from Neuchâtel Observatory. 2.30 (from Lausanne), Concert by Edouard Moser and his Orchestra. 3.30 (from Lausanne), Gramophone Dance Music. 4.0 to 5.0, Interval. 5.0 (from Geneva), Scientific Talk. 5.30 (from Geneva), Review of New Books. 6.0 (from Geneva), Weather Forecast, News, and Report on the Work of the League of Nations. 6.30 (from Geneva), Film Review. 7.0 (from Lausanne), Talk: Animals speak to you, with Extracts from the Works of Perrault, La Fontaine, Comtesse de Ségur, Anatole France, Maurice Maeterlinck, Edmund Rostand, Colette and Hugo. 8.0 (from Vevy), Popular Concert by the Vevy Choral Society, Yodelling Club, and Mandoline Orchestra, relayed from the Casino du Rivage: Overture (Maciocchi); The Glow Worm (Siede); Yodelling Club: Melodies (Krenger); (a) Mi Wimsch, (b) Echo-Jodel; Choeur: (a) Salut à la Patrie (Attenhofer); (b) C'est dimanche (Bicu); (c) S'Gloggeglitt (Schneeberger); (d) Adieu la caserma (Jelmoli); Yodelling Club; (a) Morgebärgjodel (Flückiger); Selection from Il Trovatore (Verdi); Choeur: (a) Grossmütterchen (Langer); (b) Waltz, The Blue Danube (Joh. Strauss). 9.15, News and Weather. 9.25 (from Geneva), Dance Music by the Broadcasting Screeners. 10.30 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather Report. 8.40, Musical Programme and Announcements. 9.0, Chimes and News. 9.30, Reading. 10.0, Concert by the Station Quartet, followed by Choral Music on Gramophone Records. After the Programme, Dance Music. 1.0 a.m. (Sunday) (approx.), Close Down.

RIGA

525 metres; 15 kW.—4.30 p.m., Organ Recital by Haralds Kreiburgs: Prelude and Fugue in A Minor (Bach); Idyll (Goldard); Fantasia (Rheinberger); Choral. 5.0, Horticultural Talk. 5.30, French Lesson. 6.0, Weather Report. 6.3, Dramatic Programme. 7.0, News. 7.20, Dramatic Programme (contd.). In the interval at 8.0, Weather and News. 8.30, Dance Music. 10.0 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call IRO, 341 metres; 50 kW. Relay by Naples, 319 metres; and PRO, 25.4 metres.—7.0 a.m., Gymnastics. 7.15 to 7.30, Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Orchestral Concert: Melody (Bochman); Waltz (Robrecht); Three Soldiers (Escobar); Serenata delle rondini (Billo); Selection from The Duchess of Chicago (Kálmán); Spring Song (Mendelssohn); Parade of the Tin Soldiers (Lohr); Blue Butterflies (Armandola); Un lacio (Marloti); Suxur (Carducci). In the interval from 12.30 to 12.45 (approx.), Giornale Radio and Exchange. 3.45, Children's Radio Review and Talk for Young People. 4.0, Exchange, Announcements, Report of the Royal Geographical Society, and Giornale Radio. 4.15, Reading. 4.30 to 5.15, Orchestral Concert: Overture, The Magic Flute (Mozart); La vie et l'amour (Piancheschi); Selection from Madame Sans-Gêne (Giordano); Pianoforte Solos: (a) Allegro (Granados); (b) Gaiola e Marechiaro (Lizst); Melody (Robrecht); Tañe (Carducci); Selection from The Count of Luxembourg (Lohr); Melody (Brodzky). 6.0, Giornale Radio. 6.10 (Naples), Shipping and Sports Notes. 6.15, Atmospheric Signals and Agricultural Report. 7.0, Time, Announcements, and Light Music on Gramophone Records. 7.30, Sports Notes and Tourist Report. 7.45, Relay from a Theatre. In the intervals: Reading, Announcements and News.

SALZBURG.—See Vienna.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW. Relay at intervals by W2XAF on 31.48 metres, and by W2XAD on 19.56 metres.—12 Midnight, Soloist, from New York. 12.15 a.m. (Sunday), Stock Reports. 12.30, Road to Romany, from New York. 12.45, The World Today, by James G. McDonald, from New York. 1.0, Lady Fingers (Pianists). 1.15, Bernard Silberg (Cellist). 1.30 to 3.0, New York Relay. 1.30, The Economic World Today. 2.0, Frank Black's Orchestra. 2.30, Oldsmobile Programme. 3.0, Lucky Strike Hour and Programme Resume.

SCHWEIZERISCHER

LANDESENDER

BEROMUNSTER, 459 metres; 60 kW.: BASLE, 244.1 metres; and BERNE, 245.9 metres.—9.20 a.m. (from Zurich), Broadcast for Schools: Musical Programme. 9.50 to 11.28, Interval. 11.28, Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40, Winter Sports Notes. 11.45, Light Music on Gramophone Records. 12.35 p.m., Weather and Exchange. 12.45 (from Basle), Answers to Correspondence. 1.0 (from Basle), Review of Books on Music. 1.20, Gramophone Concert of Modern Russian Music. 2.0 (from Berne), Talk: Workers and the Swiss Penal Code. 2.30 (from Basle), Chess Lesson. 3.0 (from Basle), Concert by the Basle Accordion Club. 3.40 (from Basle), Talk: Winter Birds and their Food. 4.0, Wind Instrument Music on Gramophone Records. 4.30 to 4.35, Weather. 5.30 (from Basle), Reading. 6.0, Chimes from Zürich Churches, Time, Weather, and Market Prices. 6.15 (from Basle), Talk: Winter Tours to Japan. 6.45 (from Basle), Concert of Folk Music by the Basle Accordion Society and the Basle Double Quartet. 8.30, Weather and News. 8.40, Dance Music and Cabaret Programme on Gramophone Records. 10.0 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relay by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,348 metres; Östersund, 770 metres; and Sundsvall, 542 metres.—3.20 p.m. (from Göteborg), Concert by the Astis Orchestra: Sport Marsch (Lohr); Waltz, Nordseebilder (Joh. Strauss); Réve d'amour (Bece); Selection from Tosca (Puccini); Drum' in der Lobau (Streecker).

4.5, Programme for Children. 4.40, Music by a Hawaiian Quintet. 5.0, The Practical Corner. 5.15, Popular Music on Gramophone Records. 6.15, Weather and News. 6.30, Talk. 7.0, Recital of Yugoslav Songs by Nikola Cvejetich. 7.30, Hinduan's Bull—Comedy in Three Acts (V. Moberg). 8.30, Popular Music on Gramophone Records. 8.45, Weather and News. 9.0, Dance Music. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Orchestral Concert, conducted by Maurice de Villers, Soloist: M. Grégoire (Violin). Overture, The Magic Flute (Mozart); Hungarian Rhapsody No. 14 (Liszt); Symphonie Poème, Moldavia (Smetana); Selection from Picoiolo (Guinand); Violin Solo: Romance (Svendsen); Ballet Music from Hamlet (A. Thomas). 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Quintet Concert, relayed from Bordeaux-Lafayette. 1.50, Dance Music on Gramophone Records: Selection from George White's Scandals (Brown-Henderson); Waltzes from (a) The Merry Widow, (b) The Count of Luxembourg (Lohr); Air from The Desert Song (Hammerstein); Melody (Leslie); Two Melodies (Tit-worth); How am I to know? (Parker); Just you, just me (Kérges); Melodies (Caslow); (a) Chez ma Chérie; (b) Sing, you Sinners; Two Melodies (Lolson); (a) Looking at you; (b) Let me sing; Nobody knows (Berlin); Smiles (Callahan); The Toy Town Admiral (Godfrey); Dancing Butterfly (Paseal). 3.45, Talk on Chopin. 4.0, Gramophone Concert of Chopin's Music: Etudes, Op. 25, Nos. 2, 1 and 3; Mazurka in B Minor; Waltz in E Minor; Nocturne, Prelude in A Flat; Prelude, Op. 45; Waltz in C Sharp, Op. 64; Berceuse in D Flat; Etude in C Sharp Minor; Preludes Nos. 4, 20 and 6. 4.45, Legal Talk in German. 5.0, Pasdoulou Concert, relayed from the Théâtre des Champs Elysees, Paris. 7.0, Talk on Gardening. 7.15, Variety Music on Gramophone Records. 7.30, Time and News. 7.45, Lottery Results. 7.55, Hérodiade—Opera in Five Acts (Massenet), relayed from the Opera, Paris. 11.0, Quintet Concert, relayed from Radio Coloniale, Paris (25.63 metres). 12 Midnight (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW. and FREIBURG, 570 metres.—12.30 p.m., Concert from Langenberg. 1.30, Time, News, Weather and Programme Announcements. 1.40, Gramophone Records: Ballet Music from Faust (Gounod). 2.0, Talk on Flowers. 2.20, Programme for Young People. 3.20, Dance Music on Gramophone Records. 4.0, Choral Concert. Part I—From Pforzheim: Von Freiheit und Vaterland (Goepfert); Bekenntnis (Heinrichs); Wiehiedel (Folk Song); Flamme impor (Jöbe); Deutschland, o heiliger Name (Bauszner); In dunkler Nacht (Arnold); Du sollst an Deutschlands Zukunft glauben (Stute). Part II From Karlsruhe: Ihr Berge der Heimat (Suter); Studentennormenzusatz (Bermer); Der durstige Müller (Wissler); Mädchen aus dem Bader Land (Eiersbach); Am Rheinstrom (Kraemer); Unzerstörbare Liebe (Läwe); O Taler weit, o bönen (Mehle-sohn); Fahr wohl du goldne Sonne (Boefhoven-Rahner); Komm, du liebende Nacht (Brüll). 5.15, Time and Sports Notes. 5.25 (from Freiburg), Talk: Making Films in the Arctic. 5.50, Talk: Must Bank Notes be Covered by Gold. 6.15, Time, News, Weather and Snow Report. 6.30, Great Orators—IV, Fichte—Readings, with Introductory Talk. 7.0, See Munich. 9.15, Swabian Programme A Swabian Song Potpourri. Address by the President of the German Foreign Institute, Swabian Ländler. 9.30, Time, News, Weather, Snow Report and Programme Announcements. 9.45, Dances from Two Centuries Concert by the Stuttgart Philharmonic Orchestra, conducted by Emil Kahn: Hornpipe (Händel); Minnet (Lully); Gavotte (Gluck); Siciliano (Hindberger); Kehrass (Dittersdorf); German Dances (Schubert); Mazurka (Glinka); Krakowiak (Glinka); Polonaise (Tchaikovsky); Gopak (Tchaikovsky); Aragonaise (Bizet); Habanera (Chabrier); Passepied (Löhber); Tarantella, La Danza (Rossini); Irish Dance, Shepherd's Boy (Grainger); Waltz, Wiener Blut (Joh. Strauss); Polka, Bitte schön (Joh. Strauss); Styrian Ländler (Pacherweg); G'strampfer (Pacherweg). 11.0 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Concert: Le rêve from Manon (Massenet); A toi mon âme je suis ta femme, from Mireille (Gounod); Quartet from Rigoletto (Verdi); Air from La Bohème (Puccini); Overture, William Tell (Rossini). 6.45, Accordion Solos. 7.0, Vocal Tangos. 7.15, News, Horse Racing Results and Market Prices. 7.30, Light Music. 7.45, Concert: Ah quel joli roman, from Gillette de Narbonne (Audran); Melody from Frederica (Lohr); J'ai fait trois fois le tour du monde, from Les Cloches de Corneville (Planquette);

Selection from La Bohème (Puccini); Ballet Music from Lakmé (Delibes). 8.15, Sound Film Music. 8.30, Programme by a Viennese Orchestra. 9.0, Extracts from Sigurd—Opera (Reyer). 9.30, Orchestral Music: Waltz No. 2 (Godard); Spanish Dance (Granados); Valse du pas des fleurs (Delibes); Symphonie Entr'acte from Messiaen (Bruneau); Melody (Miehiels). 10.0, Light Music. 10.15, North African News. 10.0, Concert for Listeners in Morocco: La daba de Elehe (Botella); La java des pompos ronges (Dequin); Slav Dances Nos. 6 and 8 (Dvorák); Melody from Lakmé (Delibes); Melody. 11.0, Light Music. 11.30, Programme in English by the I.B.C.: Dance Music: The Blue of the Night; The Flies crawl up the Window; Rain on the Roof; I want to cling to Ivy; Lawd, you made the Night too long; While hearts are singing; You; Out of nowhere. 12 Midnight, Weather and Announcements. 12.5 a.m. (Sunday), Dance Music. 12.15, Balalaika Music and Russian Songs. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—4.10 to 6.30 p.m., See Turin. 6.30, Cyril Scott Pianoforte Recital, with Commentary: Miniature Suite; Old English Dance; Waltz of the Butterflies. 7.0 till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

273.7 metres; 7 kW. Relay by Milan, 331.5 metres; Genova, 312.8 metres; and Florence, 500.8 metres.—4.10 to 5.0 p.m., Dance Music from the Savola Dance Hall. 5.35, Giornale Radio and Announcements. 6.0, Giornale Radio. 6.10, Gramophone Records of Light Music. 6.25, Tourist Report. 6.30, Time, Announcements and Light Music on Gramophone Records. 7.0, Giornale Radio and Weather. 7.30, Talk: Events and Problems. 7.45, Orchestral Concert. 8.45, Review of New Books. 9.0, Variety Programme. 10.0, Giornale Radio.

VATICAN CITY

19.34 metres (Morning), and 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Announcements in Different Languages. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relay by Graz, 351.7 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres; and Salzburg, 218.5 metres.—5.0 p.m., Wind Instrument Concert: March, Heldensprache (Bohne); Dramatic Overture (Scheube); Waltz, Maibaum (Heilinger); Stern a Rasin—Descriptive Piece on Russian Themes (Jaromir Kubat); Selection from Fatinka (Suppé); Tyrolse Dance, Die Schiltknipf (Ziehner); Viennese Song, Geh! mach den Fensterl auf (Jurck); Viennese Song, in einem kleinen Café in Bernals (Leopold); Overture, Banditenstrieche (Suppé); Waltz, Erste Stunden (Konrad); Polka Mazurka, Frönsliebchen (Kozak); Potpourri, in Prosa der Gemüthlichkeit (Klimont); March (Georg Schmidner). 6.20, Time, Weather, Sports Notes and Programme Announcements. 6.30, Talk, with Gramophone Illustrations: Albanian Songs and Dances. 7.0, Die Sirene—Operetta in Three Acts (Leo Fall). In an interval at 8.50 (approx.), News, Weather, and Announcements. 9.0, Gramophone Concert of Classical Music. 9.45, See Stuttgart.

WARSAW

1,411 metres; 120 kW.—10.40 a.m., Press Review. 10.50, Weather Report for Aviation. 10.58, Time Signal and Bugle Call from St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Light Music on Gramophone Records. 12.10 p.m., Weather Forecast. 12.15, Educational Programme, relayed from Lwow (381 metres). 12.55 to 2.10, Interval. 2.10, Announcements. 2.5, Economic Notes. 2.25, Talk on Military Affairs. 2.35, Dramatic Programme, relayed from Lwow. 3.0, Gramophone Concert of Light Music. In an interval: Announcements. 3.40, Talk. 4.0, Divine Service, relayed from Wilno (563 metres). 5.0, Programme Announcements. 5.5, Cello Recital by Emanuel Feuermann. 6.0, Miscellaneous Items. 6.20, Gardening Talk. 6.30, Topical Talk. 6.45, Radio Journal. 7.0, Dance Music by the Station Orchestra, conducted by S. Szyrov; Mazurka (Osmansky); Coccovienne, No. 2 (Noskovsky); Spanish Caprice, Alhambra (Somer); Polka Pizzico (Joseph Strauss); Minuet (Bolozoi); Hungarian Dance, No. 5 (Brahms); Waltz from Der liebe Augustin (Fall); Dance Melody (Laga); Gallop from the Suite, At the Circus (Armandola). In the interval, Sports Notes and Radio Journal. 7.50, Recital of Light Music by Lidia Ferreira (Songs), Am. Molica (Songs), and Jose Padilla (Pianoforte). 8.5, Chopin Pianoforte Recital by Z. Drzewiecki; Ten Preludes; Nocturne in E Flat, Op. 9, 4; Polonaise-Fantasia in A Flat, Op. 61, 9, 4; Talk. 9.55, Weather Report for Aviation and Police Notes. 10.0, Dance Music, in an interval at 10.30, Polish News for Members of the Polish Polar Expedition. 11.0 (approx.), Close Down.

ZURICH.—See Schweizerischer Landseender.

More About The STATION FINDER

The Finer Points of Adjustment and Operation

By H. F. SMITH

IT seems necessary to begin by stating unequivocally that, so far as the tuning condenser of the Station Finder is concerned, there is no known alternative to the particular make of component with which the device was originally calibrated; any other condenser, even though of equally robust construction and ostensibly with the same law, is bound to be so different in characteristic that the printed station scale will become almost useless. Similarly, the tuning coil is an important "key" component; it would not be impossible to make a duplicate with the same inductance value, or to correct, by a more or less laborious process, any discrepancies in the winding of a home-made coil, but it is strongly advised that the specified component should be used.

Another misconception that should

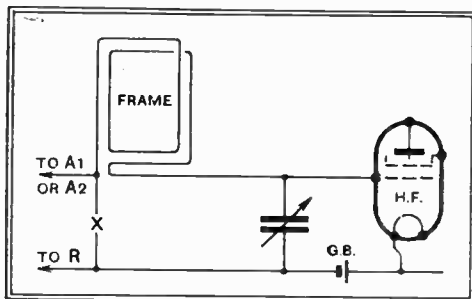


Fig. 1.—Operating the Station Finder with a frame-aerial receiver. External connections to the plug sockets are indicated.

perhaps be corrected is that, when once initial adjustments have been made, the Station Finder will read accurately with any aerial and any receiver. This is not necessarily so, as there are bound to be differences in stray capacity which will affect calibration, but they will probably not be serious enough to cause ambiguity or to necessitate readjustment.

Although designed for "open aerial" sets, the Station Finder can be operated with self-contained frame-aerial receivers by breaking into the frame circuit at the point marked X in Fig. 1. This procedure is satisfactory for all sets except those with ganged tuning; for these, the addition of a buzzer, as described later in this article, is almost always necessary.

Coupling Adjustments

In order to obtain the sharpest and most definite readings, it is wise to work with the loosest possible coupling between the Station Finder circuit and the receiver. At the lower end of the wave-range scale it may be possible to obtain sufficient coupling by inserting the aerial plug into

What it is
A simple, accurate, and effective form of wavemeter—but, unlike other wavemeters, with an indicating scale marked directly in station settings. Instant identification is thus obtained without intermediate processes.

How it works
The Station Finder is connected in the aerial lead-in wire. It identifies the source of incoming signals by sharply reducing their strength as the dial is rotated through the corresponding setting. The station name is then read directly from an indicating disc.
(Full details in "The Wireless World," January 13th.)



socket A1 and joining the receiver aerial terminal to socket A2, thus leaving only two turns in the coupling coil.

Failure to obtain sufficiently well-marked absorption (or reduction of signal strength) as the Station Finder is rotated through the "in-tune" position may be due to heavy losses in the aerial circuit; such defects are shown up pitilessly by the method employed. Here, again, the difficulty may be overcome by fitting a buzzer, or, very much better, by improving the aerial system. Generally speaking, absorption will be most marked when listening to signals that are fairly weak, either naturally or through the effect of applying the volume control while identification is being carried out. There is no real need for the transmitter to be modulating, and, indeed, very accurate measurements can often be made on the unmodulated carrier wave; the background noises superimposed on it will be reduced in strength as the indicator circuit is brought into tune. Readings are apt

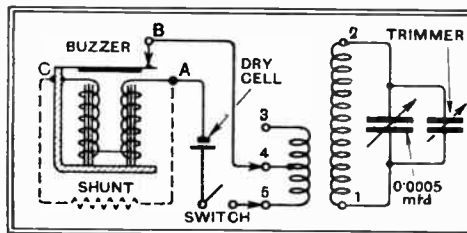


Fig. 2.—How to convert the Station Finder into a radiating meter, suitable for operation with any type of set, by the addition of a buzzer.

to be a little misleading if the receiver is on the point of self-oscillation, and so too much reaction should not be employed.

A detector anode current meter is a desirable, but by no means essential, aid to the taking of readings or to initial cali-

bration. When grid leak detection is employed in the receiver, current will fall when the receiver is tuned to a signal; as the Station Finder is brought into tune with the same wavelength, current will again rise, maximum deflection being obtained at the point of resonance. Exactly opposite effects take place in sets with anode bend detection.

A Radiating Station Finder

As already stated, the original Station Finder will usually fail to work with sets in which the aerial is directly coupled to

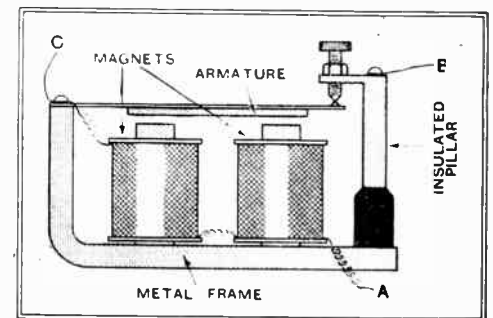


Fig. 3.—Constructional details of a typical buzzer. Lettering of the terminal points corresponds with Fig. 2.

the high-potential end of the input coil through a very small condenser (something between 20 and 50 micro-microfarads). The most satisfactory way of making the device suitable for operation with such sets, and also those with automatic volume control, is to convert it into a radiating wavemeter by the addition of a buzzer, on-off switch, and dry cell in the manner shown in Fig. 2. Probably the best buzzers to use are those which were designed for use in Service wavemeters, and of which a large number are still available at a cost of some three or four shillings. Among other firms supplying these appliances are the Grafton Electric Co., 54, Grafton Street, London,

More About the Station Finder—

W.I. and Electradix Radios, 218, Upper Thames Street, London, E.C.4.

A fairly small dry cell, such as the Siemens "S" size, will be suitable in most cases, as the current consumption is not heavy, and, moreover, is intermittent. As for the switch, any available component of the on-off type will do, and it may be mounted on the top right-hand corner of the panel; the other components may be secured inside the cabinet.

A 7 in engraved ivory dial for the Station Finder is available from the Publishers at a cost of 2/-, post free.

Buzzers differ in their construction, although all are identical in principle. The simplified sketch given in Fig. 3 will make clear the construction and connections of these devices; terminal points are lettered to correspond with Fig. 3. It should be noted that, in order to eliminate sparking at the vibrating contact, a non-inductive resistance shunt must be connected across the buzzer coil or coils. This shunt may have an ohmic value roughly equal to that of the windings

themselves; the type of buzzer mentioned above is usually wound to 25 ohms, and a 20-ohm resistance, preferably of the carbon or metallised type, may be used.

When a buzzer is employed, the procedure for making initial adjustments, and afterwards for identifying stations, is rather different from that already described. The set is tuned to a known transmission at about 250 metres, and the indicator dial is set accurately to register the name of that station; the buzzer is then put into operation, and the trimming condenser is adjusted until the local radiation is heard at maximum strength from the loud speaker. To identify a station, the indicator dial is rotated until buzzer signals are of maximum loudness, and the name is then read directly from the scale.

For operation with a buzzer, there is no direct connection to the receiver; it will generally be best to place the Station Finder at a distance of a foot or two from the aerial lead-in wire. As a rule, the buzzer, battery, and switch should be joined in series across the primary terminals of the coil which are marked 3 and 4; when dealing with less sensitive sets, terminals No. 4 and 5 may be used.

INTERCHANGEABLE FOR A.C. OR D.C.

A New Kit of Parts

IN *The Wireless World* of June 15th a description was published of a "Universal" A.C.-D.C. set, in which Ostar indirectly heated valves were employed. Without any alterations to the receiver, either internal or external, the power-plug of the set could be inserted at will in sockets joined either to A.C. or D.C. sources of supply.

A kit of British-made parts for a detector-L.F. two-valve set, which embodies essentially the circuit arrangement already described, has now been produced by Eugene Forbat, Nivalight, Ltd., 1, Rosebery Avenue, London, E.C.1. Subjected to test on both A.C. and D.C. supplies, the receiver compared well with more conventional arrangements of similar pretensions. The background when working on D.C. was particularly quiet, and, on A.C., hum was not above the average level.

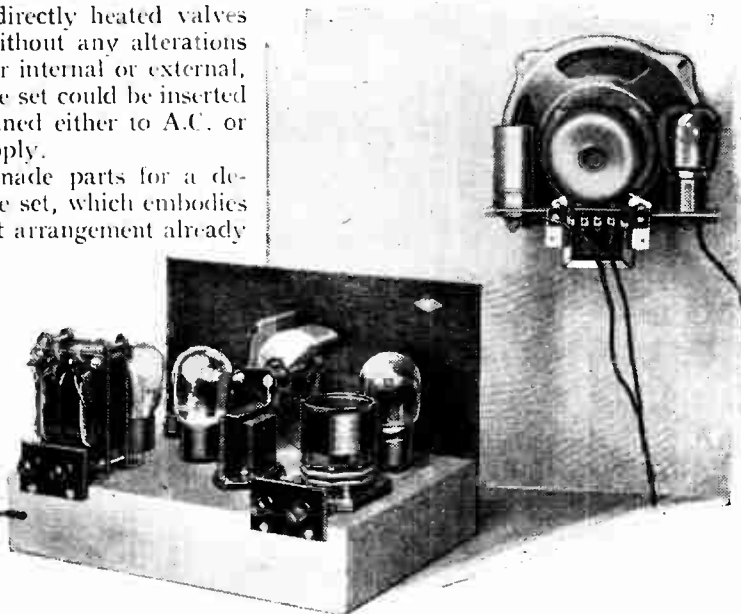
Field Supply.

The complete kit of parts, including two receiver valves and a rectifier, costs £6 10s.

Economy in maintenance cost, particularly on D.C. supplies, is a strong point, as total consumption of energy amounted to little over 25 watts—much less than

that of the average domestic electric lamp.

For supplying energising current to the



A two-valve kit set, with indirectly heated high-voltage valves, and a field supply kit for obtaining energising current from A.C. mains.

field winding of a moving-coil loud speaker, the directly heated high-voltage Ostar rectifying valves are particularly suitable. Their applications in this direction were described in our issue of March 23rd. A kit of parts at the price of £2 5s., including the valve, is now available for feeding standard field windings; smoothing is effected by an electrolytic condenser of the aqueous type.

DISTANT RECEPTION NOTES

BIG changes are imminent in French broadcasting affairs, especially in the Paris area. It is reported on the one hand that the Eiffel Tower will shortly go out of business as a broadcasting station, rising to a higher wavelength and confining itself to time signals, weather reports, and so on. On the other hand, Radio-Paris, at present the property of a company, is to be taken over by the Government.

There seems to be no justification for the retention of either Radio LL or Radio Vitus. They are both quite small stations, but the amount of interference that they cause is considerable. At present neither is working on anything like its proper wavelength—not that either of them often does.

The Russian broadcasting scheme now has six stations of 100 kilowatts at work. Four of these are situated in Moscow, the others being at Leningrad and Novosibirsk.

A good deal of confusion arises from time to time over the Hilversum and Huizen programmes. Actually, there are two transmitting stations, Huizen on 1,875 metres, and Hilversum on 296.1 metres, and four broadcasting associations. Of the latter one, the Labour Radio Society (VARA) is a political body; two, the Catholic Radio Society (KRO), and the Christian Radio Society (NCRV) are religious associations, and the last, the General Broadcasting Association (AVRO), is something which corresponds more or less—very much less than more—to the B.B.C. The VARA and AVRO nominally share the Hilversum programmes, whilst the KRO and the NCRV parcel out those of Huizen between them.

So far so good, but now a complication arises. The long-wave Huizen has a much better service area than the shorter-wave Hilversum, and to ensure that fair is fair a change-over is made every three months. At the present time Huizen is Hilversum, sending out the VARA and AVRO programmes on 1,875 metres, whilst Hilversum is Huizen, transmitting those of the KRO and the NCRV on 296.1 metres.

Luxembourg Testing

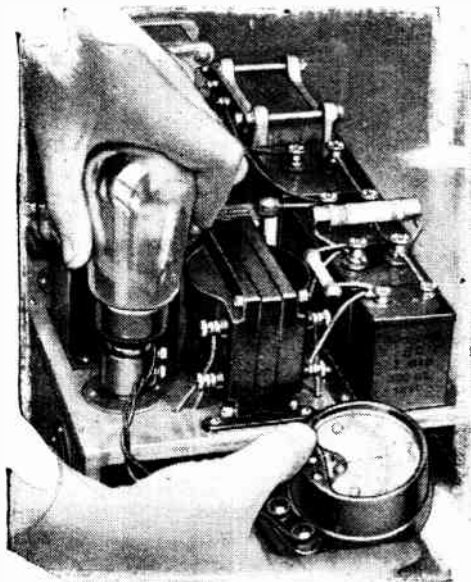
Though refused, one understands, a wavelength by the Madrid Conference, Luxembourg is still conducting tests during daylight hours on a little below 1,280 metres. Next to one's local this must be the world's easiest station to pick up, and the heterodynes caused are almost unbelievable.

The best stations at the moment on the long waves are Huizen (which, of course, is temporarily Hilversum!), Zeesen, Warsaw, and Oslo. Both Motala and Kalundborg are distinctly off-colour.

On the medium waveband the choice is still a very wide one, though heterodynes spoil a good many transmissions. The worst crop of these that I can ever remember is to be found now between 358 and 372 metres, where every station appears to be heterodyning or jamming every other. The main cause of the trouble is the aforementioned Radio LL, which is causing station after station to wander in self-defence from its wavelength. The stations best worth attention are Munich, the two Brussels stations, Langenberg, Rome, Katowice, Leipzig, Toulouse, Strasbourg, the Poste Parisien, Breslau, Bordeaux, Hilversum, Heilsberg, Trieste, Nurnberg, and Fécamp. D. EXER.

Practical HINTS AND TIPS

AIDS TO BETTER RECEPTION



WHEN building a mains-operated receiver it is usual to take a good deal of care with the arrangement of connecting leads carrying "raw" A.C. current; the "go" and "return" leads are generally twisted together, and they are spaced as widely as possible from such danger points as detector-grid circuits, etc.

Wiring of D.C. Sets

In dealing with D.C. mains sets it is sometimes forgotten that almost equal care should be taken, particularly with regard to the heater wiring and the mains leads connected to the on-off switch, at any rate, if this component be mounted on the front panel.

Electrostatic pick-up in the detector circuit—not forgetting the second detector of superheterodynes—should again be guarded against.

ALMOST every user of a wireless set will have observed that various effects become evident if certain parts of the receiver be touched with the finger while it is in operation. It is sometimes held that rough-and-ready tests may be carried out in this manner, but it is by no means easy to draw a logical conclusion from the effects that may be observed.

Testing by Touch

One result of touching the point in the receiver is to connect a resistance of high but rather uncertain value between that point and earth. Another effect, which in nearly every case is much more important, is to add a capacity of similarly undefined value between the same point and earth. Further, body capacity may act as an unwanted coupling between circuits, and so may produce instability.

By touching the high-potential end of the grid circuit, it is generally reassuring to find that signal strength is decreased, thus indicating that the tuning of the cir-

cuit has been disturbed. It is possible that on touching the high-potential end of one of the tuned circuits of a ganged receiver, signals will become stronger. This effect conveys the warning that in all probability the circuit is out of alignment with the other, and has been artificially brought into tune by the addition of body capacity.

A complicating factor, which shows the dangers of forming too hasty conclusions, is due to the "aerial" effect of the body. To avoid excessively loud signals, tests are often made with no aerial, or with a very short aerial, and in such cases the signal "pick up" of the body may overshadow the effect of its capacity in detuning the circuit.

IT will be fairly obvious that the use of the quiescent push-pull system, which offers extraordinary advantages in battery-operated sets, is by no means confined to simple det.-L.F. outfits of limited range. It works just as satisfactorily when the detector valve is preceded by one or two stages of H.F. amplification.

Long-range Sets with Q.P.P.

Those who propose to employ this efficient and economical system would be well advised to adhere to the detector-

cede it, there is no reason why conventional practice should not be followed, and existing components of standard design may be employed. For the benefit of those working on these lines the circuit diagram given in Fig. 1 has been prepared; it shows a satisfactory form of tuning system and intervalve coupling to work with the set in question.

Probably the only detail that requires explanation is the method of obtaining variable bias for the H.F. valve. Although there are other ways of doing it, the method shown is probably as convenient and economical as any other. A second potentiometer for controlling H.F. grid voltage is merely shunted across the potentiometer already provided for close adjustment of output-valve bias.

In order to maintain the proper load on the grid-bias battery it is advisable to increase the value of the original potentiometer R5 from 25,000 to 50,000 ohms, and the added "H.F." potentiometer should have the same value.

In the diagram the components associated with the detector-L.F. circuits have been assigned their original reference lettering; suggested values for the additional components are also shown. Coupling condensers for the input band-pass filter are marked CC1 and CC2; if the "double capacity" method of

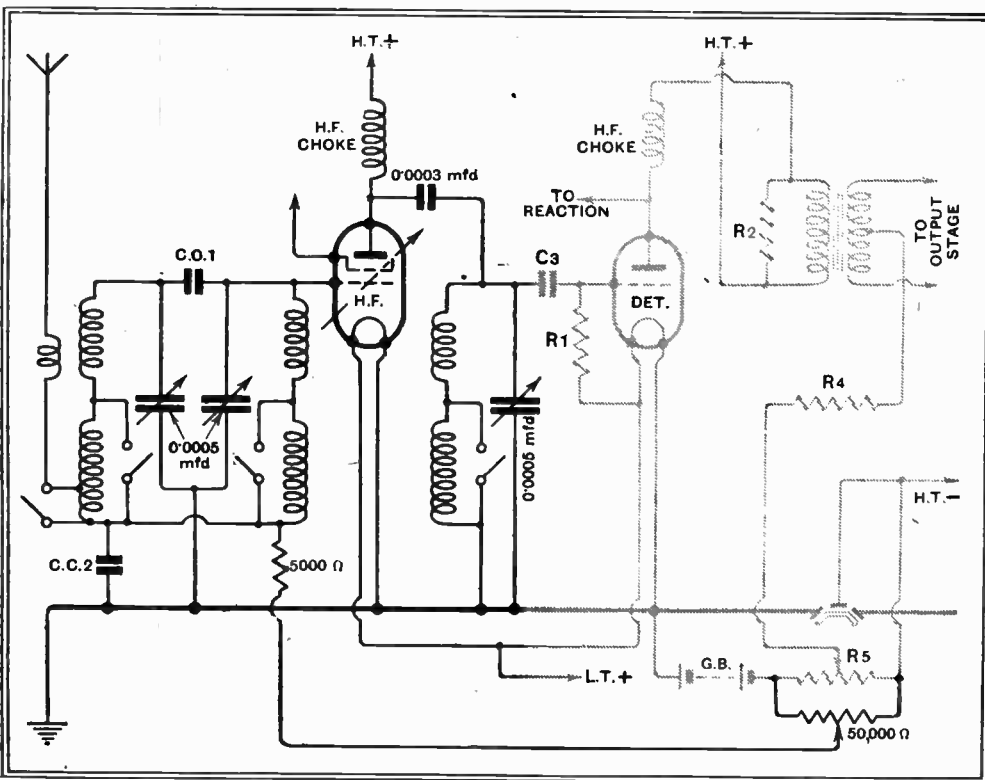


Fig. 1.—Adding an H.F. stage to the "Quiescent Push-pull Two."

output arrangements of the "Quiescent Push-pull Two" described last week, with regard to an H.F. amplifier to pre-

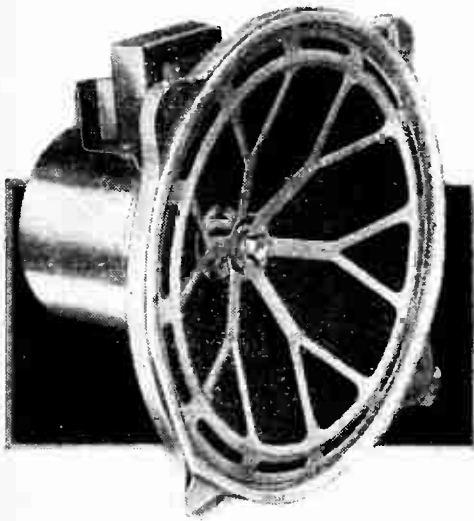
coupling be employed these should have the capacities recommended by the makers of the coils.

LABORATORY TESTS

MAGNAVOX "MAGNA" LOUD SPEAKER

THAT the field strength in a moving-coil loud speaker is one of the most important factors affecting the sensitivity and acoustic efficiency is well known. It is not generally appreciated, however, that an increase in the magnetic field is also capable of effecting a marked improvement in the quality of reproduction. This is due to the fact that a strong magnetic field, in conjunction with a closed circuit moving coil resistance of low value, introduces damping which considerably reduces the effects of any mechanical resonance which may be present in the diaphragm assembly.

In the type DC142 "Magna" loud speaker tested this effect can be convincingly demonstrated by lightly tapping the diaphragm with a pencil and at the same time switching the field current on and off.



The new Magnavox "Magna" type loud speaker which incorporates an exceptionally generous magnetic circuit.

With the field off, the natural period of the diaphragm at about 90 to 100 cycles can be distinctly heard, but completely disappears when the field current is switched on.

The general quality of reproduction compares very favourably with loud speakers of similar type employing a lower flux density in the field. There is no sharply defined bass resonance, and the bass output, which is of a slightly higher order than that in the middle register, is spread over a comparatively wide band from 75 to 250 cycles. There is another region of increased output between 2,200 and 4,000 cycles, and the extreme top between 4,500 and 8,000 cycles is unusually good, being comparable in strength with the middle register. The reproduction of transients is crisp, and the quality of speech is decidedly above the average.

It is, however, in the matter of sensitivity that the "Magna" loud speaker excels. The general level of acoustic output for a given electrical input is fully six decibels above the average medium-sized energised moving coil. In actual fact the efficiency, as far as our tests are concerned, has only been equalled by one or two horn-type, moving-coil loud speakers in which the directional effect of the horn plays a considerable part.

The "Magna" series of loud speakers are made in two types with 7in. and 8½in. dia-

NEW RADIO PRODUCTS REVIEWED

phragms. The DC142 tested is of the latter size, and costs £3 7s. 6d. complete with output transformer. The makers are Magnavox (Great Britain) Ltd., 89, Kingsway, London, W.C.2.

LOTUS COMPONENTS TESTED

ALTHOUGH specimens of all the latest Lotus components have been sent in for examination, only a few can be dealt with here in view of the extensiveness of the range. Of the various L.F. transformers made, the Type 2 was chosen for test, as this is a medium-priced model made in 1:3 and 1:5 ratios, and costs 7s. 6d. With the 1:3 ratio model connected in the anode circuit a valve of 10,000 ohms A.C. resistance and with a current of 1.5 mA. flowing the amplification is maintained at a satisfactory level from 200 cycles up to 6,500 cycles. The maximum amplification is attained at 3,500 cycles, when there appears a slight peak equivalent to an increase of 5 decibels above the general level measured at 1,000 cycles. The D.C. resistance of the primary winding is 1,000 ohms, and its inductance at 50 cycles with no D.C. flowing is 32.5 henrys.

The D.C. output choke, which is rated at 20 henrys, has a resistance of 750 ohms, and will carry up to 20 mA. of D.C. This model is more suitable, however, for use in small sets and eliminators where the normal working current does not exceed some 12 mA. under which conditions the rated value of 20 henrys was obtained. With no D.C. flowing, the inductance was 83 henrys, but this fell to 25 henrys with a D.C. current of 8 mA. passing through the choke.

There is a wide selection of differential condensers available. One model, known as the Miniature Type, is made in values of 0.00015 and 0.00035 mfd., and the price is 3s. These are of the solid dielectric type, and are ideal for use in reaction circuits, for their minimum capacities are very low indeed. The specimen tested showed a minimum capacity of 5.5 m-mfds. on each side, the maximum capacities being 0.000237

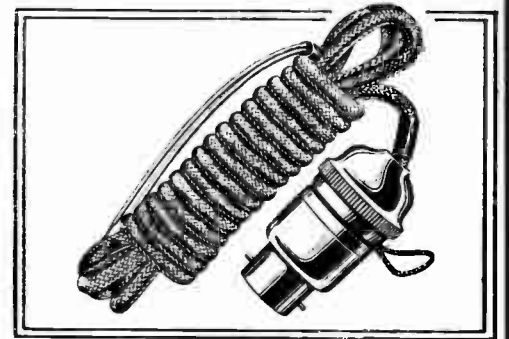
viz., 0.0003 mfd. and 0.0005 mfd. The minimum and maximum capacities of a 0.0005 mfd. specimen were found to be 16.5 m-mfds. and 0.000475 mfd. respectively.

Three types of valve holders are now made; the cheapest model is the V.H.K. It is an anti-microphonic four-pin valve holder, and costs 6d. The rigid type, which is for A.C. valves, is available with or without terminals, the prices being 9d. and 10d. each respectively. A miniature anti-microphonic model measuring 1½in. in diameter costs 1s. with or without terminals.

The makers are Lotus Radio, Ltd., Mill Lane, Old Swan, Liverpool.

HARBROS MAINS LEADS

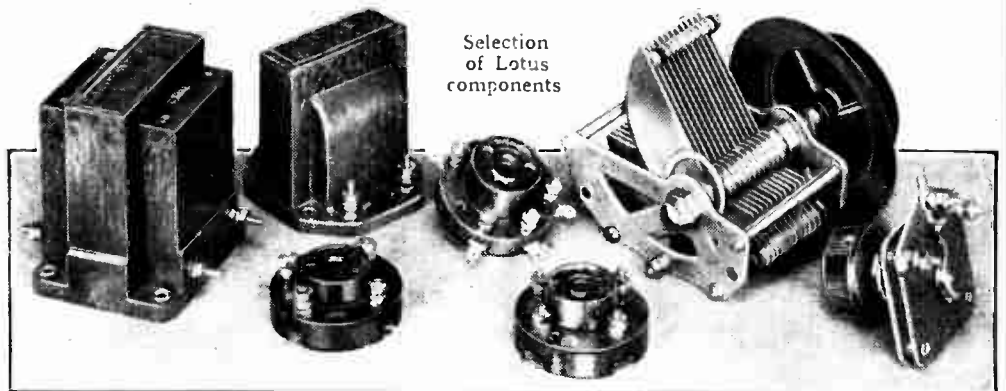
A SILK-BRAIDED mains lead ready for fitting to a mains receiver and terminating in a universal lamp holder and two-pin plug adaptor is now obtainable from Hart



Harbros silk-covered mains lead fitted with universal adaptor

Bros. Electrical Manufacturing Co., Ltd., Queensway, Ponders End, Middlesex. There are two styles available, the one consists of a single pair of conductors, while the other has three wires, one of which is intended to be used as a mains aerial. There is no direct connection between the aerial wire and the mains, the capacity between the leads providing adequate coupling for most purposes.

The single-pair lead costs 2s. 9d. in 8ft. lengths and 3s. 6d. in 12ft. lengths, while the price of the three-wire style is 3d. extra in both cases.



Selection of Lotus components

mfd. and 0.000238 mfd. respectively. Another style fitted with stout brass vanes and made in 0.00013 mfd. and 0.00034 mfd. costs 4s. 6d.

The Slow Motion Log Condenser is made almost entirely from aluminium, and, since the price complete with knob and dial is but 6s. 6d., it should prove of interest to those concerned with the construction of an inexpensive receiver. Two sizes are available,

CATALOGUES RECEIVED

British General Manufacturing Co., Ltd., Brockley Works, Tyrwhitt Road, London, S.E.4.—Fifteen-page catalogue describing British General receivers and components.

The British Ebonite Co., Ltd., Nightingale Road, Hanwell, London, W.7.—Illustrated handbook of coils, wound on Becol formers, also circuit diagrams showing their application.

BROADCAST

By Our Special Correspondent

BREVITIES

Inside the Organ

I HAVE just been savouring existence inside the new 710,000 organ at Broadcasting House. Three experts have spent many working days in this cramped cubby-hole, and will continue to do so for the next three weeks, by which time, so they tell me, the organ should be playable.

Compression Marvels

The whole thing is a miracle of compression. "We have never had quite such a job before," one of the organ builders told me. "In cinemas, we often have to make the most of a small space, but we haven't so much to cram into it. This time the organ is a really big one. However, the whole job has been very carefully worked out and the results will be good."

Like a Cave

Impossible at present to judge from appearances whether the results will be good, bad or indifferent, for all that can be seen are pipes and conduits clustered like stalactites and stalagmites in a cave. There are no bellows, as wind will be supplied direct from the electric fan to the wind chests at automatically regulated pressure.

"Cinema Organ" to Order

One thing I can and will reveal, namely, that this organ will be able to beat any cinema organ at its own game if the performer so wishes. Within the instrument are "effects"—drums, triangle, cymbals, glockenspiel, and other contraptions—which would make an ordinary organ enthusiast go queasy.

Happily, however, there is ample diapason material to provide the authentic organ tone when required.

A Suggested Time Switch

A correspondent writes suggesting that the installation of the new organ is a good opportunity for the introduction of "a special time switch which would function when the player had (1) used the tremulant for two consecutive minutes or (2) used a nanny goat stop with tremulant for one minute, or (3) forgotten he wasn't blowing a nigger organ with the swell pedals. By means of the time switch all nanny goats, vox infantas, tremulants, and celestes would be immediately drawn in and securely locked for two hours."

U.S. Calls Fleet Street

"HELLO, Fleet Street," is the title of a programme which National and Regional listeners will hear to-morrow evening, January 28th. The programme will originate in one of the New York studios of the Columbia Broadcasting System, who are presenting it as a final summing up in a series of round-table discussions which they have recently broadcast under the title of "America's Grub Street Speaks." The participants in the discussion on January 28th will include Mr. Richard Roy Smith, a New York publisher of note, on the subject of English and American Publishing; Mr. George Jean Nathan, editor, author and critic, on International Relationships among Authors; Mr. Ernest Boyd, the author, on International Criticism; and Mr. Theodore Dreiser on World Affairs and Literature.

A Mystery: B.B.C. and the Test Match

THE B.B.C. "gets it in the neck" so often that I rejoice when an occasion arises to defend the Corporation at the expense of the foreigner. Several readers have asked me why the B.B.C. account of the Test Match at Adelaide was so indistinct and upset by atmospherics as compared with the crystal clear enunciation of Alan Fairfax, picked up and relayed by Poste Parisien.

The Explanation

The explanation is simple. Poste Parisien, despite appearances, was not giving listeners a direct first-hand account from the Adelaide cricket ground. The "story" was cabled and retailed at the Poste Parisien microphone. On the other hand, the B.B.C. account was heard from Adelaide direct, being transmitted over the Post Office Australia-England beam system. Which method is more popular with listeners?

Roy Fox from the Kit Kat

AT least a temporary truce seems to hold sway between the B.B.C. and the General Theatres Corporation: indeed, to judge from certain circumstances, the two organisations are thoroughly good friends. Why else should the Kit Kat Club (which belongs to Gaumont British, which in turn is allied to the G.T.C.) undertake special structural alterations to enable Roy Fox to give of his best for broadcasting purposes?

By the way, this sparkling dance-band leader and his equally sparkling band are to be heard more frequently on the ether.

The Search for Variety

If the B.B.C. ever hopes to form a vaudeville repertory company of its own it has received little encouragement from the recent crop of auditions. Some fifty aspirants are now being heard each week, and the B.B.C. feels hopeful if two out of fifty come within measurable distance of being "possibles."

Cynics in the Making

Views at headquarters are growing less sanguine on the question of the plentifulness of vaudeville talent in unexplored corners of this green and pleasant land. Apparently a spell of auditions has turned optimists into cynics.

Malcolm Frost III

HERE'S wishing a speedy recovery to Malcolm Frost, the B.B.C.'s "Empire Ambassador," who has been checked on his world tour by an attack of malaria at Cape Town. This puts him at least four weeks behind schedule, for he should have been in India by now.

Mr. Frost is engaged in distributing the special records of B.B.C. programmes for rebroadcasting from local stations up and down the Empire.

A Plea for Poetry

THE B.B.C. is constantly searching for new talent in music; the Corporation's latest invitation is extended to poets. It wants the late five-minute readings at the end of each night's programme from the studio to be representative of the loveliest poetry not only of the past, but of the present, and it invites every listener to submit by February 28th poems from which a selection will be made. Those selected will be read at the microphone during the late readings in the month of April.

Brevity a Merit

Mr. Walter de la Mare and Mr. Eddie Marsh, editor of the volumes of "Georgian Poetry" will act as judges of the poetry submitted.

Why Engineers See Red.

EXTRACT from postbag of B.B.C. Technical Correspondence Section:—"After midday at night the air is deadly silent."

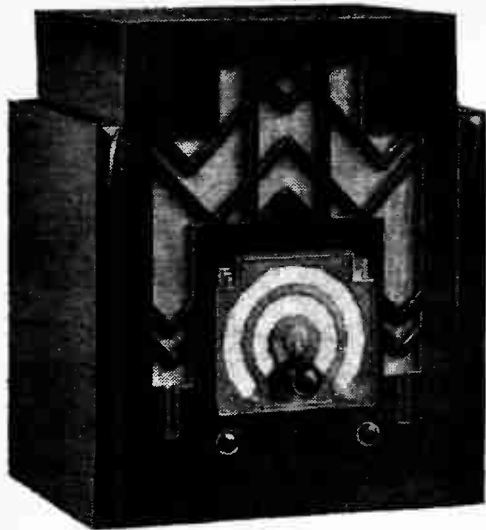


BEHIND THE SCENES. B.B.C. engineers checking amplifier performance behind one of the panels in the Control Room at Broadcasting House

Talk by Gangster?

EVERYONE at Broadcasting House, including Mr. Charles Siepmann, Director of Talks, is asking about the "prominent American gangster" who is to defend racketeering in a forthcoming broadcast talk. No one knows of such a fixture, yet Colonel Moore-Brabazon, M.P., has sought the Speaker's permission to ask the Home Secretary whether, in his opinion, such a broadcast is for the public weal.

Is the Colonel thinking of those desperadoes, Haver and Lee?



Six-Sixty

Type 3-32 Chassis set

A Battery-operated Receiver with Exceptional Range

ONLY two or three years ago the opinion was generally held that a three-valve H.F.-det.-L.F. receiver was not really sensitive enough for consistent long-range reception, although the better examples were admitted to be capable of receiving foreign stations when conditions were good. Since that time we have modified our views; many stations have increased their power, and, more important still, sets generally have become vastly more sensitive and selective.

In the Six-Sixty Chassis set we have something more than just another example of modern tendencies in battery set design; judged by any standard it is exceptionally sensitive, and, what is equally important, has enough selectivity to enable full use to be made of its range.

Although the essential circuit arrangement is conventional, there are many departures from standard practice; the underlying aim of the designers seems to have been to simplify operation wherever possible.

Double-acting Volume Control

At the aerial end there is a band-pass filter with a link-circuit coupling. The choke-fed tuned-grid system is employed in the H.F. stage, and the detector operates on the grid leak principle. A directly connected transformer is employed in the L.F. stage, and another transformer serves to link the high-efficiency output pentode (a Six-Sixty 220 PEN) to a moving-coil loud speaker, which, as this is a battery set, is, of course, of the permanent-magnet type. In the grid circuit of the pentode an H.F. stopping resistance is inserted.

One of the most interesting circuit details is to be found in the combined volume-reaction control, which is effected by means of a variable resistance shunt across the aerial circuit in combination with the reaction condenser. Both these components are mounted on a common spindle and are controlled by a single knob; as the resistance is progressively increased in value, reaction feed-back between anode and grid circuits of the detector is similarly increased. It should

be noted that matters have been ingeniously arranged for the same variable resistance to act as a gramophone volume control. For this purpose it becomes the variable limb of a potentiometer when the pick-up is thrown into circuit; the second limb consists of a fixed resistance.

Automatic bias voltage for the output valve is developed across a resistance in the negative H.T. lead in the usual manner; the inclusion of this refinement is to be commended, as the non-technical user, without access to measuring instruments, can rest assured that, when H.T. voltage falls with increasing age of the battery, a commensurate reduction in bias voltage will take place automatically, and so the best possible quality of reproduction will be maintained under all conditions without the need for adjustments.

Provision has wisely been made for compensating for the varying capacities of different aerial-earth systems, with the object of maintaining full sensitivity and selectivity under all conditions. This adjustment, which need only be carried out when the set is first installed, is effected by a semi-variable aerial series condenser, of which the controlling screw projects

through the back of the chassis in a position where it is sufficiently accessible for the purpose.

A clue to the reason for the exceptional sensitivity of the Six-Sixty set is found in the three tuning coils, which are screened in copper pots of dimensions rather greater than usual. The medium-wave windings are of stranded litz wire, and have obviously been proportioned for maximum efficiency.

Another constructional detail worthy of special mention is the large indicating dial, which, in addition to carrying a scale marked in arbitrary units, is station-calibrated on both medium and long wavebands. The dial is illuminated from the back by means of pilot lamps mounted in a container which revolves with the condenser drive mechanism; narrow beams

of light concentrated through slits in the container act as index marks, which are automatically transferred by operation of the wave-range switch to the appropriate part of the scale. The pilot lamps are automatically switched on as soon as the set is put into operation, but, to avoid wastage of battery current, they may be switched off, as soon as the desired programme has been tuned in, by means of an extra switch which is built into the tuning-control knob.

As the necessary voltage-absorbing resistances for the various anode and screening-grid circuits are included in the receiver there are only two leads to the H.T. battery, and so the operation of fitting a replacement battery is greatly simplified. Another refinement is the provision of a safety fuse in the negative

H.T. lead.

As already implied, the most impressive feature of the Six-Sixty receiver is its sensitivity. In this respect it will bear comparison with many mains-operated receivers with a similar circuit arrangement. Performance is particularly striking on the medium band, and sensitivity is maintained much better than usual towards the upper end of the wave-

range scale. Although it might perhaps be a little more constant, reaction control works well, without roughness or overlap.

On the long waves, the range of the set is perhaps not quite so striking, but is relatively good when compared with the average standard. On both bands, selectivity is rather greater than one expects to obtain from a three-circuit set, which means that it is sufficient for all reasonable requirements.

Taking into account the fact that the total anode-current consumption, with an H.T. battery of 120 volts, amounts only to 8 or 9 milliamps., the volume obtainable is surprisingly high, which would indicate accurate matching in the output stage. But quality is at its best at a level slightly lower than that obtainable without running into obvious overloading,

FEATURES

General.—A self-contained three-valve receiver for battery feed and for operation with an external aerial-earth system. Permanent-magnet moving-coil loud speaker. Provision for gramophone pick-up and external loud speaker.

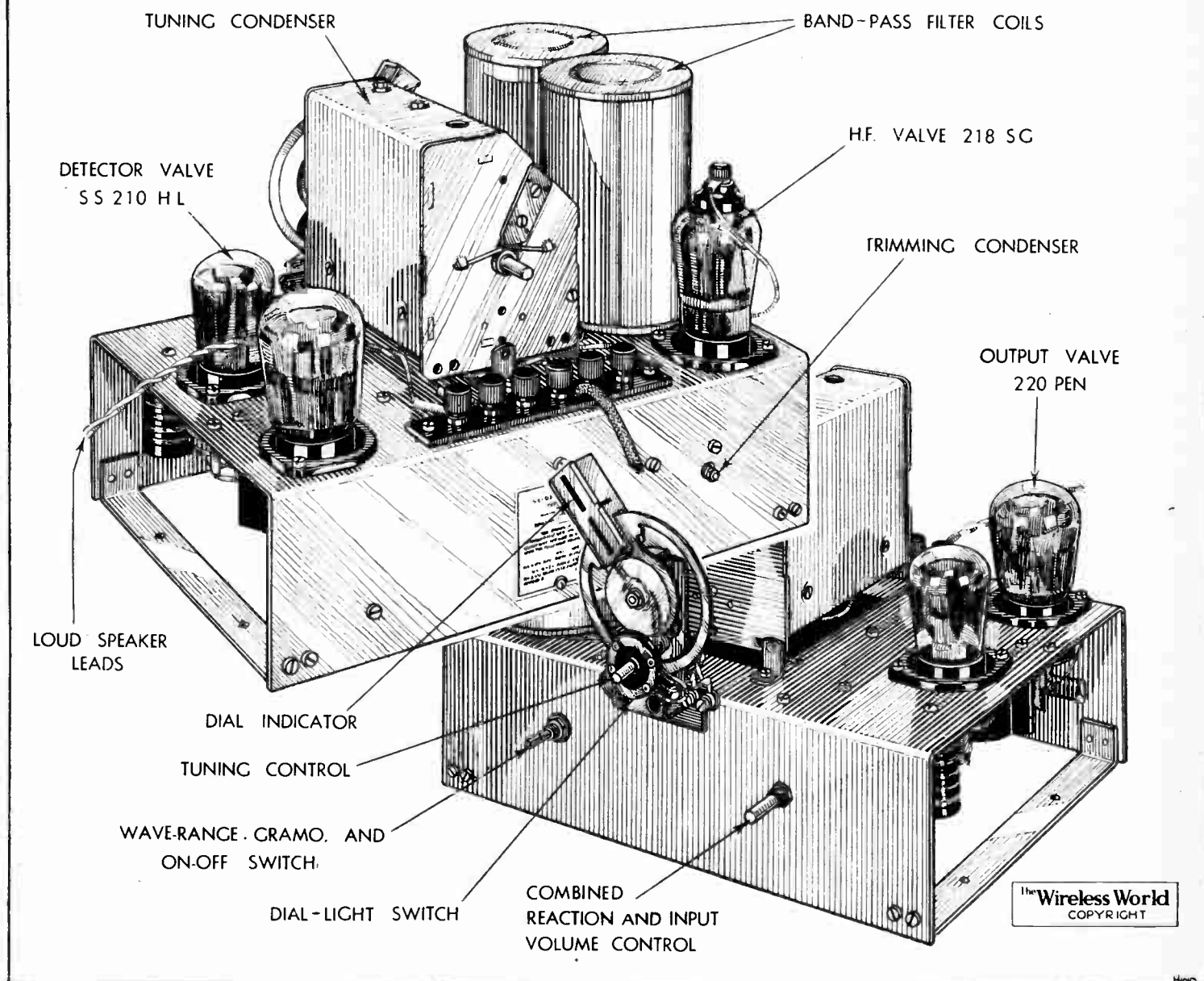
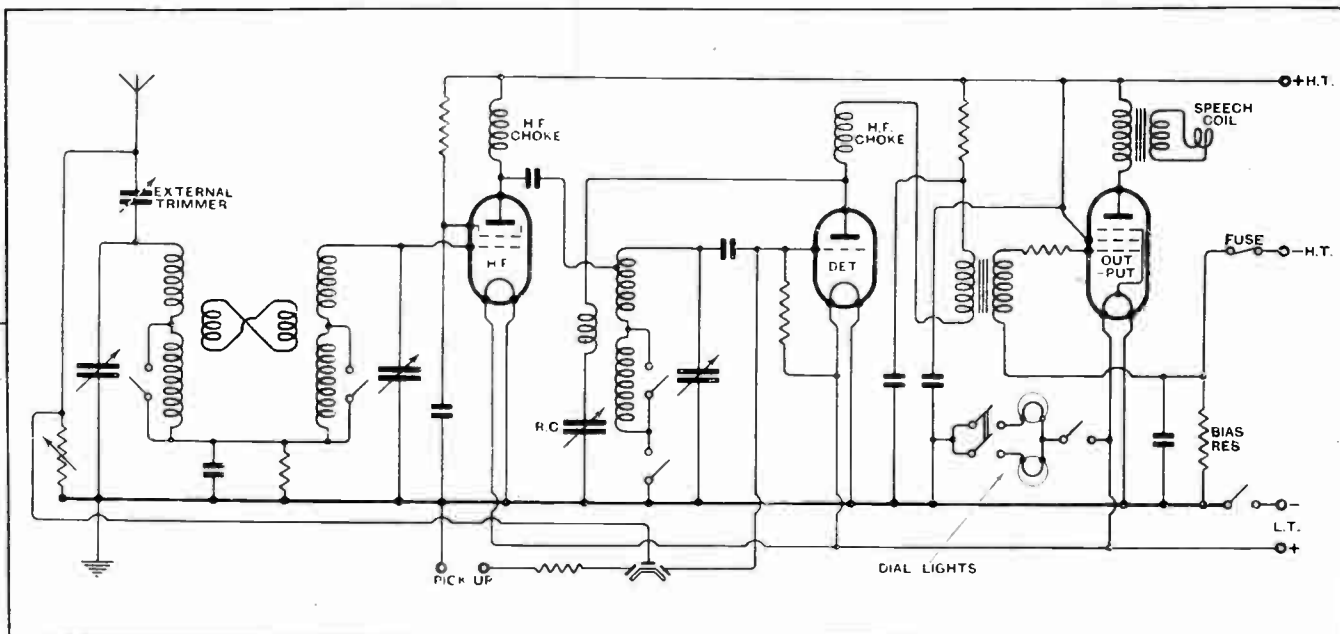
Circuit.—Input filter, with "mixed" coupling. One tuned H.F. stage, parallel fed. Grid detector, transformer-coupled to pentode output valve. Transformer feed to loud speaker.

Controls.—(1) Ganged tuning. (2) Combined on-off, wave-range and radio-gramophone switch. (3) Combined reaction and input volume control.

Price.—10 guineas, complete except for H.T. and L.T. batteries.

Makers.—Six-Sixty Radio Company, Ltd., 17 - 18, Rathbone Place, Oxford Street, London, W. 1.

Modern Tendencies in Battery-set Design



Two views of the Six-Sixty Type 3-32 chassis. The dial lights are fitted inside a rotating carrier. Inset: Complete circuit diagram of the receiver.

Correspondence



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

Correspondence should be addressed to the Editor, "The Wireless World," Dorset House, Tudor Street, E.C.4, and must be accompanied by the writer's name and address

What Does the Public Want?

THERE appears to be a good deal of evidence pointing to the existence of a huge misunderstanding in receiver design.

On the one hand, designers, reviewers, discussers, and critics almost invariably take it for granted that the most important function of a receiver (home or factory built) is the reception of foreign stations. It is judged and discussed from that angle, and the suggestion that there are some listeners who have no particular desire to receive programmes other than the two locals is met with cynical amusement.

On the other hand, my personal observation has failed to reveal one single listener who has any sustained interest in hearing distant programmes. There are those who take a butterfly tour of the Continent, not to listen seriously to the programmes, but for the fun of it, just as a motorist may open out a sports car even though he has no desire to get to any particular place quickly. But I have never come across a person who makes a practice of listening continuously to foreign programmes.

There are many things that can be said in explanation, confirmation, or refutation of these conflicting situations. I may have struck an exceptional patch of the genus Listener, and there may be no real discrepancy. That is to say, the designers and critics may be perfectly right in their estimate of the public demand. Paradoxically, they may be right even if people do *not* want distant reception. For at least one "man-in-the-street" has told me candidly that he invariably listens to the locals, but must have a set capable of reaching out, just for the psychological effect of possession. In that case, all the vast amount of thought and expense which are devoted to the production of long-range super-selective receivers is required merely to sell them.

Turning to the point of view of those who provide the sets, their estimate is based on two assumptions:—

(1) that the B.B.C. programmes are inferior to foreign ones, and

(2) that foreign programmes can be heard satisfactorily.

Dealing with the second point first, we all know that for every receiver it is claimed that stations from abroad can be heard "with quality indistinguishable from that of the local station," or, more modestly, "with good programme value." The motive for these claims is, of course, not always disinterested, but allowing for that there are some who would not regard them as far-fetched. The only thing I can say about this is that their conception of "local" quality must be considerably lower than mine. It is easy to make oneself believe quite sincerely, on tuning in to a far-off station, that reception is every bit as good as the best that can be obtained from a local. But this illusion is more difficult to sustain. The shop demonstration is no

test, for the demonstrator takes good care to pass on to the next station in a few seconds.

There are perhaps a few exceptional stations and times, but it is not very wide of the mark to declare that no listener who insists on the highest obtainable quality of reproduction can be satisfied for long with reception from any station at a distance greater than about 300 times its wavelength. Fading, heterodynes, atmospherics, machine noises, all combine to mar the result. To mention only one objection: audio frequencies over 4,000 or 5,000 cycles cannot be received entirely free from interference unless the field strength of the wanted station is very much greater than that of adjoining wavelength channels.

revenue would permit of really first-class artists being engaged.

It is easy to accuse the B.B.C. of failing to make use of the best entertainment available, but it is very much harder to prove it by naming any person or item of appreciable value (other than those debarred by impediments such as copyright or contracts) excluded from British programmes. It must be remembered, too, that top-line celebrities of stage, platform, or elsewhere, are not necessarily good broadcasting personalities, and if they were, one can easily have too much of them.

My personal opinion, shared largely by the foreign listeners themselves, is that except for isolated items their programmes compare unfavourably with those issuing from these islands, and sets sold abroad must be guaranteed to receive Daventry clear of all others.

Are manufacturers of long-range receivers (i.e., substantially all receivers) catering for an imaginary demand, a merely psychological demand, or a real demand? They would be very pleased to know, for the perplexities of technical design are as nothing compared with the perplexities of estimating what the public wants.

"DIAGNOSTIC."

Are There Too Many Operators?

MY attention has been drawn to the correspondence appearing under the above heading in a recent issue of *The Wireless World*, and which subject, I think, is not completely treated.

Wireless operators do not, nowadays, secure appointments so readily as they did a year or so ago. Neither, for that matter, does anyone else. It is agreed that the guaranteeing of appointments is ambiguous, for if the Government Ministers and others in authority who have every facility at their disposal are unable to foretell the trend of events, how can any ordinary individual be expected to do so?

Even with shipping at its present very low state seagoing appointments are still obtainable by men who will seek them, but the day has passed when one can sit at home in "Slocum-in-the-Mush" and expect the employer to seek the operator.

A successful man will look around for a suitable outlet for his abilities when the one in which he is interested is passing through a bad time, and in this respect the man with a P.M.G. Certificate is most fortunately placed, for, with a suitable adaptation of his training, the whole field of broadcasting is open to him.

In conclusion, I might add that some of the men who have secured P.M.G. Certificates at this college recently have obtained seagoing appointments, one of these only having a second-class certificate. On the broadcasting side, those trained here for that work have secured appointments in all branches, but obviously a man who is only trained as a seagoing operator cannot expect to be engaged as a service engineer without additional training. Your correspondents should endeavour to realise that the fact of

The Wireless World

SPECIAL

RADIOGRAMOPHONE

and Accessories Number

Friday, Feb. 3rd, 1933

QUITE apart from the self-contained instrument, a radiogramophone is within reach of practically every wireless user. Most present-day receivers are ready fitted for gramophone use and require only the addition of pick-up and turntable.

To assist readers in getting best results special articles in this number will be devoted to Volume Control and Pick-up Connections, and to the essential features of Modern Pick-ups, Gramophone Motors and Record-changing Devices.

There will be useful Constructional Details of Battery and Mains Gramophone Amplifiers. Hints and Tips on Gramophone Reproduction, and pages of helpful illustrations.

NOTE THE DATE!

FRIDAY, FEB. 3rd.

Granting the truth of this, there are those who fall back on point (1): that the somewhat lower standard of reliability and quality of reproduction is far outweighed by the brilliance of the foreign programmes. One of the arguments in favour of sponsored programmes is that the greater

a man having secured a P.M.G. Certificate does not signify that the holder knows all that there is to be known about wireless.

GORDON S. WHALE,
Colwyn Bay. The Wireless College.

Electrolytic Condensers

WE have read with interest Mr. P. R. Coursey's article on high-voltage electrolytic condensers, which appeared in *The Wireless World* on January 13th, 1933.

The publication of information about these condensers is a very good thing, but so far we have restricted our remarks to our own publications, particularly our booklet entitled, "The Design and Construction of Radio Power Units."

It is gratifying to note that in general Mr. Coursey agrees with us, but we feel compelled to comment upon his comparison of semi-dry with wet electrolytic condensers.

As manufacturers of both wet and semi-dry types, we are perhaps in a happier position to judge their relative merits, and it is our opinion that the wet type is more reliable. Our view is based on practical experience, as well as on the following grounds:—

(1) *Composition of Electrolyte.*—The wet type electrolyte contains 92 per cent. of water, while the dry type contains about 1/10 of this amount. Thus the dry type is ten times as sensitive to removal of water which is going on slowly by the electrolytic action of the leakage current. The wet type

and time. Let us suppose that during the switching on surge an overload current of 100 mA. passes for 1/3 minute. This is only equivalent to leaving the set switched on for an extra 33 minutes under normal conditions, supposing a steady leakage current at the normal voltage to be 1/3 mA. We have taken an extreme example rarely to be met in practice. Overload currents are more usually of the order of 20 mA.

We should mention here that the voltage limiting action of the wet electrolytic condenser is a very useful property; for example, it is impossible to impress upon the 440 volt working wet electrolytic condenser a voltage much in excess of 460 volts, because the condenser acts as a temporary load until the ordinary anode current load rises to its full value. Thus the condenser, when used for smoothing, acts as a protection for subsequent apparatus.

(3) The liquid electrolyte is able to carry heat by convection to the surface of the container. There is absolutely no possibility of local high temperature. The statement that the power factor of the wet type may reach as high as 25 per cent. to 30 per cent. is liable to be misconstrued. Of course, if we desired to make a bad condenser this figure could be achieved, but, in fact, the power factor of our wet-type condensers, in consequence of improvements introduced last April, is 15 per cent. at 50 cycles, while the power factor of the high voltage dry type we agree may be from 5 per cent. to 10 per cent. according to type. The differ-



WATCHING POINTS. A supervising engineer at Broadcasting House checking the quality of transmission through a loud speaker fed from a check receiver. Quality is sometimes judged direct from the transmission lines between London and Brookmans Park.

will continue to work perfectly until at the end of about ten years the level of the electrolyte becomes reduced below the top of the positive electrode. After this the capacity will slowly decrease.

(2) *Protection against Overload.*—The wet electrolytic condenser cannot be damaged by voltage overload, assuming that the current is limited to reasonable values, for example, 100 mA., which covers the use in most radio apparatus. Local charring of the liquid electrolyte is, of course, absolutely impossible, nor does the passage of the overload current do any harm, provided that it does not continue long enough to make a condenser approach boiling point.

The amount of electrolysis that takes place is measured by the product of current

ence is not serious, however, in view of the easy dissipation of heat by the wet-type condenser and a 15 per cent. power factor has only a minute effect in reducing the effective capacity at 100 cycles.

To summarise, it appears that the dry type is useful when considerations of shape or position do not allow the use of the wet type with its far greater reliability.

As makers of both wet and semi-dry electrolytic condensers, we are able to make these comments without bias, as we are not influenced by considerations of which type becomes more popular.

THE TELEGRAPH CONDENSER
CO., LTD.,

W. J. Cole, Managing Director.
London, W.3.

CLUB NEWS

Demonstrating a Kit Set

THE Lissen "Skyscraper" Console was effectively demonstrated at a recent meeting of the City of London Phonograph and Radio Society. Mr. Clarke, the hon. secretary, admitting that the Kit was the first radio set he had constructed, stated that the assembly occupied him a few hours only. The results of the demonstration were impressive both as regards selectivity and sensitivity.

Hon. Secretary: Mr. R. H. Clarke, 5a, Tynemouth Terrace, Tottenham, London, N.15.

Ultra-Short Wave Work in Liverpool!

A SUBJECT of great topical importance was dealt with under the title "Practical Ultra-Short Wave Work," by Mr. Eric C. Wilson (2AAZ), in a recent lecture before the Southport Society of Natural Science. After a comprehensive summary of the work already performed on the very high frequencies, Mr. Wilson mentioned that several Liverpool experimenters were now transmitting on 5 to 10 metres.

Hon. Secretary: Mr. John Clegg, 34, Scarisbrick New Road, Southport.

Rectification Explained

RECTIFICATION was the subject dealt with at a recent meeting of the Croydon Radio Society, when the lecturer, Mr. D. Ashby, of the Westinghouse Brake and Saxby Signal Company, explained the assembly of a metal rectifier and discussed the various ways of using it on A.C. mains. A film was shown illustrating generating stations of alternating current.

Hon. Secretary: Mr. E. L. Cumbers, 14, Campden Road, S. Croydon.

Radio Acoustics

ENTIRELY new ground was covered by Mr. A. S. Radford, B.Sc., A.R.C.S., at the last meeting of the Bristol and District Radio and Television Society at Bristol University, when he gave a lantern lecture and demonstration on "The Acoustic Side of Radio." He outlined the more recent developments of a new science which has grown up around the new industries of the gramophone, radio, and the sound film.

Hon. Secretary: Mr. G. E. Benskin, 12, Maurice Road, St. Andrew's Park, Bristol 6.

Power from the Mains

MEMBERS of the Burton Amateur Radio Society benefited by a very lucid explanation of Mains Transformers and Power Smoothing Chokes given by Mr. F. G. Sawyer, of Partridge Wilson and Company, at a recent meeting.

Full particulars of the Society can be obtained from the Hon. Secretary, Mr. W. A. Mead (G5YY), Addiscombe, Branstone Road, Burton-on-Trent.

Rotary Converters in Use

"ROTARY Converters" formed the theme of a lantern lecture given by Mr. R. H. Woodall, of Messrs. Rotax, Ltd., at a recent meeting of Slade Radio, Birmingham. Particular interest was shown in the hand type of rotary converter for use in emergencies and for generating sufficient current to summon help in remote parts of the world. A demonstration was given using an Eddystone All-Wave Four, H.T. and L.T. being supplied by a 6-150v. converter. The machine was entirely silent in operation, and it was stated that, using the converter, it was possible to get down to 8-10 metres in wavelength without interference.

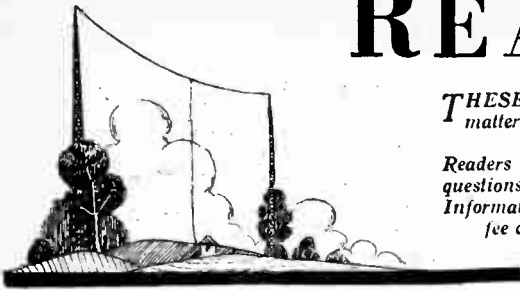
Hon. Secretary: 110, Hillaries Road, Gravelly Hill, Birmingham.

In Kentish Town

THE Kentish Town and District Radio Society has resumed meetings after the Christmas recess with a very attractive programme. Meetings are held on Tuesdays at 8 p.m. at the Holmes Road School, London, N.W.5.

Hon. Secretary: Mr. Eric A. C. Jones (2BOC), 46, Lady Margaret Road, Kentish Town, London, N.W.5.

READERS' PROBLEMS



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.

Extra Smoothing

AS a rule, a loud speaker field winding when employed as a smoothing choke gives a sufficiently silent background for most purposes. In special cases, and particularly when the user of the set is intolerant of all extraneous noises, an additional smoothing choke is usually recommended.

A querist, who has decided that the hum level of his set might be reduced, asks us to suggest a valve for the extra choke, and also to say where it should be inserted.

A choke with an inductance of about 10 henrys under working conditions should be adequate in such cases, and is obtainable with such low D.C. resistance that the loss in H.T. voltage should be practically negligible in the ordinary receiver. It should be inserted between the rectifier and the field winding, a large condenser being connected between the junction point and the negative H.T. line.

Always in Alignment

WHEN special care has been taken in the adjustments of a ganged tuning system it is, to say the least, disquieting to find that circuit alignment is no longer accurate when sensitivity is reduced for local-station reception. It is, of course, for short-distance work that one is naturally most eager to avoid any loss of quality due to imperfections in the tuning system.

The introduction of variable- μ valves has largely solved this problem, but those who are using other types of valves which do not permit of such perfect control of volume often encounter difficulties of this nature.

A reader who has fitted a "local-distance switch" in order to desensitise his set for reception of his local twin stations is disturbed to find that the input circuit of the set is detuned in relation to the others when the switch is put into use. Desensitising is actually effected by including a condenser of extremely low capacity in the

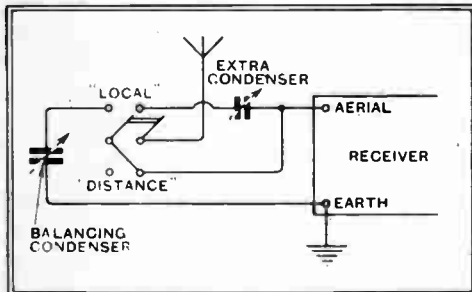


Fig. 1.—The "local-distance" switch is arranged to insert a small condenser in series with the aerial, and simultaneously to throw into circuit a balancing condenser which prevents alteration of tuning.

aerial circuit. We are asked to suggest a method of compensating for the reduction in transferred aerial capacity that is brought about by this addition.

In this case we recommend the fitting of a semi-variable balancing condenser (of about 0.0003 maximum capacity) which may be connected to a double-pole double-throw switch in such a way that it becomes effective only when the switch is in the "local" position. The capacity of this condenser is set initially to the value which gives loudest signals with the switch in that position, and it will not need subsequent adjustment. Connections are shown in Fig. 1.

In order that sufficient reduction in aerial input may be made, it is worth while to point out that the extra aerial series condenser must often have a very low minimum capacity; a maximum of 0.0001 mfd. should be ample, and in many cases an even smaller condenser might be better.

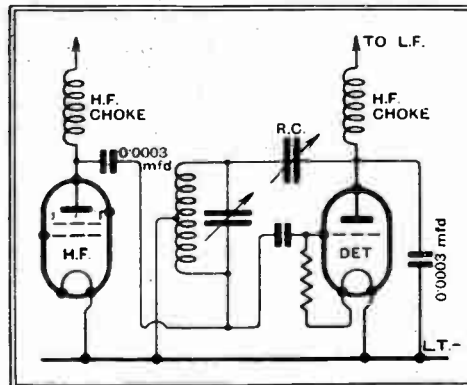


Fig. 2.—One of the simplest forms of tuned H.F. couplings; a separate reaction coil is not required.

Reaction Without a Reaction Coil

A READER who proposes to add a temporary H.F. stage to his receiver asks us to publish a circuit diagram showing how the functions of tuning inductance and reaction winding may be combined in a single centre-tapped coil which he wishes to use as a tuned intervalve coupling. He remembers having seen this arrangement described, but has forgotten the details.

The method that our correspondent has in mind employs the well-known "Hartley" circuit, and is shown diagrammatically in Fig. 2. This arrangement, although extremely effective from many points of view, has the disadvantage that it is not readily applicable to "ganged" receivers, but we assume this will not be a disadvantage in the present case.

The reaction condenser R.C. should have an extremely low value (say, 0.0001 mfd. maximum), and it is always worth while to experiment with the capacity of the detector anode by-pass condenser, for which a value of 0.0003 mfd. has been tentatively assigned in our diagram.

Connecting the Whistle Suppressor.

THERE seems to be some uncertainty as to how the Whistle Suppressor (*Wireless World*, Oct. 28th) should be connected

to a loud speaker when a choke output system is employed as a link with the last valve.

With the simplest possible arrangement, where the loud speaker is fed directly from an untapped choke, giving in effect a 1:1 ratio, it is a matter of complete indifference whether the anti-interference device in question be joined across the loud speaker windings or the choke. Readers can suit their own convenience in this matter, but will usually choose the loud speaker, as its terminals are likely to be rather more accessible. The same remarks apply when a low-resistance loud speaker is coupled by means of a step-down transformer, which in turn is fed from an untapped choke; in this case the suppressor may be joined across either the choke or the transformer primary—never across the secondary.

But where a tapped output choke, acting as a step-down auto-transformer, is employed with a pentode valve, the best place for the suppressor is across the choke—not the loud speaker or the primary of its transformer, if one be fitted. It should be remembered that the device works best in conjunction with a circuit of high impedance, and in the present case it is obviously best that it should work in parallel with the whole of the choke, and not merely with a section of it.

Not Worth While

THOSE who use an output valve capable of delivering but a few hundred milliwatts may question the desirability of outputs in the order of 2 or 3 watts. But even if one does not wish for reproduction of great volume, it is an undoubted advantage to have a big margin of safety, and few who have become accustomed to a modern high-power set would willingly go back to anything less ambitious.

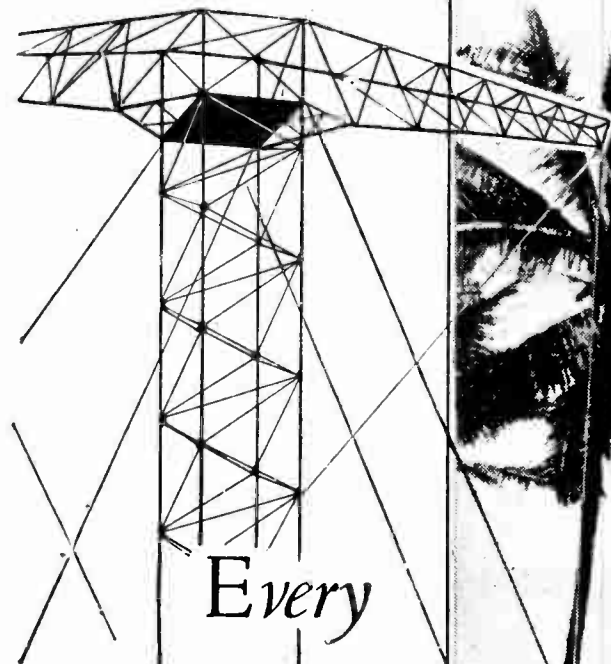
Attempts to increase the undistorted output from an existing receiver are entirely laudable, but it should perhaps be pointed out that it is hardly worth while to go to great expense to increase output unless, say, power is to be at least doubled. For instance, a correspondent writing to us on the subject of improving his receiver proposes to take a great deal of trouble in order to make it possible to employ an output valve which is rated to give about 40 per cent. more power than that which it is to replace. An increase of 40 per cent. corresponds only to about 1½ decibels, which represents a barely audible increase in volume.

The Wireless World

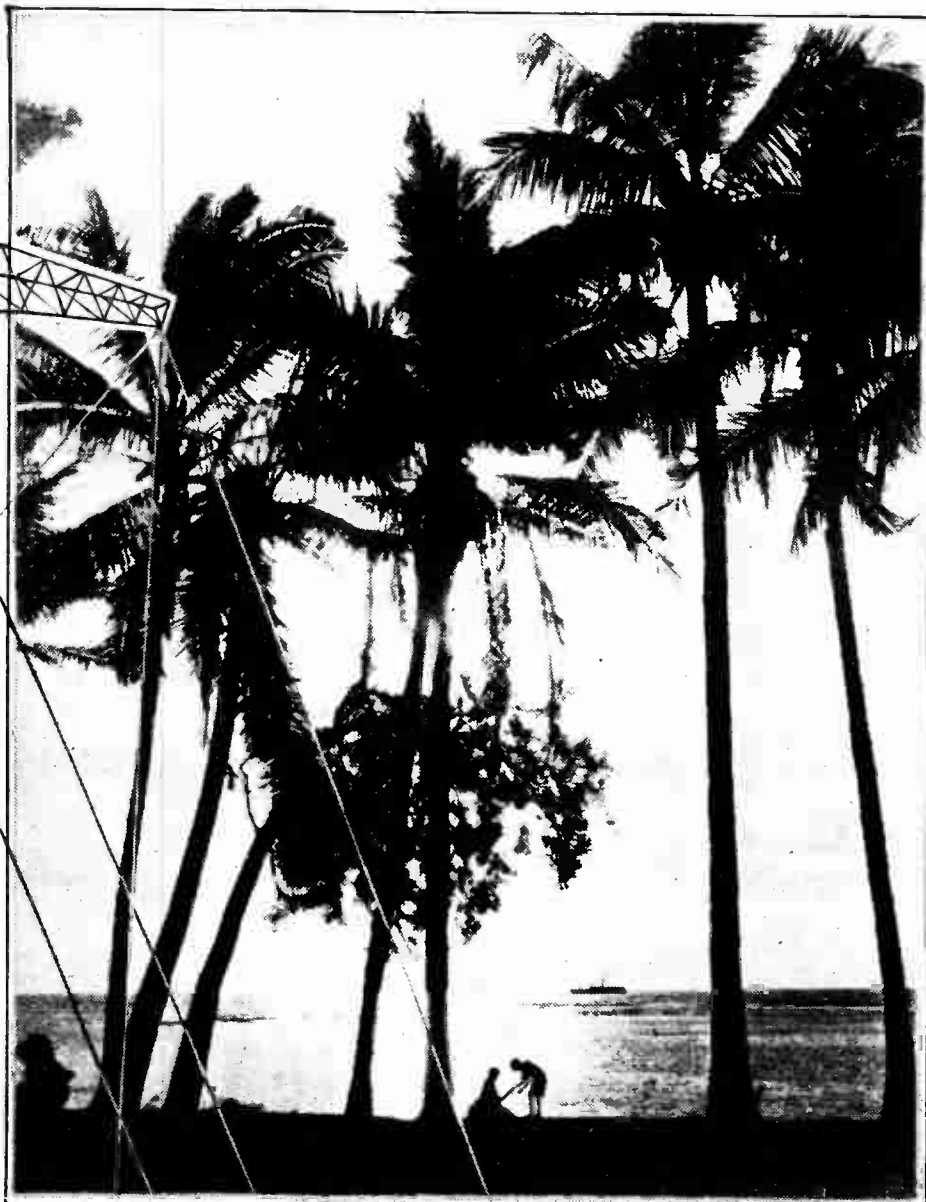
INFORMATION BUREAU

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, Tudor Street, E.C.4, 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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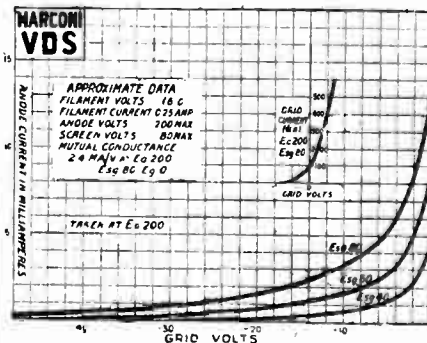
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McMICHAEL Superage Portable Four, in triple case, complete with Regentone eliminator and Trickle charger, in excellent order and condition; accept £8 10, no offers.—Moore, 109, Whitehill St., Glasgow. [16055]

KOLSTER BRANDES Radiogram, all electric, 200-240 A.C.; cost £36, accept £12 10.—2, Dollis Hill Ave., Cricklewood. [1606]

MURPHY A8, month old, wired extra speaker; £20.—Dec. 6, Upper Marlborough Rd., St. Albans. [1607]

1931 Majestic 8-valve Superhet, all mains, 220-240-volt; £15.—Tillery, 16, Beaufort Rd., Kingston, Surrey. [1603]

FERRANTI Superhet, 22-guinea Model, in brand new condition, guaranteed; £13 10.—Box 5920, c/o The Wireless World. [1677]

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APPLEBY'S, Radio House, 198, Finchley Rd., Hampstead, London (opposite L.M.S. Station). Hampstead 3108. [1676]

A CHANCE for the Enthusiast—A.C. monodial, with straight 5 power unit, also straight 5 H.F., with 8 valves all as specified; no approval but any trial here; £18.—Lownds, The Cottage, Old Lenton, Nottingham. [1653]

BRAND New in Carton 1932-33 Marconi Model 66 4-valve S.G. Portable, list 15 guineas, bargain, £8 15; also 3 1933 models A.C. receivers, bargain prices; write for particulars.—Saniers 12, Eastbourne Rd., Chiswick, W.4. [1670]

"W.W." Short Wave 2, exact specification, with valves, excellent results, £4 15.—Colvern superhet, ganged coils, K21, 22, 23, new, 15/-.—D.F.H., St. Clare, Alwood Bailey Maidenhead. [1645]

£10/10, cost £23.—Nearly new Amplion 6-valve Con-sole A.C. receiver, with valves and moving coil speaker, walnut cabinet; owner moving to D.C. district; any trial.—Webb 267, Coventry Rd., Ilford. [1644]

SUPERSONIC Heterodyne Receiver, 8-valve G.E.C., perfect condition, clean; take £4 10, or Kilobyne Four or S.T.400, 21, Moreton Rd., Worcester Park. [1636]

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CROSLY A.C. Console-t, 2 Mu's, det., pen., M.C. speaker; £10 10.—Abercorn 4507. [1646]
"WIRELESS WORLD" Single Dial Super (battery); £5.—Box 5903, c/o The Wireless World. [1627]
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VORTEXION, 182, The Broadway, Wimbledon. Tel.: Liberty 2814, 5 mins. Station, Wimbledon Under-ground. [1662]
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TREVOR PEPPER, 48 Wake Green Rd., Moseley, B'ringham. [1654] LEADS Readers May Obtain all Bryce Transformers and Peak Condensers from R. W. Money; "Wireless World" sets constructed, overlaid, ganged, and fitted up; see window display, 23, Wade Lane, Leeds. T.L.; 25537. [1648]

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GRAMOPHONE Amplifier, double turntables, with 2 moving coil speakers (extension), 230-250 volts A.C., 50 cycle, in handsome oak cabinet, in new going order; cost 155 guineas, first offer secures. 712, Holderness Rd., Hull. [1666] UNIVOLT Universal Motor, brand new, £6 10/6 model; 79/6—102, Torrington Park, N.12. [1669] RADIOPHONE Pick-up, unused, perfect; 16/-. Bixter, 12, Earls Drive, Scotswood-on-Tyne. [1626]

LOUD-SPEAKERS.

B.T.H. R.K. Moving Coil Speakers, guaranteed new, unused, manufacturers' surplus, original price 6 guineas. HIGHLY Sensitive and Wonderful Tone Response; will handle up to 10 watts output; available for 6v., 100v., 200v., 30/-; also A.C. models, £2/10. CARRIAGE Paid, c.o.d., or cash with order; send for list of other unused bargains.—Seekamp, 46, Farringdon St., London, E.C.4. [1425] GENUINE Bargains in 1933 Speakers, manufacturers' forced sale.—D.C. M.C. speakers, 2,000, 2,500, 6,500 ohms, listed 25/-, our price 16/-; matched pairs, 54/-; chrome P.M.s., listed 32/6, 22/-; matched, 46/-; large Darwin Cobalt Magnet speaker, high flux density, 7,400 lines per square cent, listed 39/6, 27/6; matched, 57/6; P.M.s. matched with mains energised; all matched pairs mounted and wired; speakers are complete with output transformers, power, pentode, or push-pull; state requirements; c.w.o., carriage free, c.o.d. 1/- extra.—Castle Radio, 14, Castle Rd., London, N.W.1. [1595] WHARFEDALE Moving Coil Speakers (P.M.), unequalled for natural reproduction; new ready: P.P. Bronze Wharfedale, for quiescent push-pull 43/- complete, or 47/6, in Rexine cabinet, very sensitive, yet will take up to 45 watts; immediate delivery, 3 days' approval; 12 months' guarantee.—Wharfedale Wireless Works, 92-96, Leeds Rd., Bradford. [1565]

FOR EVERY SET—there's a PILOT AUTHOR KIT CASH—C.O.D.—or H.P. ALL-WAVE MONODIAL BATTERY RECEIVER As described this week. KIT "A" AUTHOR'S KIT of specified components CASH or C.O.D. Carriage Paid. £12-1-0 or deposit £2-1-0 and 11 monthly payments of £1-0-0 including Ready Drilled Oak Ply Panel and ready drilled and assembled baseboard, but less Valves and Cabinet.

THESE ARE THE PARTS THE AUTHOR USED
1 PETO-SCOTT Plywood baseboard, assembled and ready drilled, 4 1/2 x 6 1/2 10 6
1 PETO-SCOTT Oak-faced ply panel, ready drilled, 9" x 16" 10 6
1 PETO-SCOTT Special Bracket for S.W. Condenser 9 9
1 POLAR-STAB .0005 mfd. three-gang superbet condenser 1 7 6
1 EDDYSTONE No. 143 slow motion dial 1 7 6
1 CYLONOR mounted coupling 2 0
1 POLAR .002 mfd. preset condenser 2 0
1 EDDYSTONE .0016 mfd. No. 192 S.W. var. condenser 2 6
1 Set of TELSE 7 S.330 superbet coils 1 6
1 Set of EDDYSTONE No. 332 short-wave coils (D) L.B., (1) V. (2) H. and (3) D.B.B. 14 0
1 VARLEY 10 kv. L.F. Transformers (B21) 1 8 6
1 EDDYSTONE No. 505 H.P. Choke 4 6
1 BULGIN H.F. 10 superbet type screened H.F. Choke 4 6
1 WEARITE switch assembly, as specified 10 6
1 BULGIN S.80 type Q.M.B. single-pole switch 1 6
1 EDDYSTONE type Q.M.B. two-pole switch 2 6
1 IGRANIC No. 2237 25,000 ohms potentiometer 2 9
1 CLAUDE LYONS 1 watt resistances, 100, 1,000, 2,000, 250,000 100, 2,000, 250,000 ohms 7 0
1 T.C.C. No. 34 30mfd. condenser 3 0
1 T.C.C. No. 31 300 mfd. condensers 5 6
1 T.C.C. type "M" .001 mfd. condenser 1 4
1 T.C.C. No. 21 300 mfd. condensers 3 0
1 T.C.C. No. 20 1 mfd. non-inductive condenser 12 10
1 T.C.C. No. 20 1 mfd. non-inductive condensers 5 8
1 T.C.C. No. 20 2 mfd. non-inductive condenser 3 10
1 R.L. "Paraset" D.332 coupling unit 11 9
1 R.L. "Paraset" type 5-pin valve-holders 6 0
1 BELLING-LEE G.R. 1 GB 2 GB 3 GB 4 GB 4 2 0
1 BELLING-LEE 5-way 34" Battery Cable, with spare ends marked LT 1 LT—, and wandler plugs marked HT—, HT 1, HT 2 3 6
1 WELBY 10-way connector 2 6
1 DEYDEX H.100 165 volts Grid Bias Battery 2 6
2 GRIPSO G.B. Battery Clips 2 4
4 IGRANIC "Indisgraph" terminals 2 0
2 Lengths GOLSTONE screened sleeving 1 6
2 Lengths insulated sleeving, 2 ozs. No. 20 Tinned copper wire, wood and metal screws for fixing as specified 6 6

KIT "A" Cash or C.O.D. - £12 1 0
KIT "B" As Kit "A" but with Valves, cash or C.O.D. Carriage Paid £16-18-6 or £18 6 deposit and 11 monthly payments of £1 8 0

QUIESCENT PUSH-PULL 2 As described last week. KIT "A" Author's Kit of specified parts including Ready Drilled Panel and assembled Baseboard, but less valves, cabinet, meter and speaker. CASH or C.O.D. Carriage Paid. £3-9-0 or 12 monthly payments of ... 6/4

ACCESSORIES. 1 Sifam Moving Iron Milliammeter E.66 10 0 1 Collection Q.P.T. 19A Loudspeaker with Transformer £2 10 0 Specially if panel is required drilled to take meter when ordering. KIT "B" As Kit "A" but with Valves, Meter and Speaker, CASH or C.O.D. Carriage Paid. £5-11-0 or 12 monthly payments of 10/3 KIT "C" As Kit "A" but complete with Valves and Cabinet (less Speaker and Meter), Cash or C.O.D. Carriage Paid. £6-3-6 or 12 monthly payments of 11/4 If Sifam Meter is required add 10/- to Cash Prices or 11d. to each monthly payment.

DIRECT READING STATION FINDER Complete Kit including all components as specified by the designers, LESS "Knock-down" Plywood Cabinet, CASH or C.O.D. only As above but with "Knock-down" Plywood Cabinet. CASH or C.O.D. only 27 6 IMPORTANT.—Part Kits, miscellaneous components or accessories are available. CASH, C.O.D. or H.P., under our own Easy Way System. Send us list of your wants. We will quote by return without any obligation. Orders value over 10/- carriage or C.O.D. charges paid. To PETO-SCOTT CO. LTD. 77 City Road, E.C.1. Dear Sirs: Please send me by return CASH/C.O.D./H.P. for which I enclose £ ... Name ... Address ... W.W. 27133. West End Showrooms: 62, High Holborn, W.C.1.

Loud-Speakers.—Contd. 10/-.—Amplion moving coils, 100-250 D.C., with multi-radio transformer, newly new; demonstration or approval; carriage 1/-.—Webb, 267, Coventry Rd., Hord. [1643] 18/9.—"Factors" a new surplus, modern and guaranteed; Magnet weighs over 4lb., cone 8/4in. dia. overall, complete with tapped transformer; originally 49/6, most genuine bargain ever offered; cash with order, returnable within 7 days, carriage paid.—Streete, 84, Riversdale Rd., N.5. [1672] 30/-.—B.T.H. R.K. moving coil speakers, 6in. cone, new and unused, guaranteed; these speakers are type as used in cinema sound equipment; weight 30lb., and are vastly superior to cheap speakers now on the market, 100 volts, 150 volts, and 200 volts D.C. 27/6.—6v. D.C. speaker, as above; £2/7/6, speaker as above, for 100-250 A.C. 16/6.—Ekeo pick-ups, complete with volume control and recording attachment, brand new and perfect; carriage paid, cash with order, or c.o.d.—Ward, 12, Trolegar Rd., Bow, E.3. [1673] EPOCHO Super M.C. Speaker, 6v. field; £5/5.—712, Holderness Rd., Hull. [1667]

TRANSMITTERS.

SERADEX Type E Filter Condensers, 1,500v. D.C. working, guaranteed one year.—Pepper, Wake Green Rd., Moseley, Birmingham. [1656]

VALVES.

QUIET—Used for testing only, no junk; all post free; several 6v. types available. QUIET—V.M.S.4s., A.C./S.G.s., M.M.4v.s., etc., 12/9; A.C. H.L.s., M.H.4s., 354v.s., etc., 8/3; A.C./P.s., 10/3; A.C./Pentodes, M.P.T.4s., etc., 12/9 each; D.W.3s., 10/5. QUIET—Quiescent push-pull valves, guaranteed; matched Pen.220A.s., 24/- the pair; H.L.2, 4/11; or set of 3, 28/-. QUIET—All other battery types available, and D.C. mains types are priced equivalent to A.C. counterparts. QUIET—R. A. Arnell offers the best value, and anything radio can be supplied; let me know your requirements for quotation, 8, Fishponds Rd., Upper Tooting, S.W.17. Alight Mayfair Cinema. [1649] MAZDA D.C.2 S.G., 11/-, as new; Eta B.Y.1814, 3/3, Mazda; Standard H.F., L.F., P. 2, 3, boxed; guaranteed, 20, Lady Somerset Rd., N.W.5 [1671] GUARANTEED Valves, as new, emissions and characteristics perfect, all latest types; unsolicited testimonials. Cossor—210H.L.s., 210H.F.s., 210L.F.s., 3/9; 215P.s., 220P.s., 4/9; 41M.H.L.s., 41M.H.s., 6/9; 41M.P.s., 7/6; M.S.G. H.A.s., 8/-; P.T.41s., 12/-; M.V.S.G.s., 12/-; M.P.P.s., 14/-; 442B.U.s., 120 ma. rectifiers, 8/9; 620T.s., 15/-. OSRAM—H.L.210s., H.210s., D.E.H.210s., I.210s., 3/9; L.P.2s., P.215s., 4/9; M.H.4s., D.H.s., 7/6; M.L.4s., 7/6; M.S.4B.s., 9/6; P.T.4s., 12/-. MULLARD—P.M.H.F.s., P.M.2D.X.s., P.M.H.F.s., 3/9; P.M.2A.s., P.M.2A.s., 4/9; 8.4V.A.s., 8.4V.B.s., 8/9; 354V.s., 7/-; P.M.3s., 3/9. MAZDA—H.L.210s., H.210s., 3/9; P.220s., 4/9; A.C./H.L.s., A.C. 2H.L.s., 7/-; A.C./S.G.s., 9/6; A.C./P.s., 7/6; D.C. 3H.L.s., 7/-; R. Newman (First Floor), 309, Roman Rd., E.3. [1659]

COMPONENTS, ETC., FOR SALE.

WESTON Moving Coil Milliammeters (301), 0.15 up to 200 ma., 22/6; Turner ditto, 17/6; Turner thermo couple ammeters, 0.1-5 25/-; 3-range moving coil meters, 0.3 ma. 6 and 120 volts, 22/6; electrostatic and moving coil voltmeters, 0.2-0.002, 32/6; moving coil milliammeters, 0-10 upward, 10/6; alterations and repairs of every description.—The Vicca Electrical Co., 47, High St., Battersea, S.W.11 [0355] ALL Guaranteed as New.—Ferranti transformers: S.V.10 £3 2 6, O.P.M.6(c) 15/-, choke, B5, 15/-; Davenset transformer, 400v., 120 mva., £1 2/6; Polar Tub 3-gang (0.0005), 17/6; Lewcos dual range coil, 5/-—72, Holmfied Rd., Blackpool, N.S. [1615] VARLEY Mains Transformer, E.Pz.27, 24/-; two Osram 110 rectifiers, 8/- each; Mazda A.C./PEN., 10/-; P.650, 8/6; all perfect.—Thorne, Chemist, Tunbridge Wells. [1614] FERRANTI O.P.M.1c, O.P.M.3c, 13/- each; T.C.C. 2,000 M.F. electrolytics, 8/6 each; B.T.H. 45/1 O.P. transformer, 6/-—95, High Rd., East Finchley, N.2. [1618] VACUUM Cleaners, for A.C. or D.C., 110v. or 220v., any cycles, motors sound and in good working order, all fittings supplied if possible, but not guaranteed complete, popular makes; price 15/- each; passenger train 1/6 extra.—Below. A.C. Motor, 200-230v., 50 cycles, single phase, 1/4 h.p., centrifugal starter, reversible, ball bearing, double-ended shaft, 1,500 r.p.m., as new, maker Crypto, price £3 15/-; 1/4 h.p. A.C. motor, 220v.-50/1, induction, ring roller bearings, £2.—Below. 2-VALVE Amplifiers, by Western Electric, new, in original cartons, 12/6; ditto, shop soiled, but perfectly sound, 8/6; Amplion public speech microphone amplifier, 50/-—Below. 2-VALVE Transmitters, with valves, 15/-; 2-valve receivers, no valves, 10/-; 2-inch spark coil, 17/6; new transformers, 100v. input, 16,000v. output, 25/-; ditto, second hand, 12 6.—Below. DYNAMOS for Accumulator Charging or Lighting, also meters, regulators, resistances, switches, cat-ouats, etc.—Below. TELEPHONE Equipment: Microphones, 4/6; transformers, 2/6; Morse keys, 4/6; peistat phones, 7/6; automatic dials with switch, 2/-; buzzers, 2/3; telephone magnets, 4/6.—Below. GALPIN, 23, Tyrwhitt Rd., Brockley, London, S.E.4. Terms strictly cash with order or c.o.d. (charge extra); 3 days' approval from date of delivery; all goods guaranteed. Nearest station St. John's, Lewisham. List free. [1620]

HEYBERD MAINS TRANSFORMERS

LOW TENSION TRANSFORMER. New Model 723. Secondary Output: 2+2v. 3 amps. Suitable for one to three 4v. type A.C. valves. Although greatly improved in design and finish, the price remains the same ... 12/6



H.T. and L.T. TRANSFORMER Model W.33. For use with Westinghouse Rectifier H.T. 9. Secondary tappings: 240 v. 200 ma. Rectified Output: 300 v. 60 m.a. L.T. 4 v. 5 amps. and 4 v. 1 amp. Price 35/-.

Above models are supplied in new type Heyberd metal castings which completely screen the windings, and are fitted with insulated terminals. Voltage regulation is very good. Negligible temperature rise. 12 months guarantee.



Full details of Heyberd Mains Transformers, Mains Units, Kits and components are given in the new Handbook.



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One minute from Moorgate Stn

Get a GENEROMETER



BATTERY SUPERSEDER.—No H.T. Batteries needed for your set even if you are not on the mains. An H.T. Battery run down to 30 volts is useless and has to be thrown away. Yet you pay for the wasted volts.

The GENEROMETER makes H.T. from your L.T. 2-volt battery, rectifier and smoothed. Gives three tappings and lasts indefinitely. A boon and blessing to all using H.T. Reduced from £3 15s. 37/6 New and Guaranteed.

PARCELS.—For the Experimenta! Amateur who wants a useful junk-box of oddments, our famous Barzath Parcels of Electrical and Radio Sundries from dismantled W.D. sets, output stocks, etc., with Switches, Wire, Chokes, Condensers, and Coils, and a host of useful parts, post free. 10lb., 7lb., 7lb., 5lb.

ELECTRADIX RADIOS, 218, Upper Thames St., E.C.4

Components, etc., for Sale.—Contd.

PREMIER SUPPLY STORES offer the following Brand New Goods at a Fraction of the Original Price; all goods guaranteed perfect; carriage paid over 5/- under 5/- postage 6d. extra. (Ireland carriage forward.)

PREMIER—Mains transformers, all guaranteed, terminal connections, 200-250 input 40-100 cycles, output 135 volts at 80 m.a. for voltage doubling, 8/6; 4 volts 4 amps. C.T. low tension, 2/- extra; Westinghouse rectifier for above, 8/6.

MAINS Transformers, primary 200-240 volts, secondary 350-350 volts at 90 milliamps, 4 volts at 3 amps. (C.T.); 4 volts at 2 amps (C.T.), 12/6.

AMPLION Transformers, input 100-250 volts, output 350-350 volts, 120 milliamps, 4 volts at 5 amps, 4 volt at 2 amps, 6 volts at 1 amp., all centre tapped; 17/6.

MAINS Transformers, 12 volts 1 amp., 7/6; 9 volts 1 amp., 7/6; 4 volts 4 amps. and 4 volts 2 amps., 8/6; 14 volts 4 amps., 12/6; 4 volts 3 amps., 7/6; 4 volts 5 amps., 8/6; 6 volts 2 amps., 7/6; 7 1/2 volts 2 1/2 amps., 7/6; 10 volts 3 amps., 10/6.

HT. 9 Transformer, 230 volts 200 milliamps, with 4 volts 4 amps. (C.T.) winding; 17/6 (with screened primary).

HT. 8 Transformer, 10/-; with 4 volts 3.5 amps. low tension C.T., 15/-; complete with Westinghouse H.T. 8 rectifier and L.T. winding, 27/6 (with screened primary).

MAINS Transformers, output 250-0-250 volts at 60 milliamps, 4 volts at 1 amp., 4 volts at 2 amps., 4 volts 3.4 amps., all centre tapped; 15/- (with screened primary).

MULTI-RATIO Output Transformers, 15 different ratios; 7/6.

PREMIER Chokes 40 milliamps, 25 henries, 4/-; 65 milliamps, 30 henries, 6/-; 150 milliamps 30 henries, 10/6; Pentode output chokes, tapped, 7/6.

PYE Chokes, 110 henries, 4/-; 20 and 32 henries, 4/6.

SMOOTHING Chokes for Series Connected Filaments from D.C. mains, carry 1 amp.; 7/6.

KOLSTER-BRANDS 80 milliamp., 30-henry Chokes, tapped, 1/3 and 2/3, 7/6.

T.C.C. Condenser, 2 mfd., 750 volts working, 4/-; 4 mfd., 750 volts working, 6/-; 4 mfd., 400 volts working, 4/-; 4 mfd., Electrolytic, 440 volts working, 4/-; 8 mfd., 4/6.

T.C.C. Block Condensers, 250 volts working, 8-2+2+1 mfd., 5/6; 375 volts working, 14-1+0.1+0.1+0.1+0.1 mfd., 2/-; 375 volts working, 6-4+2+2+2 mfd., 10/-; 250 volts working, 2+2+2+2+1 mfd., 5/6.

WESTERN ELECTRIC, 0.01+0.01 mfd., 400 volts working, 1/-; blocks 4+2+2+2+1+0.09 mfd., 400 volts working, 6/-; 10 mfd., 400 volts working, 5/-.

FERRANT Condenser Blocks, 300 volt, working, 4/-; 4+2+2 mfd., 10/-; T.C.C. 0.1 mfd. non-inductive condensers, 9/-.

VARIABLE Condensers, Polar, 3-gang tube type, fully screened split end valves and disc drive, 0.0005, 12/6.

ORMOND All-brass 2-gang Condensers, semi-shielded, 0.0005, 5/-; Ormond all-brass, 0.0005 slow-motion condensers, with knob and dial, 3/6; Polar 0.0005 and 0.00035 Bakelite Dielectric condensers, with knob, 1/-.

PREMIER Eliminators, input 200-250 A.C., 40-100 cycles, output 250 volts at 60 milliamps, 80 volt and 120-volt taps, incorporating Westinghouse rectifier, 42/6; with 4 volts 4 amps., L.T., 7/6 extra.

PREMIER Eliminators, input 200-250 A.C., Output 80, 100, and 120 volts at 20 milliamps, incorporating Westinghouse rectifier, 27/6; with L.T. charger incorporated, 35/-.

D.C. Eliminators, output 60, 90 and 120 volts, at 120 milliamps, 15s.; larger model, output 80, 120 and 200 volts at 50 milliamps, 25/-.

ACCUMULATOR Chargers for A.C. Mains, input 100-250 volts, 1-2 amp., 17/6; 1 amp., 22/6.

PREMIER Eliminators, input 200-250 A.C., output 150 volts at 30 milliamps, 2 lower taps, incorporating Westinghouse rectifier, 37/6, with 4-volt 3.4 amp. L.T.

AMPLION Moving Coil Speakers, type E.M. 644, 4-in. fields, 2,500 and 5,000 ohms (100 or 200 volt-), with multi-ratio output transformers; 15/-.

B.T.H. R.K. Minor, moving coil speaker, 2,500 ohm field; 15/-, with multi-ratio transformer.

K.B. Auditorium Speaker, 6 volt model, 25/-; A.C. model £2, with output transformers.

S.G. BROWN Permanent Magnet Speakers, giant S. model, 12in. cone, high resistance speech coil; listed £8, our price £2.

AMPLION Permanent Magnet Moving Coil Speakers, type M.C.22, complete with multi-ratio transformer; 20/-.

15,000 Ohm Wire Wound Potentiometers, 1/6; Central potentiometer volume controls, 50,000 ohms, 2/-; Silver-stats, logarithmically wound, potentiometers, 6,000 ohms, 1/6.

WIRE Wound Resistances, any value, carry 20 m.a., 2/-; 40 m.a., 3/-; 60 m.a., 4/-; 120 m.a., 5/6.

WIRE Wound 5-volt Resistances, 3,500, 4,000, 7,500, 8,500, 9,000, and 10,000 ohms; 1/- each.

EDISON BELL Wire Wound Clip-in Resistances, 10,000, 60,000, 70,000, 80,000, and 90,000 ohms; 1/3 each.

HEAVY Duty Variable Resistances (slider type), wound on porcelain, 200 ohms, 1 amp., 2/6; 350 ohms 1 amp., 2/6; 2,000 ohms 1/2 amp., 5/-; 500 ohms 1/2 amp., 5/-; 50 ohms 2 amps., 2/6; B.T.H. electric gramophone motors, induction type, 100-250 volts, A.C., 30/- complete; double spring gramophone motors, compact, 15/-, single spring 9/-; B.T.H. A.C. and D.C. motors, 55/-.

S.G. BROWN'S Microphone Amplifiers (Microbox); S. listed £5 5, our price 7/6.

CROYDON Battery Converters, input 22C D.C., output 220 A.C., 160 v.a.; £4/10.

WESTERN ELECTRIC Public Address Speaker Horns, weatherproof, exponential, 7 1/2, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 430, 432, 434, 436, 438, 440, 442, 444, 446, 448, 450, 452, 454, 456, 458, 460, 462, 464, 466, 468, 470, 472, 474, 476, 478, 480, 482, 484, 486, 488, 490, 492, 494, 496, 498, 500, 502, 504, 506, 508, 510, 512, 514, 516, 518, 520, 522, 524, 526, 528, 530, 532, 534, 536, 538, 540, 542, 544, 546, 548, 550, 552, 554, 556, 558, 560, 562, 564, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 586, 588, 590, 592, 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742, 744, 746, 748, 750, 752, 754, 756, 758, 760, 762, 764, 766, 768, 770, 772, 774, 776, 778, 780, 782, 784, 786, 788, 790, 792, 794, 796, 798, 800, 802, 804, 806, 808, 810, 812, 814, 816, 818, 820, 822, 824, 826, 828, 830, 832, 834, 836, 838, 840, 842, 844, 846, 848, 850, 852, 854, 856, 858, 860, 862, 864, 866, 868, 870, 872, 874, 876, 878, 880, 882, 884, 886, 888, 890, 892, 894, 896, 898, 900, 902, 904, 906, 908, 910, 912, 914, 916, 918, 920, 922, 924, 926, 928, 930, 932, 934, 936, 938, 940, 942, 944, 946, 948, 950, 952, 954, 956, 958, 960, 962, 964, 966, 968, 970, 972, 974, 976, 978, 980, 982, 984, 986, 988, 990, 992, 994, 996, 998, 1000.

EKCO Microphones, complete with transformer, a really fine job; 18/6.

S.G. BROWN'S Power Units, consisting of tapped mains transformer, Westinghouse rectifier, and T.C.C. electrolytic condenser, output 6v. 1 amp., for charging and energising; 21/-, listed £3/15.

WESTINGHOUSE Rectifiers, 120 volts at 20 m.a., 6/6; 180 volts at 30 m.a., 8/6; 8 volts at 0.5 amp., 6/6.

(This advertisement continued on next page.)

THE WORLD from your FIRESIDE



WITH YOUR PRESENT SET!

Here is a wonderful instrument that will give you tremendous range with your receiver.

Short-wave stations can be tuned in with most receivers when fitted with an Ealex Short-wave Converter. Programmes from Australia, America and other distant countries are brought in without trouble even by those with little or no experience of Short-wave reception.

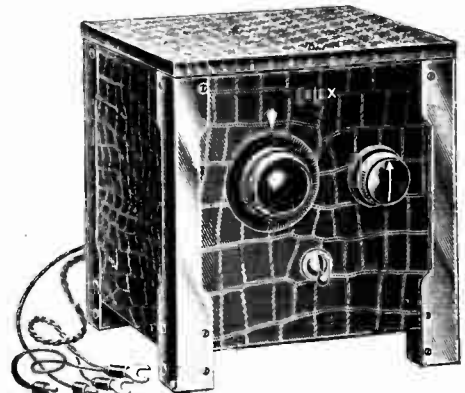
You can spend many thrilling hours tuning in distant countries and your friends will be amazed at the remarkable increase in the range of your set.

EALOX SHORT-WAVE CONVERTORS

Are supplied for mains or battery receivers. They have a range between 15 and 60 metres and will receive among others the New B.B.C. Empire Short-wave Station.

Fitted in a moment, it is only necessary to connect the aerial and earth terminals, you can receive short-wave stations immediately. Duplex Type for mains or battery sets £2 : 12 : 6, valve extra.

Why not ask your dealer to demonstrate? Or send now for the Ealex Short-wave booklet number C.38, free.



J. J. EASTICK & SONS,
Ealex House, 118, Bunhill Row, London, E.C.1
Phone: Metropolitan 0314 (6 lines).

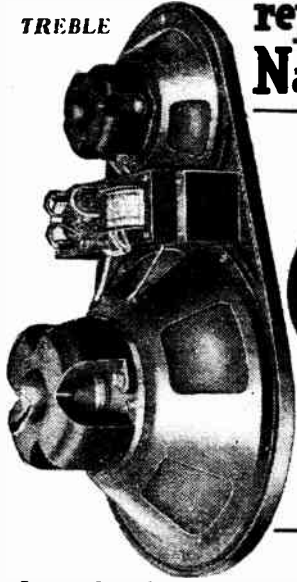
REETONE

-Two Speakers as one

For the very first time — sound reproduced Naturally



TREBLE



BASS

Immediately you have heard one of the new Reetone 'Dual' speakers you will appreciate its remarkable lifelike tonal quality and sensitivity; for with no other speaker is the bass and treble reproduced so naturally and free from distortion. Whatever your previous speaker experience you will undoubtedly agree that never before have you heard such vivid realism of mechanically reproduced sound. Ask your dealer to give a demonstration.

The Celestion Dual Speaker illustrated consists of two units so coupled that the treble is accepted by the treble unit, and the bass accepted by the bass unit. The performance of the combination must be heard to be appreciated. The illustration shows Model S 29. Price £6.0.0. Other models available.

CELESTION

The Very Soul of Music

FOREMOST NAME IN SOUND REPRODUCTION

To CELESTION LTD., London Rd., Kingston-on-Thames. Please send me illustrated folder giving full details.

Name

Address

..... W.W.T

Components, etc., for Sale.—Contd.

(This advertisement continued from previous page.)

AMPLION Pick-up, with arm and volume control; 2500 ohms; Clarostat wirewound potentiometer, 50,000 ohms, 2 G.

A.L.L. the Following Lines 6d. Each, or 5/- dozen: 60,000 and 15,000 ohms; vacuum resistances, 100,000 and 10,000 ohms; shielded S.G. or Pentode leads; Mullard 0.01 condensers; 2 meg., 1 meg., 1/2 meg. metal-plate resistances; 2ft. lengths of screened wire; 5-pin valve holders; 4-pin valve holders; any size grid leaks and condensers; fuse bulb with holder; Crabtree sunk 5-amp. switches.

FOR Callers Only. The following guaranteed valves at 60% of list price: M.P.Pen.; U.U.60/250; P.T.625; M.V.S.G.; A.C.Pen.; V.D.S.; U.U.120/350; D.H.A.C.P.; D.P.T.; S4V.A.; M.S.4B; A.C./S.G.; A.C./H.L.; A.C.P.I.; 904V.

A.L.L. Orders to 20-22-24, High St., Clapham, S.W.4. Callers to High St., Clapham (Macaulay 2188). Closed 1 o'clock Wednesday. Open till 9 o'clock Saturday. Nearest Station Clapham North Underground. [1674

SOUTHERN RADIOS' Guaranteed Wireless Bargains.—S. Mains transformers, fully tapped primary, 200-250v. 50 cycle centre, tapped I.T., 250-0-250, 60 m.a., 4 volts 1 amp., 4 volts 3 amps., 11/- each; 350-0-350, 60 m.a., 4 volts 2 amps., 4 volts 4 amps., 13/- each; 350-0-350, 120 m.a., 4 volts 1 amp., 4 volts 2 amps., 4 volts 4 amps., 12/- each; 450-0-450, 120 m.a., 4 volts 2.5 amps., 4 volts 4 amps., 4 volts 2 amps., 19/6 each; 500-0-500, 120 m.a., 4 volts 2.5 amps., 4 volts 5 amps., 21/- each. **TRANSFORMERS** for Eta, Lissen and Loewe rectifiers, 14/6; for Pix and Triotron, 12/6; for Westinghouse H.T.4, 5, 6, or 7, 12/6; for Westinghouse H.T.8 or 9, 14/6 each.

SMOOTHING Chokes.—40 henries 40 m.a., 700 ohms, 6/6 each; 20 henries 60 m.a., 480 ohms, 7/9 each; 15 henries 100 m.a., 330 ohms, 8/9 each; 20 henries 120 m.a., 270 ohms, 9/3 each; 10 henries 100 m.a., 118 ohms (as specified for new "Wireless World" D.C. Monodial), 9/3 each; pentode output choke, tapped 1 1/2, 2, and 3 to 1 ratios, 50 henries 30 m.a., 7/9 each.

A.L.L. Transformers and Chokes Guaranteed for 12 months; special capacities quoted for and delivery given within 3 days from receipt of order.

NOTE: Our transformers and Chokes are of best British manufacture, and unsolicited testimonials from users can be seen at our depot.

SELF Manufacturers' New Surplus.—Mullard Radio for S.E.P. Millon, A.C. kits, in sealed cartons, including 3 Mullard A.C. valves, £3/12/6 (listed £6/10); cabinets for same, 5/-; Ready Radio 303 3-valve battery kit, complete with 3 Mullard valves, 40/- (listed £3/10), less valves, 22/6; S.G. Browns solo loud speaker units, 3/9 (listed 12/6); screened H.F. chokes (H.M.V.), 1/- each, 9/- dozen; condensers, 4 mid., 2/7; 2 mid. 1/9; 1 mid., 1/1 each, all 750 volt test; hundreds of bargains in M.C. speakers, pick-ups, gramophone motors, etc.; all goods guaranteed and carriage paid.—Southern Radio, 323, Euston Rd., London, N.W.1 (near Warren St. Tube) 'Phone: Museum 6324 [1586

M. J. HOYNE for Power Transformers and Chokes.

250 0-250v. 60 m.a., 4v. 1-2a. C.T., 4v. 2-3a. C.T.; 10/-, post 9d.

350 0-350v. 70 m.a., 4v. 2a. C.T., 4v. 2-3a. C.T.; 12/6, post 1/-.

350 0-350v. 120 m.a., 4v. 2a. C.T., 4v. 4-6a. C.T.; 4v. 1-2a. C.T.; 16/-, post 1/-.

450 0-450v. 150 m.a., 4v. 2-4a. C.T., 4v. 2-6a. C.T.; 4v. 2a. C.T., 4v. 2a. C.T.; 25/-, post 1/3.

500 0-500v. 140 m.a., 4v. 2-4a. C.T., 4v. 2-6a. C.T.; 4v. 2a. C.T., 4v. 2a. C.T., or 6v. windings if preferred; 27/6, post 7/3.

750 0-750v. 250 m.a., 4v. 4a. C.T. for G.U.1 and delay switch, 3 C.T. filament windings to specifications not to exceed 100 watts, 65/-, carriage 2/9.

WESTINGHOUSE Model 150, 200, 240v. 300 m.a., 4v. 2a. C.T., 4v. 2-6a. C.T., suitable for H.T.8, H.T.9, or H.T.10; 15/-, post 1/3.

LINE Transformers (auto wound), 0-100, 110, 200, 220, 240v. 60 watt, 7/9, post 1/3; 120 watt, 11/-, post 1/3; 180 watt, 15/-, post 1/3.

CHOKES, 30h. 150 m.a., 12/-, post 1/-; 20h. 120 m.a., 8/6, post 9d.; 30h. 60 m.a., 6/-, post 6d.; 30h. 30 m.a., 5/-, post 6d.

CONDENSERS, resistances, M.C. speakers in stock; write your requirements for bargains.

A.L.L. Transformers are Guaranteed for 12 Months, and made from the finest British made material, primaries, tapped and screened, clamped in aluminium frames and fitted with clearly marked terminal strips.

M. J. HOYNE for Better Transformers.

M. J. HOYNE, Offices and Works, 8a, Gladstone Rd., Wimbledon, S.W.19. Tel.: Liberty 3303. [1598

SONOCHORDE Standard P.M. Speaker, with universal transformer; £1, list 32/6.

SONOCHORDE D.C. Speaker, 2,500 ohms pot, with universal transformer; 15/-.

ROLA P.M.F.5 Speaker; 23/-, with universal transformer.

ROLA F.6 P.M. Speaker; 35/-, with universal transformer.

J.B. Unitone 2-band Condenser, with disc drive, fully screened; 15/6.

WESTINGHOUSE Metal Rectifier, 300v. at 60 m.a., 13/6; 250v. at 65 m.a., 15/-.

A.L.L. the Above Goods are Unused and Guaranteed Perfect, sent on 7 days' appro. against cash; we will allow you 50% of the list price on your surplus radio components in part exchange for new.

W. B. MACKIE, 61, Dartmouth Rd., Forest Hill, S.E.23. 'Phone: Sydenham 6741. [1638

FERRANTI S.V.10 Transformer, 450-0-450 and 4 v. secondaries and U.U.120/500 valve, both new, 70/-; 3 L.S.5A. valves, 2 new, £1.—Barford, Dorincourt, Beech Av., Radlett. [1624

FERRANTI A.F.5, 16/-; A.F.8, 6/-; Pen220, 7/6; Band Pass Radiopak, 37/6; unused.—Abridge, 29, Chatterton Rd., Finsbury Park, N.4. [1625

SERADEN Resistance and Condenser List Now Ready; see Chargers column.

SERADEN Measuring Instruments, from 5/11; list for stamp.

SERADEN Super Type Mains Chokes and Transformers, list for stamp.—Pepper, Wake Green Rd., Birmingham. [1655

"GOLTONE"

COMPONENTS FOR YOUR "W.W. ALL WAVE MONODIAL BATTERY RECEIVER"

"GOLTONE" SUPER H.F. CHOKE.

Praised by the "Wireless World" (See page 112, Aug. 6th Issue.)

Recommended for the "W.W. ALL-WAVE MONODIAL BATTERY RECEIVER."

For S.G. and Super Het. Circuits Covering Wavelengths from 10 to 2750 meters. Inductance 350,000 microhenries. D.C. Resistance 225 ohms. Self-capacity 4 to 5 MMFD. Height 3 inches. Length of Base 2 1/2 inches. Width 1 1/2 inches. Price 4/6 each.

"GOLTONE" COMPRESSION TYPE CONDENSER

Panel or Baseboard Mounting. AS SPECIFIED FOR THE "W.W. ALL-WAVE MONODIAL BATTERY RECEIVER"

A unique feature is that this Condenser can be mounted on the panel and adjusted from outside the set as with the ordinary controls. Type "H" 1/3

"GOLTONE" AIR-SPACED FLEXIBLE METALLIC SCREENED TUBING.

As used in the "W.W. ALL-WAVE MONODIAL BATTERY RECEIVER"

Prevents self-oscillation. Low self-capacity. Minimum dielectric loss.

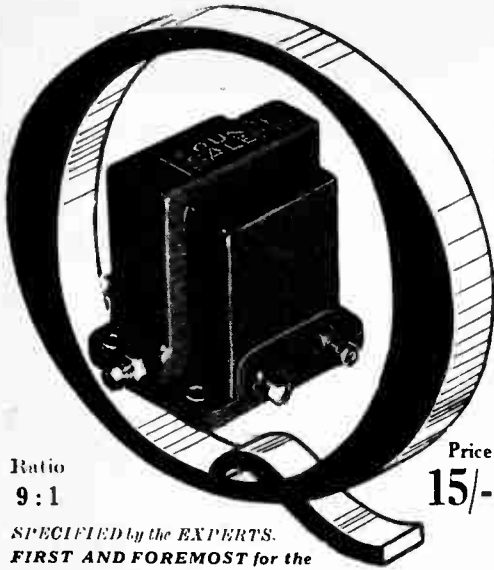
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FREE 1933 48 PAGE FULLY ILLUSTRATED RADIO CATALOGUE NOW ISSUED.

"GOLTONE" components are obtainable from all First-Class Radio Stores, Refuse substitutes—if any difficulty write direct.

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Wireless World Quiescent Push-Pull Two

Sound Sales has the honour of being Specified in this, the First "Wireless World" circuit using a "Quiescent" Push-Pull Transformer. Needless to say full supplies are ready for the public. This intervalve transformer is multi-section wound, has special alloy core, high inductance and ample bass response.

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Variable ratio, to enable you to use your existing moving-coil speaker with economy, and obtain the amazing results possible by means of this new development in I.F. amplification. Price 10/6

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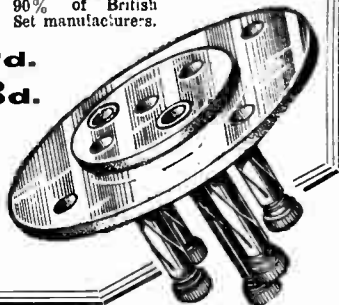
Chassis Mounting VALVEHOLDER Specified for the ALL-WAVE MONODIAL

You require 8, 5-pin.

To ensure highest efficiency, "Wireless World" experts have again chosen Clix, the finest specimen of modern valveholder design. Sturdily built, Turned Resilient Sockets guarantee full surface contact without fear of collapse; with every type of valve-pin—solid or otherwise. For ease of insertion, the sockets move laterally and align with valve pins.

Standardised by 90% of British Set manufacturers.

5-pin Model 9d.
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Write for folder "W-27" for full details of the Clix range.



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R. SELECTED Parts for Sale, as new; any good, or "Wireless World" deposit system, which we recommend if in doubt as to the splendid value offered; we take all risk of damage in transit to our customers; all goods tested for callers and guaranteed, however low price. Notice.—Payment by cheque; no goods despatched until these are cleared.

T.C.C. 1 mfd., type 65, 1 3/4; T.C.C. type 35, 1 mfd., 375v. working, 1 6/8; T.C.C. 2 mfd., 375v. working, 1 9/8; Hunt's Polymod, 2 mfd., 250v. working, 1 9/8.

MAGNAVON D.C. 144, with transformer, 2,500 ohms, 20; Rola D.C., 2,500 ohm, with pentode transformer, 22; 6,500 ohm, ditto; post free.

SET Cabinets for 3v. A.C. Sets, room for speaker, suit "W.W." A.C.3, etc., brand new, in cartons, ready for immediate despatch, fitted escutcheon, suitable Polar Star; few only; 20; used, 16/-.

SPECIAL Offer of Pye 20h. Chokes, 40 m.a., 150 m.a., maximum, D.C. resistance 300 ohms, in brown crystalline finish, new, unused, Pye 32h. Chokes, D.C. resistance 750 ohms, 30 m.a., 80 m.a., maximum, ditto, 6 5/8 each, post free.

VARIABLES, used, many as new, M.H.I.4, 244v. I.F., 494, 4 M.L.F., Marconi P2B super 2v., new, 7 5/8 each; Mullard M.M.4V, 10 6/8; 84V.A., A.C. S.G., P.M.24B, 9; M-4, 7 6/8; 84V.B., 8; to callers only, the following, 1 5/8; U8, 10; I.S.6A, 12; Mazda U.U.60 550, new, 9.

METERS, Turner 0-20 a., 10; Turner C-250 m.a., 15; Weston 506 0.500 m.a., 20; Weston 301 C-8 a., 20; Weston 301 projecting 0-15 a., 20; Weston 506 150v. 20; 200v. 20; Ferranti 0-7v., 20.

TRANSFORMERS, Ferranti O.P.M.I.C. 16 6/8; O.P.M.2C, 14 6/8; O.P.M.4, 14 6/8; Nicore 1, 9; Permatore, 9; Ferranti B1 choke, new, 14 6/8; used, 13 6/8; Falson Bell, new 50h. choke, 100 m.a., massive job, 12.

RYALL'S Radio Mains Transformers and Chokes, new goods, 250v. 60 m.a., 4v. 1 amp., 4v. 5 amp., 10 6/8; 350v. 60 m.a., 4v. 2 amp., 4v. 5 amp., 12 5/8; filament transformer, 4v. 5 amp., 8 6/8; Ryall's Monodial transformer special job with screened primary guaranteed 12 months, 350v. 100 m.a., 4v. 1 amp., 4v. 6 amp., 4v. 2 1/2 amp., 25; chokes, constant inductance, 20h. 100 m.a., 8; 40h. 100 m.a., 10 6/8; all transformers, 200-250v. input.

IGRANIC Mains Transformers, 110 250v. input, 350v. 75 m.a., 4v. 1 amp., 12; 460v. 2 amp., 7.5. 8v., 15; to be seen at 17 6/8.

T.C.C. 2,000 m.f. electrolytic, 12v. working, 9; Polar Star 3-gang condensers, new, 16; with drive, 18 6/8; I.T.B. with transformer, including 4v. 4 amp., 27 5/8; new; Radiophone 2-gang 0.0005, with cover and disc drive, new, 16 6/8.

R.L. 14 23h. I.F. Chokes, 10 6/8; R.L. adjustable I.F. chokes, 15 40h. at 200 m.a., 25 v., list 45; Marconi 61 transformers, ideal type, 5; Igranic screened potential dividers, 4 6/8; Wavemaster S.M. 0.0005 extender, 6 6/8; Cylcon 0.0005 extender, 7 6/8; Cylcon 2-gang 0.0005 extender, 15.

AMPLION 4-gang Condenser, with trimmers, split end vanes, new, 0.0005, 9 6/8; T.C.C., 1 mfd., 400v. working, 2; write for copy of our free list, new range; Colvern T.G.B. coils, to clear, as formers, at 2 6/8 each; Colvern T.G.S.C. coils, 5/8.

SPEAKERS—D.C. Amplion, 2,500 power of pentode, 14 6/8; new, 20; Kolster-Brandes, new, 4v., I.R., 9 6/8.

SUITCASE Cabinets in Best Crocodile Leather, 14 1/2; 14x8, ample room for 12in. turntable and pickup; 15; new.

WEARITE Lever and Rotary Switches, 45 poles, D.T., new, 2 6/8; or 10 6/8 dozen; Mullard fixed condensers, boxed, new, 0.001-6, 0.0005, etc., 3 - dozen.

RESISTANCES—Mullard 5,000, 70,000, 1 6/8; Edison Bell 10,000, Eureka wire wound, with holders, 1; Graham Parish to meg. anode resistances, 6 1/2; Edison Bell 0.0025 universal log all metal condensers, 2; new.

RYALL'S RADIO, 33, Chancery Lane, London, W.C.2 (Nearest Tube, Chancery Lane; bus 67 passes door, or train to Savoy St.), Holborn 3525. Open Saturday afternoon. Close 7 p.m., Thursdays 1 o'clock.

R. [1653]

NEWTN'S Offer, Brand new, guaranteed set from former's surplus, mains transformers, tapped and screened primary, L.T. windings, C.T. 500-0-500 at 120 m.a., 22; 450-0-450 at 120 m.a., 21; 350-350 at 120 m.a., 20; above have following windings: 4 volts 2 5/8 amp., 4 volts 5 amp., 4 volts 2 amp.; 325-325 at 80 m.a., 4 volts 2 5/8 amp., 4 volts 4 amp., 12; 350-0-350 at 60 m.a., 4 volts 2 5/8 amp., 4 volts 5 amp., 12 6/8; 250-250 at 60 m.a., 4 volts 1 amp., 4 volts 1 amp., 4 volts 3 amp., 12 6/8; for "Wireless World" Monodial (no specification), 21; for Straight Pye 25; for Winton house rectifiers, I.T.B. (4 volts 3 amp.) 12 9/8; for I.T.B. for "W.W." Baby super, 4 volts 4 amp., 16; ask for quotation your requirements; chokes: 20 henry 120 m.a. (400 ohms), 9; 50 henry 60 m.a. (600 ohms), 8; 30 henry 60 m.a. (500 ohms), 6; 20 henry 70 m.a. (500 ohms), 5 6/8; Condensers: G.E.C., 375 D.C. or 250 A.C. working (Bakelite, with terminals), 1 mfd. 1 1/2, 2 mfd. 1 9/8, 4 mfd. 2 7/8; 1,500 test, 1 mfd. 1 8/8, 2 mfd. 2 4/8, 4 mfd. 4; multiple blocks, 1,500 test, 11 mfd. 4-2-2-2-1 6/8, 20mfd. 4-4-2-2-2-2-2-1-1, 12 6/8; valves (2 of each only), these are as brand new: 354V, 8; M.S.4, P.E.N.4V, 1 1/2; I.U.120 350, B.U.442, 84V, all 10 - each; constructors' kits, sealed, 10/6; Ready Radio 305, 3-valve battery set, with Mullard valves, list, £3 10; Mullard Radio for Million A.C.3 set, S.G. det., pentode, complete with valves, 84V, 354V, P.E.N.4V, list, £6 10, 72 6/8; pickups: Ekro 50 - with volume control, 15 6/8; screened I.F. chokes, 1; moving coil speakers, manufacturers' type, U.S.A. Rola's (S) type, 6 volts 18 ohms), 110-175 volts (2,000 ohms), 90-150 volts (2,500 ohms), 200-240 volts (6,500 ohms), all 17 - each; permanent magnets, list 39 6/8, 9% cobalt magnet, 7,400 lines per square cent., 26; dual compensated, one any mentioned above and 1 P.M., list £4 17 6/8, £2; few only Amplion, 90 volts 2,500 ohms (no speech transformer), 10; A.C. Rola (U.S.A.), 30; D.C. Transportable (3-valve), unmounted, aerial, walnut cabinet, 21 1/2; watts output, Hamiton's, list 18 guineas, £10; all carriage paid, cash, or call, Newth's Mayfair Radio, 31, George St., Hanover Sq., London, W.1. Mayfair 5346. [1579]

ALL-WAVE Tuners, with reaction, 20-2,000 metres, 6/-;—Evans, 77, Jermyn St., London. [1631]

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A Postal Order for 7/6 brings you by return the SPECIFIED CABINET which is only obtainable from MYERS-HUNT CABINET CO., 7, Austin Street, London, E.C.2. Telephone: Bishopsgate 3037. (See the article on page 20, 13th Jan. issue)

FOR EFFICIENCY and RELIABILITY YOU MUST USE THE FAMOUS BECOL Low Loss FORMER

TESTED BEFORE DESPATCH. 26 TYPES. LOOK FOR TRADE MARK

Send 6d., post free, for up-to-date Handbook of Tuning Coils for Circuits, Dual Range. Band Pass and Super-Het illustrated with data.

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Write for details of our Trade Service enclosing trade card.

Hear **PERFECT** radio through a **PERMAG REPRODUCER**

CHASSIS ONLY CABINET MODEL 38/6 49/6

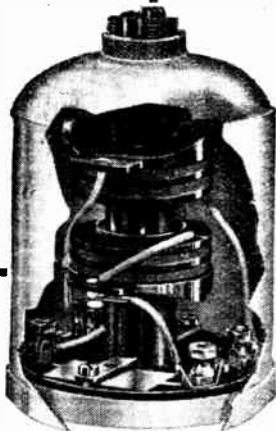
Ask your dealer or write to: **BAKER'S SELHURST RADIO** 75 & 77, Sussex Road, Croydon. Phone: Croydon 3441/2.

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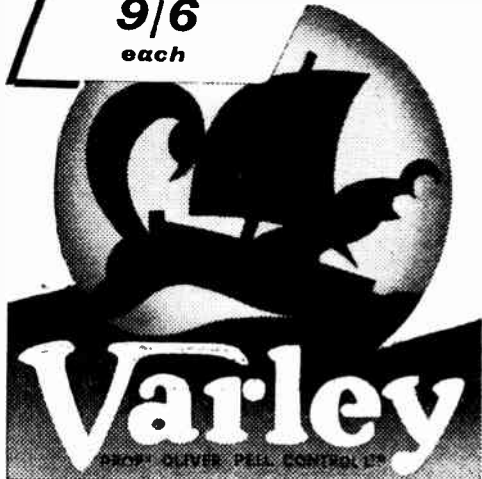
"WIRELESS WORLD"

ALL-WAVE MONODIAL BATTERY RECEIVER



**3
SQUARE PEAK
INTERMEDIATE
FREQUENCY
COILS - BP 21**

**9/6
each**



Advt. of Oliver Pell Control Ltd., 103, Kingsway, W.C.2.
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QUIESCENT Push-Pull Gives your Battery Set the Power Output of an Expensive Mains Receiver.

YOU Can Enjoy a Quality of Reception from your Battery Set at an Economy Unapproached Before, by replacing existing output stage with Quiescent push-pull from selected kit of tested components.

COMPLETE Kit of Components, including valves, output choke suitable for use with existing speaker, milliammeter, grid control, potentiometer, down to valve holders and connecting wire, etc.

EACH Kit of Specially Selected and Tested Components, complete with circuit diagram and instructions, 95/- post free in Great Britain; overseas post extra, special packing free.—Appley's Radio House, 198, Finchley Road, Hampstead London, Hampstead 3108. (Opposite L.M.S. Station.) [1675]

FOR Best Results Use Best Quality Mains Transformers.—For Vortexion mains transformers, chokes, etc., see under Chargers and Eliminators. [1661]

WESTINGHOUSE H.T.B. 10/-; transformer, 14/- (Hayberd)—Wright, 367, Crescent Rd., Bolton. [1652]

ROLA D.C. 6,500 ohm speaker, 15/-; Bulgin mains resistance, type B, 9/-; Marconi D.P.T. 12/-; V.D.S. 10/-; I.H. 7/-, all boxed; R.L. Hypocore, 9/-; the above as new; Ferranti A.P.S. 15/-; Lewcos H.F. choke, 2/6; Cydon extensor, 0.0005, 6/-; Pop-Vox R.L. coils, pair 4/-; Cydon air-spaced differential, 3/-; Cameo telegraph cabinet (used), 25/-; many other bargains; quotations by return for kits or separate components.—61, Freegrove Fd., Holloway, N.7. [1651]

GENUINE Siemens Gulvos, jewel mounted, 45/- on 1 milliamp; 7/6 carriage paid.—Palmer, 183, Laburnum Grove, Portsmouth. [1650]

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BIRMINGHAM RADIO MARTS' Weekly Selection Set Manufacturers' Surplus Stocks, all guaranteed brand new unless stated.

RESISTANCES.—Eric, H.M.V., etc., our selection 5,000 to 100,000 ohms Dubilier and T.C.C. condensers (mica) ditto, 3/- packet dozen; H.M.V. hum stoppers, C.T. 9d.; ditto anode oscillation stoppers, 3d.

CHOKES.—Burndept 40hy, 50 m.a., 4/6; ditto 100 m.a., 7/6; H.M.V. resistance anode, 3/-; Ferranti O.P.M.2, 12/-; 1-1 C.T., 9/-; many others.

METERS.—British flush 2 1/2 in. nickel, 20, 25, 50, 100 m.a., 5/9; new Sifam M.C., 15/-.

R. and A. Moving Coils, 2,500 ohm, 10/6; transformers, 4/- extra if required.

CONDENSERS.—T.C.C. 8 mfd, 4 1/4, 1,700 working, brand new, with stand-off insulators, 25/-; large stocks of Hydra and T.C.C. at clearance prices.

COLUMBIA 2-valve Chassis, complete with disc dials, less cabinet and valves; 15/-.

A.C. Induction Motors, new, as fitted Gaphart £28, record changer, silent; 25/-.

HUNDREDS of Other Bargains, new unless stated.—Radio Mart, John Bright St., Birmingham. [1633]

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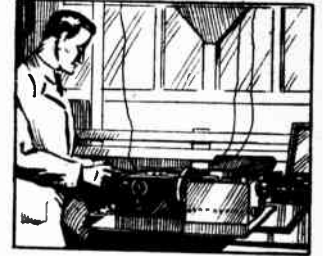
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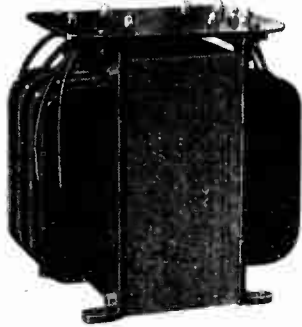
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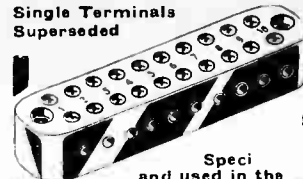
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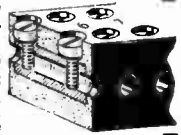
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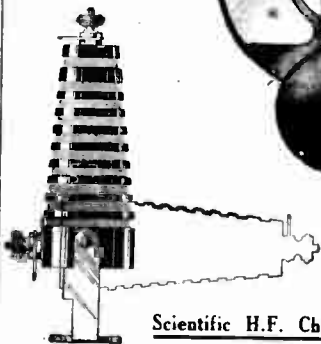
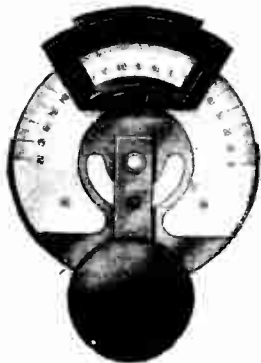
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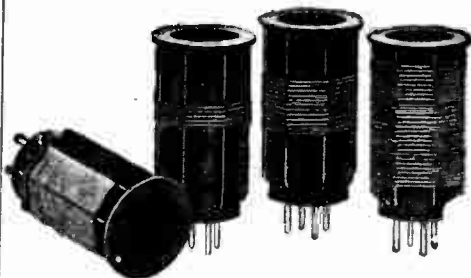
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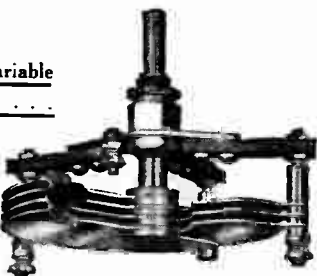
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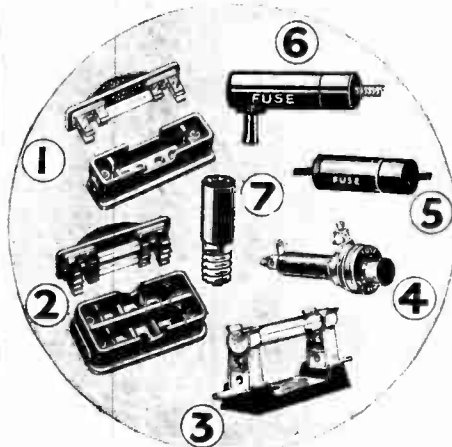
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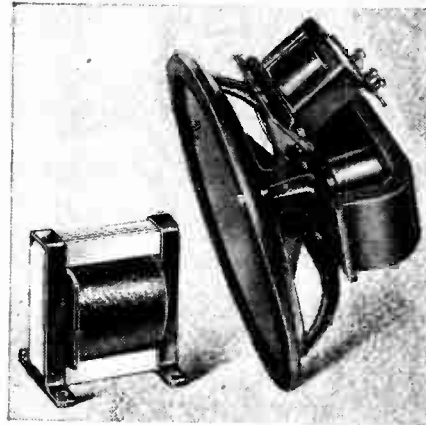
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TECHNICAL TOPICS No. 2

MORE ABOUT CONE DESIGN

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The third of these talks will deal in detail with the speech coil and its mounting.

THIS talk is the second of a series on speaker technicalities and you are advised to cut each one out as it appears.

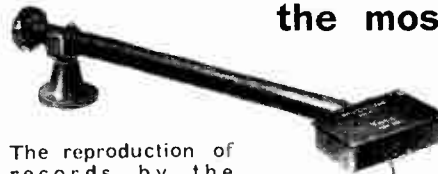
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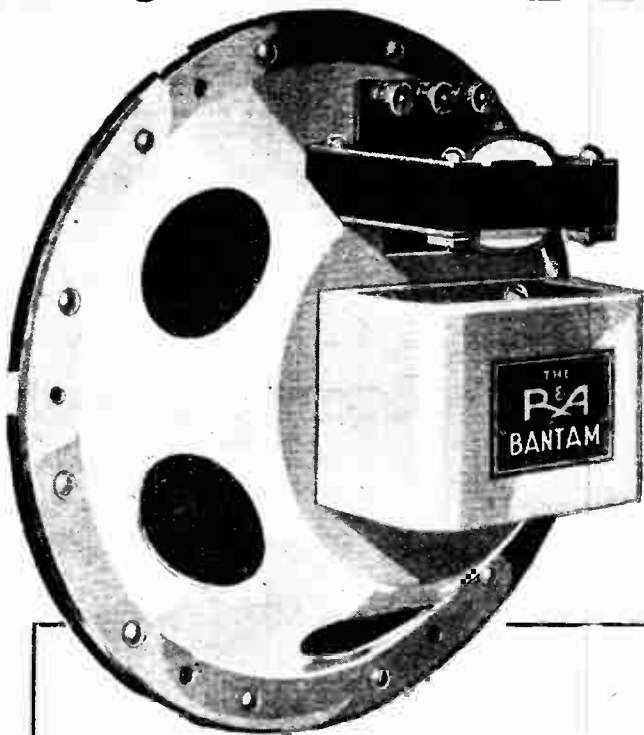
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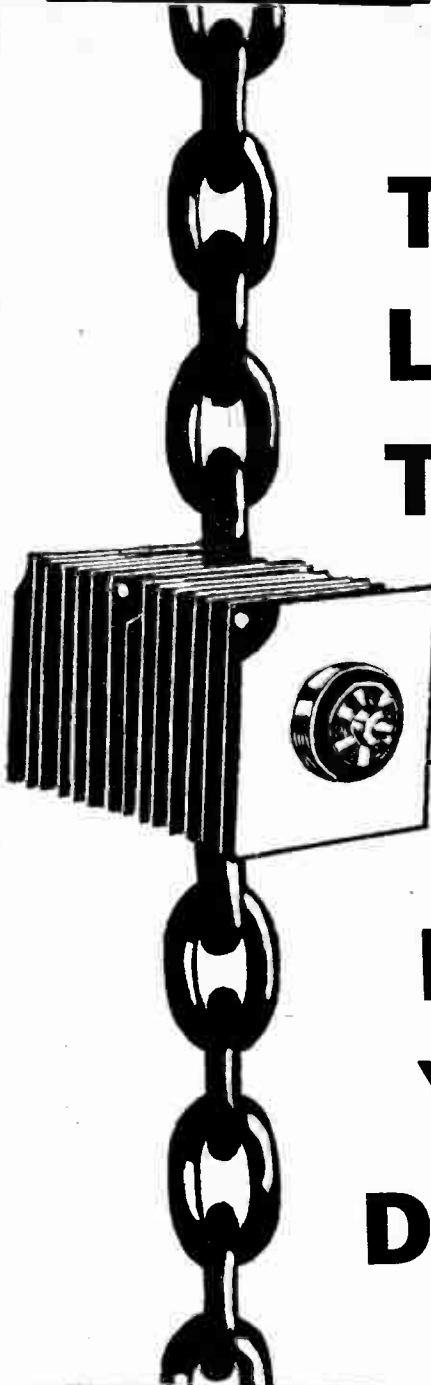
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THE EVER READY CO. (GT. BRITAIN) LTD., HERCULES PLACE, HOLLOWAY, LONDON, N.7

The advertisement features a central illustration of two men in profile, smiling and looking towards the right. The man in the foreground is wearing a dark suit jacket. Behind him is a line-art drawing of a man's face, which is partially obscured by the text 'CONTROLS THE TONE'. To the right of the men is a large, dark, rectangular Ever Ready battery with a white border on its front face. The word 'EVER' is written in a white, stylized font on a dark, curved banner at the bottom left, and 'READY' is written in a similar font on a dark, curved banner at the bottom right. The background is a light, textured yellowish-brown.

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